Dictionary of Aviation

second edition
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Dictionary of Aviation

second edition

David Crocker

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Preface

English is the universal language of communication used in civil aviation. This dictionary provides the basic vocabulary of terms used by pilots, cabin staff, maintenance crews, ground staff and travellers worldwide. The terms are those used in everyday work on aircraft, and cover parts of the aircraft, manipulating the aircraft on the ground and in the air, instructions to passengers, conversations with air traffic control, weather, emergencies, etc.

Unlike conventional aeronautical dictionaries, the Dictionary of Aviation defines vocabulary often found in conjunction with the purely technical terms as well as the technical terms themselves. Simple explanations are presented in simple language, making the dictionary ideal for those working towards a private or commercial pilot’s licence, as well as trainee maintenance engineers and more experienced professionals. We also give examples to show how the words are used in context.

We have selected quotations from various specialised magazines to show the words and phrases as they are used in real-life situations. The supplements at the back give further information in the form of tables.

We are particularly grateful to the staff at Qatar Aeronautical College for their help in the production of the first edition of this dictionary. Thanks are also due to Stephen Copeland and Gavin Rowden for specialist advice and helpful suggestions during the preparation of this new edition.

The information contained in this dictionary is not to be regarded as a substitute for formal training in a given discipline.
Pronunciation Guide

The following symbols have been used to show the pronunciation of the main words in the dictionary.

Stress is indicated by a main stress mark (') and a secondary stress mark ( ). Note that these are only guides, as the stress of the word changes according to its position in the sentence.

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AAIB abbreviation 
Air Accident Investigation Branch

AARA abbreviation 
air to air refuelling area

abbreviate /ˈɜːbrɪvɪt/ verb to shorten a word or a text
Air Traffic Control is usually abbreviated to ATC.

abbreviated weather report a shortened weather report

abbreviation /ˈæbrɪveɪʃən/ noun
the short form of a word or text
Aero-nautical charts use abbreviations and symbols.

COMMENT: Abbreviations can cause confusion. They may range from those which have a very specific meaning as defined by an authoritative body, to others which may come about because of personal usage in note-taking, etc. ICAO approved abbreviations may differ from those used in JARs. AC can mean 'alternating current' or 'altocumulus'. CPL is generally taken to mean Commercial Pilot's Licence but the ICAO definition is Current Flight Plan. Advances in technology have significantly increased the number of abbreviations with which pilots and engineers must be familiar. Abbreviations in this dictionary include those with generally accepted definitions and others with specific ICAO definitions.

ability /ˈɛbɪltɪ/ noun
the power, knowledge or skill needed to do something
Strength is the ability of a material to support a load. He has great ability he has good skills or is very clever

able /ˈeɪbl/ adjective
skilful and competent
Is she able to carry this heavy suitcase?

able-bodied /ˈeɪblboʊdɪd/ adjective
referring to a person who has no physical disabilities
Physically disadvantaged as well as able-bodied people can gain a PPL.

abnormal /ˈæbnɔrməl/ adjective
not normal

abnormality /ˈæbnɔrmlɪti/ noun
something that is not normal, expected or correct, and is therefore possibly worrying
Any abnormality in engine performance should be checked.

abnormal load /ˈæbləʊnlɔd/ noun
a load which is heavier than normal

abort /ˈæbɔrt/ verb
1. to stop something taking place
They had to abort the landing because of a violent storm.
2. to end something before it has finished

absolute /ˈæbsəluːt/ adjective
complete, total
Absolute necessity something that you cannot manage without under any circumstances

absolute silence a condition in which no sound of any kind can be heard

absolute ceiling /ˈæbsəluːt ˈsɪliŋ/ noun
the maximum height above sea level at which an aircraft can maintain horizontal flight

absolute humidity /ˈæbsəluːt hjuːˈmɪdəti/ noun
the vapour concentration or mass of water in a given quantity of air
absolute pressure /ˌæbsəˈlʌt 'preʃər/ noun a unit of force per unit of area without comparison to other pressure. Aircraft show absolute pressure in inches of mercury on the inlet manifold pressure gauge.

absolute value /ˌæbsəˈlʌt 'væljuː/ noun the size or value of a number regardless of its sign. The absolute value of -64.32 is 64.32.

absolute zero /ˌæbsəˈlʌt 'ziərəʊ/ noun the lowest temperature possible, 0 °K, or -273.15 °C.

absorb /əbˈzɔːrp/ verb to take in. Warm air absorbs moisture more easily than cold air. Our bodies absorb oxygen.

absorption /əbˈzɔːrpʃən/ noun the act of taking something in. There is absorption of energy by the tyre when the aircraft lands.

accelerate /əkˈseɪleɪt/ verb to increase speed.

acceleration /əkˈseɪleɪʃən/ noun 1. the act of increasing the speed of something or of going faster.

access /əˈkɛs/ noun a way to find or get at something. To gain access to manage to enter a place.
accessibility /əkˈsesəbɪləti/ noun the ease with which something can be reached or found. Accessibility of components and equipment during servicing enables work to be done more quickly.

accessible /əkˈsesɪbl/ adjective easy to get at. It is a good idea to have a set of emergency charts in an accessible place in the cockpit. Instruments which need resetting in flight must be accessible to the crew.

accessory /əˈkɛsərɪ/ noun a system or piece of equipment of secondary importance. There are many accessory systems which need engine power to operate them — pumps, generators, magnetos, etc. (NOTE: the noun accessory is not connected with the noun access or the verb to access.)

access panel /ˈekses pæn(ə)/ noun a part of the aircraft skin which can be easily removed so internal components can be inspected.

accident /ˈekwəsɪdənt/ noun 1. something which happens which seems to have no cause. It was an accident nobody planned that it should happen or deliberately caused it to happen. By accident by chance. We met by accident. 2. an unfortunate or harmful event, something causing damage.

accidental /əˈkɛsɪdənt(ə)l/ adjective 1. happening by accident, not deliberate or planned. There is a safety device to prevent accidental retraction of the undercarriage. 2. relating to an accident, or happening as a result of an accident.

accompanied /əˈkɑmpəni/ adjective found together with. Accompanied luggage luggage which belongs to one of the passengers and is carried on the same aircraft.

accompany /əˈkʌmpəri/ verb to go together with something else. Accompanying is sometimes accompanied by fire. Mr Smith was accompanied by his wife and children on the flight to New York. Mr Smith’s wife and children were with him on the flight.

accomplish /əˈkʌmplɪʃ/ verb (in formal technical texts) to do something. Feathering is accomplished by moving the pilot’s control levers. Retraction of the undercarriage is accomplished by electrical power.

accomplishment /əˈkʌmplɪʃmənt/ noun 1. an achievement. Charles Lindbergh’s flight across the Atlantic in May 1927 was a great accomplishment. 2. (in physics) work done. Power is measured by units of accomplishment correlated with time.

accordance /əˈkɔːrdəns/ noun in accordance with something such as rules, instructions or laws. Fuels must be used in accordance with instructions. In accordance with Buys Ballot’s Law as described by Buys Ballot’s Law.

accordingly /əˈkɔːdərli/ adverb as needed. Check for increasing manifold pressure and reduce power accordingly.

according to /əˈkɔːdɪŋ tu/ preposition 1. as determined by or in relation to. The force exerted by the pilot on the control column will vary according to a number of factors. 2. as written or said by somebody else. According to the copilot, engine vibration was detected in engine number one. 3. in agreement with something, e.g. instructions, etc.
something into account to remember the aircraft. Ice builds up on the rotor of the materials used in modern aircraft without carrying out pre-flight checks.

When planning a flight, wind speed and direction must be taken into account. When planning a flight, wind speed and direction must be taken into account.

Account for to make certain that the result is correct. The accuracy of modern navigational equipment is much greater than older systems.
Craft: Speed control is used to acquire and maintain a selected airspeed.

Acquisition /ækwəˈʃn/ noun the act of buying or otherwise obtaining
- Each computer checks data acquisition.
- The image of the airplane improved after the acquisition of the new aircraft.

Acronym /ˈækroʊm/ noun a word which is made up of the initial letters of a name, and is pronounced as a word.
- NASA is the acronym for National Aeronautics and Space Administration.
- VASI is the acronym for visual approach slope indicator.

Act /ækt/ verb 1. to behave in a particular way.
- The crew must act with authority.
- If there is a risk of collision, the crew should take the appropriate action.

Activate /æktɪvɪt/ verb to make a system or a piece of equipment or a procedure start to work or to operate.
- The system is activated by the pilot or copilot.
- The sounding of the alarm will activate emergency procedures.

Activation /æktɪˈveɪʃn/ noun the act of making something start to work or to operate.
- Activation may be mechanical or electrical.

Active /æktɪv/ adjective 1. live, in action or use.
- The system is active the system is on and working.
- In a secondary radar system, the target is active in a secondary radar system the target transmits a signal while in a primary radar system it does not.

Active runway /æktɪv ˈrænву/ noun a runway that is being used
- ‘…never cross an active runway without permission from the tower: there may be more than one active runway.’ [Civil Aviation Authority, General Aviation Safety Sense Leaflet]

Activity /ækˈtɪvɪti/ noun a movement or action of some kind.
- Sunspot activity can affect the amount of solar radiation.

Actual /ˈækʃjuəl/ adjective real.
- The actual path of the aircraft over the ground is called its track, which may not be the same as the desired course.

Actually /ˈækʃuəli/ adverb in fact, in reality.
- The design is such that, although the aircraft loses altitude rapidly, it does not actually stall.

Actuator /ˈækʃjuətər/ noun a device which changes electrical or hydraulic energy into mechanical motion.
- Actuators are classified as either linear or rotary.

Add /ˈæd/ verb 1. to change or modify for special use.
- The turboprop engine is often used in transport aircraft and can be adapted for use in single-engine aircraft.

Adapt /ˈædəpt/ verb 1. to change or suit
adaptation 6

new conditions ○ Crew flying long-haul routes have to adapt to time changes.

adaptation /əd'æptən/ noun 1. the act of changing or modifying something for special use ○ Doppler VOR is an adaptation of VOR to reduce errors caused by location. 2. adjustment to new conditions ○ Adaptation to time changes when travelling west to east takes time.

adapter /'ædptər/ noun 1. a piece of equipment or device which allows a change or modification ○ a 'T' piece adapter a device for connecting two inputs to one output or vice versa 2. a device that allows two incompatible devices to be connected

ADC /eɪdɪsi/ abbreviation air data computer

add /æd/ verb 1. to put figures together to form a sum, to make a total ○ Add the two numbers together to find the sum. 2. to put together to make a larger group or a group with different properties ○ There are only nine chairs, add another one. ○ A substance is added to the fuel to clean fuel injectors.

addition /'ædɪʃn/ noun 1. a mathematical operation consisting in putting numbers together ○ Addition is normally taught before subtraction, multiplication, and division. ○ The addition sign is +. 2. the act of adding something ○ With the addition of methanol, the turbine inlet temperature is restored. 3. ○ in addition also ○ in addition to as well as

additional /'ædɪʃnl/ adjective added or extra

additive /'ædɪtɪv/ noun a chemical substance, often liquid, added to another substance to give it extra qualities ○ Additives are used in engine oils to prolong the life of the engine. ○ Anticing additives are used in radiator coolants.

adequate /'ædɪkwət/ adjective enough, sufficient ○ The compressor must provide an adequate airflow through the engine. ○ adequate fuel enough fuel

ADF abbreviation automatic direction finder

adhere /'ædɪhər/ verb to stick as if glued ○ Clear ice adheres strongly to airframes.

adhesive /'ædɪhɪstɪv/ noun glue ○ Adhesive having the sticking quality of glue ○ adhesive tape ○ Adhesive bonding of aluminium parts is widely employed.

ADI /'ædɪei/ abbreviation attitude direction indicator or attitude director indicator

adiabatic /'ædɪəbætɪk/ adjective 1. referring to processes through which heat cannot be lost or gained 2. referring to a change in temperature in a mass of air, which occurs when the air is compressed or expanded by an increase or decrease in atmospheric pressure and does not involve the air losing heat to, or gaining heat from, its surroundings

adiabatic compression /'ædɪəbætɪk kəm'prɛʃn/ noun compression caused by atmospheric factors, which makes descending air warm up

adiabatic cooling /'ædɪəbætɪk 'kruːlɪŋ/ noun a process in which ascending air is cooled by a decrease in atmospheric pressure without heat transfer

adiabatic expansion /'ædɪəbætɪk ɪn'pændʒn/ noun expansion caused by atmospheric factors, which makes ascending air cool down ○ Cooling by adiabatic expansion may result in cloud formation.

adiabatic heating /'ædɪəbætɪk 'heɪtɪŋ/ noun a process in which descending air is heated by an increase in atmospheric pressure without heat transfer

adjacent /'ædʒəsnt/ adjective next to or near ○ Fire extinguishers should be positioned adjacent to the aircraft during all ground-running operations.

adjust /'ædʒust/ verb to change and improve the position or setting of a piece of equipment ○ The pilot adjusts the throttle or propeller controls. ○ to adjust the seat to move the seat into a position suitable for yourself ○ to
advised the volume to increase or decrease the volume to improve the sound quality.

adaptable [ˈdʒæsətab(ə)] adjective designed to be adjusted. A adaptable stop on the throttle control ensures a positive idling speed.

adjustment [ˈdʒæstmənt] noun 1. a change to improve the setting, position or operation of something. A slight adjustment to the seat will make it much more comfortable to sit in. 2. the act of changing something to improve its setting or position. Maximum system pressure is often controlled by adjustment of the main engine-driven pump.

admit /ˈdʒɑmt/ verb to allow to enter. Cold air can be admitted to the cabin through adjustable louvres or shutters.

adopt /əˈdɔpt/ verb to choose to use something as standard equipment or to make it standard procedure. A policy of no smoking on all flights has been adopted by many airlines.

adoption /əˈdɔnpʃən/ noun the act of using something as standard equipment or making it standard procedure. In spite of the adoption of the axial flow type compressor, some engines retain the centrifugal type.

ADR abbreviation accident data recorder

ADS abbreviation automatic dependent surveillance

ADT abbreviation approved departure time

advance /ədˈvæns/ noun 1. a change that improves something. enormous advances in aircraft design. great progress or developments in aircraft design. 2. in advance of. ahead of. The Gulf region is three hours in advance of GMT.

advantage /ədˈvæntidʒ/ noun a good or beneficial factor. The multi-wheel combination has the advantage of smaller and lighter undercarriage structures. to take advantage of. to get benefit from a situation. to take advantage of favourable winds to increase ground speed and thus save time and money. Opposite disadvantage

advantageous /ədˈvæntidʒəs/ adjective better. the most advantageous. the best. The minimum time path is the most advantageous for economy.

advocate /ədˈvekt/ verb to move in a horizontal direction due to convection. Dispersal of hill fog takes place when surface heating lifts the cloud base or drier air is advected.

advection /ədˈvektʃən/ noun the movement of air in a horizontal direction

advection fog /ədˈvektʃən fɔɡ/ noun fog which forms when warmer moist air moves over a colder surface.

advent /ədˈvent/ noun an arrival. especially of something very important. With the advent of satellite navigation systems, pilots of light aircraft have a more accurate means of knowing their position.

adverse /ədˈvərs/ adjective 1. bad. or poor. Only in extremely adverse conditions should the crew evacuate the aircraft. adverse handling characteristics. aspects of an aircraft’s handling which are poor. 2. acting or going against you.

adverse yaw /ədˈvərs jɔ/ noun yaw caused by aileron drag, in the opposite direction to the direction of the intended turn.

advice /ədˈvɑs/ noun useful or helpful information. The instructor’s advice was of great help to the student.
advisability

pilot. (NOTE: Advice has no plural form.)
advisability /ədˈvaɪzəˈbɪləti/ noun the advisability of something whether something is a good idea or not. Flying manuals often contain guidance on the advisability of flying with a cold.
advisable /ədˈvaɪzəbəl/ adjective recommended, suggested. It is advisable to check the condition of the tyres after each landing.
advise /ədˈvaɪz/ verb 1. to inform, to notify. The flight deck advised the cabin crew that descent would start in 20 minutes. 2. to recommend, to suggest. Because of the bad weather, the instructor advised the trainee pilot not to fly. To advise against to recommend or to suggest that something should not be done.
advisory /ədˈvaɪzərɪ/ adjective giving advice and information.
advisory airspace /ədˈvaɪzərɪz/ris noun airspace containing advisory routes in which air traffic control provide an advisory service but not full control. Abbreviation ADA.
advisory route /ədˈvaɪzərɪrut/ noun a published route for which there is an advisory service. Abbreviation ADR.
advisory service /ədˈvaɪzərɪs/ris,əˈvaɪzɪs noun a service in which Air Traffic Control provides advice and information to assist a pilot in the safe conduct of a flight.
AEEC abbreviation airlines electronic engineering committee.
aerate /əˈeərɪt/ verb to put a gas, especially carbon dioxide or air, into a liquid so that bubbles are formed. Aerated fuel causes problems. Opposite de-aerate.
aeration /əˈeərɪʃn/ noun the act of putting a gas, especially carbon dioxide or air, into a liquid. The purpose of the booster pump is to prevent fuel aeration. Opposite de-aeration.
aerator /əˈeərɪtər/ noun a device to put a gas – especially carbon dioxide or air – into a liquid. Opposite de-aerator.
aerial /əˈeriəl/ adjective 1. happening in the air. 2. done by an aircraft in flight. n noun a device to send or receive radio or TV signals. Ice-covering reduces the effectiveness of aerials. (NOTE: The US English word with this meaning is antenna.)
aerial display /əˈeriəl dɪˈsplɛ/ noun a display of flying skills and aircraft performance.
aerial photography /əˈeriəl pəˈtɜːfɹi/ noun photography done from an aircraft in the air.
aero- /eərəʊ/ prefix 1. referring to the air. 2. referring to aircraft. aero-engine, aero-tow.
aerobatic /eəˈrəʊbætɪk/ adjective referring to aerobatics. Loops and rolls are aerobatic manoeuvres.
aerobatic aircraft /eərəˈbætɪk ˈeəkrɑːfɪt/ noun an aircraft which is designed to perform aerobatics.
COMMENT: One of the most famous competition aerobatic aircraft is the Pitts Special which first flew in 1944.
aerobatic display /eərəˈbætɪk dɪˈsplɛ/ noun a demonstration, often public, of piloting skill and aircraft performance.
aerobatics /eəˈrəʊbætɪks/ noun the art of performing spectacular controlled movements in a flying aircraft for the purposes of entertainment or competition. The Russian pilot gave a great display of aerobatics.
aerobatic team /eərəˈbætɪk ˈtiːm/ noun a team of pilots and aircraft who perform aerobatics.
aerodrome /eəˈrəʊdrəʊm/ noun any area of land or water designed for the taking off and landing of aircraft. Airports and military air bases or stations are types of aerodrome. All aerodromes are marked on charts. Abbreviation A/D. a disused aerodrome an aerodrome which is no longer in use for the purpose of taking off and landing aeroplanes.
aerodrome boundaries /eəˈrəʊdrəʊm ˌbændəz/ plural noun the physical or geographical limits of an aerodrome.
through the air
dynamic design
streamlined shape that
to enter or to move in. Abbreviation
aerodrome, which pilots need permis-
ting at which the altimeter reads zero
when the aircraft is on the runway
aerodrome QNH
area of protected airspace around an
en /vertstrokesuperiori/lengthmark
tion to enter or to move in. Abbrevia-
aerodrome, which pilots need permis-
ting at which the altimeter reads aer-
odrome elevation when the aircraft is on the runway
aerodrome surveillance moni-
toring indicator
aerodrome traffic zone
same as airport surface detection equipment
aerodrome QFE
the barometric pressure setting at which the altimeter reads zero when the aircraft is on the runway
aerodynamic design
a streamlined shape that
aerodynamic braking
the braking effect of drag
aerodynamic forces
the forces of the
aerodynamic resistance
same as drag
aerodynamics
the science that deals with the
aerodynamics is one of the major areas of study for a trainee pilot.
aerodyne
aerodrome circuit
the pattern and direction of aircraft movement in the air around the aerodrome
aeroneurosis noun anxiety and fatigue in airline pilots as a result of long periods of flying.

aeroplane noun a power-driven, heavier-than-air craft with fixed wings (Note: Many people use the words aeroplane and aircraft as if they had exactly the same meaning. However, aeroplanes, hot-air balloons, helicopters, airships and gliders are all aircraft. The US English is airplane.)

aeroplane performance a description in figures of what a plane can do, including, e.g., its speed, rate of climb, and the length of its take-off run.

aerostat noun a hot-air or gas-filled aircraft, e.g. an airship or balloon.

aero-tow noun a technique of using a powered aircraft to pull a glider into the air.

AFCS abbreviation automatic flight control system.

AFDS abbreviation autopilot flight director system.

affect verb to have an influence on something, or cause a change in something.

AFTN abbreviation aeronautical fixed telecommunication network.

agent noun 1. a chemical substance which causes a change. 2. If de-icing fluid is used as an anti-icing agent it should be sprayed onto the aircraft before the onset of icing.

aggravating agent noun a substance used to put out fires.

aggregate noun the total obtained by adding.

AGL abbreviation above ground level.

agreement noun 1. the state of having the same idea or opinion about something. 2. a document in which the things that two or more people or organisations have agreed to do are written down.

after adverb positioned closer to the rear of an aircraft.

aft adverb towards the rear part of the aircraft. The rear part of the fuselage is called the aft section.

aft cabin the passenger compartment at the back of the aircraft.

aft column adverb to move the control column backwards. Opposite fore, forward.
airborne weather radar / ˈweðəˌriːdər/ noun a radar installation in an aircraft to give the flight crew information about the weather along their route. Abbreviation AWR

air-breathing engine / ˈeəˌ briːðər/ noun an engine that burns a mixture of liquid fuel and air (NOTE: There are four types of air-breathing engine: turbojet, turbo-prop, turboput and ramjet.)

air bridge / ˈeəˌbrɪdʒ/ noun a link provided by aircraft that carry people and supplies between two places, especially in situations where travel by land is not possible

Airbus / ˈeəbəs/ a trademark for a large passenger jet aircraft manufactured by aerospace companies from different European countries working together

air conditioner / ˈeə ˈkændə(r)/ noun a device which filters and cools the air in a room or in an aircraft

In order to obtain maximum engine power, the air conditioner should be switched off for take-off.

air conditioning / ˈeə ˈkændə(r)ɪŋ/ noun a system for controlling the temperature of the air in a building or in an aircraft

air-cooled / ˈeəˌkuːld/ adjective cooled by means of a flow of air

air-cooled engines piston aero-engines cooled by air, not water

air corridor / ˈeəˌkɔːrɪdə(r)/ noun a route that aircraft must take through an area in which flying is restricted

aeroplane / ˈeəˌprəplən/ noun a machine that is able to travel through the air

Aeroplanes, gliders, balloons, airships, helicopters, etc., are all aircraft. Abbreviation ACFT (NOTE: Aircraft has no plural form.)

aircraft classification number / ˈeəkrɑːft ˈklɑsɪfɪkənt/ noun a number expressing the relative effect of an aircraft on a pavement for a specified sub-grade strength. Abbreviation CAN

aircraft condition monitoring system / ˈeəkrɑːft ˈkɔndɪʃən ˈmɔnɪtərɪŋ/ noun full form of ACMS
aircraft configuration /ˈeəkrəft\ ˈkənˌfigərəˈtʃən/ noun a particular combination of moveable parts such as flaps and landing gear that affects the aerodynamics of the aircraft

aircraft proximity hazard /ˈeəkrəft\ ˈpʁənsɪˈmitri ˈheɪzəd/ noun same as airprox

aircraft stability /ˈeəkrəft\ ˈstɛbəlɪti/ noun the tendency of an aircraft to return to its original attitude after being deflected

aircrew /ˈeəkrəf\ ˈnəʊt/ noun the pilot, navigator and other crew members of an aircraft

air cushion vehicle /ˈeə, ˈkjuːʃən\ ˈvɛlə\r ˈvɛrkəl/ noun same as hovercraft

air data computer /ˈeə, ˈdætə\kəmˌpətər\ ˈkəming\r/ noun an electronic device which provides information such as air temperature, airspeed and static pressure. Abbreviation ADC

air density /ˈeə\ ˈdɛnsətɪ/ noun the density of the atmosphere

airfield /ˈeəflɪd\ ˈnɜːn/ noun an area of land given over to runways, taxiways and aprons. When the pressure setting on the altimeter is set to 1013.25 millibars, the pressure altitude of the airfield is known as QNE.

air filter /ˈeəˌflɪtər/ noun a device to filter solid particles out of the air in engine and ventilation systems

airflow /ˈeəfləʊ\ ˈnɜːn/ 1. the movement of air over the aircraft as it travels through the atmosphere. 2. a current of air flowing through or past an object or body. The compressor must provide an adequate airflow through the engine.

airfoil /ˈeəfɔi\ ˈnɜːn/ noun US same as aerofoil

airframe /ˈeəfrɛm\ ˈnɜːn/ noun the body of the aircraft without the engines, instruments and internal fittings. The airframe has to be built to very specific requirements.

airframe icing /ˈeəfrem\ ˈaɪsɪŋ/ noun iced forms on the aircraft structure as opposed to on components such as carburettors

air gap /ˈeə\ ˈgæp/ noun a space above or between two things. Air gap type

spark plug /ˈspɑrk\ ˈplʌg/ noun a spark plug with a space between the electrodes, across which the spark jumps

air intake /ˈeə\ ˈɪnteɪk/ noun the front part of a jet engine where air enters

air lane /ˈeə\ ˈleɪn/ noun a regular route that aeroplanes fly along

airline /ˈeəˌlайн\ ˈnɜːn/ noun a company which manages air transport services for passengers or goods. Which airline is she working for? Air France or Air Canada? Most airlines do not allow passengers to smoke during flight.

airliner /ˈeəˌlайnər\ ˈnɜːn/ noun an aeroplane designed to carry large numbers of passengers. Concorde is the world's fastest airliner.

airline representative /ˌeəˌlайн\ ˈreprɪˈzentətɪv/ noun a person who acts on behalf of an airline, or a person who works for an airline. Passengers should assemble in the departure lounge where an airline representative will meet them.

airline security area /ˌeəˌlайн\ ˈsɪkərətɪ\ˈeə\ ˈɑːrə/ noun an area in which measures are taken by an airline to ensure the safety of people and property.

Airline Transport Pilot's Licence /ˌeəˌlайн\ ˈtræ̆nsˈpɔrt\ ˈpələt\ˈlайн iz\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн\ ˈlайн/ noun the licence that a person must have to be the pilot-in-command or co-pilot of a public transport aircraft. Abbreviation ATPL

airman /ˈeəˌmæn\ ˈnɜːn/ noun a person who is a member of a country's Air Force

airmanship /ˈeəˌmænʃip/ noun all-round skill in piloting an aircraft which includes academic knowledge, common sense, quick reactions, awareness, experience, consideration for other people and property. Keeping a careful lookout for other aircraft in the circuit is good airmanship.

I was always told by my airmanship instructor, in an emergency, to find the largest piece of asphalt with the biggest fire trucks. (INTER PILOT)

air mass /ˈeə\ ˈmæs/ noun a very large mass of air in the atmosphere in which the temperature is almost constant and which is divided from another mass by a front. Air masses are divided into two
types according to source region, and these are known as polar and tropical air masses.

**airpark** /ˈeəpɑrk/ **noun** a small airport, usually found near a business or industrial centre

**airplane** /ˈeəpleɪn/ **US** same as **airpark**

**air pocket** /ˈeəpək/ **noun** a small area where the air is less dense or where there is a downward air current, and which makes an aircraft lose height suddenly

**air pollution** /ˈeə pəˈluːʃ(ə)n/ **noun** pollution of the air by gas, smoke, ash, etc. Solid particles in the air include dust, sand, volcanic ash and atmospheric pollution. Also called atmospheric pollution

**airport** /ˈeəpɔːt/ **noun** a civil aerodrome designed for the take-off and landing of passenger-carrying aircraft for the general public and/or cargo aircraft. London Heathrow is one of the busiest airports in the world. Abbreviation A/P

**airport authority** /ˈeəpɔːt əˈθɔrəti/ **noun** the organisation responsible for the running of an airport

**airport security officer** /ˈeəpɔːt sɪˈtʃərəti/ **noun** a person employed by an airport authority to check passengers and baggage for illegal substances or devices, e.g. drugs, guns

**airport surface detection equipment** /ˈeəpɔːt ˈsɜːfɪs dɪˈtekʃ(ə)n/ **noun** short-range radar equipment that scans the surface area of an airport and tracks the movement of aircraft and other vehicles on the ground

**airprox** /ˈeəprɒks/ **noun** a situation in which aircraft are too close to one another in an area of airspace and there is the possibility of danger to them. Also called **aircraft proximity hazard**

**air-sea rescue** /ˈeə siˈreskjuː/ **noun** a rescue at sea in which aircraft, especially helicopters, are used

**airship** /ˈeəʃip/ **noun** a powered, gas-filled balloon which can be steered or An airship is classified as a lighter-than-air craft.

**airshow** /ˈeəʃau/ **noun** a public display of aircraft in flight and on the ground, held at an airfield

**airspace** /ˈeəspɛs/ **noun** the part of the atmosphere that is above a particular geographical area and is subject to the laws of a particular country or controlling authority. The Korean 747 flew into Soviet airspace and was shot down. **airspeed** /ˈeəspiːd/ **noun** the speed of the aircraft relative to the air around it. Maintain a constant airspeed on final approach.

**airspeed indicator** /ˈeəspiːd ˈɪndɪkətə/ **noun** a primary cockpit or flight deck instrument which shows the pilot the speed of the aircraft in relation to the air around it. **Airspeed is shown in knots on the airspeed indicator.** Abbreviation ASI

**air station** /ˈeə ˈsteʃ(ə)n/ **noun** a small airfield with facilities for the maintenance of aircraft

**airstream** /ˈeəstrɪm/ **noun** the flow of air caused by the movement of the aircraft through the air. Pressure is built up inside the pitot tube by the airstream.

**airstrip** /ˈeəstrɪp/ **noun** a place for aircraft to take off and land that has no facilities and is often temporary

**air taxi** /ˈeə ˈtɛksɪ/ **noun** a small commercial aircraft used for short flights between places not on a regular airline route
air terminal

**air terminal** /eəˌ tɛrmɪn(ə)l/ noun 1. an airport building with a range of facilities where passengers check in before boarding their plane and where they arrive when their plane lands 2. a building in a city for receiving passengers who are being transported to or from an airport by train or bus

**air terrorism** /eəˌ térətɪz(ə)m/ noun violent actions that aim to frighten or kill passengers, disrupt air services, or damage or destroy aircraft in an attempt to achieve a political objective

**air-tight** /eəˌtɜːtʃ/ adjective closed or sealed so that air cannot get in or out

**air traffic controller** /eəˌ ˈtreɪfɪk kənˈtraʊlər/ noun a person who works in air traffic control and whose main task is to ensure correct separation of aircraft in all phases of flight. Abbreviation ATC.  

**air traffic controller approved the emergency landing. Abbreviation ATC.**  

**air traffic movements** /eəˌ ˈtreɪfɪk ,muvˈmənts/ plural noun the number of aircraft taking off and landing. **an increase in air traffic movements**

**airway** /eəˌweɪ/ noun an area of the sky, usually rectangular in cross-section, along which civil aircraft fly from place to place. **Airways provide a high degree of safety by ensuring adequate separation between aircraft.**  

(Note: Airways are usually 10 nm wide with a centreline joining navigational beacons.)

**Airways** /eəˌweɪz/ noun a commercial company operating flights. **Note:** Usually used in the names of companies, e.g., British Airways, South African Airways

**airworthiness** /eəˌwɜːˈθɪznəs/ noun the state of an aircraft with regard to whether it can fly safely, as determined by a national certifying authority

**airworthiness directive** noun a regulation issued by an aviation authority when a problem has been identified with a particular aircraft part. Abbreviation AD

**airworthy** /eəˌwɜːˈθɜːri/ adjective meeting the standards of a national certifying authority. **It is the pilot’s responsibility to ensure that the aircraft is airworthy.**

**AIS abbreviation** aeronautical information services
**aisle /əʊl/ noun a long passageway between the seats in the passenger cabin of an airliner.**

**alarm /əˈlɑːrm/ noun** 1. fear or worry. 2. a warning sound or light. *In the event of fire or overheating, the control unit will produce an alarm.*

**alert /əˈlɑːt/ adjective** fully awake, watchful and ready to deal with anything that may happen. *The crew must be alert at all times to the possibility of hijacking, bombs and stowaways.*

**allow /əˈləʊ/ verb** to permit, to enable. *An engine should be run at low rpm after flight to allow engine components to cool.*

**allowable /əˈləʊəb(ə)/ adjective** permitted or authorised. *Passengers are not allowed to smoke on some aeroplanes.*

**allowance /əˈləʊəns/ noun** 1. consideration for possibilities or changing circumstances. 2. **to make allowances for** to take into account. *When estimating flight duration, make allowances for taxiing time.*

**align /əˈlaɪn/ verb** 1. to position along an axis or line. *The nose wheel must be aligned in a fore and aft direction during retraction.* 2. to set in a correct position in relation to something else. *Aligned white marks on the wheel and tyre indicate that there is no creep.*

**alignment /əˌlaɪnmənt/ noun** 1. position in relation to an axis or a line. *To check the alignment of something to make sure it is in the correct position relative to an axis or line.* 2. **to maintain alignment with the runway** to keep the aircraft on the imaginary extended centre line of the runway. 3. correct position in relation to something else.

**alkaline /ˌælkəˈlæn/ noun** a substance with a pH value of more than 7.

**allocate /əˈləʊkət/ verb** to provide something particular for a given purpose. *Special seats are allocated to mothers with small children.*

**all out of alignment** not aligned as it should be.

**anti-icing** additives are available to alleviate the problem of icing.

**avionics** /əˈvɪənɪks/ noun the provision of something particular for a given purpose. *At the check-in desk, airline staff are responsible for the allocation of seats to passengers.*

**frequency allocation** the frequency or range of radio frequencies set aside for a particular use. *The frequency allocation for VOR is 108–117.975 MHz.*

**free** (in the event of an engine failure. *Severe turbulence may alarm passengers.*

**allow** engine components to cool. *Additional fuel is carried to allow for holding en route. Passengers are not allowed to smoke on some aeroplanes.*

**allowable weight** maximum allowable tyre pressure.

**allowance /əˈləʊəns/ noun** 1. consideration for possibilities or changing circumstances. 2. **to make allowances for** to take into account. *When estimating flight duration, make allowances for taxiing time.* 2. something such as money given at regular intervals or for a specific purpose. *A travel allowance to cover hotel and restaurant bills.* 3. the amount of something that somebody is allowed to have. *...with many four and six seat aircraft, it is not possible to fill all the seats, use the maximum baggage allowance, fill all the fuel tanks and remain within the approved centre of gravity limits.*

[Civil Aviation...
alter /ˈɔːltər/ noun to change, modify or adjust ◆ If there is a risk of collision, alter course to the right. ◆ If the rate of descent is too low, alter the throttle setting accordingly. ◆ The rudder linkage was altered to comply with certification requirements.

alteration /ˈɔːltərəʃən/ noun 1. a change, modification or adjustment ◆ It was discovered that alterations had been made to the log book. ◆ As a result of the accident, alterations were made to the design of the carburettor heat system. 2. the act of making changes, modifications or adjustments ◆ heading alteration the act of making of heading corrections

alternate adjective /ˈɔlətərnət/ 1. every other ◆ A, c, e, and g are alternate letters, as are b, d, f, h, etc. ◆ alternate days every other day ◆ There are outward flights on alternate days, i.e. on Mondays, Wednesdays and Fridays. 2. US same as alternative ◆ noun /ˈɔlətərnət/ an aerodrome of second choice to be used if the aircraft cannot be landed at the aerodrome of first choice because of bad weather, etc. ◆ The point of no return is calculated before departure to cover the chance that the both the terminal airfield and its alternate become unavailable during flight. ◆ verb /ˈɔlətərnət/ to happen in turns ◆ Captain Smith and Captain Jones alternate as CFI on a daily rota each captain has one day on duty as CFI followed by a day off, on which the other captain acts as CFI

alternating current /ˈɔlətərnətɪŋ kərˈɜːnt/ noun an electric current which reverses its direction at regular intervals ◆ Resistance to alternating current remains almost constant and is independent of frequency. Abbreviation AC

alternative /ˈɔlətərnətɪv/ adjective referring to another or a second possibility ◆ A turbine bypass, in the form of an alternative exhaust duct is fitted with a valve. ◆ an alternative means of doing something another or different way of doing something ◆ noun another choice or possibility ◆ In some emergency situations the pilot may have no alternative but to force-land the aircraft as soon as possible.

alternator /ˈɔlətərnətər/ noun a type of generator designed to produce AC power

alimeter /ˈɔltəmɪtər/ noun a radio instrument for measuring vertical distance or altitude ◆ alimeter check a routine check to ensure that the alimeter pressure setting is correct ◆ alimeter display the display of altitude information, which can be given in analogue or digital form. ◆ pointer

altimeter /ˈɔltəmitər/ noun the vertical distance between an aircraft, or a point, and mean sea-level ◆ to lose altitude to descend from higher to lower altitude ◆ cabin altitude the artificial altitude created in the cabin by pressurisation

allo-/ /ˈɔləʊ/ prefix at a moderate or high altitude

altocumulus /ˈɔltəkuːmjuːləs/ noun small white cumulus clouds which form as a layer at moderate altitude, usually meaning fair weather. Compare stratocumulus

altostratus /ˈɔltəʊstrɔtəs/ noun a uniform layer cloud at moderate altitude

aluminium /ˈɔləmənɪəm/ noun a strong, light metal used in the construction of aircraft (NOTE: The US English is aluminium.)

COMMENT: In recent years, aluminium has been increasingly replaced by the use of composite materials in the construction of different types of aircraft, from small home-built light aircraft to transport aircraft such as the Airbus A320.

aluminum /ˈɔləˌmənəm/ noun US same as aluminium

AMA abbreviation approach monitoring aid

amber /ˈæmbər/ adjective an orange or yellow colour ◆ An amber light flashes on the instrument panel. (NOTE: Amber
is often used to describe the colour of the yellow light in traffic signals.)

**ambient** /ˈæmbiənt/ adjective referring to the surrounding atmospheric conditions

- Fresh ambient air is routed into the cabin.
- Air is the temperature outside the aircraft.

**ambient pressure** (æmˈbɪənt ˈpresə/ noun the pressure outside the aircraft

- Ambiguity /æmˈbɪdʒjuətɪs/ noun something heard or seen which can be understood in more than one way, thus resulting in possible confusion.

- Correct use of R/T phraseology avoids ambiguity.

- Ambiguous /æmˈbɪdʒjuəs/ adjective able to be understood in more than one way.

- It is important that R/T transmissions are not ambiguous.

**AMD** abbreviation amendment

**amend** /əˈmend/ verb to change, update, improve or correct something.

- He amended the entry in his log book.

**amendment** /əˈmendmənt/ noun a change, updating, improvement or correction made, e.g., to a document or procedure.

- When a terminal aeronautical mobile service (TAMS) requires amendment, the amended forecast is indicated by inserting AMD after TAF.

**ammeter** /əˈmɪtə/ noun an instrument for measuring amperes in order to give the strength of an electric current.

- The centre-zero ammeter tells the pilot the status of the aircraft battery.

**amp** /æmp/ abbreviation amperc

**amperage** /æmpərɪdʒ/ noun the strength of an electric current expressed in amperes.

- Measuring the amperage of a motor can give a rough estimate of the load on the motor.

**ampere** /ˈæmpər/ noun a unit of electric current equal to one volt flowing through an impedance of one ohm.

- A 13-amp fuse.

- Current flow is measured in amperes.

- Abbreviation amp.

- Ampere hours number of amperes per hour.

- Battery capacity is rated in ampere hours.

- Analogue /ˈænəˈlɔːg/ adjective plenty of pleniful.

- During the course you will have ample opportunity to demonstrate your skill.

- Amplification /ˌæmplɪˈfɪkʃən/ noun the act of increasing the strength of an electrical signal.

- Amplification of the signal increases the volume.

- Amplifier /ˌæmplɪˈfaɪər/ noun an electronic device for increasing the strength of an electrical signal.

- If the power supply from the amplifier to the gauge fails, the needle slowly falls to zero.

**amplify** /ˌæmplɪˈfaɪ/ verb to increase the strength of an electrical signal.

- An electric current is amplified and then transmitted. (Note: amplifies – amplifying – amplified)

**amplitude** /ˌæmplɪˈtjuːd/ noun the maximum variation of a vibration or oscillation from the position of equilibrium.

- To calculate fuel required, multiply the duration of the flight by the consumption of the engine at the required power.

**AMS** abbreviation aeronautical mobile service

**AMSL** abbreviation above mean sea level

**AMSS** abbreviation automatic message switching system

**anabatic** /ænəˈbætɪk/ adjective referring to a warm flow of air travelling up a hillside or mountainside.

- Compare katabatic

**anabatic wind** /ænəˈbætɪk ˈwɪnd/ noun a wind current, caused by solar heating of the land, that rises up a south-facing mountainside.

- South-facing slopes are most suitable for the anabatic wind.

- Compare katabatic wind

**analogue** /əˈnəlɒdʒ/ adjective same as analogue.

**analogous** /əˌnələˈgəs/ adjective similar or comparable to.

- Isobars are analogous to contour lines.

**analogue** /əˌnəlɒdʒ/ adjective 1. representing a quantity or signal that varies continuously by means of a physical apparatus such as a dial and pointer.

- The electronic centralised aircraft monitor (ECAM) does not have analogue...
analyse 18

presentation of engine information. 2. a
analogue display (on a clock) a tradi-
tional hands and face display on a clock
or dial. Compare digital display

analyse /ənəleɪz/; analyse verb to
break down into parts and study very
closely □ to analyse fuel to separate
fuel into its different parts to find out
what it consists of □ to analyse a chart
to examine a chart in detail

analysis /ənələsi/; noun breaking
down a substance into its parts in order
to study them closely □ At a crash site,
samples of materials are removed for
analysis. (NOTE: The plural form is anal-
yses /ənələsi:z/) □ chart analysis
careful study of charts

anchor /æŋkə/ noun a device con-
nected to and dropped from a boat in
order to prevent the boat from moving
in the water □ verb to drop an anchor to
prevent the boat from moving

anemograph /ənəmə'græf/; noun an
instrument which maintains a con-
tinuous recording of wind direction and
speed on a graph □ The anemograph
gives a continuous recording of wind
velocity which is displayed on a chart
and reveals gusts, squalls and lulls.

anemometer /ænə'məmitə/; noun an
instrument, usually attached to a build-
ing, with three or four "cups" which
rotate with the wind thus providing
wind-speed information □ The anemograph
shows the angle formed between the
chord-line of the main-
plane and the horizontal when the air-
craft is in the rigging position

aneroid /ænərɔd/; adjective not con-
taining or using liquid

aneroid barometer /ænərɔd ba-
rəmitə/; noun a barometer which uses
an aneroid capsule to sense atmospheric
pressure changes

aneroid capsule /ænərɔd
'kæpsjuːl/; noun a thin flexible cylin-
drical box, usually made of metal,
which has most of the air removed from
it and which expands and contracts with
changes in atmospheric pressure □ The
aneroid capsule in the barometer is
connected to a system of levers which
operate a pointer.

anemograph /ənəmə'græf/; noun a switch operated by an aneroid
capsule

angle /æŋgəl/; noun the difference in
direction between two lines or surfaces
measured in degrees

angle of attack /æŋgə(o) əv ˈæstk/;
noun the angle formed between the rel-
ative airflow and the chord line of the
aerofoil

angle of incidence /æŋgə(o)əv
ˈɪnˌsɪdənʃi/; noun the angle formed
between a sloping path or surface and a
reference point or line which is either
horizontal or vertical □ Between any
two meridians there is an angle of incli-
nation one to the other which varies
with latitude.

angular /æŋgjuəl/; adjective refer-
ing to or forming an angle □ The angu-
lar difference between the direction of
magnetic north and compass north is
called variation.

annotate /əˈnetət/; verb to add notes
to an existing document, book, chart,
etc. □ He annotated his report after he
was asked to give the exact time of the
incident. □ Variation is annotated east
or west according to the direction of
change.

annotation /əˈnetətʃən/; noun the
act of adding notes to a document,
book, chart, etc., or the notes added
Hypoxia is a lack of sufficient oxygen, the symptoms of which are sometimes difficult to detect.

annunciator /ənˈnʌnsɪtər/ noun an announcement or indication on the annunciator panel.

anticlockwise /əntɪˈklɒkwaɪz/ adjective, adverb referring to a circular movement in the opposite direction to a clockwise.

anti-collision light /ˌænti kəˈläʒən/ noun a flashing white light on an aircraft.

anticlockwise /əntɪˈklɒkwaɪz/ adjective, adverb referring to a circular movement in the opposite direction to a clockwise.

anticlockwise /əntɪˈklɒkwaɪz/ verb to realise what is likely to happen and do what is necessary in readiness.

anticlockwise /əntɪˈklɒkwaɪz/ adjective protecting against corrosion, especially rust.

anticlockwise /əntɪˈklɒkwaɪz/ adjective, adverb referring to a circular movement in the opposite direction to a clockwise.

anomalous /ənˈnɔmələs/ adjective referring to something unusual, unexpected or otherwise departing from what is the normal order or range. An anomalous instrument reading an unusual instrument reading which may require further investigation.

anomaly /ənˈnɔmlə/ noun something unusual, unexpected or otherwise not within the normal order or range. Any anomalies in the localiser will be detected during calibration.

anoxia /ænˈnɔksɪə/ noun a state in which no oxygen reaches the body tissues, resulting in death.

anti-collision /ˌænti kəˈlaɪʒən/ adjective helping to prevent collisions.

anti-collision /ˌænti kəˈlaɪʒən/ adjective protecting against corrosion, especially rust.

anticyclone /ˌænti sɪkˈlaʊn/ noun an area of high atmospheric pressure, usually associated with fine dry weather in summer and fog in winter. Winds circulate round an anticyclone clockwise in the northern hemisphere and anticlockwise in the southern hemisphere.

anti-icing /ˌænti ˈaɪsɪŋ/ adjective preventing icing.

anti-icing /ˌænti ˈaɪsɪŋ/ adjective preventing icing.

anti-icing fluid /ˌænti ˈaɪsɪŋ ˈflʌɪd/ noun a fluid which prevents icing.
anti-skid

anti-skid /ˌæntiˈskid/ adjective designed to prevent skidding

anvil /ˈænvil/ noun a metal block which ends in a point, has a rounded bottom and a flat top, and on which horseshoes, etc., are made ◦ A cumulonimbus cloud has a characteristic anvil shape.

anvil cloud /ˈænvil klaʊd/ noun a cloud, usually a large dark thundercloud, which has the shape of an anvil

A/P abbreviation 1. airport 2. autopilot

apart /ˈpərət/ adverb separated from one another ◦ The jets were only 200 feet apart, vertically.

aperture /ˈæpətʃər/ noun an opening ◦ Any aperture or cut-out in the fuselage structure must be specially strengthened.

APHAZ abbreviation aircraft proximity hazard

APP abbreviation 1. approach 2. approach control

apparent /ˈæpərənt/ adjective 1. obvious, clear ◦ It became apparent that carbon monoxide was entering the cabin. ◦ from the above, it will be apparent that ... from the above, it will be clear that ... 2. seeming or appearing to be ◦ an apparent failure of the system ◦ The ILS showed an apparent deflection to the right.

appear /əˈpɪər/ verb 1. to come into view ◦ Another aircraft appeared on the radar screen. 2. to seem to be ◦ Although air may appear to be still, it is in fact, moving.

appearance /əˈpɪərəns/ noun 1. an instance of being seen or coming into view ◦ The appearance of the passenger on the flight deck surprised the crew. 2. the way something looks ◦ It may be difficult to recognise a particular stretch of coast in an area simply by its appearance.

appendix /əˈpendiks/ noun a section containing additional information, often found at the end of a book, etc. ◦ Charts are reproduced as an appendix to the map section. (NOTE: The plural form is appendices.)

applicable /əˈplɪkəb(ə)/ adjective 1. relevant or appropriate ◦ rule 24 is not applicable in this case 2. suitable, necessary, appropriate ◦ Emergency systems are checked when applicable.

application /əˈplɪkeʃ(ə)n/ noun 1. a formal request, often on paper, for employment ◦ an application form a form to be filled out by a person looking for a job, and sent back to the organisation offering the job ◦ the act of putting a substance onto something ◦ the application of a coat of paint ◦ the covering of something with a coat of paint 2. the act of using something, e.g. an ability, to carry out a task ◦ When an accident occurs, the application of knowledge and skills is important.

apply /əˈplai/ verb 1. ◦ to apply for a job to formally ask for employment ◦ He applied for the post of chief engineer but was not successful. 2. to put on ◦ to apply a coat of paint ◦ Apply a plaster to the skin. 3. to use something to carry out a task ◦ Apply the same method as in the example. 4. to be relevant or relate to ◦ The rules which apply to the measurement of wind velocities on isobaric charts apply equally to contour charts. (NOTE: applying – applied)

appreciable /əˈprɪsəb(ə)/ adjective 1. possible to measure ◦ Appreciable weakening may be permitted without risk of failure. 2. considerable, large in size or amount ◦ there is an appreciable difference between statute miles and nautical miles

appreciate /əˈprɪskiət/ verb 1. to understand or recognise the importance or significance of something ◦ The map reader is in a position to appreciate the relative values of the features seen on the ground. 2. to increase in value ◦ The value of the building has appreciated by 100% in 10 years. Opposite depreciate 3. to be thankful or grateful for something ◦ The student appreciated the extra help given by the instructor.

appraisal /əˈpriːʃ(ə)l/ noun 1. understanding ◦ It is essential to have
an appreciation of the basic gas laws.

2. an increase in value

Opposite: depreciation

3. thankfulness, gratitude

After gaining her private pilot’s licence, the newly-qualified pilot showed her appreciation by sending a letter of thanks to her instructor.

approach /əˈprəʊʃ/ noun 1. a path towards something

approaches his studies with great enthusiasm.

2. the descent of an aircraft towards the place where it intends to land.

Abbreviation APP 3. a way of achieving or doing something

to take a different approach to a situation to deal with or to manage a situation in a different way

towards something

approach control /əˈprəʊʃ kənˈtrəʊl/ noun a control station in an air traffic control centre that guides an aircraft while it is making its approach

approach monitoring aid /əˈprəʊʃ ˈmɒnɪtərɪŋ eɪd/ noun an instrument or system that helps an air traffic controller to track the position and movements of an aircraft during its approach.

Abbreviation AMA

approach path /əˈprəʊʃ pæθ/ noun the course taken by the aircraft in preparation for landing

approach plate noun a document issued by an aviation authority which provides detailed information about how to land at a given airport in very poor visibility

approach to land /əˈprəʊʃ təˈlænd/ noun the final stage of the flight when the aircraft is manoeuvred into position, relative to the landing area, in preparation for landing

on the approach to land, the aircraft reduces speed and height

apprognote: /əˈprəʊpriət/ adjective suitable or needed

appropriate action the action that is needed to deal with the situation

appropriately /əˈprəʊpriətli/ adverb in a way that it is suitable or necessary

to adjust the mixture appropriately to adjust the mixture to suit the conditions

approval /əˈprəʊv(ə)/ noun permission or agreement

with the captain’s approval with the permission of the captain

to approve of to approve of to believe something to be right or good

he doesn’t approve of women being airline pilots he believes that it is wrong for women to be airline pilots

approx /əˈprɒks/ same as approximate, approximately

approximate /əˈprɒksɪmət/ adjective not exact, around or about

an approximate distance of 60 nm about 60 nautical miles

verb /əˈprɒksɪmet/ to be close to, to be around

(NOTE: Approximate can be shortened to approx or APRX (ICAO).)

approximately /əˈprɒksɪmetli/ adverb not exactly, around or about

Approximately 2,000 people work in the airport.

(NOTE: Approximately can be shortened to approx or APRX (ICAO).)

approximation /əˌprɒksɪmeɪʃ(ə)nmən/ noun a calculation which is not exact but near enough, a rough estimate

an approximation of aircraft height

approximation of aircraft height

a rough estimate of aircraft height

apron /əˈprɒrn/ noun an area of tarmac, concrete, etc., outside a hangar for parking aircraft

(NOTE: The US term is ramp.)

APRX abbreviation (ICAO) 1. approximately
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APU abbreviation auxiliary power unit
aquaplaning /ækəˈpləʊənɪŋ/ noun sliding in an uncontrolled way over a thin layer of water on the runway. Aquaplaning is caused by a layer of water between the tyre and the runway.

arbitrary /ˈɑːbətrəri/ adjective decided by chance rather than by careful logical thought, happening without planning or at random. The statute mile is an arbitrary unit of measurement. (NOTE: The nautical mile is not an arbitrary unit: it is based on calculations which have a wider use. See arc.)

arc /ɑːrk/ noun part of the circumference of a circle. A nautical mile is the length of an arc on the Earth’s surface subtended by an angle of one minute at the centre of the Earth. ■ verb to jump across a gap. The spark arcs from one electrode to another. ■ The condenser prevents spark plugs from arcing. ■ gap

Arctic /ˈɑːktɪk/ adjective referring to the area around the North Pole. ■ cold Arctic air cold air from the Arctic. ■ the Arctic Circle a parallel running round the Earth at latitude 66°32′N, to the north of which lies the Arctic region. ■ noun the Arctic the area of the Earth’s surface around the North Pole, north of the Arctic Circle. ■ The aircraft flew over the Arctic.

area /ˈɛəriə/ noun 1. a defined part of a surface. 2. a region. ■ area forecasts a weather forecast for a region rather than, e.g., an aerodrome

area control service /ˈɛərɪə kənˈtʃroʊ sərvɪs/ noun a unit that provides air traffic control services to flights within the area for which it is responsible.

area navigation /ˈɛərɪə ˌnævɪˈdʒeɪʃn/ noun a method of navigation that permits aircraft to operate on any desired flight path within the area covered by ground-based navigational aids, self-contained navigational aids or a combination of the two. Abbreviation RNAV

argument /ˈɑːgjʊmənt/ noun 1. a factor. ■ QNH is the pressure at station level reduced to sea level using arguments of station height and an international standard atmosphere. 2. a verbal disagreement. ■ to have an argument to disagree openly and verbally with somebody. ■ The investigation revealed that there had been an argument between the commander and the copilot about the advisability of continuing with the final approach to land. 3. a reason. ■ One of the arguments in favour of building the new terminal is the increase in opportunities of employment for the local residents.

ariad /ˈɛərid/ adjective very dry. ■ arid terrain desert. ■ an arid, sub-tropical climate a hot, dry climate

arise /ˈɑːrɪz/ verb to come into being, to happen, to show up or to appear. ■ Should any problems arise, report back to me immediately. (NOTE: arising – arose – arisen)

arm /ɑːrm/ noun 1. a device similar in function to a human arm, operating as a lever. 2. the horizontal distance from a reference point to the centre of gravity. ■ The principle of the arm is used in weight and balance calculations for an aircraft. ■ verb to make ready for action or use. ■ Door-mounted escape slides are armed before flight.

armature /ˈɑːmətʃər/ noun the rotating coils of an electric motor or dynamo. ■ Secondary windings are wound over the primary windings and the whole assembly is known as an armature.

ARR abbreviation arrival

arrange /ˈərɪndʒ/ verb 1. to organise, to plan and prepare. ■ to arrange a meeting. 2. to put in special position. ■ Charts should be numbered and arranged in order of use. ■ A series of dipoles are arranged in a circle.

arrangement /ˈərɪndʒmənt/ noun 1. a plan. ■ The arrangements for the VIPs are handled by the public relations department. 2. the relative positions of a number of different parts. ■ The diagram shows a simple arrangement of pistons, cylinders and pipes.

array /ˈɛəri/ noun an arrangement of antennas. ■ The localiser antenna array is very wide.

arrest /ˈɑːrest/ verb 1. to stop or to prevent something from happening. ■
arrest the spread of a fire to stop the fire spreading 2. to hold somebody for breaking the law 3. He was arrested at the airport. 4. noun the act of holding somebody for breaking the law 5. His arrest was unexpected.
arrester /əˈrestər/ noun a device or substance which prevents or stops something from happening
arrival /əˈrɛv(ə)l/ noun the act of reaching somewhere. Abbreviation ARR 6. Gulf Air announce the arrival of flight GF147 from Abu Dhabi flight GF147 from Abu Dhabi has just landed
arrivals /əˈrɛv(ə)lz/ noun the part of an airport that deals with passengers who are arriving
arrive /əˈrɛv/ verb to reach somewhere 7. the flight from Tokyo arrived at 8.30 the flight from Tokyo landed at 8.30
arrow /ˈærəʊ/ noun a painted or printed sign which points to something 8. Non-return valves are marked with an arrow which shows the direction of flow.
arrows convention /ˈærəʊ kənˌveɪnʃ(ə)n/ noun an agreed method of using arrows when drawing wind triangles
article /ˈɑːtɪkl/ noun an object, an item 9. loose articles things which may move during flight and cause problems
artificial /ˈɑːtɪfɪʃ(ə)l/ adjective not natural, made by humans 10. The small needle indicates cabin altitude or the artificial altitude created by the pressurisation system.
artificial horizon /ˈɑːtɪfɪʃ(ə)l hərˈræt(ə)n/ noun an instrument that displays the degree of pitch or bank of an aircraft relative to the horizon
ascend /əˈsend/ verb to rise, to go or move upwards 11. Hot air ascends, 12. in ascending order in order of number or rank with the smallest or less important at the bottom and the largest or more important at the top. Opposite descend
ascent /əˈsent/ noun a rise, a slow upward movement 13. the forced ascent of air over high ground 14. In a stable atmosphere where the ascent of air is forced, precipitation is mostly light and occasionally moderate.
ascertain /əˈsɛrtən/ verb to find out, to make certain 15. during pre-flight checks, control surfaces should be moved by hand to ascertain that they have full and free movement.
ASDE abbreviation airport surface detection equipment
ASI abbreviation airspeed indicator
ASMI abbreviation aerodrome surface movement indicator
aspect /ˈæspekt/ noun 1. a part of a problem or subject 2. Vertical motion is an important aspect of meteorology. 3. safety aspects matters related to safety 4. the view from a particular position 5. The aspect of the runway on final approach helps the pilot to judge height and progress.
aspect ratio /ˈæspekt ˈrɛʃ(ə)roʊ/ noun the ratio of the length of an aircraft's wing to the average distance between the front and back edge of the wing (note: Aircraft that operate at low speeds, for example gliders, need a high aspect ratio and have long narrow wings. Supersonic aircraft need a low aspect ratio, which is created by swinging the wings back.)
asphyxiation /əˈspɪkʃ(ə)n/ noun unconsciousness or death caused by lack of oxygen 16. Fire may result in the cabin being filled by smoke causing asphyxiation.
ASR /,eərs/ abbreviation 1. airport surveillance radar 2. altimeter setting region
assemble /ˈæsəmb(ə)l/ verb 1. to put a number of parts together 2. The parts are made in different countries but the plane is assembled in France. 2. to gather together 3. Passengers should assemble in the departure lounge where an airline representative will meet them.
assembly /ˈæsəmbli/ noun 1. something that is made up of smaller parts 2. the act of putting parts together to make a whole 3. Final assembly of the A320 takes place in France.
assemble /əˈses/ verb to check, estimate or find out 17. Cabin crew must assess if
that the return flight from the point of no return to A is made on three engines, calculate the distance from D to the point of no return. 3. to take on, to undertake the duties of somebody o The copilot assumed control of the aircraft after the captain was taken ill during the flight. 4. to take a particular bodily position o The correct technique of using the escape slides is to assume a sitting position.

**assessment** /ə'sesment/ noun a judgement on a situation based on careful thought o The captain’s assessment of factors such as aircraft damage, passenger-load, fire, etc., will affect the decision on whether to evacuate the aeroplane or not.

**assign** /ə'sain/ verb to set apart beforehand or allocate for a specific purpose o assigned seats seats selected beforehand for particular people o Crew sit in their assigned seats. o Individual carriers assign codes to aircraft.

**assistance** /ə'sist(ə)ns/ noun help o to require assistance to need help o If a pilot requires assistance, they should contact ATC. o to provide assistance to give help

**associate** /ə'səsiiət/ verb to come with or be linked to something else o Turbulence is often associated with strong winds. o The airport authority has to overcome a lot of problems associated with its plans to build a new terminal.

**association** /ə'səsiiəʃ(ə)n/ noun 1. a group of people who organise themselves into an official body with common objectives and a code of conduct. British Air Line Pilots Association 2. in association with together with o Rain-ice occurs only rarely over the British Isles and is usually found in association with warm fronts.

**assume** /ə'sjuːm/ verb 1. to take as true before there is proof o I assume that she’s ill because she’s not at work today – but I may be wrong. 2. to suppose o for our studies we will assume that the earth is a perfect sphere we know that the Earth is not a perfect sphere but it helps if we accept, for the time being, that it is assuming (that) accepting or supposing that o Assuming...
consists of a nucleus and electrons.

Atmosphere is a mixture of gases in a mass surrounding the earth. The surrounding atmosphere moves with the earth. The fuel achieves fine atomisation under pressure. Must be atomised or vaporised to combine with the air to permit combustion.

An atom is the smallest amount of a substance which can take part in a chemical reaction. An atom consists of a nucleus and electrons.

The attachment of winglets improved the handling characteristics of the aeroplane. An accessory which can be attached. The video camera is sold with a number of attachments including a carrying strap and a battery pack.

The attachment point is a place on the airframe where something such as an engine is attached by means of bolts. Additional strength is required for the power plant attachment points.

The ice detector is attached to the fuselage. The attachment of winglets improved the handling characteristics of the aeroplane. An accessory which can be attached. The video camera is sold with a number of attachments including a carrying strap and a battery pack.

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attenuation  /əˈtenjuˈeɪʃən/ noun  loss of strength. Atmospheric attenuation is negligible until the upper end of the UHF band when it increases rapidly to limit the highest usable frequency to about 10 GHz.

attenuative  /əˈtenjuətɪv/ adjective becoming weaker. Rain has an attenuative effect.

attitude  /ˈætɪtjuːd/ noun 1. the position of the aircraft in the air in relation to the horizon. Angle of attack will vary with changes in engine speed and aircraft attitude. 2. nose down attitude the attitude of the aircraft when the nose is at a lower level than the tail. 2. a way of thinking and feeling about or of behaving towards something or somebody. 3. he has an excellent attitude towards his training programme. He is positive and motivated in his training programme.

attitude heading reference system /ˌætɪtjuːd ˈhɛdɪŋ ˈrɛfərəns/ system noun full form of AHRS.

attitude indicator /ˌætɪtjuːd ˈɪndɪkətər/ noun a flight instrument that gives the pilot information about the position of the aircraft in the air in relation to the horizon. In light aircraft, the attitude indicator is situated on the instrument panel, directly in front of the pilot. 2. pitch bank.

COMMENT: The attitude indicator is sometimes referred to as the ‘artificial horizon’. In instrument flight training, the attitude indicator is the primary reference instrument. It is positioned on the instrument panel directly in front of the pilot.

attract /əˈtrækt/ verb 1. to cause to draw near. 2. If two magnets, with unlike poles are brought together, they will attract each other. 3. to attract attention to behave in such a way that people will notice you. 2. to cause people to want to have or do something.

attraction /əˈtrækʃən/ noun 1. a force that draws things towards something. 2. The strength of the magnetic force will depend, amongst other things, on the magnitude of attraction at the magnetic source. 2. a quality that causes people to want to have or do something.

attractive /əˈtræktɪv/ adjective 1. referring to something you feel you would like to have. 2. After long talks, the prospective buyer made a financially attractive offer for the aircraft.

audible /ˈɔːdɪbl/ adjective possible to hear. 2. The fire detection system should contain an audible warning device.

audio /ˈɔːdɪəʊ/ noun an audible sound or sound signal. 2. The diagram shows an amplitude modulation case where the lower frequency of the audio is about 300 Hertz.

augment /ˈɔːɡmənt/ verb to make larger by adding something. 2. The sea breeze may augment the up-slope motion of an anabatic wind.

aural /əˈrɔːl/ adjective referring to hearing. 2. The aural and visual alerts will continue until the crew take action to cancel them. (NOTE: Aural is sometimes pronounced /ˈɔːrəl/ to show the difference with oral.)

authorise /ɔːˈθɪrəz/ authorize verb to allow officially, to give permission. 2. A signature is required to authorise the repair.

authorised /ɔːˈθɪrəzd/ authorized adjective officially allowed, permitted. 2. Aircraft with a maximum authorised weight of 12,500 lb or less.

an authorized person a person who has been given power to act and perform particular tasks or duties.

Authoritative /ɔːˈθɔːrɪtɪv/ adjective in the manner of somebody with authority, in a commanding way. 2. a crew must act in an authoritative manner. 2. a crew must give firm instructions or orders.

authority /ɔːˈθɔːrəti/ noun 1. complete control or power over something. 2. While boarding, the captain has the authority to ask an unruly passenger to leave the aircraft. 2. an official or gov-
early stages of training, student pilots to identify and track the aircraft that uses data that aircraft provide 'hands-off.' Abbreviation system capable of landing an aircraft itself without the need of an operator.

Automatic Terminal Information Service (ATIS) gives pilots the current weather, runway in use, etc. Students listen to the ATIS to practise their language skills. Abbreviation ATIS

Automation the automatic operation or automatic control of a piece of equipment, a process, or a system. Automation has speeded up baggage handling. Automation of throttle control has removed the need for pilots to monitor airspeed so closely. It is possible that the alternate source might provide a reduced level of automation.

Autopilot a system which automatically stabilises an aircraft about its three axes, restores the original flight path following an upset and, in some systems, causes the aircraft to follow a preselected airspeed, altitude or heading. Full form automatic pilot. Abbreviation A/P

Auxiliary adjective second, which is used when necessary to help or substitute for something else. Auxiliary gearbox a gear box which allows main engine power to be used for secondary systems

Auxiliary power unit a small jet engine used to generate electrical power for air-conditioning, etc., when the aircraft is parked on the ground. Abbreviation APU

Auxiliary rotor the tail rotor of a helicopter

Availability the fact of being available. The status of an airport is determined by the availability of suitable navigation aids.

Available ready for immediate use. On a multi-engine aircraft, all the fuel must be available for use by any engine.

Average: For load sheet purposes, an average weight of the passengers and crew members may be used. The average of 1, 5, 9, 10 and 15 is 8 (1+5+9+10+15 = 40 ÷ 5 = 8).
derstorms recommended to keep away from thun-
storms is recommended.

2. a collision, he changed direction.

instructions from the flight deck.

aware

an average ○ Brake temperatures aver-
around 500°C during normal oper-
ations.

aertz ○ verb to avoid ○ To avert a collision, he changed direction.

AVGAS ○ abbreviation aviation gasoline

aviation ○ noun flying an aircraft ○ Wind speeds in aviation are usually given in knots.

aviation gasoline ○ noun fuel used in piston-engine aircraft. Abbreviation AVGAS

aviation law ○ noun the laws relating to flying

aviation routine weather report ○ noun a weather report issued regularly at intervals of an hour or half an hour describing weather conditions at an airport. Abbreviation METAR

aviator ○ noun a person who flies aircraft

avionics ○ noun electronic communication, navigation, and flight-control equipment of an aircraft ○ The trainee engineer is doing an avionics course. Full form aviation electronics

avoid ○ verb 1. to prevent something from happening ○ She just managed to avoid an accident. 2. to keep away from something ○ Avoid flying close to any person or vessel. ○ Cumulonimbus clouds and thunderstorms should be avoided by as great a distance as possible.

avoidance ○ noun an act of avoiding something ○ avoidance of thunderstorms is recommended it is recommended to keep away from thunderstorms

await ○ verb to wait for ○ Await instructions from the flight deck.

aware ○ adjective knowing and being conscious of something ○ The pilot should be aware of the positions of all other aircraft in the circuit.

awareness ○ noun the state of being aware or conscious of something ○ safety awareness the state of being familiar with and prepared for any situation in which safety is important

AWR ○ abbreviation airborne weather radar

axial ○ adjective referring to an axis

axial flow compressor ○ noun a compressor in which the flow of air is along the longitudinal axis of the engine ○ In spite of the adoption of the axial flow type compressor, some engine retain the centrifugal type.

axis ○ noun 1. an imaginary line around which a body rotates ○ The Earth rotates around its own axis. ○ An aircraft moves around three axes – vertical, longitudinal and lateral. ○ pitch, roll, yaw 2. a horizontal or vertical scale on a graph, often referred to as the X axis, the horizontal axis, and the Y axis, the vertical axis ○ The plot shows the effect of airspeed on lift with airspeed shown on the horizontal axis and lift on the vertical axis. (Note: The plural form is axes.)

axle ○ noun a shaft on which a wheel is mounted ○ Unequal tyre-pressures, where two wheels are mounted on the same axle, will result in one tyre carrying a greater share of the load than the other. (Note: The wheel either turns round the axle or is fixed to the axle.)

azimuth ○ noun the horizontal angle or direction of a compass bearing ○ Where precision approach radar is installed, the controller can inform the pilot if they depart from either the extended centre-line in azimuth or height or both.
back /bæk/ verb (of the wind) to change direction in an anticlockwise direction. Opposite **veer**

backup /ˈbækəp/ adjective, noun a second or third system, instrument or computer disk available to be used if the first one fails. The backup system or the backup failed as well. Backup generators are driven by the engine.

backward /ˈbækwəd/ adjective directed towards the back. A backward movement

backwards /ˈbækwədz/ adverb towards the back. Unlike most aircraft, the C130 can move backwards using its own power. (NOTE: The US English is backward.)

backwash /ˈbækwɒʃ/ noun a backward flow of air produced by an aircraft propeller or jet engine

baffle /ˈbæfl/ noun a metal plate for preventing the free movement of sound or liquids. Integral fuel tanks can be strengthened by fitting baffle plates.

baggage /ˈbæɡidʒ/ noun luggage, cases and bags which you take with you when travelling. One passenger had a huge amount of baggage. She lost one piece of baggage. (NOTE: The word luggage is also used in British English.)

baggage allowance /ˈbæɡidʒ ə ləˈəns/ noun the weight of baggage each air passenger is allowed to take free. There is an accompanied baggage allowance of 18 kilos.

baggage handling /ˈbæɡidʒ əˈhændliŋ/ noun the process by which passengers' baggage is loaded onto an aircraft, or unloaded and moved to the airport terminal.

balance /ˈbæləns/ noun 1. a state in which weight, force or importance are evenly distributed. The propelling nozzle size is extremely important and must be designed to obtain the correct balance of pressure, temperature and thrust. 2. the act of staying steady. 

ball /ˈbɔ/ noun in an inclinometer, the round object which indicates if a turn is coordinated. To step on the ball to correct a skid or a slip by putting pressure on the rudder on the side to which the ball in an inclinometer has moved during a turn. If the ball has moved to the left, the turn can be corrected by putting pressure on the left rudder, and vice versa.

balloon /ˈbɔlən/ noun a large bag inflatable with hot air or gas to provide lift, but without power. Balloons are sent into the upper atmosphere to col-
can be a dangerous barrier to flight. 2. something that prevents a person from making progress. 3. His medical problems were a barrier to his successful completion of the course.

**base** /bets/ noun the bottom part or lowest part 1. **verb** to develop or develop something from something else. 2. The operation of the auxiliary power unit is based on the gas turbine engine. 3. The principle of vapour cycle cooling is based upon the ability of a refrigerant to absorb heat.

**basic** /besik/ adjective referring to the most important but often simplest part of something, from which everything else is derived. 1. This chapter provides a basic understanding from which the study of meteorology can develop. 2. basic principle a central or fundamental idea or theory

**basic area navigation** /betsik ,eəriə,neŭvˈget(ə)n/ noun a standard of performance for navigation that requires an aircraft to remain within 5 nautical miles of the centreline of its course for 95% of the time

**basis** /betsis/ noun the central and most important part of something from which everything else is derived. 1. The basis of air navigation is the triangle of velocities. 2. (NOTE: The plural form is bases.)

**bat** /bet/ noun an object shaped like a table-tennis bat used by a person on the ground to guide an aircraft when it is taxing or parking

**batsman** /betsmən/ noun somebody who uses a pair of bats to guide an aircraft when it is taxing or parking

**battery** /ˈbæt(ə)rɪ/ noun a chemical device that produces electrical current. 1. This piece of equipment is powered by 2 batteries. 2. **charger**

**bay** /beɪ/ noun 1. a space or area in the structure of an aeroplane where equipment can be located. 2. To avoid damage to the wheel bay, the nose wheel must be
aligned in a fore and aft direction during retraction. 2. a part of the coast that curves inwards of the Bay of Bengal

**bayonet fitting** /ˈbeɪənət fɪtɪŋ/ noun a means of attaching something to something, in which an object with two side pins is inserted into a L-shaped slot in another object on some light-bulbs. Magnetic chip detectors are of the bayonet type fitting and can be removed and replaced very quickly.

**beacon** /ˈbiːkən/ noun a light or radio signal for navigational purposes. If the aircraft turns towards the beacon, signal strength will increase.

**beam** /biːm/ noun 1. a long thick metal bar used as a support. A beam is designed with a breaking load of 12 tons but when a three ton load is applied repeatedly, the beam may fail. 2. a shaft of light or radiation travelling in one direction, as from a car’s head-lights. The electron gun produces a stream of fast-moving electrons and focuses them into a narrow beam.

**beam sharpening** /ˈbiːm ˈʃɑːpənɪŋ/ noun the process of making a radio or light beam narrower. Any system employing beam sharpening is vulnerable to side lobe generation at the transmitter.

**bear** /bɛə/ verb 1. to carry or to hold. The undercarriage has to bear the weight of the aircraft on the ground. 2. to bear something in mind to keep in mind. It should be borne in mind that should be remembered. Bearing in mind that she hadn’t flown for three weeks, the student pilot’s landings were very good. 3. to be able to deal with something without becoming distressed or annoyed. He can’t bear the noise.

**bearing** /ˈbɛərɪŋ/ noun 1. the angle, measured in a clockwise direction, of a distant point, relative to a reference direction. To plot a position line from the non-directional radio beacon, it is first necessary to convert the relative bearing to a true bearing and then calculate the reciprocal. 2. a device containing steel balls or needles which allows free rotation of one component around another.

**Beaufort scale** /ˈbuːəfɔt skɛr/ noun scale from 1–12 used to refer to the strength of wind. Wind speeds can be estimated by using the Beaufort scale of wind force.

**belly flop** /ˈbeli flɒp/ noun same as belly landing

**belly landing** /ˈbeli ˈlændɪŋ/ noun an emergency landing of an aircraft when the wheels have not come down.

**belt** /bɛlt/ noun 1. a long, relatively narrow area of high pressure. Precipitation belt a long narrow area of rain, snow or hail. 2. a loop of strong material connecting two pulleys or wheels, one driving the other.

**belt-driven** /ˈbɛlt ˈdrɪv(ə)n/ adjective of a wheel) moved by a belt linked to another wheel which, in turn, is moved by a motor or an engine. Aircraft generators are belt-driven or shaft-driven.

**belt-driven generator** /ˈbɛlt ˈdrɪv(ə)nˈdʒɛnərətər/ noun a generator whose pulley is turned by a belt attached to an engine-driven pulley.

**bend** /bend/ noun 1. a curve. To bend from a straight shape (note: bending – bent) to bend downwards to curve down from a horizontal position to bend upwards to curve up from a horizontal position. The wings support the weight of the aircraft and they bend upwards in flight.

**bending load** /ˈbendɪŋ laʊd/ noun a load that causes a structure to bend.

**Bernoulli’s principle** /bɜːrˌnuːlɪs ˈprɪnsɪpəl/ noun lift

**beware** /bɛr/ verb to be careful or to watch out for. Beware of carburettor icing. Beware of other aircraft in the circuit.
beyond

beyond /bi'jɔnd/ preposition further away than ○ The radio horizon extends beyond the visible horizon. ○ It is beyond his understanding he cannot understand it at all, it is too difficult for him to understand

bi- /bi/ prefix 1. two 2. twice

biannual /bi' zen jual/ adjective happening two times a year ○ biannual inspection an inspection done twice every year

bill /bil/ noun US same as note noun 4

bimetallic /'baimet aulik/ adjective made of two metals

bimetallic strip /'baimet aulik strıp/ noun a strip made of two separate metals with different rates of expansion, joined together side by side so that when the strip is heated, it bends and makes, or breaks, electrical contact ○ Circuit breakers use a bimetallic strip as the sensing element.

binary /'ba məri/ adjective referring to a number system used in computers that only uses the digits 0 and 1 ○ Logic gates work with binary data. ○ Computers only process binary information.

biplane /'baiplem/, bi-plane noun an old aeroplane design with two pairs of wings, one above the other ○ Most of the aircraft used in the 1914–18 war were biplanes.

bird strike /'ba:zd straık/ noun a collision between a bird or birds and an aircraft that is flying

black box /'blæk 'boks/ noun same as flight data recorder (NOTE: It is often called the black box, although it is not black.)

blade /bleıd/ noun a flattened part of a propeller or rotor ○ blade tip the end of the blade furthest from the centre of rotation ○ turbine blade a flat part in a turbine, which has an aerodynamic effect on the air

blade angle /'bleıd æŋgiəl/ noun the angle between the blade axis and the axis of rotation ○ With a variable pitch propeller, the blade angle may be changed in flight.

blade slip /'bleıd slıp/ noun a loss of propulsive power from a propeller caused by the difference between geometric and effective pitch

blade twist /'bleıd twıst/ noun 1. a reduction in propeller blade angle from root to tip 2. the unwanted variation in propeller blade pitch from root to tip caused by aerodynamic loads

blank /'bleŋk/ adjective 1. with nothing written, printed or drawn on it ○ a blank sheet of paper ○ a blank form a form without the details filled in 2. (of a TV, computer or video screen) with nothing appearing on it ○ When he returned to his computer, the screen was blank.

bleed air /'bleıd eaı/ noun compressed air from the engine compressor used for cabin pressurisation or to drive other services ○ Bleed air from the right engine can power items normally powered by the left engine.

bleed screw /'bleıd skrəu/ noun a small screw in highest point of a hydraulic system to allow for the removal of air or vapour

blind transmission /'bland trænz'mını/ noun a transmission from one station to another in a situation where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission

block /'blık/ noun a large mass of something ○ verb 1. to prevent something such as a fluid from passing freely through a pipe or channel ○ At high altitude, any water condensing out of the fuel could freeze and block the filters. 2. to prevent a course of action ○ The government blocked attempts to prevent the building of the new airport.

blockage /'blık dʒ / noun 1. a collection of something blocking a pipe, narrow channel, filter, etc. ○ Ice crystals may form to cause a blockage of the fuel filter. 2. the state of being blocked ○ The blockage was caused by ice.

blow /blov/ noun 1. an impact ○ a blow on the head 2. a disappointment ○ The news of her failure in the examination was a severe blow. ○ verb 1. (of the wind or air) to move ○ The sea breeze may blow almost parallel to the coast. 2. (of
a (fuse) to break, as it should, when the circuit is overloaded (NOTE: blowing – blow – blown)

blow-back /bləʊ ˈbeɪk/ noun a sudden movement of fluid in the opposite direction to the general flow o A sudden release of pressure may cause a blow-back.

blower /ˈbləʊər/ noun a device for blowing air o Air for combustion is obtained from a blower.

board /bɔːd/ noun 1. a flat, square or rectangular piece of wood or other material o on board on an aircraft o The flight plan records the callsign and the number of people on board. o verb to get on to an aircraft o In an emergency, many passengers only remember the entrance by which they boarded the aircraft.

boarding gate /ˈbɔːdɪŋ ɡeɪt/ noun the door through which passengers leave the terminal building to get on to an aircraft o Boarding gates 1 – 10 are on the left.

boarding pass /ˈbɔːdɪŋ pɑːs/ noun a temporary pass, issued at the check-in desk, which allows the holder to board the aircraft o Boarding passes must be shown at the gate. (NOTE: The plural form is boarding passes.)

boarding steps /ˈbɔːdɪŋ stɛps/ plural noun stairs used by passengers and crew to get on board an aircraft o Passengers had to wait in the aircraft for 15 minutes before the boarding steps were put in position.

boarding time /ˈbɔːdɪŋ taɪm/ noun the time when passengers are due to board the aircraft o Boarding time is at 13.30 hrs.

body /ˈbɒdi/ noun 1. the whole of a person or an animal o 2. the main part of a person, but not the arms or legs o 3. the main part of an aeroplane, system, text, etc. o The body of an aircraft is also called the ‘airframe’. o A flow-control valve consists of a body and a floating valve. o 4. a large mass of liquid or gas o body of air a large quantity of air behaving in a particular way o 5. an object o Acceleration is the rate of change of velocity of a body.

boil /bɔɪl/ verb to heat a liquid until it reaches a temperature at which it changes into gas o Water boils at 100°C. o boiling point the temperature at which a liquid changes into gas o The boiling point of water is 100°C.

bolt /bɔːlt/ noun 1. a metal rod with a head, which screws into a nut o The two halves of the wheel are held together by bolts. 2. o bolt of lightning one electrical discharge of lightning o verb to attach with a bolt o Aircraft wheels are bolted together.

bond /bɔnd/ noun the power that holds surfaces together, when they are joined using heat, cold, chemicals or glue o The de-icing boot breaks the bond between the ice and the outer skin. o verb to join surfaces together normally using heat, cold, chemicals or glue o The skin is bonded to the internal members by the redux process.

boom /bʊm/ noun in some aircraft, a spar that connects the tail to the fuselage

boost /bʊst/ noun an increase or improvement o The improvement in a country’s economy often gives a boost to the airline industry. o verb 1. to make or to help something increase o An oil pump boosts engine oil pressure. 2. to increase o The instructor’s comments boosted the student pilot’s confidence.

booster /ˈbʊstrə/ noun a device which increases the force or amount of something

booster pump /ˈbʊstər pʌmp/ noun a centrifugal pump often positioned at the lowest point of a liquid fuel tank to ensure positive pressure in the supply lines to the engine o Fuel is fed through a filter and a booster pump. o The purpose of the booster pump is to prevent fuel aeration.

boot /bʊt/ noun one of a set of flat, flexible tubes bonded to the leading edge or wings and other surfaces which, when pressurised with fluid, break up ice o The boots on the leading edge of the wings were damaged by hail.
bottleneck /ˈbɒt(ə)lnek/ noun a buildup of air traffic causing delays in taking off or landing
bound /bɔːnd/ adjective □ bound for on the way to □ an aircraft bound for Paris □ the Copenhagen-bound flight the flight on the way to Copenhagen □ outward bound leaving home, especially for another country
boundary /ˈbɔːndəri/ noun a physical or imaginary limit between two areas □ The boundary between two air masses is called the frontal surface.
boundary layer /ˈbɒndəri ˈlɛəri/ noun the layer of fluid next to the surface over which it is flowing and, because of friction, travelling more slowly than layers further from the surface
bowser /ˈbuːzə/ noun a mobile fuel tank for refuelling aircraft □ It is important to prevent the possibility of an electrical spark by earthing the aircraft and the bowser.
Boyle's Law /ˈbɔːlz ləʊ/ noun a scientific principle that states that the volume of a given mass of gas, whose temperature is maintained constant, is inversely proportional to the gas pressure
brace /brɛs/ verb 1. to strengthen a construction using cross-members and/or wires □ Early aircraft were of the braced type of construction. 2. to take a protective body position in preparation for a crash landing □ The cabin crew will repeat the 'brace' order and brace themselves. □ to brace yourself to quickly prepare yourself mentally and physically for what is shortly to happen
brace position /ˈbrɛs pəˈzɪʃən/ noun the position that a person is recommended to adopt before impact in a crash, protecting the head with the arms and bringing the legs up underneath the chest
bracket /ˈbrækət/ noun 1. a metal support, often triangular or L-shaped □ component bracket a metal device to attach and support a component 2. a range of frequencies within a band of radio frequencies □ Terminal VOR is in the frequency bracket 108–112 MHz.
□ round brackets the printing symbol ( ) used to separate words in a sentence, or within a text □ square brackets the printing symbol [ ] used to enclose some types of text
brake /braɪk/ noun a device for stopping a vehicle or a machine □ parking brake a brake used to prevent the aircraft moving after it has come to a stop □ verb to slow down or to stop by pressing the brakes □ He had to brake hard after landing in order to turn off at the correct taxiway. (NOTE: braking – braked)
brake drum /ˈbræk drəm/ noun a round hollow part of the brake mechanism, which is attached to the wheel and against which the brake shoes rub, thus preventing the wheel from turning braking /ˈbrækɪŋ/ noun the act of putting on the brakes to slow down or to stop □ adjective slowing down □ the braking effect of drag □ action
breaking load /ˈbrækɪŋ ləʊ/ noun a load capable of being supported before a structure breaks
breather /ˈbriːðə/ noun 1. a pipe connecting the crankshaft to the atmosphere to prevent build-up of crankcase pressure 2. a short rest (informal) □ to take a breather to have a short break, to relax before starting again
breeze /briːz/ noun a gentle wind especially near the coast □ There's no wind, not even a breeze. □ land breeze a light wind which blows from the land towards the sea □ Land and sea breezes occur in coastal areas. □ sea breeze a gentle wind which blows from the sea towards the land □ The strength of the sea breeze decreases with height.
brief /briːf/ adjective short □ brief visit a visit that lasts only short time □ brief letter a letter containing only a few words □ noun general instructions to enable somebody to perform their duties □ The inspector's brief is to find out as much as possible about the causes of accidents. □ verb to give basic information to somebody □ Before take-off, cabin crew must brief passengers on the location and use of emergency exits and life jackets.
briefing /ˈbriːfɪŋ/ noun a short meeting to enable instructions and basic information to be given.

British Isles /ˈbrɪtɪʃ ˈaɪləz/ plural noun the islands which make up Great Britain and Ireland. The climate of the British Isles is affected by the Atlantic Ocean.

British thermal unit /ˈbrɪtɪʃ ˈθɜːm(ə)tʃʊr/ noun the amount of heat needed to raise the temperature of one pound of water by one degree Fahrenheit. Abbreviation Btu.

brittle /ˈbrɪtl/ adjective having a tendency to break easily, like thin glass. Absorption of oxygen and nitrogen from the air at temperatures above 1,000° F makes titanium brittle.

BRNAV abbreviation basic area navigation.

broad /brɔd/ adjective 1. very wide. a broad river. 2. wide or general. Three broad categories of aircraft are considered – rotary wing aircraft, light single-engine aircraft and twin-engine aircraft. Opposite narrow.

broadcast /ˈbrɔːkstrækt/ verb to transmit, often to a large number of people. A radio signal or message which requires no answer. The cabin crew can use the public address system to broadcast messages to passengers only. (NOTE: broadcasting – broadcast) noun a transmission of information relating to air navigation that is not addressed to a specific station or stations.

broadly /brɔdli/ adverb widely or generally. broadly speaking generally speaking.

brush /bʁʌʃ/ noun 1. a tool that has lengths of hair or wire fixed into a handle and is mainly used for painting or cleaning. 2. a small, replaceable block of carbon which rubs against the surface of a commutator in a generator or electric motor. At high altitude, the air becomes drier and this causes a greatly increased rate of wear on the brushes.

bulkhead /ˈbʌlkhed/ noun a dividing partition across the structure of the fuselage separating one compartment from another for reasons of safety or strength. A fireproof bulkhead is provided to separate the cool area of the engine from the hot area.
**bulletin** /ˈbʊltɪn/ **noun** a short report or information on a situation. A **news bulletin**. A **weather bulletin**. A terminal aerodrome forecast bulletin may consist of forecasts for one or more aerodromes.

**BUMF** mnemonic

**burble** /ˈbɜːbl/ **noun** a break in the flow of air around an aircraft’s wing, which leads to turbulence

**burst** /bɜːst/ **noun** 1. a minor explosion caused by increased pressure. The risk of tyre burst through overheating is increased by hard application of the brakes. 2. a very short period of activity followed by no activity. The ground installation transmits a code in two short bursts.

**burst of energy** a very short period of energy. **verb** to explode because of increased pressure or puncture. Metal debris on the runway may cause a tyre to burst. (NOTE: **bursting – burst**)

**busbar** /ˈbʌsbɑːr/ **noun** an electrical conductor used to carry a particular power supply to various pieces of equipment. Complex busbars are thick metal strips or rods to which input and output connections are made.

**bullet** /ˈbəlt/ **noun** a little round disc which you push to operate something, e.g. to ring a bell

**Buys Ballot’s Law** /ˈbaɪz ˈbɔːləts/ **noun** a rule for identifying low pressure areas, based on the Coriolis effect.

**COMMENT:** In the northern hemisphere, if the wind is blowing from behind you, the low pressure area is to the left, while in the southern hemisphere it is to the right.

**buzz** /ˈbʌz/ **verb** to fly low in an aircraft over people or buildings, or to fly across the path of other aircraft

**bypass** /ˈbaɪpɑːs/ **noun** 1. an alternative pipe, channel, etc. A turbine bypass in the form of an alternative exhaust duct is fitted with a valve. 2. same as **shunt**
C symbol 1. Celsius 2. centigrade
CAA abbreviation Civil Aviation Authority
cabin /'kæbɪn/ noun a passenger compartment in an aircraft ○ Air enters at the front of the cabin and leaves at the rear.
cabin attendant /'kæbɪn ə,tend@nt/ noun member of the flight crew who looks after passengers, serves food, etc. ○ If you need something, press the call button and a cabin attendant will respond within a few minutes. Also called flight attendant
cabin compressor and blower system /ˌkæbɪn kəmˌpreshən ənˈbləυəˌsɪstəm/ noun part of the air conditioning system for the cabin
cabin crew /ˈkæbɪn kru/ noun airline staff who are in direct contact with the passengers and whose in-flight responsibilities include: ensuring correct seating arrangements, serving food and attending to the general well-being of passengers, etc.
cabin environment noun the conditions inside the aircraft cabin, including the temperature, the space, the colour scheme, the seating arrangements, etc.
cabin pressure /ˈkæbɪn ˈpreʃər/noun the pressure of air inside the cabin which allows people to breathe normally at high altitudes

cabin pressurisation /ˌkæbɪn ˈpreʃərəˌzeʃən/ noun the maintenance of an acceptable atmospheric pressure in an aircraft while flying at high altitude ○ At 35,000 ft (feet) passengers can breathe freely because of cabin pressurisation.
cable /ˈkeibl/ noun 1. thick metal wire ○ control cables thick metal wire linking the pilot’s cockpit controls to control surfaces such as the elevators and ailerons 2. a thick metal wire used for electrical connections ○ Earth return is by cable to the negative pole of the battery.
cabotage /ˈkæbətæʒ/ noun the right of a country to operate internal air traffic with its own airlines and not those of other countries
calculate /ˌkælkjʊleɪt/ verb to find out an answer to a problem by working with numbers ○ The total flight fuel can be calculated by multiplying the time of the flight by kilograms of fuel per hour.
calculation /ˌkælkjʊleɪʃən/ noun an act of finding out an answer to a problem by working with numbers
calculation of fuel required /ˌkælkjʊleɪʃən əv ˈfjuəril ərˈkwɛrəd/ noun an arithmetic estimation of fuel needed by using time, distance and fuel-consumption factors
calculator /ˌkælkjʊleɪtər/ noun an electronic machine for making calculations ○ Students are not allowed to use calculators in the examination.
calibrate /ˌkælɪbreɪt/ verb to adjust the scale or graduations on a measuring instrument or gauge ○ The international standard atmosphere is used to calibrate pressure altimeters.
calibrated airspeed /ˌkælɪbreɪtitd ˈeəspɪsd/ noun indicated airspeed corrected for instrumentation and installation errors. Abbreviation CAS
calibration /ˌkælɪˈbreɪʃən/ noun the adjusting of the scale or graduations
call button noun a button, often on the arm of a passenger seat, which can be pushed when you need help from an attendant.
call sign /ˈkæl sɛn/ noun a series of words and/or letters and/or numbers used to identify an aircraft or station. The aircraft’s call sign is ‘College 23’. VOR stations transmit a two or three letter aural Morse callsign.
calorie /ˈkærəri/ noun the amount of heat required to raise the temperature of 1 gram of water by 1°C, equal to 4.186 joules. After 2 calories have been released the temperature will have risen 2 degrees i.e. to 0°C, and so the freezing process ceases temporarily. Abbreviation cal

The calorific value is the heat produced by the complete burning of a given amount of fuel. The calorific value of a fuel is an expression of the heat or energy content released during combustion.
cam /kæm/ noun an oval or egg-shaped wheel which, when rotating, converts circular motion into reciprocating motion. In a piston engine, the shape of each cam is designed to give the correct amount of opening to the valve.
CAMFAX /ˈkæmfeksi/ noun the civil aviation meteorological facsimile network

camplate /ˈkæmplət/ noun a rotating or non-rotating plate with cams on it. The fuel pump consists of a rotor assembly fitted with several plungers, the ends of which bear onto a non-rotating camplate.
camshaft /ˈkæmsfɔːt/ noun a rotating shaft carrying cams, which opens and closes valves in a piston engine. As the camshaft rotates, the cam will transmit a lifting force.
canard /ˈkænɑrd/ noun a projection similar to a small wing fitted close to the nose of an aircraft and designed to increase its horizontal stability.
candel /ˈkændəl/ noun the SI unit of brightness of a light. The red and green wing tip navigation lights must be at least 5 candel. (Note: It is usually written cd with figures.)
candle power /ˈkændəl pɔʊər/ noun a unit to measure the brightness of a light. Estimation of visibility is achieved by noting the distances at which lights of a known candle power can be observed.
canopy /ˈkænəpi/ noun 1. a transparent cover, typically on some fighters, light aircraft and gliders, designed to slide backwards and forwards or hinge upwards to allow pilots to enter or leave an aircraft. 2. a covering to protect people in a life raft. The canopy should be erected to provide protection from the weather.
cantilever /ˈkæntɪlɪvər/ noun a beam fixed and supported at one end only.
The mainplanes or wings are of cantilever design.
cap /kæp/ noun a top or lid. The exhaust valve cap.
CAP abbreviation Civil Aviation Publication

capability /ˌkeɪpəˈbɪləti/ noun the capacity or ability to do something. The flare has a day and night capability: the flare is effective in daylight and in the dark.

France has a large capability in the areas of commercial aviation training and simulation. [Civil Aviation Training]
capable /ˈkeɪpəb(ə)l/ adjective competent, having an ability. Aircraft used in aerobatics must be capable of withstanding the extra loads imposed on the airframe by the manoeuvres. In most modern multi-engine jet transport aircraft, each fuel tank is capable of feeding any engine. A capable person is a person who works well.
capacitance /ˈkæpəsəntənz/ noun the ability of a system of conductors and insulators to store an electrical charge when there is a positive discharge between the conductors. If the supply frequency is low, the voltage has more
time to build up a larger charge, or capacitance. (NOTE: Capacitance is measured in farads and can either be a fixed amount or variable amount.)

capacitive /ˈkæpəsɪtɪv/ adjective referring to the ability of a system of conductors and insulators to store an electrical charge. Overspeed is usually a fault in the constant speed drive unit which causes the generator to over-speed and damage the capacitive loads on the aircraft.

capacitor /ˈkæpəsɪtər/ noun a system of conductors and insulators which store electrical charge. (NOTE: A capacitor is used in a circuit to store energy for a short while.)

capacity /ˈkæpəsɪti/ noun 1. the ability to do something easily. Energy is the capacity for performing work. 2. the amount of something which a container can hold. Each cylinder has a capacity of 0.5 litres.

circuit breaker noun a device for interrupting an electric circuit in order to protect it from over-current.

capillary /ˈkæpələrɪ/ noun a very fine or narrow tube.

capillary action /ˈkæpələrɪ eɪʃən/, capillary flow /ˈkæpələrɪ fluː/ noun the action by which a liquid rises up a narrow tube.

capsule /ˈkæpsjuːl/ noun a small closed container.

captain /ˈkeɪptɪn/ noun the person in charge of an aircraft. The captain asked all passengers to remain seated until the aircraft had come to a stop.

captive /ˈkeɪptɪv/ adjective not free to move.

captive balloon /ˈkeɪptɪv bɑ́lən/ noun a balloon which, when in flight, is attached to the ground by a long cable.

carbon /ˈkɑ́rbən/ noun 1. a non-metallic element, which is a component of living matter and organic chemical compounds and is found in various forms, e.g. as diamonds or charcoal. 2. a black material with good electrical properties.

carbon brush /ˈkɑ́rbən braʃ/ noun a small, replaceable, carbon block found in electric motors, generators and alternators, which provides the passage of electric current.

carbon deposits /ˈkɑ́rbən dɪzəʊn/ plural noun residues of burnt oil deposited in the combustion chamber, etc., in the course of the combustion process.

carbon dioxide /ˈkɑ́rbən daɪˈoʊsɪd/ noun a colourless but poisonous gas from incomplete combustion found in the exhausts of spark ignition engines. Symbol CO₂

carbon fibre /ˈkɑ́rbən ˈfaɪbər/ noun a thin, light and very strong strand of pure carbon which can be combined with other materials to make them stronger.

carbon monoxide /ˈkɑ́rbən mənoʊˈsaɪd/ noun a colourless but poisonous gas from incomplete combustion found in the exhausts of spark ignition engines. Symbol CO

carburation /ˈkɑ́rrɪjəʃən/ noun the process of mixing fuel with air in a carburettor. Carburation must ensure that rapid and complete burning will take place within the cylinder.

carburettor /ˈkɑ́rbrətər/ noun a device for mixing air with fuel in the right quantities before combustion. Most carburettors are installed so that they are in a warm position.

carburettor heat /ˈkɑ́rbrətər ˈheɪt/ noun a system for keeping the carburettor and associated components free of ice.

carburettor icing /ˈkɑ́rbrətər ˈaɪsɪŋ/ noun a process by which, under particular conditions, ice forms in the venturi tube of the carburettor.

cardioid /ˈkɑ́rdəɪəd/ adjective shaped like a heart. The cardioid polar dia-
carousel

gram of the magnetic field around a bar-magnet.

carousel /ˈkærəʊs/ noun a rotating platform from where arriving passengers can pick up their baggage. Baggage from flight AC123 is on carousel No. 4.

carriage /ˈkærɪдж/ noun the act of carrying. Regulations require the carriage of life rafts when flying over water.

carrier /ˈkærɪəri/ noun 1. a person or organisation that carries people or goods from one place to another. Individual carriers assign codes to aircraft. 2. a frame or bag in which objects can be carried.

carrier wave /ˈkærɪəri wɜːv/ noun a radio signal that is transmitted continuously at a constant amplitude and frequency. Amplitude modulation has only one pair of usable sidebands each at about one sixth of the signal strength of the carrier.

carry /ˈkærɪ/ verb to take somebody or something from one place to another. The aircraft was carrying 120 passengers. (NOTE: carrying – carried)

cartridge /ˈkærɪtrɪдж/ noun a removable unit for an air filter. Cabin air filters normally consist of a casing, housing a replaceable filter cartridge.

CAS abbreviation 1. calibrated airspeed 2. controlled airspace

case /ˈkeɪs/ noun 1. an outer covering, housing or jacket. Cooling air is directed through passages in the engine case to control engine case temperature. 2. an example, situation or circumstance. In some special cases, e.g. for landing and take-off, wind directions are measured from magnetic north.

casing /ˈkeɪsɪŋ/ noun a cover that encloses a piece of equipment, etc. Annular and outer air casing form a tunnel around the spine of the engine.

CAT /keɪt/ abbreviation clear air turbulence

catastrophe /ˈkætəstroʊf/ noun a very bad event or accident, a disaster. The recent air catastrophe off the Nova Scotia coast. Although the family were not at home when it happened, the crash which destroyed their house was a catastrophe for them.

catastrophic /ˈkætəstroʊfɪk/ adjective terrible, disastrous. In a catastrophic accident where many persons may be disabled, those who show signs of life should be rescued first.

categorise /ˈkætəgəraɪz/ to put into groups, classes or categories. Figure 2 categorises the types of wave by frequency band. Aircraft can be categorised by weight, number of engines, role, etc.

category /ˈkætəgəri/ noun an official class or group. Load factors vary depending on the category of aircraft.

cathode /ˈkæθəd/ noun a negative electrode or terminal. The cathode is a metal cylinder fitted with an internal heater.

cathode ray tube /ˈkæθəd ray ˈreɪ tuːb/ noun a high-vacuum tube in which cathode rays produce an image on a screen such as a TV screen. Electronic indicating systems show engine indications, systems monitoring and crew alerting functions. One or more cathode ray tubes or liquid crystal displays mounted in the instrument panel. Abbreviation CRT

cause /kɔʊz/ noun something that makes something else happen, a reason. If the ammeter shows a high state of charge after start up, it is quite normal and no cause for alarm. verb to make something happen. Air in the fuel line can cause an engine to flame-out or stop.

cautions /ˈkɔtʃənz/ noun 1. advice or a warning to be careful. If a problem occurs in the spoiler system, a master caution light illuminates. 2. care. Proceed with caution.

cavitation /ˈkævɪteɪʃən/ noun the formation of vapour-filled cavities or holes in liquids and gases, caused by low pressure or high speed. Most reservoirs are pressurised to provide a positive fluid pressure at the pump inlet and thus prevent cavitation and the formation of bubbles.

cavity /ˈkævɪtɪ/ noun a hole. De-icing fluid flows into the cavity in the
throughout the area controlled by the ECAC.

centralise /sentralaiz/; centralized, centralize verb to put into the centre or into the middle position. The operating jack centralises the control surface after the turn.

Central Standard Time /sentrəl 'stændəd 'tɑm/ noun the time zone of the east-central part of the USA and Canada, 6 hours behind GMT.

centre /sentər/ noun 1. the middle. The plane of the great circle passes through the centre of a sphere. 2. centre of a circle mid-point of a circle, point in the middle of a circle. 3. a main building or office. Area Forecasting Centre. Centre the control column. (NOTE: centred – centering; the US English is centered – centering.)
centre fix /sentə fiks/ noun same as self-positioning.
centréline /sentələin/ noun a painted or imaginary line running along the centre of the runway (NOTE: It is also written centre line; written centerline in US English.)
centre of gravity /sentə ov 'græviti/ noun the point at which a body can be balanced. Distribution of the tanks and the fuel in the tanks is vital in maintaining the aircraft centre of gravity and trim. Abbreviation CG.

COMMENT: If the centre of gravity is outside the limits, the aircraft may be difficult or impossible to control.

centrifugal /sentrɪfjuːɡ(ə)l, sen 'trɪfjuːɡ(ə)l/ adjective moving away from the centre. The blades must be strong enough to carry the centrifugal loads due to rotation at high speed.
centrifugal force /sentrɪfjuːɡ(ə)l 'fɔːs/ noun outward force caused by turning motion.
centrífuge /sentrɪˈfjuːdʒ/ noun a device which uses centrifugal force to separate or remove liquids. CDI verb to separate liquids by using centrifugal force.

The rotating vanes of the breather centrifuge the oil from the mist.

distributor panels before passing through the porous steel outer skin.

CS abbreviation cumulonimbus

cubic centimetre cd symbol candela

course deviation indicator cease /siːs/ verb to stop. If fuel, oxygen or heat is removed from the fire triangle, combustion will cease.

celcius /ˈsɛlsiəs/ noun a scale for measuring temperature in which water freezes at 0° and boils at 100°. Symbol C. Compare Fahrenheit.

center /ˈsentər/ noun, verb US same as centre.

centerline /ˈsentələin/ noun US same as centreline.

centigrade /ˈsɛntɪɡrɛd/ noun a scale for measuring temperature in which water freezes at 0° and boils at 100°. Symbol °C. Compare Fahrenheit.

centimetre /ˈsɛntɪmɪtər/ noun a measure of length that is equal to one hundredth of a metre (NOTE: 2.54 cm = 1 inch.)
central /ˈsentrəl/ adjective located in the centre or in the middle. The control knob is moved from the central position.

Central Flow Management Unit (Brussels) /ˈsentrəl fləʊˈmɑːnɪdʒmənt jʊntənˌbrʌs(ə)l/ noun a central agency in Brussels that is responsible for air traffic management.
centripetal /ˌsentripəˈtɛl/, sen “triptəl/ adjective moving towards the centre

centripetal force /ˌsentripəˈtɛl/ “triptəl/ noun inward, centre-seeking force working in opposition to centrifugal force. The magnitude of the centripetal force varies with the square of the wind speed. In a turn, lift provides the centripetal force.

certain /ˈser(t)ərn/ adjective 1. particular, some o in certain areas o at certain times o under certain circumstances 2. sure o There are certain to be horizontal differences in the mean temperature of a layer. to make certain to make sure o Make certain that the parking brake is on before doing engine run-up checks.

certificate noun /ˈsərtifikət/ an official document which states that particular facts are true. to award or give a certificate o aircraft which are certificated for flight aircraft which have the necessary paperwork to be authorised to fly

certificate of airworthiness /ˈsərtifikət əˈwərθwɜːəs/ noun a document issued by an aviation authority stating that an aircraft meets specific safety and performance requirements that allow it to be used in service. An authorised person may require production of the Certificate of Airworthiness. Abbreviation C of A

certification /ˈsərtifikəˈʃen/ noun the process of giving certificates. The inferential method of ice detection is used on flight trials for certification of aircraft.

certify /ˈsərtifik/ verb to authorise or permit the use of something. The aircraft is certified for aerobatic flight.

CFI abbreviation chief flying instructor

CFMU abbreviation Central Flow Management Unit

CFRP abbreviation carbon fibre reinforced plastic

chalk /kaːkl/ noun a soft white limestone rock that may be used in powder form or as a shaped stick for writing with. Oil, which is trapped in the defects, is absorbed by the chalk thus indicating their positions.

chamber /ˈtʃæmbər/ noun a small enclosed compartment

chandelier /ˈʃændəl/ noun a steep climbing turn in which an aircraft almost stalls as it uses momentum to increase its rate of climb

channel /ˈʃændəl/ noun a special frequency band for the transmission of radio signals. The system operates on VHF communications between 118 and 135.95 MHz giving 360 channels at 50 kHz spacing.

character /ˈkærɪkta/ noun 1. a quality or set of qualities which make something different and separate from something else. The circulation of the atmosphere is zonal in character. 2. an individual letter, number or symbol used in printing and writing

characterise /ˈkærɪktaɪzaɪs/, characterize verb o to be characterised by to have qualities or features which make it different and separate from other things. The stratosphere is characterised by a temperature structure which is steady or increases with height.

characteristic /ˌkærɪkˈtrɪstɪk/ adjective typical of a class or group of things. A characteristic feature a normal feature of the thing in question. A feature or quality making something different or separate from something else. Air masses have distinct characteristics which can be used to separate them on a chart. Handling characteristics features of an aircraft that make it different from other aircraft when handling it. Summer characteristics climatic conditions which are typical of summertime.

charge /tʃɑːdʒ/ noun 1. an amount of electricity. Friction causes a charge of static electricity. The battery was so old, it would not take a charge. A high level of charge a high amount of electricity. 2. money demanded or paid for the providing of a service. Overnight parking is free of charge. It costs nothing to park overnight.
An installed battery becomes fully charged by the aircraft generator. A battery charger device for putting an electrical charge into a battery. A turbocharger.

A weather chart is a map for navigational purposes. A significant weather chart is a weather chart with important weather information marked on it.

Check in at the check-in desk where passengers register before a flight. Check in at the airline desk before a flight. Check in at the check-in counter in the airport. A check list is a list of items, often in booklet form, to be checked in a given sequence. A check list is a list of items, often in booklet form, to be checked in a given sequence.

Check in at the check-in desk where passengers register before a flight. Check-in time is the time at which passengers should check in.

A checklist is a list of items, often in booklet form, to be checked in a given sequence. Before every flight, the pilot should perform pre-flight checks using a checklist.

Chemical is a substance used in or made by a chemical process. A chemical such as anti-ice for propellers.

Chemistry is the science of chemical substances and their reactions. The nature of something. The basic chemistry of fire can be illustrated by the three sides of a triangle representing fuel, oxygen and heat.

Chief is the most important, main or the chief factors the most important factors. Chief flying instructor is the senior rank of flying instructor. Abbreviation CFI.

Choke is a valve in a carburettor, which controls the amount of air combining with fuel. Block a tube, etc., making a liquid unable to move. A choked nozzle is a blocked or partly-blocked nozzle. To stop breathing because you have inhaled water or smoke.

Choke tube is a choke tube venturi. Increase in rpm increases the speed of air passing through the choke tube or venturi. Choke tube or venturi.

Chopper is a helicopter. To transport something or somebody by helicopter, or to travel by helicopter.

Chord is the shortest distance between the leading and trailing edges of an airfoil.

Chute is a parachute. A line forming a round shape, or a round shape formed by objects or people. They stood in a circle on the tarmac. Great circle direction is an imaginary circle on the surface of the Earth which lies in a plane passing through the centre of the Earth.

Circuit is a complete route around which an electrical current can flow. The pattern of take-off,
circuit board

climb-out, turn onto crosswind leg, turn onto downwind leg, turn onto base leg, turn onto final approach and landing. When carrying out practice landings at an aerodrome, the pilot should keep a sharp lookout for other aircraft in the circuit.

circuit board 44

equal to one 360th part of the circumference of a circle is called one degree.

circumstance /sɔːkəmstəns/ noun a condition which affects something in a given situation. in some circumstances, under certain circumstances in some particular situations

cirro- /sɪrəʊ/ prefix high altitude, i.e. above 20,000 feet

cirrocumulus /sɪrəʊˈkjuːmjʊljʊs/ noun a layer of broken cloud at about 20,000 feet

cirrostratus /sɪrəʊˈstrætəs/ noun a layer cloud at about 20,000 feet

cirrus /ˈsɪrəs/ noun a high cloud in a mass of separate clouds which are formed of ice crystals.

Civil Aviation Authority /ˌsɪvɪl ˈeɪvɪʃən əˈɒrənɪzəʃən/ noun the organisation which licences operators, aircraft and employees for non-military, especially commercial aviation. Abbreviation CAA

Civil Aviation Publication /ˌsɪvɪl ˈeɪvɪʃən ˈpʌblɪkeɪʃən/ noun a book, etc., published by the Civil Aviation Authority, each publication having its own reference number. The procedure for obtaining a bearing can be found in CAP 413. Abbreviation CAP

COMMENT: CAA (Civil Aviation Authority) publications are referred to as CAPs and each has a reference number for identification: the procedure for obtaining a bearing is described in CAP 413.

clad /klæd/ verb to protect by covering. Alloys can be protected from corrosion by cladding the exposed surface with a thin layer of aluminium.

clamshell door /ˈklæmʃel dɔːr/ noun the hinged part of a thrust reverser. Clamshell doors are hydraulically or pneumatically opened, and direct the exhaust gases forwards to produce reverse thrust.

classification /ˌklɑsɪfɪˈkeɪʃən/ noun the act of putting things into groups or classes because they possess particular common features. Classification of aircraft consists of a multi-level diagram with each category divided into sub-categories.

A full
classification of layer cloud is given in the table.

classify /'klæsifər/ verb to group items so that those with similar characteristics are in the same group. Precipitation is classified as light, moderate or heavy according to its rate of fall. The weather associated with visibility reductions by particles suspended in the atmosphere is classified either as fog, mist, haze, or smoke.

clear /kləə/ adjective 1. referring to conditions in which it is easy to see, e.g. with no cloud or fog = a clear sky a sky with no cloud = a clear winter night a night with no fog, mist or other conditions which might impair visibility. 2. possible to easily see through a clear window. 3. easy to understand. The explanation is very clear.

comment: On 27th March 1977 two Boeing 747s collided on the runway at Los Rodeos airport Tenerife in poor visibility, resulting in 575 deaths. The aircraft forward speed and altitude as well as climatic conditions will influence the value of thrust.

climatological zone

45 climatic zone

An aircraft was still taxiing towards it when a KLM aircraft had already commenced the take-off roll without clearance. It is possible that the KLM pilot mistook the call to the other aircraft thinking that he was "clear to take off".

clear air turbulence /ˌklæəə 'træbjɔləns/ noun turbulence encountered in air where no cloud is present. NOTE: CAT is often associated with the jet stream.

clearance /'klæərəns/ noun 1. a space made to allow for the movement of hardware relative to other hardware. 2. official permission. Obtain clearance for IFR flight. 3. the disappearance of something unwanted, often rain, fog or snow. Low temperatures caused a delay in the clearance of fog.

clearance limit /'klæərəns 'lɪmɪt/ the point to which an aircraft is allowed to proceed when granted an air traffic control clearance.

clear ice /ˌklæər 'aɪs/ noun ice which is glass-like rather than white.

clear pass /ˌklɪəə 'pɑs/ noun an exam result which is in no doubt.

clear to land /ˌklɪəə 'lænd/ noun an air traffic control permission to land.

climacline /'klæmətɪk/ adjective referring to climate or weather conditions particular to a given area. Mediterranean climate, tropical climate, temperate climate. A type of climate which is neither very hot in summer nor very cold in winter.

continental climatic /'klæmətɪk/ noun one of the eight areas of the Earth which have distinct climates.

COMMENT: The climatic zones are: the two polar regions (Arctic and Antarctic); the boreal zone in the northern hemisphere, south of the Arctic; two temperate zones, one in...
climatology 46

the northern hemisphere and one in the southern hemisphere; two subtropical zones, including the deserts; and the equatorial zone which has a damp tropical climate.

climatology /ˈklɪmətɒlədʒi/ noun

the science of the study of climate. Although pilots do not need to be experts in climatology, they should have a good understanding of the factors which produce changes in the weather.

climb /klɪm/ noun

the act of increasing altitude by use of power. Fine pitch enables full engine speed to be used during take-off and climb. Opposite descent. verb to increase altitude by use of power. After take-off, the aircraft climbed to 5,000 ft. Opposite descend.

climb-out /ˈklɪməut/ noun

a flight after take-off from 35 feet to 1,500 feet during which undercarriage and flaps are retracted. Turn right after climb-out.

clockwise /ˈklokwaɪz/ adjective

adjective describing a circular movement in the same direction as the hands of a clock. a clockwise direction. The relative bearing indicated is measured clockwise from the nose of the aircraft. Opposite anticlockwise.

clog /klɒg/ verb

verb to prevent movement of fluid through a pipe, etc., because of a build-up of solid matter. Most filters allow unfiltered fluid to pass to the system when the filter becomes clogged.

close /kləuz/ verb

verb to shut. Close the door.

closure /ˈkləʊʒə/ noun

the act of closing or shutting. The voltage regulator is turned on by the closure of the generator control relay.

cloud /klaʊd/ noun

a mass of water vapour or ice particles in the sky that can produce rain.

COMMENT: The most important types of cloud are the following: altocumulus, cloud formed at about 12,000 feet as a layer of rounded mass with a level base; altostratus, cloud formed as a continuous layer between 6,000 and 20,000 feet usually allowing the sun or moon to be seen from the surface; cirrocumulus, a layer of broken cloud at about 20,000 feet; cirrostratus, layer cloud at about 20,000 feet; cirrus, cloud made of ice crystals at 25,000 – 40,000 feet appearing as hair-like formations; cumulonimbus, cloud formed as a towering mass and often associated with thunderstorms; cumulus, cloud formed in rounded masses with a flat base at low altitude, resulting from up currents of air; nimbostratus, thick dark layer cloud at low altitude from which rain or snow often falls (nimbus = rain cloud); stratocirrus, cloud similar to cirrostratus but more compact; stratuscumulus, a layer of connected small clouds at low altitude.

cloud base /ˈklaʊd ˈbeɪs/ noun

the bottom part of a layer of cloud. In general, the lower the cloud base, the less heat is lost by the earth.

cloud ceiling /ˈklaʊd ˈsɪlnɪŋ/ noun

the height above the ground or water of the base of the lowest layer of cloud.

cloud group /ˈklaʊd grʊp/ noun

a collection of different cloud types which have similarities, e.g. stratus clouds

cm abbreviation centimetre

co- /kəʊ/ prefix
together = co-axial having the same axis. co-located having the same location.

coalesce /,kəʊəˈles/ verb

to join together to form a large mass or number. The moisture in the air coalesces into large droplets.

coalescence /,kəʊəˈlesəns/ noun

the act of joining together to form a larger mass or number. Coalescence of water vapour in the atmosphere forms larger droplets of water.

coast /ˈkəʊst/ noun

an area where the land meets the sea. Valentia is situated on the coast of south west Ireland.

coastal /ˈkəʊst(ə)l/ adjective

referring to the coast. Coastal area an area near a coast. Land and sea breezes occur in coastal areas.

coastal refraction /ˈkəʊst(ə)rɪˈfrækʃən/ noun

change in direction of waves when a signal crosses a coastline from sea to land.

coastline /ˈkəʊstlɪn/ noun

the outline of a coast seen from a distance or
on a map. It is normally easy to identify a coastline or island.

**coat** /kəʊt/ noun a thin covering of a substance such as paint. The coats of paint on a large aircraft significantly increase its weight. **verb** to cover with a thin layer of a substance such as paint. Metals are coated for protection against corrosion.

**coating** /ˈkəʊtɪŋ/ 1. a thin layer of a substance. There are two coatings on the inside of CRT screens. 2. the act of covering with a thin layer of a substance. Cock /kɒk/ noun a manually controlled valve or tap to control the flow of a liquid. It is necessary to have a master cock for each engine.

**cockpit** /ˈkɒkpɪt/ noun the forward area in an aircraft from where the aircraft is controlled by the pilot. In the case of an in-flight oil loss, a warning indicator will light in the cockpit.

‘...in the cockpit of the future there will be two animals, a pilot and a dog. The pilot will be there to feed the dog, and the dog will be there to bite the pilot if he tries to touch anything’ [NYT News Service]

**code** /kəʊd/ 1. a system of numbers, letters or symbols used to represent language which has to be learned and decoded in order for the receiver to understand the meaning. 2. a series of pulses by which an aircraft transponder replies to a signal from the ground.

**codeshare** /ˈkəʊdʃeə/ noun. **codeshare deal** an agreement between airlines regarding connecting flights. The two airlines have entered into a codeshare deal for flights between Dubai and Bangkok.

**codeshare partner** /ˈkəʊdʃeə ,pɑːtnə/ noun an airline which has an agreement with another airline regarding connecting flights.

**codesharing** /ˈkəʊdʃeərɪŋ/ noun. A procedure which allows travellers to use connecting flights between one airline and another partner airline for worldwide destinations. An arrangement by which two airlines sell seats on the same flight using their own flight numbers.

**coefficient** /ˈkəʊərɪf(ə)nt/ noun a mathematical quantity placed before and multiplying another.

**C of A** abbreviation certificate of airworthiness.

**coiled wire** /kɔɪl/ noun a length of wire twisted round and round. A coiled wire connects the terminal to earth.

**coincide** /ˌkəʊnˈsaɪd/ verb to happen at the same time and/or in the same place. When the aircraft heading is directly into wind or down wind, track and heading coincide.

**coincident** /ˌkoʊˈɪnsɪdənt/ adjective happening at the same place or at the same time. The Earth’s true north and magnetic north poles are not coincident.

**cold front** /kəʊld frʌnt/ noun an advancing mass of cold air, moving under and lifting warmer air. A cold front brought rainy, windy conditions to the country.

**collapse** /kəˈlæps/ noun a sudden and complete fall. The collapse of a company the end of the existence of the company. **verb** 1. to fall suddenly and completely. 2. The magnetic field will reach a maximum in one direction, collapse to zero and reach a maximum in the opposite direction. 3. to fold or to close suddenly and unintentionally. The undercarriage collapsed (of an apparatus) the undercarriage could not support the aircraft and broke or retracted on its own. 4. to faint. The passenger collapsed the passenger fell and became semi- or fully unconscious because of some medical problem.

‘...as the aeroplane slid off the runway, the left landing gear collapsed’ [Pilot]
collect /kəˈlekt/ verb 1. to gather over a period of time ○ Any given object will usually collect ice more quickly at high speed. 2. to take something or to pick something up from a place

collection /kəˈlekJən/ noun 1. a number of things brought together ○ a collection of vintage aircraft 2. an act of being collected by somebody ○ The documents are in the office awaiting collection.

collide /kəˈlaɪd/ verb to bump or to crash into something ○ The aircraft left the runway and collided with a fire truck.

collision /kəˈlɪʒən/ noun a crash between two objects, two vehicles, etc. ○ If there is a risk of collision, alter course to the right. ○ collision avoidance the prevention of collisions by taking measures beforehand to ensure that they do not happen

column /ˈkɒləm/ noun 1. a body of fluid or solid with a tall, narrow shape ○ Torricelli first demonstrated that the atmosphere has weight by showing that it can support a column of liquid. 2. a vertical section of a table in a document ○ Column four of the table shows the totals of the other three columns.

combat /ˈkɒmbæt/ verb to fight against ○ Fire extinguishers are provided to combat fire.

combat aircraft /ˈkɒmbæt ˈɛəkrɑft/ noun aircraft designed for warfare

combination /ˌkɒmbɪˈneɪʃən/ noun two or more things brought together to form one ○ The combination of wind direction and wind speed is called velocity.

combine /ˈkʌmbaɪn/ verb to bring two or more things together to make one ○ The stabilising channels for ailerons and elevators are combined. ○ Thrust and lift combine to overcome drag and gravity.

combustible /ˈkɒmˈbʌstəbl/ adjective burning or igniting easily ○ combustible materials materials which will catch fire easily, e.g. wood, paper, etc.

combustion /ˌkɒmˈbʌʃən/ noun burning, especially that which takes place in an engine ○ The heat generated by combustion is considerable.

combustion chamber /ˌkɒmˈbʌʃən ˈtʃeɪmə/ noun the part of the cylinder in a piston engine where the ignition of the fuel/air mixture takes place

combustor /ˌkɒmˈbʌstoʊr/ noun the part of a jet or gas-turbine engine that burns fuel to produce power. It consists of the fuel injection system, the igniter, and the combustion chamber.

command /ˈkɑːmənd/ noun an order ○ the command to evacuate the order to leave the aircraft in an emergency ○ in command having responsibility for and authority over ○ verb to order something to be done ○ The captain commanded the evacuation of the aircraft.

commander /ˈkɑːmənda/ noun a pilot in control of, and responsible for, the aircraft and its contents during flight ○ the commander of an aircraft the member of the flight crew specified by the operator as being the commander

commence /ˈkɒməns/ verb to start to do something ○ commence the evacuation start getting people out of the aircraft

commercial /ˈkɒmərʃəl/ adjective referring to a business activity ○ commercial aviation flying as a business enterprise

commercial aircraft /ˈkɒmərʃəl ˈɛəkrɑft/ noun aircraft used to carry cargo or passengers for payment

Commercial Pilot’s Licence /ˈkɑː ˈmɒːʒəl ˈpɪlətz ˈleɪsərnz/ noun the licence that a person requires to be pilot-in-command of public transport aircraft certified for single-pilot operations. Abbreviation CPL

common sense /ˈkɒmən ˈsɛns/ noun ordinary good sense ○ You should use your common sense as well as follow the rules if a passenger feels unwell.

comms /ˈkɒmz/ abbreviation communications
compensate /kəmˈpensət/ verb 1. to make up for the loss of something ○ The floor covering may be designed to compensate for temperature, pressur-
compensation /ˌkɒmpəˈseɪʃən/ noun money paid to an individual or organisation to replace or make up for physical or financial loss. The company paid out $2 million in compensation to the families of those who lost their lives in the tragedy.

compensation /ˌkɒmpəˈseɪʃən/ noun money paid by the company did not compensate for the injuries she received in the accident.

complication /ˌkɒmplɪˈkeɪʃən/ noun the putting together of suitable information. The manual is a compilation of materials used by each of the instructors.

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complicated /ˌkɒmplɪˈkeɪtɪd/ adjective not easy to understand

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complexity /ˌkɒmpəˈlekstɪti/ noun the condition of being complex, or a complication. Up-to-date design does not necessarily mean structural complexity.

complicate /ˌkɒmplɪkət/ verb to make more difficult. Map reading is often complicated by seasonal variations.

complicated /ˌkɒmplɪkətɪd/ adjective not easy to understand

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component /ˌkɒmpəˈpʌnənt/ noun a part of an aircraft, aircraft system or piece of equipment. The undercarriage is made up of a number of different components.

component /ˌkɒmpəˈpʌnənt/ noun a part of an aircraft, aircraft system or piece of equipment. The undercarriage is made up of a number of different components.

comprise /kəmprɪz/ verb to make something from a number of parts. The atmosphere is composed of a mixture of gases.
material ○ The flight crew route flight plan is a composite document which serves as a navigation log. ● noun a lightweight but very strong man-made material used in aircraft manufacturing ○ To make a composite it is necessary to combine the reinforcing glass fibres with special glue or resin. (NOTE: The word composite was originally an adjective, but through frequent usage the term composite material has been shortened to composite.)

'Canadian Aerospace Group (CAG) is working with Pratt & Whitney Canada on a turboprop-powered version of its Windeagle all-composite light aircraft' [Flight International 16–22 July 1997]

COMMENT: Composites are used in the construction of many modern aircraft, from gliders to aircraft such as the Airbus A320, because they are strong and lighter than metals.

composition /ˈkɒmpəzəʃən/ noun the make-up or structure of something ○ composition of the atmosphere the combination of gases which make up the atmosphere

compound /ˈkɒmpəʊnd/ adjective referring to something made up of two or more parts or substances ● noun a substance made up of two or more components ○ A chemical compound has qualities that are different from those of the substances from which it is made. ○ Advances in sealing compounds have now made fuel tanks less liable to leaks.

compound wound generator /ˈkɒmpəʊnd ˈwʊndərd ˈdʒɛnərətə/ noun a generator which consists of a number of windings

compress /ˈkɒmpres/ verb to put under pressure thereby reducing volume ○ Pressure is created when a fluid is compressed.

compressibility /ˈkɒmpresəbɪləti/ noun the natural ability of a substance to change volume when under varying pressures ○ In systems using very high pressure, the compressibility of the liquid becomes important.

compressible /ˈkɒmpresəb(ə)/ adjective referring to something that can be compressed ○ Air is compressible, but water is not.

51 concentration

concentration /ˌkɒnəˈstrɛntʃən/ noun 1. the act or instance of putting pressure on something ○ compression stroke /ˌkɒmpəˈstrɔʊk/ noun the stage of an internal combustion cycle when the fuel/air mixture comes under pressure from the upward-moving piston ○ compressive /ˌkɒmpəˈsvɪ/ adjective referring to forces caused by pressure on a surface ○ A strut is designed to withstand compressive loads.

compressive load /ˌkɒmpəˈsvɪl/ noun a load caused by forces acting in opposite directions towards each other

compressive stress /ˌkɒmpəˈsvɪstrɛs/ noun the resistance of a body to crushing by two forces acting towards each other along the same straight line

compressor /ˈkɒmpəsər/ noun a device such as a pump to compress air, in order to increase pressure ○ A shaft connects the turbine to the compressor.

axial

comprise /ˈkɒmpraɪz/ verb to be made of (NOTE: The correct use of comprise is often disputed. Some people regard it as a synonym for the verb consist of, while others believe it should be used in an opposite sense: a tank, pipes, a filter, a pump and a carburettor comprise the fuel system. It is sometimes used in its passive form: the fuel system is comprised of a number of different parts.)

concentrate /ˌkɒnsəntreɪt/ verb 1. to collect in a particular place rather than spread around ○ Most of the mass of air is concentrated at the lowest levels of the atmosphere. 2. to give attention and thought to something in particular ○ This chapter concentrates on charts. ○ to concentrate hard to give all one's thought and attention to something

concentration /ˌkɒnsəˈstrɛʃən/ noun 1. the fact of being collected in a particular place rather than spread around ○ The maximum concentration of ozone is between 20 and 25 km above the Earth's surface. 2. the act of giving attention and thought to something ○ In
concentric /'kɒn'sentrik/ adjective having the same centre. **concentric circles** circles of different diameters but with the same centre point.

**concept** /'kɒnsept/ noun an idea or abstract principle. **The concept of open skies is not one with which everybody agrees.**

**concern** /'kɒn'sərn/ noun 1. serious interest **a matter for concern** something which must be taken very seriously. 2. responsibility **Attention to the welfare of passengers is the concern of the cabin crew.**

**condenser** /'kɒn'densər/ noun an electrical capacitor. **The condenser prevents spark plugs from arcing.**

**condensation trail** /'kɒnden'seɪʃn træil/ noun same as **vapour trail**

**condensation** /'kɒnden'seɪʃn/ noun the process by which vapour changes into liquid. **If the air becomes saturated, further cooling results in condensation.**

**condense** /'kɒn'dens/ verb 1. to change from vapour to liquid form. **The most common type of hygrometer is one in which a surface in contact with the atmosphere is cooled until moisture begins to condense on the surface.**

**conductive** /'kɒn'djuːsɪv/ adjective favourable, which allows something to happen more easily. **Atmospheric conditions conducive to the formation of ice are detected and these operate a warning system.**

**conductor** /'kɒn'djuːktər/ noun a person who conducts an orchestra or choir.

**conduction** /'kɒn'dʌkʃn/ noun the process by which heat or electricity passes through a substance. **Heat is transferred to the layer of air next to the Earth’s surface by conduction.**
conductive /ˈkɒnˈdɑːktɪv/ adjective referring to the ability of a substance to allow heat or electricity to pass through. ○ Steel is a conductive material. ○ Land masses are less conductive than water.

conductivity /ˈkɒndʌktɪvɪtɪ/ noun the ability of a material to allow heat or electricity to pass through. ○ Because of the poor conductivity of air, heat is transferred from the Earth’s surface upwards by convection.

conductor /ˈkɒnˈdɑːktər/ noun a substance through which heat or electricity can pass. ○ Water and steel are good conductors.

cone /ˈkɒn/ noun a solid body with a base in the shape of a circle, and with sides which narrow to a point, or any object which has that shape.

configuration /ˈkɒnˌfɪgjərəˈʃən/ noun the pattern or way in which things are arranged. ○ configuration of an aircraft’s fuel tank system. ○ the way in which the tanks are laid out.

confine /ˈkɒnˌfain/ verb 1. to limit to a particular area. ○ Cooling is confined to the air in contact with the ground. ○ The damage was confined to a small area. 2. to limit to a given subject. ○ the report confines itself to the incident of 3rd January the report deliberately does not mention anything other than the incident of the 3rd January.

confined /ˈkɒnˌfaind/ adjective limited, small ○ a confined space. ○ a small defined space which does not allow free movement.

confirm /ˈkɒnˌfɪrm/ verb to agree that something is correct, or to repeat it to remove any uncertainty. ○ The attitude indicator shows that the aircraft is in a nose down attitude and the increasing airspeed confirms that the aircraft is not in level flight. ○ Can you confirm that the instructor was flying the aircraft at the time of the collision? ○ VHF and/or UHF radio aids confirm ADF bearings.

COMMENT: Cross-checking of certain flight instruments is used to confirm readings from other instruments, e.g. the airspeed indicator and vertical speed indicator confirm pitch information from the attitude indicator.

conform /ˈkɒnˈfɔːm/ verb to correspond to required standards. ○ Fuels must conform to strict requirements. ○ to conform to regulations. ○ to do what is required by rules and regulations.

conformal /ˈkɒnˌfɔːm(ə)l/ adjective representing angles, bearings, etc., correctly. ○ Lambert’s conformal projection.

congestion /ˈkɒnˌdʒɛstʃən/ noun a situation where there are too many people or vehicles in a confined space for them to be able to move freely. ○ When leaving the aircraft in an emergency, to avoid congestion, passengers should be directed to move away from exits quickly.

conic /ˈkɒnɪk/ adjective based on the shape of a cone. ○ conic projection. ○ the standard two-dimensional representation of the earth.

conical /ˈkɒnɪk(ə)l/ adjective shaped like a cone. ○ The nose of Concorde has a conical shape.

conjunction /ˈkɒnˌdʒʌŋkʃən/ noun a link or feature that makes things interdependent. ○ There is a connection between temperature change and altitude.

connection /ˈkɒnˈnektʃən/ noun 1. the point at which things are joined. ○ There is an electrical connection to the battery. 2. a link or feature that makes things interdependent. ○ There is a connection between temperature change and altitude. 3. the process of catching...
a second aircraft to arrive at a final destination. Follow the 'Flight Connection' signs.

connector /ˈkɑːnˈnektər/ noun a device which connects two or more things. A connector is used to connect two lengths of wire together. Standard connectors consist of a metal coupling with a rubber sandwich joint.

consecutive /ˈkɑːnˌsekrət/ adjective following one after the other. There will be a consecutive number of days 28 days following immediately one after the other.

consequence /kənˈskwəns/ noun the result of an action. The accident was a consequence of the pilot's actions. As a consequence as a result

consequent /kənˈsɛkənt/ adjective resulting. As temperature rises, there will be a consequent increase in the volume of the gas.

consequently /kənˈskwəntli/ adverb therefore, as a result. She was late, consequently she missed the start of the examination.

conserve /kənˈsɜːrv/ verb to avoid using unnecessarily. Release the brakes when necessary and conserve main system pressure. To conserve energy to use only as much energy as you really need. To conserve fuel to use as little fuel as possible.

consider /kənˈsɪdər/ verb to think carefully about something. If the aircraft is low on fuel, the commander should consider diverting to the nearest suitable airport.

considerable /kənˈsɪdərəb(ə)l/ adjective a lot of. Quite large. The required range of trim change is considerable. (Note: Considerable does not mean that something should be thought about, as the meaning for the verb consider might suggest.) A considerable amount of fuel a lot of fuel, a large amount of fuel. A considerable distance a long distance.

consideration /kənˌsɪdərəʃ(ə)n/ noun 1. something important to remember and to think carefully about. To take into consideration to remember to include when thinking about something, solving a problem or making a calculation. 2. thoughtfulness, respect. To show consideration for other people and property to show respect for what belongs to other people.

consist /kənˈsɪst/ verb to consist of to be made up of. Layer cloud names consist of a prefix, according to height of base, and a suffix according to shape. To consist in to mean, to be.

consistent /kənˈsɪstənt/ adjective always reacting or behaving in the same way. Human hair responds in a consistent manner to changes in the relative humidity. Consistent performance performance which maintains a particular standard.

consolidate /kənˌsɔldət/ verb to make more solid or strong. A revision of the subject helps to consolidate it. A revision of the subject helps to set it more firmly in the memory.

consolidation /kənˌsɔldəˈʃ(ə)n/ noun 1. a process by which something is made more solid or strong. 2. the grouping of goods together for shipment.

constant /ˈkɒnstənt/ adjective unchanging. The temperature of the gas remains constant. The temperature of the gas stays the same. Constant pressure pressure which stays the same.

constant speed drive unit /ˈkɒnstənt spɛd ˈdraɪv ˈjɜːnɪt/ noun a device fitted to aircraft with constant speed propellers. Abbreviation CSDU.

constant speed propeller /ˈkɒnstənt spɛd ˈprɛspələr/ noun a propeller with a control system which automatically adjusts pitch to maintain selected rpm.

constant speed unit /ˈkɒnstənt ˈspɛd ˈjɜːnɪt/ noun a device that automatically keeps a propeller at a speed set by the pilot. Abbreviation CSU.
constituent /ˈkɒnʃtɪjʊnt/ noun any one of the various parts that make up a whole. Water, whether in the form of vapour, liquid or ice, is a very important constituent of the atmosphere.

constitute /ˈkɒnʃtɪjʊt/ verb to make up, to form. Oxygen and nitrogen together constitute most of the atmosphere.

constrain /ˈkɒnstrɛin/ verb 1. to prevent somebody from being completely free or from doing something they want to do. The airline was constrained in its purchase of new aircraft by lack of financial resources. 2. to force somebody to do something. Lack of financial resources constrained the airline to cancel the purchase of new aircraft.

constraint /ˈkɒnstrɛint/ noun something that reduces freedom of action. The number of landings per 24-hour period is subject to constraint.

constrict /ˈkɒnstrɪkt/ verb to make something narrower, especially to make the flow of gas or liquid more difficult by narrowing the passage through which it flows. In the carburettor venturi, the flow of air is constricted.

constriction /ˈkɒnstrɪkʃən/ noun the act of constricting, or a place where something is particularly narrow. A thermometer has a constriction in the base of the tube between the bulb and the beginning of the scale.

construct /ˈkɒnstrʌkt/ verb 1. to put together. The table on page 4 can be used to construct the low level forecast for the route. 2. to build. To construct an aircraft to manufacture or build an aircraft. Wings are constructed of light alloy pressed ribs and an outer skin.

construction /ˈkɒnstrʌkʃən/ noun 1. the act of putting things together, or the way in which something is put together. The basic construction of the lead-acid cell consists of a positive electrode and negative electrode. 2. a building. The construction of the home-built aircraft took two years.

consume /ˈkɒnʃjuːm/ verb 1. to use up in a given time. Drag must be overcome with thrust, which requires engines, which in turn consume fuel. 2. to eat. Consumption /ˈkɒnˌsʌmpʃən/ noun 1. the amount used up in a given time. Fuel consumption is higher in bigger, more powerful engines. 2. the process of using up fuel or other resources. 3. the amount eaten. The act of eating.

contact /ˈkɒntækt/ noun 1. touch. In contact with touching. The air in contact with the Earth’s surface cools. 2. to be in contact with to communicate with e.g. by telephone or radio. To be in visual contact to see. To make contact to communicate. To lose contact to stop communicating. ATC lost contact with the aircraft. 3. a person who can be contacted in order to get something done. I have a contact in Madrid who can help I know somebody in Madrid who can help. 4. an electrical connection. Dirty contacts were the cause of the problem.

contact breaker /ˈkɒntækt /ˈbreɪkər/ noun a mechanically operated switch which is timed to break the primary circuit when maximum current is flowing.

contact flight /ˈkɒntækt /ˈflaɪt/ noun a method of navigation for aircraft in which the pilot or crew use no navigational aids, but find their way by observing visible features of the ground.

contact number /ˈkɒntækt ˈnʌmbər/ noun a telephone number where information can be obtained.

contain /ˈkɒntɛin/ verb to hold, to have inside. Most clouds contain some super-cooled water droplets. The booklet contains details of the airline’s flight schedule.

container /ˈkɒntɛnər/ noun a box, bottle, etc., which holds something else. A smouldering fire in a waste container could become very active due to pressure changes during ascent.

contaminate /ˈkɒntəmɪneɪt/ verb to make something impure, harmful or dangerous. If contaminated air enters
contaminated fuel 56
the cabin, the dump valve can be opened.

contaminated fuel /'kɒntɪmɪntɪd //ˈfjuːəl/ noun fuel which contains an unwanted substance, such as water, and is therefore dangerous to use

contamination /'kɒntɪməneɪʃən/ noun a process by which a liquid, gas or object is made unusable because impurities or foreign matter are allowed into or onto it  the contamination of air air pollution a situation in which fuel becomes unusable because an unwanted substance such as water gets into it  nuclear contamination damage done to an object, person or substance because of contact with nuclear radiation

content /kəntent/ noun the amount of a substance that is contained within something, often expressed as a percentage  The stratosphere is a layer in which the water vapour content is low.

the moisture content of the atmosphere the amount of water vapour in the air

continent /'kɒntɪnənt/ noun one of the seven great land masses of the Earth  the continent of Europe

COMMENT: The seven continents are: Asia, Africa, North America, South America, Australia, Europe and Antarctica.

continental /'kɒntɪnent(ə)/ adjec-tive referring to a continent

continental climate /'kɒntɪnent(ə)l //ˈklaɪmət/ noun the type of climate found in areas where there is no effect from the sea

contingency /'kɒntɪnˈdʒənsi/ noun something which might happen in the future and therefore must be planned for

contingency reserve fuel /'kɒntɪnˈdʒənسر //rɪˈfjuːəl/ noun fuel which would only be used in an unusual situation such as a diversion

continuity /'kɒntɪnjuətɪ/ noun continuing  continuity of precipitation continuing rain, snow or hail

contour /'kɒntər/ noun the shape of something

contour chart /'kɒntər ˈʃɑrt/ noun chart which shows areas of high and low ground

contour gradient /'kɒntər ˈɡreɪdʒənt/ noun steepness of change in elevation

contour line /'kɒntər ˈlайн/ noun a line on a map or chart joining points of equal elevation

contract /'kɒntrækt/ verb to become smaller in volume  Liquids will expand or contract as a result of temperature changes. Opposite expand

contraction /'kɒntrækʃən/ noun the decrease in volume of a substance brought about by cooling  Due to contraction, the length of a mercury column shortens. Opposite expansion

contrail /'kɒntreɪl/ noun same as vapour trail

contrast /'kɒntrɑst/ noun 1. the amount of light and dark in something seen  Contrast and colour enable a pilot to identify ground features. 2. the difference between two things  There is an enormous contrast between the performance of the two aircraft. in contrast to when compared with  Air at altitude is cold in contrast to air at the surface.

contribute /'kɒntrɪbjuːt/ verb to give or provide as part of the whole  Exhaust gases contribute to engine power. although the weather was bad, pilot error contributed to the accident pilot error was partly responsible for the accident

contribution /'kɒntrɪˈbjuːʃən/ noun 1. the part that something plays in making or causing something  The differences in the effect of solar radiation on land and sea make the biggest contribution to weather and climate. 2. the act of contributing or something, especially money, that is given or provided

contributor /'kɒntrɪbjuːtə/ noun a person or thing that contributes to something  There are other factors which cause the division of the lower atmosphere into two layers but the ozone effect is a major contributor.
control /'kənˈtraʊl/ noun 1. the authority or ability to direct somebody or something 2. crowd control the management of the movements of large numbers of people 3. checking or examining n verb to direct, to manage or to make a machine, system, procedure, etc., work in the correct way The purpose of the centrifugal switch is to control the starting and ignition circuits. (NOTE: The word control in English is used in a different way to similar words in other languages. In English, the verb check is more often used to mean 'look at and verify' while control is used in the sense of 'to make something work in a particular way': the yoke and rudder pedals are used to control the movement of the aircraft. Note also: controlling — controlled.)

control area /'kənˈtraʊl ˈeərə/ noun the airspace above a particular area on the ground, which is controlled by a particular authority. Abbreviation CTA

control column /'kənˈtraʊl ˈkɒləm/ noun the main hand control used by the pilot to control the aircraft in roll and pitch

controlled airspace /'kənˌtraʊld ˈkəʊstəriə/ noun airspace which is governed by rules and regulations which pilots must comply with. Abbreviation CAS

controller /'kənˈtraʊlər/ noun 1. a device which ensures that something operates in the correct way the propeller speed controller 2. a person who manages systems to ensure the smooth operation of procedures

controls /'kənˈtraʊlz/ plural noun manual or automatic devices that are used to control a machine, a system, etc., or to make a machine, a system, etc., work in a correct way the pilot at the controls of the aircraft the pilot who is operating the flying controls

control surfaces /'kənˈtraʊlˌsɜːfsərəz/ plural noun moveable aerofoils, usually on the wings and tailplane, which can be operated from the cockpit by the pilot, thus changing aircraft attitude

control tower /'kənˈtraʊl ˈtaʊər/ noun a tall building on an airfield from which air-traffic controllers organise incoming and outgoing aircraft by speaking to their pilots by radio

control zone /'kənˈtraʊl ˈzaʊn/ noun a designated ATC area. Abbreviation CTR

collection /'kənˈvɛkʃən/ noun the process by which hot air rises and cool air descends. Heat is transferred from the Earth's surface upwards largely by convection.

convective /'kənˈvɛktɪv/ adjective referring to convection, or something which is affected by the vertical circulation of air convective movement movement caused by warm air rising and cool air descending

convective clouds /'kənˌvɛktɪv/ noun clouds formed as a result of warm moist air rising and condensing at altitude

convenience /'kənˈvɪnjəns/ noun 1. personal comfort and benefit at your convenience when it is least troublesome for you 2. ease of understanding for convenience we will assume that the Earth is round 3. usefulness, or easiness to use

convenient /'kənˈvɪniənt/ adjective 1. useful the circular slide rule has a convenient scale for converting weights and volumes 2. suitable and unlikely to cause problems we must arrange a convenient time and place for the meeting

convention /'kənˈvɛnʃən/ noun 1. an idea which because of long usage has become normal and accepted by convention, wind direction is the direction from which the wind blows 2. a meeting involving large numbers of people and long discussions in order to arrive at an agreed course of action often outlined in a public statement the Tokyo Convention

conventional /'kənˌvɛnʃənl/ adjective usual or familiar to most people every pilot must know the conventional symbols used for depicting the various ground features on charts.
converge  /kanˈvɔːrdʒ/  verb  to come together at a particular point.  ∞ Meridian convergence  towards the poles.  ∞ Aircraft on converging courses.  ∞ Buses are used to convey passengers from the aircraft to the terminal building.  ∞ Conversion course飞行 training  which enables and qualifies a pilot to fly a different aircraft type.

convert  /kanˈvɔːrt/  verb  to change to a different system or set of rules.  ∞ How do you convert degrees C into degrees F?

converter  /kanˈvɔːrə/  noun a device which alters the form of something.  ∞ A backup converter converts the alternating current power into direct current.

convertible  /kanˈvɔːtəb(ə)l/  adjective possible to change easily, e.g. to fit in with a new system or set of standards.  ∞ The statute mile, unlike the nautical mile, is not readily convertible into terms of angular measurements.

convey  /kanˈvɔːv/  verb to carry or move from one place to another.  ∞ A large number of tubes convey the cooling medium through the matrix.  ∞ Buses are used to convey passengers from the aircraft to the terminal building.  ∞ To convey information to pass information from one person to another, or from one place to another.

cool  /kʊəl/  adjective a little cold.  ∞ cool weather  weather which is not hot, warm or very cold.  ∞ verb to become or cause to become less hot.  ∞ The airflow is used to cool the oil.  ∞ air-cooled coolant  /ˈkuːlənt/  noun a substance, usually liquid, used to cool something such as an engine.  ∞ A self-contained system, consisting of an oil tank, pump, filter, cooler, and oil jets, lubricates the auxiliary power unit.

cooling  /ˈkuːlnɪŋ/  noun the action of making something cool.  ∞ The cooling of the oil by the airflow.  ∞ adjective reducing the temperature of something.  ∞ cooling medium  a substance which reduces the temperature of another substance or material.

coordinate  /ˈkɔːrdənət/  verb  1.  to bring together the various parts of a procedure or plan to ensure that the operation works correctly.  ∞ It is the task of air traffic controllers to coordinate the movement of traffic in and out of a terminal.  2.  to make different parts of the body work well together.  ∞ During a hover, helicopter pilots must be able to coordinate movements of both hands and feet.

coordinated flight  /ˈkɔːrdənətɪd/  noun.  ∞ Flight, especially during turns, in which the horizontal and vertical forces acting on the aircraft are in balance.  ∞ In coordinated flight, the ball in the turn coordinator will be in the centre.

COMMENT: The ball in the balance indicator of the turn coordinator shows the pilot if the aircraft is in coordinated flight or if it is slipping or skidding.  When the ball moves to the left the pilot should apply left rudder pedal pressure.  When the ball moves to the right, the pilot should apply right rudder pedal pressure.

Coordinated Universal Time  /ˈkɔːrdənətɪd ˌjuːniˈvɜːrs(ə)l ˈteɪm/  noun time used in aviation based on the 24-hour clock format.  ∞ GMT coordinates  /ˈkɔːrdənətɪz/ plural noun values used to locate a point on a graph or a map.  ∞ The airfield can be seen on the map at coordinates B:12.
coordination /ˌkɔrdiˈneɪʃən/ noun 1. the process of bringing together the various parts of a procedure or plan to ensure that it works correctly. 2. A rescue coordination centre is set up to control the emergency. 3. the ability to use different parts of the body together well.

cope /kəu/ verb to manage to do something, often with some difficulty.

Coriolis force /kəˈrɪəlɪs fɔːr/ noun the force which accelerates the movement of a rotating mass perpendicular to its motion and towards the axis of rotation. The Coriolis force explains why wind patterns are clockwise in the northern hemisphere and anti-clockwise in the southern hemisphere.

Correct /kəˈrɛkt/ adjective right. 1. to adjust in order to make right. 2. A servo-motor fitted in the elevator trim system will automatically correct for loads. Calibrated airspeed or rectified airspeed is indicated airspeed corrected for instrumentation and installation error.

Correction /kəˈreʃən/ noun 1. An adjustment or change made to something to make it correct. 2. the use of a mathematical formula for adjusting a known inaccuracy of calculation. In applying this correction the reading is converted to that which would occur at mean sea level. 3. an alteration on, e.g. a test answer, which provides the right answer in place of the wrong answer given. I made several corrections to the text.

Corrective /kəˈrɛktɪv/ adjective referring to something designed to correct.

Corrective action /kəˌrɛktɪv ˈækʃən/ noun action taken to put a situation right. If the pilot realises that the plane is too high on the approach, he or she should take corrective action immediately.

Correlate /kərˈrelət/ verb to measure something against something else in order to form a relationship between the two.

Correlation /kərˈreləʃən/ noun a measurable and predictable relationship. At a given speed, there is a correlation between time and distance.

Correspond /kərˈspɔnd/ verb 1. to fit with or have a direct relationship with. Movements of the control surfaces correspond to movements of the pilots' flying controls. 2. to be similar to. In the interests of passenger comfort, the ideal cabin conditions to maintain would be those corresponding to sea level.

corridor /ˈkɔrɪdɔr/ noun same as air corridor.

corrade /ˈkɔrəd/ verb 1. to destroy by a slow chemical process such as rust. The sulphur and water content of turbine fuels tend to corrode the components of the fuel and combustion sys-
corrosion /ˌkɔːrəˈzɪən/ noun the destruction of a material by chemical processes. Aluminium has a high resistance to corrosion.
corrosion protection /ˌkɔːrəˈzɪən prəˈtekʃən/ noun action and/or measures taken to prevent corrosion such as rust.
corrosive /ˌkɔːrəˈzɪv/ adjective causing corrosion.
cosine /ˈkəʊsɪn/ noun a trigonometric function defined as the length of the side adjacent to an angle in a right-angled triangle divided by the length of the hypotenuse. Abbreviation cos.
counter /ˈkaʊntər/ verb to act against something so as to remove or reduce its effect. For level flight, lift must counter the force of gravity. Some people find that swallowing hard counters the effects of changes in pressure.
counter-clockwise /ˌkaʊntərˈklɒkwaɪz/ adjective, adverb US same as anticlockwise.
counter-rotating propellers /ˌkaʊntər ˌrəʊtɪŋ prəˈpelərz/ plural noun propellers which turn in opposite directions (NOTE: They are also called contra-rotating propellers.)
couple /ˈkʌpl(ə)/ noun two of something a couple of minutes two or three minutes verb 1. to connect or to join, often mechanically. The auxiliary power unit is a self-contained unit which normally consists of a small gas turbine engine which is coupled to a gearbox. 2. to combine. Pilot error, coupled with poor weather conditions, resulted in an accident.
coupling /ˈkʌplɪŋ/ noun a joining or connecting component. When not in use, the coupling is sealed by a dust cap.
course /kaʊs/ noun 1. an imaginary line across the surface of the Earth which must be followed in order to arrive at the destination. 2. to alter course to change direction or to follow a different route. 3. a formal period of study. 4. a meteorology course. 5. continuing time in the course of the briefing during the briefing.
course correction /ˌkaʊs kəˌrɛkʃən/ noun same as heading correction.
course deviation indicator /ˌkaʊs ˌdiˈvɪʃən ɪndɪkətors/ noun a needle in an omni-bearing indicator which indicates if an aircraft is on a selected course. Abbreviation CDI.
cover /ˈkʌvər/ verb 1. to include e.g. the complete extent of a period of time or the whole of a particular area. The restriction covers the period from 4th-8th July. 2. the area covered by the forecast the area which the forecast deals with. 3. to be completely over something so as to hide what is underneath. The area is covered in snow. 4. something which goes over something else completely. 5. cloud cover the amount of cloud. A snow cover a situation in which there is a layer of snow on top of the earth so that the earth cannot be seen.
coverage /ˈkʌvər(ə)rɪdʒ/ noun 1. the amount of space or time given to a subject, an event, etc. 2. More complete coverage of the one-in-sixty rule is given in the plotting section of these notes. 3. the area within which a radar unit can detect objects. 4. glidepath coverage /ˈɡlaidpæt kəˈvərædʒ/ 5. localiser coverage.
cowl /kəʊl/ noun a covering usually made up of hinged or removable panels. 1. cowl flap a removable or hinged panel of a cowl. 2. Further cooling can be obtained by the use of controllable cowl flaps which regulate the amount of air flowing across the cylinders.
cowling /ˈkəʊlɪŋ/ noun a covering usually made up of hinged or removable panels. Access to the engine compartment is normally via hinged cowling panels.
CPL abbreviation Commercial Pilot’s Licence.
cating oil to pass through.

passages in the crankcase allow lubricating oil to pass through.

An aircraft is damaged when an aircraft is damaged heavily without using the undercarriage, so that the aircraft is damaged as much as the pilot expected.

The crash-landing did not damage the aircraft as much as the pilot expected.

The aircraft crashed into the sea.

The aircraft crash-landed short of the qualifying cross-country flight for the PPL.

cross-pointer indicator /ˈkrosˈpɔɪntərɪˌɪndɪkətər/ noun a display with crossing horizontal and vertical bars to indicate aircraft position in relation to the glideslope.

marks on the wheel and tyre indicate that there is no creep.

the top of a mountain or wave. Wind speeds increase with height, the speed of the wind at the crest of a mountain or wave being the greatest.

two or more people who have responsibility for flight operations.

The criterion for promotion is seniority senior staff will be promoted first.

the critical point when the airflow over the upper surface of the wing begins to break down.

to cross the Atlantic to go from one side of the Atlantic to the other.

Meridians intersect at the poles and cross the equator at right angles.

At any angle of attack, it reaches the critical point when the airflow over the upper surface of the wing begins to break down.

to cross a display.

to make, to produce. The velocity and pressure of the exhaust gas create the thrust in the turbojet engine.

a process of weakening and slow damage to something. Creep is a particular feature of components which are subjected to operation at high temperatures. A slight movement of a tyre on a wheel caused by landing.
cross-section /ˈkrɔːsˌsɛkʃən/ noun a view of an object seen as if cut through. The diagram is a cross-section of a turbojet engine.

crosswind /ˈkroʊswind/ noun a surface wind which blows at an angle to the landing or take-off heading. On some aircraft, crosswind take-offs should be made with full aileron deflection in the direction from which the wind is blowing.

COMMENT: A crosswind landing is one of the most difficult exercises for a student pilot. The final approach is usually made with the aircraft yawed into wind, while tracking the extended runway centreline. Just before touchdown, the pilot aligns the aircraft with the direction of flight using the rudder pedals. Correct timing for the alignment and accurate airspeed are required to achieve positive contact with the runway surface otherwise the aircraft may depart the runway to one side.

crosswind component /ˈkroʊswind kəmpənənt/ noun that part of the wind force acting at an angle to the direction of flight

crosswind leg /ˈkroʊswind læg/ noun part of the airfield traffic circuit flown at approximately 90° to the direction of take off and climb out, followed by the downwind leg

CRT /ˈsɪə tiiz/ abbreviation cathode ray tube

cruise /kruːz/ noun the main part of the flight between top of climb after take-off and descent for landing. To fly the main part of the flight between top of climb after take-off and descent for landing. We are cruising at 500 kt. Cruising speed, cruising power and cruising altitude are selected to give maximum engine efficiency and prolong engine life.

cruising altitude /ˈkruːziŋ ˈæltətjuː/, cruising level noun the altitude at which most of a flight is flown en route to a destination, from top of climb to top of descent. Our cruising altitude will be 35,000 feet.

Cruising power /ˈkruːziŋ ˈpaʊə/ noun engine power used to give required speed from top of climb to top of descent usually giving fuel economy and long engine life. Cruising power is about 2,300 rpm.

cruising speed /ˈkruːziŋ spid/,
cruise speed noun the speed selected from top of climb to top of descent, usually giving fuel economy and long engine life. The cruising speed is 110 knots.

cruising weight /ˈkruːziŋ wɛt/ noun the weight of an aircraft in flight, consisting of its weight when empty, the weight of its payload, and the weight of the fuel that it has left.

crush /krʌʃ/ verb to damage by pressure. Excessive load on the beam may crush the core.

crystal /ˈkrɪstəl/ noun a regular geometric shape formed by minerals, or as water freezes

CSDU abbreviation constant speed drive unit

CSU abbreviation constant speed unit

CTA abbreviation control area

CTOT abbreviation calculated take-off time

CTR /ˈkɑːtɹol/ abbreviation control zone

cubic /ˈkjʊbɪk/ adjective measured in volume, by multiplying length, depth and width. A cubic centimetre (cc) is the usual unit used to measure the capacity of an internal-combustion engine. The engine has a capacity of 2,000cc. Abbreviation cc = cubic foot, cubic inch, cubic metre, cubic yard the volume of a cube whose edge measures one foot, inch, metre or yard, respectively.

cumuliform /ˈkjuːməlɪfɔrm/ adjective which develop vertically. Cumuliform clouds such as cumulonimbus

cumulonimbus /ˈkjuːmələnɪmbəs/ noun a dark, low cumulus – type of cloud associated with thunderstorms. A cumulonimbus has a characteristic anvil shape. Abbreviation CB

cumulus /ˈkjuːmələs/ noun big, fluffy, white or grey cloud heaped or piled up, which develops at low altitude. Cumulus clouds may develop because
of thermal activity resulting from the warming of the surface. Grey cumulus often develop into cumulonimbus. Altocumulus, stratocumulus, and grey cumulus often develop into cumulonimbus. Altocumulus, stratocumulus, and grey cumulus are clouds which form only in an unstable atmosphere and, as the name suggests, often build vertically for great distances. Also called heap cloud current. Present, actual, happening at the moment. Current weather conditions are the position now. An electrical supply. Alternating current, direct current. Curvature. A curved shape. Curvature of the earth is the curving of the Earth’s surface due to the spherical form of the Earth. Customary. Normal or usual. It is customary for the senior cabin supervisor to introduce herself to passengers at the start of a flight. Customs. An official department of government concerned with movement of people and freight across national borders. Customs aerodrome is an aerodrome, usually near a border or coast, with customs facilities. Customs duty is the duty payable on a carton of cigarettes. Cycle is a series of actions which end at the same point as they begin. With the piston engine, the cycle is intermittent, whereas in the gas turbine, each process is continuous. Life cycle of the thunderstorm cell is the process of formation, development and decay of a thunderstorm. Cylindrical is with the shape of a cylinder. The modern jet engine is basically cylindrical in shape.
damage /ˈdeɪmɪdʒ/ noun 1. harm that is caused to something If the temperature rises it can cause serious damage to the engine. 2. verb to cause harm to something Small stones around the run-up area may damage propellers.
damage tolerance /ˈdeɪmɪdʒ ˈtɒlərəns/ noun the ability of a material or structure to withstand or resist damage. The structural efficiency of bonded and machined structure is not achieved at the expense of damage tolerance.
dampen /ˈdæmpən/ verb 1. to decrease or reduce An accumulator is fitted to store hydraulic fluid under pressure and dampen pressure fluctuations. 2. to make slightly wet
damper /ˈdæmpə/ noun a device to decrease or reduce something A yaw damper is used for rudder control.
D & D abbreviation distress and diversion cell
danger area /ˈdeɪndʒər ˈeərɪə/ noun airspace of a particular length, width and depth, within which at particular times there may be activities which are dangerous to the flight of the aircraft. Abbreviation D, DA
danger zone /ˈdeɪndʒər ˈzuːn/ noun an area where danger exists
data /ˈdeɪtə/ noun 1. information made up of numbers, characters and symbols often stored on a computer in such a way that it can be processed 
metereological data information about weather conditions stored on a computer 2. information.
datum /ˈdeɪtəm/ noun a reference or base point of a scale or measurement, e.g. mean sea level
datum shift trim system /,deɪtəm ʃɪft ˈtrɪm ˈsɪstəm/ noun a trim system which varies the incidence of an all-moving tailplane without moving the cockpit controls. In some aircraft, the datum shift is operated automatically.
dB abbreviation decibel
DC abbreviation direct current
declination direct current
de- pre- undo, remove or stop deactivate /diˈækstvɪt/ verb to turn off a system or a piece of equipment thus stopping it being ready to operate. On some aircraft nose wheel steering must be deactivated prior to retraction.
dead reckoning /ˈded ˈrɛkənɪŋ/ noun navigation using calculations based on airspeed, course, heading, wind direction and speed, ground speed, and time. In the early stages of practical navigation, the student pilot navigates by using dead reck-
damage was done to the aircraft as it enters the engine. The pump helps to de-aerate the fuel before it enters the engine.

de-aeration /di: ə'ærəʃən/ noun the process of removing gas from a liquid such as fuel. Partial de-aeration of fuel takes place in the pump.

de-aerator /di: ə'ærətər/ noun a device to remove gas from a liquid

de-aerator tray /di: ə'ærətər træt/ noun a device in the lubrication system to remove air bubbles from oil

deal /di:l/ noun a great deal a large amount of, a lot of. A great deal of damage was done to the aircraft as a result of the fire. The verb to handle or manage. A computer can deal with the constant inputs required to control an unstable aircraft.

debris /dɪˈbrɪs/ noun scattered broken pieces. Before running up the engine, check that the aircraft is on firm ground and that the area is free of stones and other debris. The area of the countryside.

decal /ˈdekl/ noun picture, letters or digits printed on adhesive paper, which is transferred onto a surface and may be peeled away. A red decal with AVGAS 100LL in white letters indicates the type of fuel to be used.

decelerate /diˈsɛlərət/ verb to slow down Reverse thrust and brakes help to decelerate the aircraft after landing. Opposite accelerate

deceleration /diˌsɛləˈreɪʃən/ noun slowing down Anti-skid braking systems units are designed to prevent the brakes locking the wheels during landing, thus reducing the possibility of wheel skid caused by the sudden deceleration of the wheel. Opposite acceleration

decibel /ˈdɛsəbəl/ noun a unit for measuring the loudness of a sound. Abbreviation dB
decode /diˈkəʊd/ verb to change coded information into readable form. Incorrectly spaced information pulses can result in failure by the ground station to decode the aircraft information.

decoder /diˈkəʊdə/ noun a device used to decode signals from the air traffic control radar beacon system. The aircraft receiver is set to the required frequency and linked to a selective call system decoder which has a 4-letter code.

decrease noun /ˈdɪkris/ a lessening or reduction. A decrease in power results in the aircraft descending. Decrease in air density and pressure decrease with an increase in altitude.

deduce /drˈdjuːs/ verb to work something out in the mind using information provided. Sometimes, it is possible to estimate the depth of the layer of mist or fog from the ground observations and hence to deduce the ground range from any height.

defect /ˈdɪfekt/ noun a fault or error. Low oil pressure or excessive temperature indicate the development of a possible defect.

defective /ˈdɪfektɪv/ adjective faulty or not operating correctly. Loss of supply pressure is caused by either a defective booster pump or lack of fuel.

define /ˈdɪfain/ verb 1. to give an exact explanation, as in a dictionary. It is not easy to define the word; it is difficult to say exactly what the word means. 2. to set the limits of something. Cloud tops are very difficult to define.

definite /ˈdɛfɪnət/ adjective referring to something which is not in doubt, which is certain. Using a time scale on the track, the pilot should be prepared to look for a definite feature at a definite time. Opposite: indefinite

definition /ˌdɛfɪˈnɪʃ(ə)n/ noun an exact explanation of what a word or expression means. The definition of a year is the time taken for a planet to describe one orbit around the sun. By definition understood by the use of the word itself. A sphere is, by definition, round.

deflate /diˈflɛt/ verb to allow air to escape from something, so that it becomes smaller or collapses. Opposite inflate to deflate a tyre to allow the air to escape from a tyre.

deflation /ˈdɪflɛʃ(ə)n/ noun the act of allowing air to escape from something, so that it becomes smaller or collapses. Deflation of a tyre is done by depressing the valve.

deflect /ˈdrɛfekt/ verb 1. to cause an object to move away from a neutral or central position. During an out-of-balance turn, the ball in the slip indicator will be deflected to the left or right. 2. to move a moving object, gas or liquid away from its intended path. In an open-cockpit aircraft, the windshield deflects the airflow over the pilot’s head.

deflection /ˈdɪfleks(ə)n/ noun 1. movement away from a central or neutral position. Full deflection of the ailerons is sometimes needed on take-off to counteract a crosswind. 2. the movement of a moving object, gas or liquid away from its intended path. In the southern hemisphere the deflection of wind at the equator is to the left.

deformation /ˈdɛfrəˌmeɪʃ(ə)n/ noun a change of the correct shape caused by stress. Deformation of wing panels may be an indication of serious structural damage.

deg abbreviation degree

degradation /ˌdɪɡrəˈdeʃ(ə)n/ noun a decrease in quality. Degradation of the radio signal sometimes makes it impossible to understand the message.

degrade /drˈgred/ verb to decrease the quality of something. Interfering signals degrade VOR performance.

degree /ˈdiɡri/ noun 1. a level, amount or quantity. The degree of compression the amount of compression. A high degree of safety a high level of safety. To a greater degree more than. To a lesser degree less than. 2. a unit of temperature. Twenty degrees Celsius (20°C) 20 degrees Centigrade (20°C) 3. seventy
degrees Fahrenheit (70°F) 3. a unit of measurement of an angle equal to 1/360th of a circle – each degree is divided into 60 minutes and each minute into 60 seconds. *Make a turn to the right at a bank angle of 30°.* *an angle of 90°* a right angle 4. a unit of direction as measured on a compass. *east = 090°* *west = 270°*

degrees true /dɪ,grɪz /true/ noun degrees of direction measured from true north, not magnetic north. Also called true degrees. Symbol °T

dehydration /dɪ'haiər'dreɪʃ(ə)n/ noun an unwanted and sometimes dangerous loss of water from the body. Dehydration can be avoided by drinking plenty of water.

de-ice /dɪ: 'aɪs/ verb to remove ice. The ground crew de-iced the aircraft prior to take-off.

de-icer /dɪ: 'aɪsə/ noun a device or substance used to remove ice. De-icer spray should be checked to make sure it is not harmful to light aircraft wind screens.

de-icing /dɪ: 'aɪsɪŋ/ noun the removal of ice. *antI-icing, icing*

delay /dɪ'lei/ noun a period after the expected time that you have to wait before something happens, the length of time by which something is late. *by day, the presence of cloud can cause a delay in clearance of fog.* *verb 1.* to make late, to cause to be late. *take-off was delayed because of fog.* 2. to put something off until later. He delayed telling her the news until they had landed.

delayed-action /dɪ,leitɪd /ækʃ(ə)n/ adjective in which there is an unusual passing of time between stimulus and response. The door is fitted with a delayed-action lock which operates one minute after the power has been switched off.

deliver /dɪlˈvɪə/ verb to provide, to give. *the motor will continue to run but will deliver only one-third the rated power.* *The pump can deliver fuel at the rate of 2,000 gph.*

density altitude /dɪ,ˈnɒsɪtɪ ˈæltɪtjuːd/ noun the pressure altitude corrected for non-ISA temperature. *comment:* Density altitude is a very important factor in calculating aircraft performance because of its effect on engine performance, time to reach takeoff speed and therefore length of take-off run and rate of climb.
density error /ˈdensəti/, /ˈerə/ noun a correction to airspeed to give true airspeed.

DEP abbreviation departure message.

depend /dɪˈpend/ verb 1. to be controlled or affected entirely by something • Whether or not an object can be seen by aircrew at a given distance will depend on factors such as size, shape and colour of the object. • If an aircraft ditches in the sea, early rescue depends on rapid location of survivors. 2. to rely on • Pilots depend on air traffic controllers to help them conduct a safe flight.

dependable /dɪˈpendəb(ə)l/ adjective reliable, trustworthy • Mercury barometers have largely been replaced by precision aneroid barometers which are smaller, simpler to use, and more dependable.

dependent /dɪˈpendənt/ adjective relying on or unable to do without something • The height indicated by an altimeter is dependent on the pressure which is set on the sub-scale.

deploy /dɪˈplæ/ verb to come into action, to become ready to be used • Slide rafts are door-mounted and automatically deploy and inflate when the door is opened in the armed position.

deposit /dɪˈpɒzɪt/ noun 1. a layer of collected matter on a surface • A deposit of ice crystals causes the aircraft surfaces to change their aerodynamic characteristics. • Wheel brakes should be inspected for snow or ice deposits.

depreciate /dɪˈpresɪt/ verb to decrease in value • The aircraft depreciated by 100% over the 5 year period. Opposite appreciate.

depreciation /dɪˈpresɪʃ(ə)n/ noun a decrease in value • There was a depreciation of 100% in the value of the aircraft over the 5 year period. Opposite appreciation.

depress /dɪˈpreʃ/ verb to push down • Switches on the control columns instantly disengage the autopilot when depressed.

depression /dɪˈpreʃ(ə)n/ noun 1. an area of low atmospheric pressure • In the northern hemisphere, the wind blows anticlockwise round a depression and clockwise round an anticyclone and vice versa in the southern hemisphere. • A deep depression area of very low relative atmospheric pressure 2. a lower area on a surface, which is often difficult to see • A depression on the wing surface must be investigated in case it is an indication of more serious structural damage.

depressurisation /dɪˈpreʃəraɪzəˈreɪʃ(ə)n, -ʃəraɪzəˈreɪʃ(ə)n/ noun a loss, especially sudden, of cabin pressure • Emergency oxygen must be available in the event of depressurisation.

depressurise /dɪˈpreʃəraɪz/ verb to lose pressure suddenly, or to cause to lose pressure • The aircraft began to depressurise at 20,000 feet.

depth /dɛpθ/ noun the distance from the top surface of something to the bottom • The troposphere’s depth is variable in temperate latitudes.

derive /dɪˈrɑv/ verb to get or to obtain • Performance data is derived from flight tests. • Kepler derived the laws which relate to the motion of planets in their orbits.
descend /dɪˈsend/ verb to lose altitude, usually in a planned manoeuvre. The aircraft descended to 10,000 feet. The pilot reduced altitude until the aircraft was at 10,000 feet. Opposite climb, ascend.

descent /dɪˈsɛnt/ noun a planned loss of altitude. The descent from cruise altitude took 40 minutes. In the descent during planned loss of altitude, usually in preparation for landing...

...a search of radar recordings showed that a DC-10 had tracked within a few hundred metres of the house while passing 9,500 feet in the descent to Gatwick. [Pilot]

describe /dɪˈskraːrɪb/ verb 1. to give the particular features of something. To describe what happened put into words exactly what happened. 2. to draw a geometric figure or to move in a line that forms a geometric figure. The definition of a year is the time taken for a planet to describe one orbit around the sun. To describe an arc to draw or move in an arc.

description /dɪˈskrɪpʃən/ noun 1. the act of giving the particular features of something. A detailed description of world climate. 2. the drawing or making of a geometric figure. The description of a triangle the drawing of a triangle.

desert /dɪˈzɜːrt/ noun a large area of dry often sandy country. Over desert areas the lack of water vapour produces cold nights.

design /dɪˈzaɪn/ noun a plan or drawing of something before it is made. The design and testing of aircraft are important stages in the development programme. To verb to draw plans using accurate information in preparation for constructing something. To design an aircraft to have the idea, make drawings, calculate data, etc., with the intention of producing an aircraft.

designate /dɪˈzɛgnɪt/ verb to choose for a special purpose. This region is designated as a fire zone.

designator /dɪˈzɛgnɪtor/ noun a group of letters and/or numbers that identify something.
streamlined coverings for the wheels of light aircraft which can be taken off to allow inspection and repairs of tyres.

**detail** /ˈdɪteɪl/ **noun** the important and less important facts about something. 
*The amount of detail which appears on a topographical chart depends upon the scale.*

**detect** /ˈdɪtekt/ **verb** to discover the presence of something. 
*Apart from sensing the abnormal rate of descent of a false glide slope, the pilot can detect an error by comparing height with distance to go.*

**detection** /ˈdɪtektʃən/ **noun** the discovery of the presence of something.

**detector** /ˈdɪtektər/ **noun** a device for discovering the existence of something. 
*Ice detector a device for detecting the presence of ice on the airframe. When ice forms on the vibrating rod ice detector head, the probe frequency decreases.*

**deteriorate** /ˈdɛtərɪəreɪt/ **verb** to become or make bad or worse. 
*The electrolyte in the cells of a nickel-cadmium battery does not chemically react with the plates and so the plates do not deteriorate.*

**deterioration** /ˈdɛtərɪərəʃən/ **noun** worsening weather.

**deviate** /ˈdəvɪət/ **verb** to move away from the normal position or path. 
*If the aircraft deviates beyond the normal ILS glide slope, the flight crew are alerted.*

**device** /ˈdɪvɪs/ **noun** an object, especially mechanical or electrical, which has been made for a particular purpose. 
*A capacitor is a device with the ability to temporarily store an electric charge.*
dew /djuː/ noun drops of condensed moisture left on the ground overnight in cool places
dew point /ˈdjuː pɔɪnt/ noun the temperature at which air is saturated with water vapour and condensation begins

COMMENT: Weather reports usually include the air temperature and dew point temperature. When the difference between temperature and dew point is small, there is a strong possibility of fog, clouds, or precipitation.

dew point

DI  
DFTI  
DFR

DI

DI

DI

DI

diffusor /diˈfjuːza/ noun a device in a jet engine that alters the direction of flow of the air entering the engine as part of the process of compressing it before it reaches the combustion chamber

diffusion /ˈdɪfjuːʒən/ noun the process of spreading out; Gas from the turbine enters the exhaust system at high velocities but, because of high fric-

71 diffusion

diaphragm /ˌdæfræm/ noun a thin sheet of material used to separate parts or chambers; Some switches are operated by a diaphragm which flexes under fluid or air pressure.
differ /ˈdɪfər/ verb to be unlike; Track and heading differ by the amount of drift; Because the chart time and the departure/arrival times differ, it is necessary to consider the movement of any weather system which might affect the route.
differential /ˌdɪfəˈrɛnʃəl/ adjective referring to things which react differently when measured against a norm or standard; differential heating of the atmosphere; the heating of the atmosphere to varying temperatures depending on the relative warmth of the land at the equator and the poles
differential expansion switch /ˌdɪfəˈrɛnsɪən ˈswɪtʃ/ noun a switch which operates on the principle that the coefficients of expansion of dissimilar metals are different
differentiate /ˌdɪfəˈrɛntɪeɪt/ verb to recognise the difference between two things; to show two things to be different; Some types of colour blindness make the sufferer unable to differentiate between blue and red.
diffraction /ˈdɪfrækʃən/ noun the breaking down of a beam of radiation; Diffraction produces a surface wave which follows the curvature of the earth.
diffuse /ˈdɪfrjus/ adjective spread out in every direction; Glare caused by diffuse reflection of sunlight from the top of a layer of fog or haze can seriously reduce air-to-ground visibility

diffuser /ˈdɪfjuːzuə/ noun a device in a jet engine that alters the direction of flow of the air entering the engine as part of the process of compressing it before it reaches the combustion chamber
tion losses, the speed of flow is decreased by diffusion.

digit /'dɪgɪt/ noun any number from 0 to 9. Information is provided in a four-digit group.
digital /'dɪdʒɪt(ə)l/ adjective referring to a system or device which uses signals or information in the form of numbers
dihedral /'daɪhɛdr(ə)l/ noun the angle between an upward sloping aircraft wing and a horizontal line
diluted /'daɪlutɪd/ adjective made weaker by adding water or some other fluid. Spillage from a lead acid battery may be neutralised by washing with a diluted solution of sodium bicarbonate.
diluter /'daɪlutə/ noun a device for decreasing the strength or concentration of a liquid or gas. Most flight decks use the diluter demand system in which the oxygen is diluted with cabin air.
dimension /ˈdɪmənʃən/ noun a measurable distance such as height, length, etc., or a measurement of height, length, etc. Variations of atmospheric pressure produce changes in the dimension of the cockpit chamber.
diminish /ˈdɪmɪnʃ/ verb to decrease or to reduce in size or importance. Friction is greatest near the ground and diminishes with height. At higher altitudes, ground objects are less easily seen because of diminished size.
diode /ˈdaɪəʊd/ noun an electronic component that allows an electrical current to pass in one direction and not the other.
dioxide /ˈdaɪəksəʊd/ noun an oxide containing two atoms of oxygen. Car
bon dioxide

dip to move e.g. the wing or nose of an aircraft so that it points downwards.
direct /ˈdɪrɪkt/ adjective 1. in a straight line; by the shortest route. 2. direct flight. complete the direct opposite. verb to guide or control the movement of something. Clamshell doors are hydraulically or pneumatically opened, and direct the exhaust gases forwards to produce reverse thrust.
direct current /ˈdaɪərkənt/ noun an electric current flowing in one direction only. An electric starter is usually a direct current electric motor coupled to the engine, which automatically disengages after the engine starts. Abbreviation DC
direction /ˈdaɪrekʃən/ noun the course taken by somebody or something. The Earth rotates about its own axis in an anticlockwise direction.
directional /ˈdaɪərekʃən(ə)l/ adjective referring to the course taken by somebody or something.
directional gyro /ˈdaɪərekʃən(ə)rɪˌdʒəʊrəʊ/ noun a gyroscopic instrument which indicates direction but does not have a north-seeking magnet. The directional gyro should be set to correspond with the magnetic compass.
direction indicator /ˈdaɪərekʃən,ɪnˈdɪkətə/ noun an instrument which gives direction information. Abbreviation DI
directive /ˈdaɪərtrɪv/ adjective referring to the ability of a device to send or receive signals in straight lines. The antenna is highly directive in transmission and reception.
dip to move e.g. the wing or nose of an aircraft so that it points downwards.
disadvantage /ˌdɪsəˈvɑntɪdʒ/ noun an unwanted situation or condition, or a factor which makes somebody or something less likely to succeed. The disadvantage of a booster pump is that the output is constant so that when engine demand is high, fuel pressure
tends to be low and vice versa. Opposite advantage
disadvantaged (/dɪsədˈvɑːntɪd/) adjective physically disadvantaged (person) a person who has a physical disability

COMMENT: The word ‘disadvantaged’ may be regarded by some people as a politically correct term for ‘disabled’. With the help of specially-adapted controls, more and more disabled people are learning to fly.
disappear (/dɪsəˈpɪə/) verb 1. to vanish o If air blew at right angles to isobars, the horizontal pressure differences would eventually disappear. 2. to pass out of sight o The aircraft took off, climbed out and soon disappeared from view.
disarm (/dɪsɑːm/) verb 1. to switch off an active or live system o On the ground approaching the terminal, the flight deck will instruct the cabin crew to disarm the escape devices. 2. to forcibly remove a weapon from somebody o The hijacker was disarmed by security forces.
disc (/dɪsk/) noun a circular flat plate o A turbine consists of a disc on which is mounted a number of blades.
discharge (/dɪʃtʃɑːdʒ/) noun a release of power from a source such as a battery o A lightning flash is a large-scale example of an electrical spark, or discharge. o Battery discharge the loss or release of electrical supply from a battery o verb to release electrical supply from a source such as a battery o The battery discharged overnight.
disconnect (/dɪskəˈnekt/) verb to separate two things attached to one another o The electrical supply can be disconnected by pulling out the plug.
discrimination (/dɪˈskrɪmən/) noun the ability to know or see the difference between two similar things o Targets on the same bearing which are separated radially by less than half a pulse length distance will appear at the receiver as one echo, so good target discrimination requires short pulses.
discuss (/dɪˈskʌs/) verb to write about or talk about a subject o This chapter will discuss HF and VHF voice communications.
disembark (/dɪsəˈmɑːbk/) verb to leave the aircraft after landing o The passengers finally disembarked at 20.00 hours.
disembarkation (/dɪsəˈmɑːbəˈkeɪn/) noun the act of leaving the aircraft after landing o The exits are used as conventional doors for disembarkation.
disengage (/dɪsəˈɡeɪdʒ/) verb to switch off a system or device o Switches on the control columns instantly disengage the autopilot when depressed.
dish (/dɪʃ/) noun a shallow container for food
dish antenna (/dɪʃˈæntən/) noun a circular antenna with a shape like a shallow bowl
disintegration (/dɪsɪnˈtɛɡrəʃən/) noun the falling apart or destruction of something o Electromagnetic radiations resulting from the disintegration of radioactive materials are known as gamma rays.
dismantle (/dɪsˈmæntl/) verb to take apart into single components o One type of inspection is able to reveal fatigue cracks, corrosion, internal damage, the presence of loose articles and mercury spillage without the need to dismantle the aircraft. Opposite assemble (NOTE: The verb ‘mantle’ is not used.)
disorientation (/dɪsəˌɔrɪˈɛntɪʃən/) noun a state of confusion in which there is loss of understanding of where one is or which direction one is facing, etc. o When the cabin is rapidly and completely filled by smoke and fumes passengers will suffer from disorientation.
dispensation (/dɪsˈpɛnʃən/) noun permission not to have to do something o At very high altitudes the flying pilot must be on oxygen at all times, unless an aircraft dispensation has been obtained.
dispense (/dɪˈspɛns/) verb to use what one has or to use something o In some cases the rivets are dis-
dispersal

1. noun. The act of leaving an area and going in different directions of the dispersal of a crowd. The clearing away of something such as mist, e.g. by the wind. The dispersal of hill fog. Dispersal of cloud takes place when surface heating lifts the cloud base or drier air is advected.

2. noun. The process of spreading out and losing power or strength. The rubber used on nose or tail wheels is usually constructed to form a good electrical conductor for the safe dissipation of static electricity.

3. noun. That has melted and become of a liquid.


5. noun. A space between two places or points, or the measurement of such a space. The distance from point A to point B is 100 nm. The distance from point A to point B on the diagram is 2 cm. The height of the aircraft is the vertical distance, measured in feet, of the aircraft above the surface of the Earth.

6. noun. An airborne secondary radar whose signal is converted into distance. It is quite common to find a VOR located together with DME (Distance Measuring Equipment) to give simultaneous range and bearing from the same point on the ground. Abbreviation DME.

COMMENT: DME equipment is usually located in a VOR station. Other equipment in the aircraft transmits a signal to the VOR station, which replies. The equipment in the aircraft converts the signal into distance and also calculates ground speed and the time needed to reach the station.

7. noun. An airborne secondary radar whose signal is converted into distance.

8. noun. A space between two places or points, or the measurement of such a space.
distillation /dɪstrɪˈleɪʃ(ə)n/ noun the process by which a liquid is heated and the resulting vapour is then condensed and collected. With kerosene-type fuels, the volatility is controlled by distillation.
distinct /dɪˈstɪŋkt/ adjective clear and easily seen or understood. When a lead-acid battery is fully charged, each cell displays three distinct indications.
distinction /dɪˈstɪŋkʃ(ə)n/ noun something which makes one thing different from another. A clear distinction is made between showers and general precipitation.
distinctive /dɪˈstɪŋktɪv/ adjective easily recognised because of particular features or characteristics. Concorde is a very distinctive-looking aeroplane.
distinguish /dɪˈstɪŋgwɪʃ/ verb to know or to see the difference between things. A receiver antenna would be unable to distinguish between signals unless they had some differing characteristics.
distinguishable /dɪˈstɪŋgwɪʃəb(ə)l/ adjective easily recognised as different from something. Useful ground features must be easily distinguishable from their surroundings.
distort /dɪˈstɔr(t)/ verb 1. to put out of shape. Stress could cause the body of the aircraft to distort or change its shape. 2. to produce a bad radio signal. The sound of the transmission is distorted if the volume is set too high.
distortion /dɪˈstɔrʃ(ə)n/ noun 1. the bending or twisting of something so that it is out of shape. Difficulty in closing a door may be caused by distortion of the airframe. 2. alteration of the electrical signal that makes a transmission unclear. Distortion of the signal made it difficult for the controller to understand what the pilot said.
distress /dɪˈstrɛs/ noun 1. serious danger or difficulty. Some passengers were in distress after the incident. 2. a personal worry or anxiety. Some passengers were in distress after the incident.
distress and diversion cell /dɪˈstrɛs ənd dɪˈvɜːʒ(ə)n ˌsel/ noun a unit at an air traffic control centre that provides immediate assistance to aircraft in difficulty.
distress signal /dɪˈstrɛs ˈsɪɡn(ə)l/ noun a signal transmitted by an aircraft in danger.
distribute /dɪˈstrɪbjuːt/ verb 1. to give or send out. There are two basic configurations which are used to distribute electrical power, the parallel system and the split bus system. 2. to spread over a wide area. Multiple wheel undercarriage units distribute the weight of the aircraft.
distribution /dɪˈstrɪbjʊəʃ(ə)n/ noun 1. the act of giving or sending out. Parallel AC and DC power distribution systems are found on commercial aircraft containing three or more engines. 2. the fact of being spread over an area. There is a high distribution of used and disused airfields in the south of England.
distributor /dɪˈstrɪbjʊtər/ noun a device which sends an electrical charge to each spark plug in turn. The distributor directs the high voltage impulses to the cylinders in turn as they reach their ignition point.
disturb /dɪˈstɜːb/ verb to upset the normal condition of something. Small hills can disturb the flow of air.
disturbance /dɪˈstɜːrəns/ noun something that upsets the normal condition of something. In general, the higher the mountain and the faster the air flow the greater is the resulting disturbance.
ditch /dɪtʃ/ verb to land a plane in the sea, in an emergency. Even though aircraft have ditched successfully, lives have been lost because life rafts were not launched in time.
ditching /dɪtʃɪŋ/ noun the act of landing a plane in the sea, in an emergency. After all four engines stopped, the captain had to seriously consider the possibility of a ditching in the Indian Ocean.
diurnal /dɪˈɜːn(ə)l/ adjective referring to the 24-hour cycle of day and night. Diurnal changes in surface temperature over the sea are small.
dive /dəv/ noun a steep nose-down attitude of an aircraft ∎ to pull out of or from a dive to return the aircraft to level flight after a nose-down flight path ∎ During manoeuvring of an aircraft, when banking, turning and pulling out from a dive, stresses on the airframe are increased. ■ verb to put the aircraft into a steep nose-down attitude ∎ The aircraft dived to avoid the other aircraft. (NOTE: diving – dived)

diverge /dəˈvɜːdʒ/ verb to move further apart from something else ∎ Air diverges at low levels and converges at high levels, causing a sinking or subsid- ing effect in the atmosphere. Opposite converge
divergence /dəˈvɜːdʒəns/ noun the act of moving apart ∎ Divergence of air at high levels leads to rising air at low levels with a consequent pressure fall. Opposite convergence
divergent /dəˈvɜːdʒənt/ adjective referring to something which moves further apart from something else
divergent duct /dəˈvɜːdʒənt dəkʃt/ noun a duct which has an inlet area which is smaller than the outlet area
diversion /dəˈvɜːʃən/ noun a change in route or destination caused by bad weather, technical problem, etc. ∎ The aircraft had to make a diversion to another airport due to fog.
divert /dəˈvɜːt/ verb to turn away from a course or a destination ∎ An automatic cut-out valve is fitted to divert pump output to the reservoir when pressure has built up to normal operating pressure. ∎ The aircraft was diverted to Manchester airport because of fog.

divide /dəˈvaid/ verb 1. to separate into parts ∎ Air masses are divided into two types according to source region and these are known as polar and tropical air masses. 2. to calculate how many times a number is contained in another number ∎ Eight divided by four equals two (8 ÷ 4 = 2).

document /ˈdɒkjʊmənt/ noun a piece of writing, e.g. a memo, letter or report ∎ The flight crew route flight plan is a composite document which also serves as a navigation log.
domestic /ˈdɒməstɪk/ adjective referring or belonging to inside a country ∎ Domestic flights usually leave from Terminal 1.
dominate /ˈdɒmɪneɪt/ verb to have the most effect or influence on ∎ Because the chart time and the departure/arrival times differ, it is necessary to consider the movement of any weather system which will dominate the route.

doppler radar /ˌdɒplə rɪˈdɑːr/ noun radar which can distinguish between fixed and moving targets or provide ground speed and track information from an airborne installation

doppler VOR /dɒplə vərˌɒr/ noun an adaptation of VOR to reduce errors caused by location
dot /dɒt/ noun a small circular mark on paper ∎ The highest point in a locality is marked by a dot with the elevation marked alongside.
downdraught /ˌdaʊndrɔːt/ noun 1. cool air which flows downwards as a rainstorm approaches. Opposite updraught 2. air which flows rapidly down the lee side of a building, mountain, etc. (NOTE: It is also written down-draft in US English.)
downstream /daʊn'strɪm/ adverb in the direction of flow, or further along the line of flow. ◆ Internally driven superchargers are generally used on medium and high powered engines and are fitted downstream of the throttle valve.

downward /daʊn'wɔːd/ adjective moving to a lower level. ◆ When flying in turbulent air conditions, an aircraft is subjected to upward and downward gust loads.
downwards /daʊn'wɜːdz/ adverb to a lower level, towards the bottom. ◆ Pull the toggles downwards to inflate the life jacket. Opposite upwards (Note: In US English, downward is used as an adverb and as an adjective.)
downwind /daʊn'wɪnd/ adjective, adverb in the same direction as the wind is blowing. Turn downwind turn the aircraft so that it is flying in the same direction as the wind is blowing. Opposite upwind
downwind leg /daʊn'wɪnd leg/ noun part of the airfield traffic circuit which runs parallel to, but in the opposite direction to, the approach to land which is made into wind

Dr abbreviation dead reckoning
draft /draʊft/ noun US same as draught ◆ a down draft or an updraft
drag /dræg/ noun the resistance of the air created by moving the aircraft through the air. ◆ To reduce the effect of drag on an aircraft by the fixed undercarriage a retractable type was introduced. ◆ If an engine failure occurs, the windmilling propeller may cause considerable drag.

COMMENT: There are two basic types of drag called parasite drag and induced drag. Parasite drag is caused by friction between the air and the aircraft surface, aerofoils, landing gear, etc. Induced drag is produced by lift.

drain /driːn/ noun a device to allow fluid to escape from its container. ◆ When the cabin is pressurised the drains close, preventing loss of pressure. ◆ verb to allow fluid to escape by providing a hole or tube, etc., through which it can pass. ◆ The moisture drains in the lower skin of the cabin are open when the cabin is unpressurised, allowing moisture to drain.

drainage /driːnɪdʒ/ noun 1. the act of allowing a fluid to escape from its container. ◆ Drainage of water from the fuel system should be carried out before the first flight of the day. 2. a system of outlets for fluid such as water or fuel to pass out of a closed area.
draught /draʊft/ noun a local current of air. ◆ a down draught or an updraught (Note: This word is written draft in US English.)
draw /draʊ/ verb 1. to make a picture as with a pencil, on paper, etc. ◆ Because there is a temperature gradient across each front it is possible to draw isotherms which reduce in value from warm to cold air. 2. to pull or to take. ◆ Fluid is drawn into the pump body. 3. to pull towards oneself (Note: drawing – drew – drawn)
drift /drɪft/ noun movement away from the desired course, created by wind blowing at an angle to the intended direction of flight. ◆ If the wind direction is not the same as the aircraft track or its reciprocal, then the aircraft will experience drift. ◆ verb to move away from the desired course. ◆ When landing, a cross-wind from the right will cause the aircraft to drift to the left.
drill /drɪl/ noun 1. a short series of actions carried out in a particular sequence. ◆ The starting drill varies between different aircraft types and a starting check procedure is normally used. 2. a tool, often electrically powered, for making holes in metal, wood, etc.
drive /draɪv/ noun a series of connected devices that transmit power to the wheels, propellers, etc. ◆ Rotation of the engine for starting is done by an electric starter motor connected to a drive shaft in the accessories gearbox. ◆ verb 1. to make something move or turn. ◆ shaft-driven using a rotating shaft as a means of transmitting power from one part to another, e.g., from a turbine engine to a helicopter rotor 2. to control
and guide He’s learning to drive.

driven /drɪv(ə)n/ noun

drizzle /drɪz(ə)/ noun precipitation, often persistent, in the form of very small drops of water Drizzle is the lightest form of precipitation consisting of fine water droplets.

COMMENT: In weather reports and forecasts, drizzle is abbreviated to DZ.

drogue parachute /d्रəʊ/ noun a small parachute used in releasing a larger parachute from its pack

drone /drəʊn/ noun an aircraft whose flight is controlled from the ground

drop /drɒp/ noun 1. a small amount of liquid that falls a drop of water a few drops of rain 2. a sudden lowering the passage of a cold front is usually followed by a drop in temperature. A sudden drop in oil pressure is normally an indication of serious engine trouble. verb to become lower or to decrease suddenly The temperature dropped by several degrees.

droplet /drɒrpɪt/ noun a small drop of liquid Experiments show that smaller droplets of rain can remain super cooled to much lower temperatures than large droplets.

drove /drəʊv/ verb

drum /d्रʌm/ noun a cylindrical device, often with closed ends

dry /d्रɪ/ adjective containing no water or no moisture dry air lapse rate

dry ice /d्रaɪ 'aɪs/ noun solidified carbon dioxide

dual /dʒuːəl/ adjective double, in pair Most light aircraft with side-by-side seating have dual controls.

duct /dʌkt/ noun a channel or tube through which fluids or cables can pass The modern jet engine is basically a duct into which the necessary parts are fitted.

due /djuː/ adjective 1. expected to arrive the flight is due at 10 o’clock the flight should arrive at 10 o’clock. 2. due to because of Due to daytime heating, the stability decreases and the wind speed increases.

dump /dʌmp/ verb to offload quickly Normal operating cabin pressure can be reduced rapidly in the event of emergency landings, by dumping air. The aircraft flew out to sea in order to dump fuel before landing.

duplication /djuːplɪˈkeʃ(ə)n/ noun the act of copying or doubling Control surfaces are divided into sections operated by a separate control unit, thus providing duplication to guard against failure of a unit.

durability /djuːərəˈbɪləti/ noun the ability of a substance or device to last a long time High quality components have good durability.

duration /djuːˈreɪʃ(ə)n/ noun the length of time for which something continues The duration of the examination is two hours. The duration of the flight was three hours.

dust /dʌst/ noun a fine powdery substance blown by the wind and found on surfaces Solid particles in the air include dust, sand, volcanic ash and atmospheric pollution.

duty /ˈdjuːtɪ/ noun 1. a period of work on duty at work off duty not at work 2. same as import duty the duty payable on a carton of cigarettes

dye /daɪ/ noun a material used to change the colour of something Minute surface cracks which are difficult to detect by visual means may be highlighted by using penetrant dyes.

dynamic /dɑːˈnɛmɪk/ adjective referring to something in motion dynamic pressure pressure created by the forward movement of the aircraft If the dynamic pressure increases due to an increase in forward speed, the force required to move the control column will increase. Opposite static pressure

dynamic seal /dɑːˈnɛmɪk ˈsɪl/ noun a seal which is part of a moving component, e.g. in a hydraulic system Dynamic seals require lubrication to remain effective

DZ /ˈdʒiː/ abbreviation drizzle
E  abbreviation east
ear /ɪə/ noun the hearing organ
ear defenders /ˈɪə dɛfɛndəz/ plural noun same as acoustic ear muffs
eardrum /ˈɛədrom/ noun a membrane inside the ear which vibrates with sound and passes the vibrations to the inner ear. Equalisation of the air pressure across the eardrum is more difficult to achieve during descents than ascents.
ear muffs /ɪə mʌfs/ plural noun same as acoustic ear muffs
eardrum /ˈɛədrəm/ noun a membrane inside the ear which vibrates with sound and passes the vibrations to the inner ear

East /ɛst/ noun 1. a compass point on the mariner’s compass 90° clockwise from due north and directly opposite west. London is east of New York. 2. the direction in which the Earth rotates, the direction of the rising sun. 3. adjective referring to areas or regions lying in the east. 4. one of the eastern provinces of Canada. Eastern Standard Time /ˈɛstɔn/ ‘stændəd ‘tɜrm/ noun the time zone of the eastern USA and Canada, 5 hours behind GMT. Abbreviation EST

eastward /ˈɛstwərd/ adjective going towards the east. 4. adv verb to connect an electrical appliance to a position of zero potential. When refuelling a light aircraft, ensure that the aircraft is properly earthed. (Note: The US expression is to ground.)
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eastbound /ˈɛstbaʊnd/ adjective travelling towards the east. 2. adv adjective used to describe the wind direction coming from the east.
easterly /ˌɛstərli/ adjective 1. situates towards the east. 2. adv adjective component one part of the wind direction coming from the east. 3. adv to move in an easterly direction to move towards the east. 4. noun a wind which blows from the east.
eastern /ˈɛstərn/ adjective situated in the east. 1. one of the eastern provinces of Canada. Eastern Standard Time /ˈɛstɔrn/ ‘stændəd ‘tɜrm/ noun the time zone of the eastern USA and Canada, 5 hours behind GMT. Abbreviation EST

EAT  abbreviation expected approach time

EATMP abbreviation European air traffic management programme

ECAC abbreviation European civil aviation conference

ECAM abbreviation electronic centralised aircraft monitor

echo /ˈɛkəʊ/ noun 1. the repetition of a sound by reflection of sound waves from a surface. 2. the return of a signal back to the source from which it was transmitted. 3. The strength of the returning echo from a radar transmission depends on a number of factors.

economic /ˌɛkəˈnɒmɪk/ adjective financially rewarding. 1. It was no longer
economical 80
economic to keep the maintenance operation going.
economical /ˈɛkəˈnomɪk(ə)/ adjective referring to a substance or device for which input is minimised and output maximised (thereby saving costs) a economical engine an engine which uses less fuel to produce the same power as comparable engines a Jet engines are more efficient and economical when operated at high altitudes.

ECS abbreviation environmental control system
EDDUS abbreviation electronic data display and update system
eddy /ˈɛdɪ/ noun a current of air moving in the opposite direction to the main current, especially in a circular motion a When wind flows over an obstruction such as a building, an eddy is formed on the lee, or downwind side.
edge /ˈɛdʒ/ noun a line of intersection or joining of two surfaces
EET abbreviation estimated elapsed time
effect /ɪˈfekt/ noun 1. something which results from a cause Ultra-violet radiation has the effect of warming the atmosphere. Pressure patterns have an effect on weather. 2. the condition of being in full force a in effect in operation a to take effect, to come into effect to start to operate a A new regulation comes into effect tomorrow. a with effect from starting from a verb to cause or carry out a to effect a change to make a change a modifications were effecting modifications were carried out. Compare affect

effective /ɪˈfektɪv/ adjective 1. having an expected and satisfactory result a the new cleaning fluid was very effective it cleaned well 2. operative, in effect a The regulation is effective immediately.
effectiveness /ɪˈfektɪvns/ noun how well something works a Ice covering reduces the effectiveness of an aerial.
effective pitch /ɪˈfektɪv pɪtʃ/ noun the distance the aircraft moves forward in flight for one 360° rotation of the propeller

efficiency /ɪˈfɪʃ(ə)nsi/ noun 1. the fact of being able to act or produce something with a minimum of waste, expense, or unnecessary effort a Efficiency is a key component of a successful business. 2. the ratio of the energy delivered by a machine to the energy supplied for its operation a mechanical efficiency a propulsion efficiency a thermal efficiency the efficiency of conversion of fuel energy to kinetic energy

efficient /ɪˈfɪʃ(ə)nt/ adjective able to act or produce something with a minimum of waste, expense, or unnecessary effort a At some speeds and altitudes the pure jet engine is less efficient than a piston engine. a efficient combustion combustion in which fuel energy is used to its maximum capability

effort /ɪˈfɔrt/ noun 1. the use of physical or mental energy to do something a In order to qualify for a licence, it is necessary to put some effort into the training course. a Flying a high performance aerobatic light aircraft to its limits requires a lot of physical effort on the part of the pilot. 2. force applied against inertia a Actuators are capable of exerting low-speed turning effort.

EFIS abbreviation electronic flight instrument system
eggbeater /ˈɪɡbɪtə/ noun a rotary-wing aircraft (informal)
EGNOS noun a European system that improves the quality of data from existing satellite navigation systems to make the data suitable for use by aircraft. Full form European Geostationary Navigation Overlay Service (NOTE: The US equivalent is WAAS.)

EICAS noun a cockpit display for monitoring the engines and warning of malfunction. Full form engine indicating and crew alerting system

eject /ɪˈdʒekt/ verb to throw out forcefully a On depressurisation the oxygen mask is ejected automatically from the service panel.

ejection /ɪˈdʒeksʃən/ noun an act of throwing out forcefully a ejection seat

ejection seat /ɪˈdʒeksʃən sɪtʃ/ noun an emergency escape seat in military aircraft
which is fired out of the aircraft while the crew-member is still in it.

**ejector** /ɪˈdʒɛktrə/ **noun** 1. a device to throw something out forcefully 2. a device using a jet of water, air, or steam to withdraw a fluid or gas from a space ○ A jet transfer pump or fuel ejector is used to transfer fuel.

**elapse** /ɪˈlɛps/ **verb** to pass ○ The radio altimeter works on the principle that, if the path followed by the radio wave is straight down and up, then the elapsed time between the outgoing and incoming signal is a function of the aircraft’s height.

**elastic** /ɪˈlæstɪk/ **adjective** flexible, easily returning to its original shape after being stretched or expanded ○ At low values of stress, if the plot of stress and strain is a straight line, this indicates that the material is elastic within this range.

**elasticity** /ɪˌleɪˈstɪsɪtɪ/ **noun** the property of returning to an original form or state following deformation ○ Titanium falls between aluminium and stainless steel in terms of elasticity, density and elevated temperature strength.

**electric** /ɪˈlektrɪk/ **adjective** powered or worked by electricity

**electrical** /ɪˈlektrɪk(ə)l/ **adjective** 1. referring to electricity ○ an electrical fault 2. powered or worked by electricity ○ Activation may be mechanical or electrical.

**electric current** /ɪˈlektrɪk kərˈɜnt/ **noun** the mass movement of electric charge in a conductor

**electricity** /ɪˌlektrɪsɪtɪ/ **noun** an electric current used to provide light, heat, power.

**electric power** /ɪˌlektrɪk ˈpauə/ **noun** electricity used to drive machines or devices

**electro-** /ɪˌlektrəʊ/ **prefix** electricity

**electrode** /ɪˌlektrəʊd/ **noun** a solid electrical conductor through which an electric current enters or leaves an electrolytic cell ○ A battery has a positive and a negative electrode.

**electrolyte** /ɪˌlektrəˈlaɪt/ **noun** a chemical compound that becomes conductive when dissolved or melted ○ The electrolyte in a lead-acid battery consists of sulphuric acid diluted with distilled water.

**electrolytic** /ɪˌlektrəˈlɪtɪk/ **adjective** ○ electrolytic cell a cell consisting of electrodes in an electrolyte solution

**electro-magnet** /ɪˌlektrəˈmæɡnɪt/ **noun** a magnet consisting of a coil of insulated wire wrapped around a soft iron core that is magnetised only when current flows through the wire

**electro-magnetism** /ɪˌlektrəˈmæɡnətɪz(ə)m/ **noun** a force exerted by a magnetic field found around any conductor carrying current, the strength of which will depend on the amount of current flow

**electromotive force** /ɪˌlektrəˈməʊtɪfɔːr/ **noun** a source of electrical energy required to produce an electric current, produced by devices such as batteries or generators and measured in volts. Abbreviation **emf**

**electron** /ɪˌlektrən/ **noun** a subatomic particle that has a negative electrical charge ○ Electrons in the outer orbits of an atom may not be strongly attracted to the nucleus and may be lost.

**electronic** /ɪˌlektrəˈnɪk/ **adjective** referring to, based on, operated by, or involving the controlled conduction of electrons especially in a vacuum, gas, or semi-conducting material ○ Lightning does not often seriously damage aircraft but it may affect sensitive electronic equipment.

**electronic centralised aircraft monitor** /ɪˌlektrəˈnɪskələ zəˈmɔnər/ **noun** a display on which flight and navigation information, as well as moving maps and checklists, are presented. Abbreviation **ECAM**

**electronic flight instrument system** /ɪˌlektrəˈnɪskəl ˈflɪt ɪnstrəmənt ˈsɪstəm/ **noun** primary flight information and engine performance information, as well as moving maps and checklists.
Elements cannot be reduced to simpler substances by normal chemical methods.

elevation /ˌelɪvəˈʃən/ noun 1. the height at which something is above a point of reference such as the ground or sea level. The highest point in a locality is marked by a dot with the elevation marked alongside. 2. aerodrome elevation distance in feet of the aerodrome above sea level. Elevation is indicated on charts by means of contour lines, spot heights, etc.

elevator /ˈelɪvətər/ noun 1. a movable control surface, usually attached to the horizontal stabiliser of an aircraft, used to produce the nose up/down motion of an aircraft in level flight known as pitch. Elevators should be checked for full and free movement immediately prior to take-off. 2. US same as lift.

COMMENT: Some aircraft have an all-moving tailplane called a ‘stabilator’ (a combination of the words stabiliser and elevator).

eliminate /ɪˈlɪmɪnɪt/ verb to get rid of or remove. Air dryers are provided to eliminate the possibility of ice forming. To eliminate the need for complex mechanical linkage, the selector is operated electrically. To eliminate a danger to remove a danger.

ellipse /ˈɛlɪpəs/ noun an oval-shaped line. Each planet moves in an ellipse and the sun is at one of the foci.

element /ˈelɪmənt/ noun 1. a substance composed of atoms with an identical number of protons in each nucleus. Elements cannot be reduced to simpler substances by normal chemical methods. 2. the resistance coil in an electrical device such as a heater. A temperature probe is embedded into the stator of the generator. Water outlets have heater elements embedded in rubber seals in the outlet pipe.


embarkation /ˌembərˈkeɪʃən/ noun the act of going onto an aircraft. Embarkation will start in ten minutes. (Note: Boarding is usually preferred.) Embarkation time the time at which passengers will be asked to go onto the aircraft.

embed /ɪmˈbed/ verb to fix firmly in a surrounding mass. A temperature probe is embedded into the stator of the generator.

emergency equipment noun devices for use only in serious situations.

emergency exit /ɪˈmɜːdʒənsi ˈɛɡzɪt/ noun a way out only to be used in case of an emergency. How many emergency exits are there in the aircraft?

emergency frequency /ˈɛmˌʃɜːrəni/ noun the frequency on which aeronautical emergency radio calls are made.

emergency landing /ˈɛmˌʃɜːrəniˈlændɪŋ/ noun a landing made as a result of an in-flight emergency.

emergency procedures plural noun a set of actions pre-planned and followed in the event of a serious situation.

emergency services /ɪˈmɜːdʒərəniˌsɜːvəs/ noun the fire, ambulance and police services. The alarm will activate the emergency services.

emf abbreviation electromotive force

emission /ɪˈmɪʃən/ noun 1. the process of sending out e.g. matter, energy or signals. Light emissions.
made of a strip of tinned copper
a weak link in a circuit and are usually
various mechanical parts.

verb
code
to be given in a short space of time.
to allow large amounts of information
on all sides

battery temperatures.
batteries to provide a warning of high
sensing devices are located within the
nickel-cadmium batteries, temperature
craft, particularly those employing
plane), and elevator.

condensation takes place.
by the sun
ted by the sun

by an internal combustion engine
Exhaust emissions contain pollutants.
emit (/i'mit/) verb to send out e.g. matter,
energy or radiation
radiation emitted by the sun
An X-ray tube emits
radiation.
Latent heat is emitted when
condensation takes place. (NOTE: emitting – emitted)

tail assembly of an aircraft
The empennage usually includes the fin,
rudder, horizontal stabiliser (or tail-plane), and elevator.

empennage /'em pendʒ/ noun the
tail assembly of an aircraft
The empennage

emphasis /'empəsɪs/ noun force of
expression that gives importance to
something
It is only in recent years
that much emphasis has been placed on
determining the causes of metal fatigue.

emphasise /'em fəsaɪz/, emphasize
verb to give importance to something
On some maps, different elevations
are emphasised by colouring.

employ /'emploɪ/ verb 1. to use
There are two methods employed to
cool the cylinders down.
In some aircraft, particularly those employing
nickel-cadmium batteries, temperature
sensing devices are located within the
batteries to provide a warning of high
battery temperatures. 2. to give somebody
regular paid work

empty weight /'empti wət/ the
weight of a plane without fuel, people
or freight

enable /'enəbl/ verb to make
something possible or easier
Isolation valves are fitted to enable servicing and
maintenance to be carried out.

enclose /'enkləʊz/ verb to surround
on all sides
The housing encloses the
various mechanical parts.
Fuses form a weak link in a circuit and are usually
made of a strip of tinned copper
enclosed in a glass tube.

encode /'endkɔd/ verb to put into
code
Weather information is encoded
to allow large amounts of information
to be given in a short space of time.

radius emission ○ One factor on which
the operational range of a radio emission
depends is the transmitted power.
2. a substance discharged into the air, as
by an internal combustion engine ○
Exhaust emissions contain pollutants.
emit (/i'mit/) verb to send out e.g. matter,
energy or radiation ○ radiation emitted by the sun ○ An X-ray tube emits
radiation. ○ Latent heat is emitted when
condensation takes place. (NOTE: emitting – emitted)

empennage /'em pendʒ/ noun the
tail assembly of an aircraft ○ The
empennage usually includes the fin,
rudder, horizontal stabiliser (or tail-plane), and elevator.

emphasis /'empəsɪs/ noun force of
expression that gives importance to
something ○ It is only in recent years
that much emphasis has been placed on
determining the causes of metal fatigue.

emphasise /'em fəsaɪz/, emphasize
verb to give importance to something ○
On some maps, different elevations
are emphasised by colouring.

employ /'emploɪ/ verb 1. to use ○
There are two methods employed to
cool the cylinders down ○ In some aircraft, particularly
those employing nickel-cadmium batteries, temperature
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to be given in a short space of time.

engine block /'endʒi blɒk/ noun a
cylinder block with integral crankcase

encounter /'ɪn kənt/ verb to meet
something unexpected or unwanted ○
Severe icing can be encountered in
wave cloud.

endurance /'endərəns/ noun the
length of time an aircraft can stay in the
air without refuelling ○ The flight time
to the PNR and back will equal the
endurance of the aircraft.

energy /'en dʒi/ noun 1. the ability
of a physical system to do work 2. power
from electricity, petrol, heat, etc. ○ The
engine converts heat energy into
mechanical energy ○ The generator
converts mechanical energy into
electrical energy.

engage /'ɪn dʒeɪdʒ/ verb 1. to switch
on and use ○ The autopilot may be
engaged during climb or descent.
Opposite disengage 2. ○ engaged in
working on a particular job or task ○
Personnel engaged in ground running
must ensure that any detachable clothing
is securely fastened and they should
wear acoustic ear muffs.

engine /'endʒi n/ noun a machine that
converts energy into mechanical force
or motion, different from an electric or
hydraulic motor because of its use of a
fuel ○ jet engine ○ piston engine ○ internal
combustion engine ○ combustion,
jet, piston ○ engine-driven referring
to equipment and devices which take their
power from the engine when it is running ○ engine-driven generator ○
engine-driven pump ○ engine running
engine operating or working ○ the
engine is running the engine is working ○ The accident investigation
demonstrated that the engine was running at
full power when the aircraft hit the
ground.

COMMENT: In British usage, there is a
clear distinction between the terms
‘engine’ and ‘motor’, the term ‘motor’
only being used for electric power
units. In American usage, however,
‘motor’ is used for all types of power
unit including the internal-combustion
engine.

engine block /'endʒi blɒk/ noun a
cylinder block with integral crankcase
engine capacity /ˈendʒən kæpətɪ/ noun the swept volume of an engine
engine compartment /ˈendʒən kəmˈpɑrtmənt/ noun a space in the airframe where the engine is located
engineer /ˈendʒən ɪnɡɪnɪər/ noun a person who is qualified to design, build and repair machines — an aircraft engineer an engineer who specialises in the maintenance and repair of aircraft
engineering /ˈendʒən ɪnɡɪnɪrɪŋ/ noun the branch of aviation concerned with the maintenance and repair of aircraft — reinforced plastics or composites are being used in aircraft engineering instead of metals because they are much lighter
engine failure /ˈendʒən ˈfeɪlər/ noun a situation in which an engine stops during running
engine indicating and crew alerting system /ˈendʒən ,ɪndɪkɪtɪŋ ənd kruː ˈælətɪŋ ˌsɪstəm/ full form of EICAS
engine instruments /ˈendʒən ,ɪnstrəmənts/ plural noun instruments which give the pilot information about engine temperature, speed, etc.
engine intake /ˈendʒən ɪntək/ noun the front part of the engine where air enters the engine
engine malfunction /ˈendʒən ˈmænləfnɔktʃən/ noun a situation in which the engine does not work as it should
engine oil /ˈendʒən ˈɔɪl/ noun oil used especially to lubricate engines
engine performance /ˈendʒən ˈpərəfməns/ noun a description of how well the engine works or detailed statistical information about the capabilities of the engine
enhance /ˈɛnˌhɑns/ verb to make greater or better or clearer — chances of survival are enhanced if passengers know where the emergency exits are.
...any automation must be designed to enhance the decision making abilities of the crew, not replace them.
[INTER PILOT]
enhancement /ˈɛnˌhɑnsment/ noun the process of making greater, better or clearer — an enhancement of an image on a screen the improvement of an image on a screen
enlarge /ˈɛnˌlɑːdʒ/ verb to make bigger or larger — enlarge the hole make the hole bigger
enplane /ˈɛnˌpleɪn/ verb to board or allow somebody to board an aircraft
en route /ˈɛn ˈrʊt/ adverb, adjective on or along the way — en route from New York to London on the way from New York to London — en route alternate an airfield where it is possible to land if there is an in-flight problem — en route weather conditions a description of the weather along the path of flight
ensure /ˈɛnˈʃʊər/ verb to make certain, to make sure — The generator cut-out ensures that the battery cannot discharge. — Before the engine is stopped, it should normally be allowed to run for a short period at idling speed, to ensure gradual cooling.
enter /ˈɛntər/ 1. to come or go into — Air enters at the front of the cabin and leaves at the rear. 2. to write down e.g. information — Enter the rectified airspeed in the log. — Enter your name in the correct place in the form. 3. to put data into a computer, especially by using the keyboard to type it in — Enter the data into the computer.
etire /ˈtɪrə/ adjective whole, having no part excluded or left out — the entire life of a thunderstorm the complete life of a thunderstorm
entry /ˈentri/ noun 1. the act or instance of going in — the flow of traffic at entry points to the airfield. 2. the writing in of an item, as in a record or log — An entry should be made in the technical log.
etry point /ˈentri ˈpɔɪnt/ noun a position on the ground above which an aircraft entering a control zone crosses the boundary
envelop /ɪnˈvɛlp/ verb to surround and cover — The atmosphere envelops the earth.
envelope /'envəlp/ noun 1. the set of limitations within which a technological system, especially an aircraft, can perform safely and effectively. The boundaries of flight envelopes vary between aircraft categories and performance groups but in each case, there is a speed which must not be exceeded which is called the Vne (never-exceed speed). 2. a cover. The atmosphere is the gaseous envelope surrounding the earth.

environment /ɪnˈvaɪərnment/ noun 1. nearby conditions or circumstances. A body of air warmer than its environment will rise. a non-computer environment a computer-free working situation. 2. the natural world in which people, animals and plants live. People are interested in issues to do with the environment, such as global warming.

environmental /ɪnˌvaɪərn-ˈment(ə)l/ adjective referring to the immediate surroundings. environmental conditions

environmental control system /ɪnˌvaɪərn-ment(ə)l ˈkɒntrəl ˈsɪstəm/ noun an air-conditioning system for the aircraft. Abbreviation ECS

environmental lapse rate /ɪnˌvaɪərnment(ə)l ˈleɪps _ˌrɛst/ noun the rate at which the temperature of the air falls as one rises above the earth. Although there is an average ELR of 1.98°C per 1,000 feet, in practice the ELR varies considerably with space and time. Abbreviation ELR

epoxy-based primer /ɪpˈnɪksi ˈprɪmər/ noun a primer containing epoxy resin, a substance which, with the addition of hardeners, becomes very strong and hard after a time at normal temperatures

equal /ɪkˈwɛl/ adjective having the same quantity, measure, or value as another. For every action, there is an equal and opposite reaction. verb to be the same in value as. Two plus two equals four (2 + 2 = 4).

equalise /ɪkˈwɛlɪz/ or equalize verb to become the same in quantity, measure or value. Fluid pressure and gas pressure equalise at normal system pressure.

equate /əˈkwɪt/ verb to be the same as. In an electrical circuit, an increase in length equates to an increase in resistance.

equation /ɪkˈwɪʒ(ə)n/ noun a statement, usually in symbols, that two quantities or mathematical expressions are equal. X2 + Y2 = Z2. The equation Vg = P can be used to find the geostrophic wind.

equator /ɪkˈwɪtər/ noun the imaginary great circle around the Earth’s surface, equidistant from the poles and perpendicular to the Earth’s axis of rotation which divides the Earth into the northern hemisphere and the southern hemisphere. Every point on the equator is equidistant from the poles.

equatorial /ɪkwaˈtəriəl/ adjective referring to the equator or to conditions that exist at the Earth’s equator. equatorial heat. equatorial climate.

equilibrium /ɪkˈwɪljəriəm/ noun a state of physical balance. When an aircraft is in unaccelerated straight and level flight at a constant speed, the forces of lift, thrust, weight and drag are in equilibrium.

equipment /ɪkˈwɪpmənt/ noun devices, systems, machines, etc., that are needed for a particular purpose. (Note: Equipment has no plural form; for one item say: a piece of equipment.) electrical equipment devices, components, systems, etc., that use electricity.

equivalent /ɪkˈwɪvələnt/ adjective having the same purpose or value as something else. The function of a logic gate is equivalent to that of a switch. A metal part could be as much as 25 times heavier than an equivalent plastic part.

equivalent shaft horsepower /ɪkˈwɪvələnt ˈʃaʊt hɔrsˌpɔːr/ noun the unit used for stating the total power of a turboprop engine, consisting of the shaft horsepower of the engine plus the thrust from the engine. Abbreviation ESHP
error /'eər/ noun 1. a mistake or incorrect calculation 2. an error in somebody’s work 3. errors caused by location

escape /'eskeip/ noun the act of getting away from or out of a place after being held 1. escape from danger getting to a safe place 2. verb to get away from or out of after being held 3. If there is a hole in the fuselage of a pressurised aircraft, air escapes from the cabin to the atmosphere.

escape hatch /'eskeip hætʃ/ noun a small doorway only used in emergencies

escape route /'eskeip rʊt/ noun the passengers’ way out of an aircraft after an emergency landing

escape slide /'eskeip slaid/ noun a device which allows passengers to exit the aircraft safely in an emergency, when no steps are available

ESHP abbreviation equivalent shaft horsepower

essential /'esensʃəl/ adjective absolutely necessary 1. Teamwork within the crew is essential. 2. A knowledge of the tropopause is essential. 3. non-essential not necessary

EST abbreviation 1. Eastern Standard Time 2. estimate (ICAO) 3. estimated (ICAO)

establish /'establɪʃ/ verb 1. to be confirmed as stable in a particular flight condition, such as a flight level or glideslope, etc. 2. Once established on the downwind leg, the pilot should perform the checks. 3. to work out or to calculate your position find out where you are 4. to position 5. Low-power NDBs (Non-Directional Radio Beacons) are often established at the outer or middle marker sites. 4. to establish communication to make contact with 5. to establish control to get control

estimate /'estɪmet/ verb 1. to calculate approximately the cost, value or size of something 2. I estimate that it will take about two hours for us to reach our destination. 3. Cloud heights may be measured or estimated. 4. to form a judgement about to estimate the chances of something to weigh the possibilities and form an opinion

estimated take-off time /'estɪmetɪd tækəfəʊ taim/ noun the time when an aircraft is expected to take off. Abbreviation ETOT

estimated time of arrival /'estɪmetɪd tæm vər'æv(ə)l/ noun the time when an aircraft is expected to arrive. Abbreviation ETA

evacuate /'ɪvækjuət/ verb 1. to remove all the people from somewhere in the event of an emergency 2. to evacuate all passengers from the airport 3. to empty somewhere of all people in it because of an emergency
evacuate /ɪ'vekt/ verb to remove all the air from a glass jar

 évacuation /ˌvækˈjuːʃ(ə)n/ noun
 1. the act of removing all people from somewhere in the event of an emergency
 2. the act of emptying somewhere of all people in it because of an emergency
 3. the act of removing all people from a glass jar

 event /ɪˈvent/ noun a happening
 1. The Paris air show is a major event.
 2. in the event of if something should happen
 3. in the event of main pump failure if there should be a failure of the main pump
 4. in the event of fire if there should be a fire

 eventual /ɪˈventʃuəl/ adjective happening at an unspecified time in the future
 1. Water in the fuel may lead to eventual engine stoppage.
 2. eventually /ɪˈventʃuəli/ adverb at an unspecified time in the future

 evidence /ˈevid(ə)ns/ noun an outward sign
 1. external evidence of cracks something which can be seen on the surface which suggests that there is a deeper structural problem
 2. Deformed wing panels may be evidence of an over-stressed airframe.

 evident /ˈevid(ə)nt/ adjective obvious, easily seen or understood
 1. It is evident from the information available that language problems played a part in the cause of the accident.
 2. self-evident clear in itself, without further explanation

 exact /ɛkˈsækt/ adjective completely accurate or correct
 1. The exact fuel flow and pressure is adjusted. The calculation is not exact the calculation is not 100% correct

 exactly /ɛkˈsæktli/ adverb
 1. accurately, correctly Measure the quantity exactly
 2. absolutely, completely A fuel injection system performs exactly the same function as a carburettor.

 examination /ˌɛksəˈməni/ noun
 1. a set of questions or exercises testing knowledge or skill
 2. medical examination medical check-up
 3. a careful observation or inspection of the examination of a faulty component

 ‘...the pilot of a Grumman Cheetah refused to be breathalysed, and was taken to a police station for examination by a police surgeon, who confirmed that he had been drinking’ [Pilot]
examine /ɪkˈzɛmɪn/ verb 1. to find out how much knowledge or skill somebody possesses by means of questions or exercises. Students will be examined in four subjects. 2. to test or check the condition or health of somebody to examine a patient. 3. to study or analyse something to examine charts.

exceed /ɪkˈsid/ verb to be greater than. Vertical velocity of updraughts can exceed 50 kt.

exception /ɪkˈspɛʃn/ noun something or somebody not included as an exception to the rule. An example which does not conform to a general rule is the exception of not including a with the exception of Smith, all the students passed their exams Smith did not pass, but the other students did.

exceptional /ɪkˈspɛʃn(ə)l/ adjective 1. being an exception, uncommon in exceptional circumstances in unusual circumstances well above average, extraordinary as an exceptional pilot a very good pilot.

excess /ɪkˈses/ noun an amount or quantity beyond what is normal or sufficient as excess power the difference between horsepower available and horsepower required in excess of more than a height in excess of 50,000 feet a height greater than 50,000 feet.

excess baggage /ɛksɛsˈbɛrdʒi/ noun an amount, usually expressed as weight, of baggage which exceeds the airline’s limit per passenger.

excessive /ɪkˈsesɪv/ adjective more than the normal, usual, reasonable, or proper limit as excessive use of power when taxiing will require excessive use of brakes.

exchange /ɪksˈtrendʒ/ verb to give in return for something received. Meteorological stations exchange information with other meteorological stations.

excitation /ɪkˈstɛʃ(ə)n/ noun the act of supplying a small current to the windings of larger electrical motors, etc. Pilot excitation consists of a pilot exciter and a main exciter, to provide the direct current for the motor of the alternating current generator.

exciter /ɪkˈsaɪtər/ noun the source of a small current to supply electrical current to the windings of larger electrical motors, etc., e.g. a battery. Pilot excitation consists of a pilot exciter and a main exciter, to provide the direct current for the motor of the alternating current generator.

exclude /ɪkˈskluːd/ verb to keep out, to prevent from entering joints and interfaces should exclude moisture and improve fatigue life.

exercise /ɪksˈəsəriz/ noun an activity that requires physical or mental effort or practice as a classroom exercise. Swimming is good physical exercise for people such as pilots who spend a lot of time sitting down. Verb to use or put into play or operation as student pilots must exercise special care when landing in a strong crosswind.

exert /ɪkˈzɜːt/ verb to put a force on something as pressure is the force per unit area exerted by the atmosphere on a given surface area. As to exert an influence to have an influence as to exert pressure to put pressure onto something.

exhaust /ɪkˈzɜːst/ noun 1. the escape or release of vaporous waste material from an engine. A pipe through which waste gases pass out of the engine as the exhaust valve opens to allow for the exit of exhaust gases. Verb to consume or use up all of something as supplies of fuel are exhausted. (Note: To run out is less formal.)

exhaust gas /ɪkˈzɜːst ˈgeɪs/ noun gas which is the product of the combustion process and which is passed out through the exhaust system. Exhaust gases contain carbon monoxide.

exhaust system /ɪkˈzɜːst sɪstəm/ noun a system of pipes, silencers, etc., which carry exhaust gases from the engine to a point where they are released into the atmosphere.

exhaust valve /ɪkˈzɜːst vɛlə/ noun a valve in a piston engine which allows exhaust gases to leave the cylinder.
exhibit /ɪɡ'zɪbɪt/ verb to have or to display ○ Composites, due to their construction, exhibit good fatigue behaviour. ○ Altecumulus are (usually) white layers or patches of cloud frequently exhibiting a waved appearance.

exist /ɪɡ'zɪst/ verb to be present under particular circumstances or in a specified place ○ Water can exist in the atmosphere in three forms. ○ A fire risk may exist following failure or leakage of any component.

existence /ɪɡ'zɪstəns/ noun the fact or state of being ○ Warning systems are provided to give an indication of a possible failure or the existence of a dangerous condition.

exit /ɪg'zɪt/ noun 1. the act of going out of a place ○ The exhaust valve opens to allow for the exit of exhaust gases. ○ exit velocity the velocity of exhaust gases from a jet engine, a way out

exit nozzle /ɪk'snst, 'nitəʊzl/ noun a pipe or opening through which exhaust gases leave a jet engine

exit point /ɪk'snst pɔɪnt/ noun a position on the ground above which an aircraft leaving a control zone crosses the boundary

expand /ɪk'spænd/ verb to increase in size, volume or quantity, to enlarge ○ Air expands when heated and contracts when cooled.

expansion /ɪk'spɛnʃən/ noun an increase in size, volume or quantity ○ There is an expansion of the gas when it is heated.

expansion chamber /ɪk'spɛnʃən tʃəmbr/ noun a container which allows for expansion of a fluid caused by increase in temperature, etc.

expect /ɪk'spekt/ verb to hope or to assume that something is going to happen ○ the weather to be expected along a route ○ We expect flight AC 309 to arrive in ten minutes. ○ as might be expected as people think would happen

‘…by 1959 there were some 40 pilots past age 60 flying the line with the number expected to rise to 250 within the next few years’ [INTER PILOT]

expected /ɪk'spektid/ adjective being thought or hoped to be taking place ○ the expected number of passengers

expected approach time /ɪk'spektid ə'prɑʊtʃ tʌɪm/ the time at which air traffic control expects the arriving aircraft to complete its approach for landing, following a delay. Abbreviation EAT

expedite /ɪk'spɪdɪt/ verb to speed up the progress of ○ to expedite the evacuation to speed up the evacuation ○ to expedite the disembarkation to get the passengers off the aircraft quickly

expel /ɪk'spel/ verb to force out, to drive out ○ Exhaust gases are expelled from the cylinder by the upward movement of the piston. ○ The piston drives fluid into the cylinders on the outward stroke and expels fluid into the system on the inward stroke.

experience /ɪk'spiərəns/ noun 1. the building up of knowledge or skill over a period of time by an active participation in events or activities ○ a pilot with 20 years’ experience, an event or incident ○ The first solo is an experience most pilots never forget. ○ verb to undergo, participate in or find oneself in a particular situation ○ It is not unusual to experience traffic delays on the ground prior to departure. ○ Turbulence can be experienced when flying through a trough.

experiment noun /ɪk'sperɪment/ a scientific test, carried out under controlled conditions, that is made to demonstrate or discover something ○ Experiments have shown that left-handed people often have better hand-eye coordination than right-handed people. ○ to conduct an experiment to perform an experiment ○ verb /ɪk'sperɪment/ to experiment (with) to carry out a scientific test under controlled conditions in order to demonstrate or discover something

experimental /ɪk'sperɪmɛnt(ə)l/ adjective referring to something still at an early stage of development, not tried and tested ○ the experimental and testing stages of a new type of aircraft ○ an experimental aircraft an aircraft designed to be used for experimental
explanatory

purposes ○ The experimental aircraft were used to investigate high-speed flight.

explanatory /ɪk'splænətori/ adjective referring to something which explains ○ explanatory paragraph a paragraph of text which explains something ○ self-explanatory something which does not need any further explanation

explanation /ɪk'spleɪʒən/ noun 1. a release of energy in a sudden and often violent way ○ an explosion caused by a bomb 2. an act of bursting as a result of internal pressure ○ tyre explosion due to overheating 3. the loud sound made as a result of an explosion ○ The passengers heard an explosion.

explosive /ɪk'spləʊsɪv/ adjective referring to something having the nature of an explosion ○ an explosive effect having the effect of an explosion ○ noun a substance, especially a prepared chemical, that explodes or causes explosions, e.g. Semtex

expose /ɪk'spəʊz/ verb to uncover something or leave something uncovered so that it is not protected from something or leave something uncovered ○ exposed surface a surface without paint or covering of any sort

exposure /ɪk'spəʊʒər/ noun 1. the fact of being exposed, especially to severe weather or other forces of nature ○ After 24 hours in the sea, she was suffering from the effects of exposure and was taken to hospital. 2. the fact of being subjected to something ○ Exposure to radio-active substances may cause cancer.

express /ɪk'spres/ verb to put into words, symbols or signs ○ Bearings may be expressed as true or relative. ○ An angle may be expressed in degrees, minutes and seconds. ○ Pressure altitudes are expressed in hundreds of feet.

extend /ɪk'stend/ verb to stretch or spread from one point to another in space or time ○ Air from the Gulf of Mexico can extend into Canada. ○ Cumulonimbus clouds may extend to over 50,000 ft. ○ to extend the duration of something to prolong the time ○ The visit was extended to allow time for more discussions.

extensive /ɪk'stentsiv/ adjective large in range or amount ○ an extensive area a large area ○ extensive cloud a lot of cloud ○ extensive use is made of much use is made of

extent /ɪk'stent/ noun a range or amount of something ○ The horizontal extent of the cloud averages about 50 km. ○ Clouds of great vertical extent are not uncommon. ○ to a certain extent, to some extent partly ○ The accident was caused, to a certain extent, by the poor weather. ○ to a lesser extent not as much as something previously stated ○ The cloud types which are most likely to affect flying conditions in terms of icing, precipitation and turbulence are cumulus, cumulonimbus and, to a lesser extent, nimbostratus.

external /ɪk'stɛrnl/ adjective referring to, existing on, or connected with the outside or an outer part ○ The only external force acting on air is gravity. Opposite internal ○ external appearance the appearance of something from the outside

external ambient pressure /ɪk'stɛrnl,ɛmbɪənt/ noun pressure outside the aircraft

extinguish /ɪk'stɪŋgwɪʃ/ verb to put out ○ The fire services extinguished the fire.

extinguisher /ɪk'stɪŋgwɪʃər/ noun a portable mechanical device for spraying and putting out a fire with chemicals ○ Hand-operated fire extinguishers are provided to combat any outbreaks of fire in the flight crew compartment and passengers' cabins.

extract noun /ekstrækt/ a part taken from a longer text ○ The following paragraph is an extract from a flight manual. ○ verb /ɪk'strækt/ 1. to obtain from a substance by chemical or mechanical action ○ A dehumidifier extracts moisture from the atmosphere. 2. to take out or to obtain information from some-
thing  

Extract the important information from a text.

extrapolate  

Verb to estimate by using known facts. Information given on a synoptic chart can be extrapolated, by the use of some simple guidelines.

extreme  

Adjective 1. most distant in any direction, the outermost or farthest. 

2. to the greatest or highest degree, very great. 

noun either of the two things, values, situations, etc., situated at opposite ends of a range. 

The region experiences extremes of temperature.

eye  

noun an organ in the head which lets you see. 

coordination, vision
Fahrenheit 2. farad  

Federal Aviation Administration  

Fabric material or cloth produced especially by knitting or weaving. A breathing mask has a fabric carrying bag.  

Fabricate to make or manufacture. Selected wing panels are fabricated entirely from magnesium alloys. The ease with which aluminium can be fabricated into any form is one of its most important qualities.  

Facilitate to enable something to happen more easily or quickly. A ramp is used to facilitate access to the wing. Clearly marked exits facilitate rapid evacuation of passengers.  

Facility ability or ease in moving, acting, or doing something. A facility in learning to fly a good natural ability for flying. An installation or building which provides specific operating assistance.  

Facsimile same as fax.  

Fact information presented as real. Temperature changes are an important fact in meteorology. In (point of) fact in reality, in truth.  

Factor an important part of a result, a process, etc. Visibility remains a very important factor in aviation. Critical factor extremely important factor. Dominant factor most important factor. Safety factor something which plays an important part in safety. By a factor of quantity by which a stated quantity is multiplied or divided. Increase or decrease in a measurement by a factor of ten. The rate is increased by a factor of 10. Conversion factor a formula or figure used for conversion of temperatures, distances, etc., from one system to another. The conversion factor for converting UK gallons to litres is:  x 4.546.
fade /feɪd/ noun 1. a periodic reduction in the received strength of a radio transmission. Braking can cause fade of the signal. 2. a periodic reduction in braking power. Braking can cause fade and tyre burst through overheating. 3. verb to lose strength, brightness, loudness, or brilliance gradually. The lights dimmed as the radio signal faded. 4. fair /feər/ adjective 1. free of clouds or storms, clear and sunny. Fair weather. 2. just, reasonable, free of favouritism or bias. Fair exam. An exam which tested students on what they had been taught, was of reasonable difficulty and duration and which did not trick the candidates. It is fair to say that he should have done better. It is reasonable to say that he should have done better. V verb to join pieces so as to be smooth, even, or regular. The aircraft's wing is faired into the fuselage. 5. fall /fɔ/ noun 1. a drop or lessening in amount. Fall in pressure. 2. the amount of rain or snow which comes down at any one time. Autumn. 3. atmospheric pressure is falling. Atmospheric pressure is decreasing. 4. to occur at a particular time. New Year's Day falls on a Thursday this year. (NOTE: falling – fell – fallen) 6. false /false/ adjective not true, incorrect. Lightning may cause false readings from sensitive instruments.
familiar /ˈfæməlɪə/ adjective 1. often seen, common ○ Clouds are the most familiar visible meteorological feature. 2. known ○ Symbols and abbreviations which are strange at present become familiar after a time. ○ to be familiar with to have some knowledge of something ○ He is familiar with the procedure.

familiarise /ˈfæməlɪəraɪz/, familiarize verb ○ to familiarise yourself with to get to know something well

fan /fæn/ noun a circular device with rotating blades, powered by an engine or motor, for moving a gas such as air ○ The compressor has large rotating fan blades and stator blades.

fanjet /ˈfænˌdʒet/ noun US same as turbofan

FANS abbreviation future air navigation systems

FAR abbreviation US Federal Aviation Regulation

farad /ˈfærəd/ noun the SI unit of capacitance. Symbol F

fasten /ˈfæstən/ verb to secure or to close, as by fixing firmly in place ○ fasten your seat belt put on and attach your seat belt ○ If in-flight conditions require the captain to activate the fasten seat belt sign, all cabin service ceases and cabin crew take up their assigned seats and strap in.

fatigue /ˈfætɪdʒ/ noun 1. physical or mental tiredness resulting from exertion ○ Pilot fatigue was a contributing factor in the accident. 2. the weakening or failure of a material such as metal, resulting from stress ○ Fan blades must be resistant to fatigue and thermal shock. ○ Titanium has good fatigue resistance. ○ fatigue crack crack due to material fatigue

fault /fɔːlt/ noun a defect in a circuit or wiring caused by bad connections, etc. ○ A fault in the automatic boost control unit was repaired.

faulty /ˈfɔːlti/ adjective containing a fault or defect, imperfect ○ The faulty component was replaced.

fax /fæks/ noun 1. an exact copy of a document, drawing, etc., transmitted and received by a fax machine connected to a telephone link 2. an electronic apparatus linked to a telephone used to send and receive a fax ○ Charts are transmitted by fax to meteorological offices. ○ CAMFAX verb to send a fax ○ Charts are faxed to meteorological offices.

FDPS abbreviation flight data processing system

FDR abbreviation flight data recorder

FDS abbreviation flight director system

feather /ˈfeðər/ verb ○ to feather a propeller to turn the blades of a stopped propeller edge on to the airflow in order to reduce drag or wind resistance ○ The feathered position not only reduces drag, but also minimises engine rotation, thus preventing any additional damage to the engine.

feathering /ˈfeðərɪŋ/ noun the act of turning the blades of a stopped propeller edge on to the airflow in order to reduce drag ○ Feathering is accomplished by moving the pilot’s control lever.

feathering gate /ˈfeðərɪŋ ɡet/ noun a device on the propeller pitch control to prevent unwanted selection of the feathering position

feathering position /ˈfeðərɪŋ pə zіʃən/ noun a position of the propeller pitch control in which the blades are feathered

feature /ˈfiːtər/ noun 1. an important, noticeable or distinctive aspect, quality, or characteristic ○ Sea breeze is a regular feature of coastal climates. 2. ○ ground features noticeable, important objects in the landscape which are useful aids to navigation, e.g. bridges, rivers, railway lines, etc. ○ verb to have as a particular characteristic ○ Many Rutan designs feature a canard wing.

Federal Aviation Administration /ˌfɛdərəl əˈrɪviəʃən ədminɪstrəʃən/ noun the body responsible for the regulation of aviation in the United States ○ The FAA issues licenses. Abbreviation FAA

Federal Aviation Regulation /ˌfɛdərəl əˈrɪviəʃən ərɛdʒuərən/
feedback signal of the monitored output
film is sandwiched between the layers of
from solid matter or to remove
passed in order to separate the fluid
device through which a liquid or a gas is
energy, etc. provided for use
conflict or two-seat aircraft for use in military
drawing
There is a film of oil between the piston
aircraft when all the pre-assembled
series of stages of construction of an
remaining in the countryside
in the event of a power failure, it is important
to select the most suitable field for a
forced landing. 2. an imaginary area
field of vision a area in which something can be
seen without moving the head or the eyes
fighter small, single-seat or two-seat aircraft for use in military
conflict
Figure 1 shows a cross-section of an internal combustion engine.
2. a number, especially in mathematical
calculations a head for figures good
at figures, arithmetic, accounting, etc. a
two-figure code a code with two
numbers between 0 and 9 3. a form consisting of any combination of points or lines, e.g. a triangle
film a thin skin or layer
An electrical element made of gold
film is sandwiched between the layers of
glass. 2. a thin covering or coating a
There is a film of oil between the piston
cylinder wall.
filter a material or device through which a liquid or a gas is
passed in order to separate the fluid
from solid matter or to remove
unwanted substances a fuel filter
an electric, electronic, acoustic,
or optical device used to reject signals,
vibrations, or radiations of particular
frequencies while passing others a The
tuner is a band pass filter which confines the bandwidth passed to
the receiver to that required a verb to pass
a liquid or gas through a filter in order to remove unwanted substances a Fuel is filtered before entering the carburetor.
filter cartridge a removable paper or metal component in a
filter housing which must be replaced periodically a From time to
time the filter element must be removed
and cleaned or replaced. Also called filter
cardtridge
fin a fixed vertical aerofoil at the rear of a plane, the vertical stabiliser
The fin provides directional stability about the vertical axis. Also called vertical stabiliser
final the end part of a series or process a adjective coming at
the end a final assembly the last in a series of stages of construction of an
aircraft when all the pre-assembled
parts are put together
final approach a flight path in a direction along
the extended centre line of the runway
on which a plane is about to land a The
aspect of the runway on final approach helps the pilot to judge height and progress. 2. the last stage of an aircraft’s
descent before landing, from when it
turns into line with the runway to the procedures immediately before it lands
fine of superior quality, skill, or appearance a fine day
day when the weather is good a fine
weather good weather 2. very small in size, thickness or weight a Cirrus cloud has a fine, hair-like appearance a fine
powder powder consisting of very small particles a fine spray a spray consisting of very small drops of liquid 3. a
fine wire very thin wire 4 referring to
the pitch or blade angle setting of the
propeller • Fine pitch enables full engine speed to be used on take-off and course pitch allows an economical engine speed to be used for cruising.

FIR abbreviation flight information region

fire /ˈfaɪər/ noun an area of burning • To guard against the risk of fire, passengers are requested not to smoke in the toilets. • an engine fire a fire in an engine • verb to shoot a gun, or to launch something such as a flare or a rocket

fire deluge system /ˌfaɪər ˈdɛljʊdʒiˌsɪstəm/ noun a system which extinguishes fire by spraying large quantities of water on it • A lever actuates the fire deluge system.

fire detection system /ˌfaɪər dɪˈteɪʃənˌsɪstəm/ noun a system to detect the presence of fire in an aircraft

fire extinguisher /ˈfaɪər ɪkˈstɪŋgwɪʃər/ noun a portable device full of foam, water, powder, etc., for putting out fires

fireproof /ˈfaɪərprəʊf/ adjective designed to resist the effect of fire • A fireproof bulkhead is provided to separate the cool area of the engine from the hot area.

fire triangle /ˈfaɪər ˈtreɪŋɡəl/ noun the illustration of the chemistry of fire as the three sides of a triangle representing fuel, oxygen and heat • If fuel, oxygen or heat is removed from the fire triangle, combustion will cease.

first aid kit /ˈfɜːrst ˈeɪdˌkit/ noun a small pack containing plasters, bandages, antiseptic cream, etc., to be used in case of an emergency

first officer /ˈfaɪərst ˈnɜːsər/ noun the officer who is second-in-command to the captain of an aircraft

FIS abbreviation flight information service

flsh tail /flʃteɪl/ verb to move the tail of an aircraft from side to side as a way of reducing speed

FISO abbreviation flight information service operator

fit /fɪt/ adjective in good physical condition, healthy • Keep fit with diet and exercise. • noun the exactness with which surfaces are adjusted to each other in a machine • There should be a lose fit between the cylinder and the piston, the difference being taken up by the piston rings. • verb 1. to be the correct size and shape for • Oxygen masks should fit the wearer properly, 2. to put on or attach • Wheel fairings, called spat, are fitted to some light aircraft to reduce drag. (NOTE: fitting – fitted)

fitment /ˈfɪtment/ noun an act of attaching or fixing • Attachment points are supplied for the fitment of heavy equipment.

fitness /ˈfɪt*nəs/ noun the state or condition of being physically fit, especially as the result of exercise and proper eating habits • The age and physical fitness of some passengers can be a limiting factor in an evacuation. • fitness to fly description of the physical or mental capabilities a person needs to fly an aircraft

fixed-wing /ˈfɪksɪd ˈwɪŋ/ adjective referring to an aircraft that has wings that do not move, rather than rotor blades

FL abbreviation flight level

flag /flæɡ/ noun 1. a usually square or rectangular piece of cloth with a symbolic design or colour • Flags are flown from the signal mast. 2. a small visual warning or indicating device on the face of an instrument • There is a warning flag on the instrument if there is a problem

flame /fleɪm/ noun the usually yellow area of burning gases seen when something is burning • Flames were seen coming from number 2 engine

flame arrester /ˈfleɪm əˈrɛstər/ noun a device to prevent flame from an external source from entering a fuel tank

flame out /ˈfleɪm aʊt/ verb to cease from some cause other than the shutting off of fuel • Air in the fuel line can cause an engine to flame out or stop

flame-out /ˈfleɪm əʊt/ noun the ceasing of combustion in a gas turbine engine from some cause other than the shutting off of fuel (NOTE: The word is also written flameout.)
flammable /ˈflɪməb(ə)l/ adjective easily ignited and capable of burning fiercely and rapidly, and therefore hazardous. ◆ Aviation gasoline is a flammable liquid. (Note: Flammable and inflammable mean the same thing.)

flange /flændʒ/ noun the outside edge or rim of a part such as a beam or wheel ◆ The web connects the upper and lower flanges of a beam.

flap /flæp/ noun a movable control surface on the trailing edge of an aircraft wing, used primarily to increase lift and drag during final approach and landing ◆ Flaps should be retracted immediately after landing to decrease lift and therefore increase brake effectiveness. ◆ cowl

COMMENT: Flaps are not usually used for take-offs in light aircraft except when a short take-off run is required. Flaps are not primary control surfaces of an aircraft.

flare /flær/ noun 1. a stage of the flight immediately before touchdown when the nose of the aircraft is raised into the air ◆ The approach, flare and landing can be carried out by automatic systems. 2. a small rocket-like device with a bright light, for attracting attention

flash /flæʃ/ noun giving off light in sudden or periodic bursts ◆ Lightning is accompanied by a brilliant flash. ◆ Loss of vision may occur due to lightning flashes especially at night. ◆ verb 1. to give off light in regular bursts ◆ warning lights flash warning lights go on and off rapidly ◆ to appear or to happen suddenly ◆ The image flashed onto the screen.

flash point /ˈflæʃ pɔɪnt/ noun temperature at which fuel vapour or oil vapour will burst into flame

flat /flæt/ adjective 1. having a horizontal surface without a slope, tilt or curvature ◆ It has been shown that the flat chart misrepresents the globe-shaped earth. ◆ flat country country with no hills or mountains 2. having no air inside ◆ The flat tyre had to be changed because it had a puncture. 3. electrically discharged or with no electrical charge left in it ◆ The engine wouldn’t start because the battery was flat.

flat spin /flætˈspɪn/ noun a descent in small circles by an aircraft flying in a nearly horizontal position

flattened /ˈflætənd/ verb to make flat ◆ As altitude increases, the countryside appears to flatten out. ◆ The Earth is spherical in shape but it is flattened at the poles.

flexible /ˈfleksəb(ə)l/ adjective 1. not rigid, not stiff ◆ flexible pipes pipes made of soft material such as rubber or plastic 2. capable of responding to a variety of conditions or situations ◆ The more reliable and quick fly-by-wire system allows a much greater degree of flexibility with aircraft stability. Opposite rigid

flexibility /ˈfleksəbɪləti/ noun 1. the amount or extent to which something can be bent or flexed ◆ Wing structures must have flexibility in order to absorb sudden changes in loading. 2. the extent to which a system or device can change or respond to a variety of conditions or situations ◆ The more reliable and quick fly-by-wire system allows a much greater degree of flexibility with aircraft stability. Opposite rigid

fligator /ˈflaɪətər/ noun 1. the pilot of an aircraft 2. a passenger on an aircraft

flight /flaɪt/ noun 1. the motion of an object in or through the Earth’s atmosphere or through space 2. the distance covered by a body, e.g. an aircraft, as it flies through the atmosphere ◆ The flight from London to Paris took 55 minutes. 3. a scheduled airline journey ◆ Passengers for flight GF 008 to Amman should proceed to gate number 4.

flight attendant /ˈflaɪt əˌtɛntənt/ noun a member of the flight crew who looks after passengers, serves food, etc. ◆ If you need something, press the call button and a cabin attendant will
flight bag /'flait bag/ noun a bag used by flight crew to carry manuals, documents, headset, etc.

flight briefing room /'flait brifɪŋ rʊm/ noun a room where instructors talk to trainees immediately before a training flight or where a pilot talks to his or her crew immediately before boarding the aircraft

flight crew /'flait kruː/ noun airline staff responsible for flying the aircraft

flight data recorder /'flait, dɛrkəri/ noun an electronic device located in the tail section of an aircraft that picks up and stores data about a flight. Abbreviation FDR. Also called black box (NOTE: It is often called the black box, although it is not black.)

flight deck /'flait dɛk/ noun a place where the flight crew of an airliner sit while flying the aircraft

flight deck instruments plural noun instruments used by the flight crew when flying an aircraft

flight engineer /'flait ,endʒɪnɪ/ noun the member of the crew of a plane who is responsible for checking that its systems, including the engines, perform properly

flight envelope /'flait ,envələup/ noun same as envelope

flight information region /'flait ,ɪnˈfɔrmeɪʃn rɪˈsiʒn/ noun airspace with defined limits which has an air traffic control information and alerting service. Abbreviation FIR

flight level /'flait ,levəl/ noun 1. the level of constant atmospheric pressure related to a reference datum of 1013.25 mb. FL 250 = 25,000 ft. Abbreviation FL 2, the height at which a particular aircraft is allowed to fly at a particular time

flight line /'flait lайн/ noun the area of an airfield, especially a military airfield, where aircraft are parked, serviced, and loaded or unloaded

Flight Manual /'flait ,mænʊʒʊəl/ noun same as Pilot's Operating Handbook

flight operations /'flait ,ɒpərətɪŋz/ plural noun the use of aircraft

flight path /'flait pæθ/ noun a line, course or track along which an aircraft flies

flight plan /'flait plæn/ noun a written statement that gives details of the flight that a pilot intends to make

flight progress strip /'flait 'prəʊgres streɪp/ a thin cardboard strip with information on it about a flight, which is updated by air traffic controllers as the flight progresses

flight simulator /'flait ,simjʊleɪtə/ noun a device or computer program which allows a user to pilot an aircraft, showing a realistic control panel and moving scenes, used as training programme

flight test /'flait tɛst/ verb to test the performance of an aircraft or component in flight

float /fləʊt/ noun 1. a floating ball attached to a lever to regulate the level of a liquid in a tank, etc. • float operated switch a shut-off valve operated by a float. 2. a hollow structure fixed below an aircraft that allows it to float on water. Also called pontoon • verb to remain on the surface of a fluid without sinking. Because of the air-tight nature of the fuselage, most large aircraft will float for some time before sinking.

float chamber /fləʊt ,ˈfɛmtʃə/ noun the part of a carburettor which houses the float

floatplane /fləʊtpleɪn/ noun a seaplane that has hollow structures attached underneath its wings and sometimes its fuselage on which it floats so that the main body of the plane is not in contact with the water. Compare flying boat

flow /fləʊ/ verb 1. to move or run smoothly with continuity, as a fluid • Air flows over the wing surfaces and lift is produced. 2. to circulate. Liquid coolant flows around the engine. • noun continuous movement in a particular direction. The flow of fuel from the fuel tanks to the engines.
flowmeter /ˈfloʊmɛtər/ noun a device for measuring the flow of a liquid or gas ○ The oxygen flowmeter should blink once for each breath.

fluoroule /ˈflɔːrəuˌluːl/ verb to vary or change irregularly ○ The magnetic field will fluctuate at the supply frequency.

fluid /ˈfljuːd/ noun a substance which is not solid, whose molecules move freely past one another and that takes the shape of its container ○ de-icing fluid a liquid for removing ice

fluorescent /ˈflɔːrəs(t)ənt/ adjective referring to the emission of electromagnetic radiation of visible light ○ The fluorescent penetrant process of flaw detection uses a penetrant containing a fluorescent dye which fluoresces in ultra-violet light.

fly /flaɪ/ verb to move through the air or to cause an aircraft to move through the air in a controlled manner ○ An aeroplane may not fly over a city below such a height as would allow it to alight in the event of an engine failure. ○ He's learning to fly. (NOTE: flying = flew = flown) ○ to fly in formation to fly as a group which maintains a particular pattern or arrangement in the air

fly-by-wire /ˈflaɪ baɪ ˈwaiə/ noun technology which interprets movements of the pilot’s controls and, with the aid of computerised electronics, moves the control surfaces accordingly ○ Using fly-by-wire technology, the stalling angle cannot be exceeded regardless of stick input. ○ The more reliable and quick fly-by-wire system allows a much greater degree of flexibility with aircraft stability.

COMMENT: Fighters like the General Dynamics F16 and large transport aircraft such as the Boeing 777 and Airbus A320 have fly-by-wire systems.

flying /ˈflaɪŋ/ noun the act of making an aircraft move through the air in a controlled manner

flying boat /ˈflaɪŋ boʊt/ noun a seaplane with a body that acts like a boat’s hull and allows the plane to float on water. Compare floatplane

flying conditions /ˈflaɪŋ kən dɪʃənz/ plural noun the weather and its suitability for flying

flying control /ˈflaɪŋ kəntrəl/ plural noun the yoke or control column, rudder pedals and other devices used by the pilot in order to manoeuvre the aircraft

flying field /ˈflaɪŋ flɪld/ noun a small airfield from which light aircraft can operate

flying instructor /ˈflaɪŋ ɪnˈstrʌktər/ noun a trained person, a pilot, who teaches people how to fly an aircraft

fly-past /ˈflaɪ pɑːst/ noun the flight of an aircraft or group of aircraft over a place as a spectacle for people on the ground

flight /flaɪt/ noun 1. a mass of bubbles of air or gas in a liquid film ○ foam fire extinguishers ○ Airport fire crews covered the fuselage with foam to control the fire. 2. any of various light, porous, semi-rigid or spongy materials used for thermal insulation or shock absorption ○ Polyurethane foam is used in packaging.

focal point /ˈfəʊk(ə)l pɔɪnt/ noun same as focus

focus /ˈfəʊks/ noun the point at which rays of light or other radiation converge ○ The focus of a lens is also called the focal point. (NOTE: The plural form is foci. /ˈfəʊsaɪ/) ○ to come into focus to become clearer as through the viewfinder of a camera ○ verb 1. to make things such as light rays converge on a central point ○ A parabolic reflector focuses the transmission into a narrow beam. 2. to give an object or image a clear outline or detail by adjustment of an optical device ○ Focus the microscope in order to make the image easier to see. 3. to direct toward a particular point or purpose ○ The crew focused all their attention on finding a solution to the problem.

fog /fɒɡ/ noun condensed water vapour in cloud-like masses lying close to the ground and limiting visibility ○
When visibility is less than 1,000 m owing to suspended water droplets in the atmosphere, the condition is known as fog. Evaporation fog is usually confined to water surfaces and adjacent areas of land.

föhn /fɔn/ noun a warm dry wind that blows down the lee side of a mountain, particularly in the Alps. (NOTE: The word is also written foehn.)

foil /fɔil/ noun same as aerofoil
foot /fʊt/ noun a unit of length in the US and British Imperial Systems equal to 12 inches or 30.48 centimetres. Symbol ft (NOTE: The plural form is feet; foot is usually written ft or \( \text{ft} \).)

foot-pound /fʊt paʊnd/ noun the ability to lift a one pound weight a distance of one foot. Abbreviation ft-lb

force /fɔːs/ noun 1. the capacity to do work or cause physical change. 2. power used against a resistance. 3. in small aerobatic aircraft, considerable force is needed on the control column when performing high-speed manoeuvres.

footage /fɔʊtɪdʒ/ plural noun the aerodynamic forces, lift, drag, weight and thrust, which act on an object that is travelling though the air.

fore /fɔː/ adjective located at or towards the front. 1. the fore and aft axis of the aircraft the longitudinal axis of the aircraft. 2. to come to the fore to become important or to start to play a leading role. 3. The jet engine came to the fore in the late forties. 4. aft

forecast /fɔːkɑːst/ noun a statement of what is likely to happen in the future or describing expected events or conditions. 1. weather forecast 2. forecast charts with information about the weather coming to a particular area. 3. verb to estimate or calculate weather conditions by studying meteorological information. 4. Rain is forecast for this afternoon. (NOTE: forecasting or forecasted)

form /fɔːm/ noun 1. a document with blanks for the insertion of details or information. 2. insurance form 3. application form 4. a kind or type. 5. The ground automatic relief valve is a form of discharge valve. 6. Drizzle is the lightest form of precipitation. 7. the shape of an object. 8. Fluids take on the form of the container in which they are found. 9. in the form of a triangle in the shape of a triangle. 10. the way in which a thing exists, acts, or shows itself. 11. water in the form of ice. 12. fuel in the form of a spray. 13. verb to come into being. 14. In some conditions, ice forms on the leading edge of the wing. 15. Cumulus clouds only form in an unstable atmosphere. 16. to make a shape. 17. Three points on the chart form a triangle. 18. to make up or constitute.

forced landing /fɔːst 'lændɪŋ/ noun an unexpected landing that a pilot of an aircraft has to make become of an emergency situation.

forced down /fɔːst 'daʊn/ verb to force an aircraft to land, usually because of an emergency situation.

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| formation | /fɔrˈmeɪʃən/ noun | 1. the process of coming into being or forming 2. to fly in formation to fly in a group which maintains a particular pattern or arrangement in the air 

| former | /ˈfɔːrəm/ adjective | having been in the past 2. a former military pilot a pilot who used to be a military pilot 

| formula | /ˈfɔrmlə/ noun | a mathematical rule expressed in symbols 2. The formula for calculating speed is \( D \div T = S \) (where \( D \) = distance, \( T \) = time and \( S \) = speed). (NOTE: The plural form is formulas or formulae.) 

| forwards | /fɔrˈwɔːdz/ adverb | towards a position in front 2. The throttles are moved forwards for take-off. (NOTE: The US English is forward.) 

| fouling | /ˈfauəlɪŋ/ noun | contamination of the spark plugs with oil or petrol so that they do not fire correctly 2. The engine should be run at a positive idling speed to prevent spark plug fouling. 

| four-digit group | /ˈfɔːr dɪˈɡɪt ˈɡrʊp/ noun | four single numbers found together 

| four-stroke combustion engine | /ˌfɔːr strəʊk kəmˈbəʊstʃər/ noun | an engine which operates in accordance with the four-stroke cycle 2. Induction, compression, power, and exhaust are the four phases of the four-stroke combustion engine. 

| fpm | abbreviation | feet per minute | flight plan processing system 

| frame | /freɪm/ noun | 1. a structure that gives shape or support 2. Early aircraft fuselages were made of a frame covered by a fabric. 2. an open structure for holding, or bordering 2. a door or window frame 

| frequency bracket | /ˈfriːkwənsi ˈbrækit/ noun | a range of frequencies 2. VHF communications are allocated the frequency bracket 118–137 MHz. 

| frequent | /ˈfriːkwənt/ adjective | happening or appearing often 2. frequent inspection 

| friction | /ˈfrɪkʃən/ noun | a force that resists the relative motion or tendency to such motion of two bodies in contact 2. Energy is converted to heat through friction. 

| front | /frɒnt/ noun | 1. the forward part or surface 2. The entrance is at the front. 2. the area, location, or position directly before or ahead of in front 2. in a forward position relative to something else 2. Row 23 is in front of row 24.
mixed area between air masses of different temperatures or densities.

**frontal system** /ˈfrʌntəl sɪstəm/ noun a series of rain-bearing changes in the weather.

**frost** /frɔst/ noun a deposit of very small ice crystals formed when water vapour condenses at a temperature below freezing. Frost had to be cleared from training aircraft which had been parked outside overnight.

**ft** /fɔt/ abbreviation foot.

**fuel** /ˈfjuːəl/ noun a substance such as gas, oil, petrol, etc., which is burnt to produce heat or power. Each wing tank holds 20 gallons of fuel. A fuel system includes tanks, fuel lines, fuel pumps, fuel filters and a carburettor or fuel injection system.

**fuel/air mixture** /ˈfjuːəl eə ˈmɪkstʃər/ noun a combination of fuel and air which is ignited in a piston engine to provide power.

**fuel gauge** /ˈfjuːəl ˈɡeɪdʒ/ noun an instrument indicating fuel contents.

**fuel injection** /ˈfjuːəl ɪnˈdɛkʃən/ noun system in which fuel is sprayed under pressure into the combustion chamber of an engine.

**fuel injector** /ˈfjuːəl ɪnˈdɛkʃən ˈɪŋjəktər/ noun an injector that sprays fuel into the combustion chamber of an engine.

**fuel pump** /ˈfjuːəl pʌmp/ noun a device which moves fuel along pipes from the tanks to the engine.

**fumes** /ˈfjuːzmz/ plural noun smoke, gas or vapour given off by a substance, often unpleasant or harmful. When the cabin is rapidly and completely filled by smoke and fumes, passengers will suffer from disorientation.

**function** /ˈfʌŋkʃən/ noun 1. a specific occupation or role. Rota planning is one of the functions of the chief instructor. 2. purpose. Seals perform a very important function in a hydraulic system.

**fundamental** /ˈfʌndəmənt(ə)l/ adjective 1. of or relating to the foundation or base. the fundamental laws of aerodynamics. 2. central, forming or serving as an essential component of a system or structure. Electricity is one of the fundamental types of energy that exist in nature.

**fungus** /ˈfʌŋgəs/ noun a type of organism which lives and multiplies in particular fuels. Fuel contains chemicals for the inhibition of fungal growth.

**fuse** /ˈfjuːz/ noun a safety device that protects an electric circuit from an excessive current. Circuit breakers perform the same function as a fuse.

**fuselage** /ˈfjuːzəlædʒ/ noun the central body of a plane, to which the wings and tail assembly are attached and which accommodates the crew, passengers, and cargo. The fire started in the wing but soon spread to the fuselage.
g /dʒiː/ symbol the acceleration due to Earth’s gravity • abbreviation gram
G /dʒiː/ abbreviation giga-
GA abbreviation general aviation
gain /ɡeɪn/ noun 1. an increase • There is a gain of heat by the Earth due to solar radiation. • a gain in altitude
an increase in altitude 2. an increase in signal power, voltage, or current • The amplifier boosts the gain of the incoming signal. 3. a benefit or advantage • verb 1. to increase • He failed the test because the aircraft gained 100 ft in the 360° level turn. 2. to get or obtain • She gained a pass in her meteorology exam.
gale /geɪl/ noun a very strong wind usually blowing from a single direction • Gales are forecast for the area.
gallon /ˈɡælən/ noun 1. • imperial gallon unit of volume in the British Imperial System, used in liquid measure and sometimes in dry measure, equal to 4.546 litres • The system delivers fuel at the rate of 100 to 2,000 gallons per hour. Abbreviation gal 2. a unit of volume in the US Customary System, used in liquid measure, equal to 3.785 litres
GAMA abbreviation General Aviation Manufacturers Association
gamma rays /ˈɡæmə rɛz/ plural noun electromagnetic radiation given off by some radioactive substances • Gamma rays are given off when radioactive material breaks down.
gap /ɡæp/ noun 1. a space between objects or points • the difference • Micro switches have a very small gap between make and break 2. an opening • The pilot could see the airfield through a gap in the clouds.
gas /ɡæs/ noun a state of matter other than solid and liquid • Oxygen and nitrogen are gases. • gas turbine engine an engine with a turbine which is rotated by expanding hot gases

gaseous /ˈɡæsəs/ adjective relating to, or existing as a gas • The atmosphere is the gaseous envelope surrounding the earth.
gasket /ˈɡæskɪt/ noun any of a wide variety of seals or packings used between matched machine parts or around pipe joints to prevent the escape of a gas or fluid • Seals, gaskets and packing make a seal by being squeezed between two surfaces.
gasoline /ˈɡæsəliːn/ noun US a liquid made from petroleum, used as a fuel in an internal combustion engine
GAT abbreviation general air traffic

gate /ɡeɪt/ noun 1. a device for controlling the passage of water or gas through a pipe • The waste gate may be controlled manually by the pilot. • During a descent from altitude, with low power set, the turbocharger waste gate is fully closed. 2. a circuit with many inputs and one output that works only when a particular input is received • A logic gate is almost the same as a switch. 3. a device to prevent a lever from being moved to an incorrect setting • It is necessary to move the rpm control lever through a feathering gate to the feathering position.
gauge /ˈɡeɪdʒ/ noun 1. an instrument for measuring or testing • temperature gauge 2. a unit of
GCA 104

diameter or width n heavy gauge wire
thick wire n verb calculate approximately by using the senses n In fog, it is difficult to gauge horizontal distances.
(NOTE: gauging – gauged)
GCA abbreviation ground-control approach
gear /gɛər/ noun 1. a toothed wheel that turns with another toothed part to transmit motion or change speed or direction
2. a valve gear the mechanism for opening and closing valves 3. equipment and/or clothing
‘…as pilots, we understand the need for a convenient way to transport flight gear. That’s why we custom-designed this line of soft-sided flight bags in a variety of styles’ [Advertisement in Pilot]
gearbox /gɛəbɛks/ noun a device to allow changes in the ratio of engine speed to final drive speed n The auxiliary power unit (APU) is a small gas turbine engine which is connected to a gearbox.
GEM abbreviation ground-effect machine
general /ˈdʒenərəl/ plural of genus
general /ˈdʒenərəl/ adjective concerned with or applicable to a whole group of people or things n general description not a detailed description n general principles main ideas n general purpose switches all-purpose switches n general weather situation the overall weather picture without the detail n as a general rule usually n in general use used a lot
general aviation /ˈdʒenərəl,əˈviːʃən/ n all aviation other than commercial airlines or the military n The number of GA aircraft stolen is down sharply since the general aviation community has taken steps to enhance security. Abbreviation GA
general flying test /ˈdʒenərəltest/ n all a test of aircraft-handling skills for student pilots. Abbreviation GFT
generate /ˈdʒenəreit/ verb 1. to bring into being n In an emergency, it may be necessary for crew to generate a little panic in passengers to motivate them to move. 2. to produce something such as heat or electricity as a result of a chemical or physical process n The passage of air around the wing generates lift.
generation /ˌdʒenəˈreʃən/ noun 1. the act or process of creating or making n a generation of ideas the process of producing or getting ideas n a generation of electricity the production of electricity 2. a class of objects derived from an earlier class n a new generation of computers computers which share a recent development in computer technology which separates them as a class from earlier computers
generator /ˈdʒenərətər/ noun a power-operated device for making electricity n Starter generators are a combination of a generator and a starter housed in one unit.
genius /ˈdʒiːniəs/ noun a class, group, or family n Various types of cloud are grouped into ten basic cloud genera. (NOTE: The plural form is genera.)
geographic /ˌdʒiːəˈgræfɪk/, geographical /ˌdʒiːəˈɡræfi(ə)l/ adjective referring to geography n A specific geographical area n the north geographic pole
geography /ˌdʒiːəˈɡrəfi/ noun n physical geography the study of the Earth’s surface and its features
geometric /ˌdʒiːəˈmɛtrɪk/ adjective referring to geometry n A triangle is a geometric figure. n Geometric pitch (US) is the distance which a propeller should move forward in one revolution.
geometry /ˈdʒiːəmətri/ noun 1. the study of the properties, measurement, and relationships of points, lines, angles, surfaces, and solids n An understanding of geometry is essential to the student of navigation. 2. a configuration or arrangement n the geometry of the engine nacelle
geostationary /ˌdʒiːəˈsteɪʃənəri/ adjective referring to an object, such as a satellite in space, which rotates round the Earth at the same speed as the Earth and is therefore stationary with reference to a point on the Earth n There are two main types of satellite that are used for collection and
transmission of meteorological data, polar and geostationary.

gliding /ˈɡlaidɪŋ/ noun 1. flying in a glider 2. gliding club association of members who fly gliders as a pastime. 2. flying in a powered aircraft with the engine either switched off or idling. The best gliding speed for the aircraft is 75 knots.

COMMENT: On June 24th 1982, a British Airways 747 flying from Kuala Lumpur to Perth lost all power from all four engines for 13 minutes, yet landed safely in Jakarta: proof that even a large aircraft is capable of gliding.

global /ˈɡloʊbəl/ adjective worldwide, referring to something related to the whole Earth, global pressure patterns the pressure patterns of the whole planet.

globe /ˈɡloʊb/ noun an object shaped like a ball. If the Earth were a uniform globe, the average temperature would vary only with latitude.

GLONASS noun a system of satellite navigation operated by Russia. Full form Global Orbiting Navigation Satellite System.

GMT abbreviation Greenwich Mean Time.

GNSS abbreviation global navigation satellite system.

go-around /ˈɡəʊ əˈraʊnd/ noun a climb into the circuit and manoeuvring into position for a new approach and landing. Because the plane was too high on the approach, the pilot executed a go-around.

govern /ˈɡʊvərn/ verb to control or limit the speed, size or amount of something. The size and number of valves required for a particular type of aircraft is governed by the amount of air necessary for pressurisation and air conditioning. The type of undercarriage fitted to an aircraft is governed by the operating weight.

governor /ˈɡʌvnər/ noun a device for controlling or limiting the speed size or amount of something. Overspeed-
Students who scored below a particular grade in the examinations were not allowed to continue the course.

A pressure gradient occurs aloft from land to sea. Because there is a temperature gradient across each front it is possible to draw isotherms which reduce in value from warm to cold air. A pressure gradient occurs aloft from land to sea.

Because there is a temperature gradient between warm to cold air. isotherms which reduce in value from warm to cold air. If the engine is prevented by a governor in the fuel system. a valve

The graph shows the relationship between lift and drag at various airspeeds.

Throughout the crisis caused great distances were unaware of the gravity of the situation. the network of lines formed by the meridians and parallels of longitude and latitude of the Earth on a flat sheet of paper. A graticule of lines of latitude and longitude is imagined to cover the Earth.

The instructor’s worksheets were greatly improved by the incorporation of graphics to aid understanding of the subject matter.

The eye witness provided a graphic description of the events leading to the accident. The eye witness provided a graphic description of the events leading to the accident. A thermogram is a picture used in a computer application to aid the incorporation of graphics to aid comprehension of the subject matter.

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expressed in 24-hour format; for example, 7:30 P.M. is 1900 hours (say: nineteen hundred hours).

grid /grɪd/ noun 1. a pattern of equally spaced vertical and horizontal lines, sometimes used on a map. 2. Grid lines facilitate the quick location of a point of reference.

ground /ɡraʊnd/ noun 1. the solid surface of the earth. 2. Hail being much denser and heavier than snow, falls at a much faster rate and can reach the ground even with the 0° isotherm at 10,000 ft. 3. The pilot was grounded after failing a medical examination. 4. US to connect an electrical circuit to a position of zero potential. 5. While refuelling a light aircraft it is important to ground the airframe to prevent sparking caused by static electricity. (Note: To earth is preferred in British English.)

ground crew /ɡraʊnd kruː/ noun a team of employees who service and maintain the aircraft while it is on the ground.

ground-effect machine /ɡraʊnd ɪˌfekt maʃiˈn/ noun a hovercraft. Abbreviation GEM

ground elevation /ɡraʊnd ɪˌlevəʃiˈn/ noun the vertical distance, in feet, of the ground above sea level.

ground instructor /ɡraʊnd ɪˌstrɪktər/ noun a trained person who teaches support subjects such as meteorology in a classroom.

groundling /ɡraʊndlɪŋ/ noun a member of the ground crew at an airport or air force base.

ground loop /ɡraʊnd luːp/ noun a sharp unplanned turn made by an aircraft that is taxiing, taking off, or landing, caused by unbalanced drag.

ground movement /ɡraʊnd ˈmʌvmənt/ noun a manoeuvre such as taxiing carried out by an aircraft while on the ground, or any movement on an airfield by people or surface vehicles.

ground position /ɡraʊnd pəˈzɪʃən/ noun the point on the surface of the Earth immediately beneath the aircraft.

ground proximity warning system /ɡraʊnd prəˈproʊtəriəl ˈɔmni/ noun a system in aircraft which warns pilot, by means of an audible signal, that the aircraft is below a preset height. Abbreviation GPWS

ground-running operation /ɡraʊnd ˈrʌnɪŋ ˌɒpəˈreɪʃən/ noun a procedure of running the engine while the aircraft is stationary on the ground to check engine performance.

ground signal /ɡraʊnd ˌsəɡnəl/ noun a visual signal displayed on an airfield to give information about local traffic rules to aircraft in the air.

ground speed /ɡraʊnd spɪrd/ noun the speed of the aircraft in relation to the ground over which it is flying. Abbreviation GS, G/S.

ground temperature /ɡraʊnd ˈtɛmprətʃər/ noun the temperature recorded by a thermometer placed at ground level.

ground visibility /ɡraʊnd ˌvɪziˈbɪləti/ noun horizontal visibility near the surface of the earth.

group /ɡruːp/ noun 1. a number of individual items or people brought together because of similarities. 2. a collection of letters, numbers or symbols used in weather forecasting, etc.

growth /ɡrowtʃ/ noun an increase in size, number, amount, etc. of the growth of ice crystals or the growth of air travel.

GRP abbreviation glass fibre reinforced plastic.

GS, G/S abbreviation ground speed.

guard /ɡɑːd/ noun 1. a device to prevent injury or loss, etc. 2. The thermocouple probes consist of two wires of dissimilar metal that are joined together inside a metal guard tube.

against to take steps to ensure that
something does not happen ○ To guard against the risk of fire, passengers are requested not to smoke in the toilets.

guidance /ˈɡaɪd(ə)ns/ noun 1. helpful advice ○ Guidance is provided to assist people in filling in the form. ○ The booklet contains guidance on the advisability of flying with a cold. 2. the action of giving directions to an aircraft

guidance system /ˈɡaɪd(ə)ns ˌsɪstəm/ noun a system which provides signals to the flight control system for steering the aircraft

guide /ɡaɪd/ noun something that directs or indicates ○ rough guide a simple explanation to help a person to find his or her own way through more complex information ■ verb to direct or to indicate ○ If there is smoke in the cabin, clear commands from the crew will help to guide passengers to the emergency exits.

gust /ɡaʊst/ noun a strong, sudden rush of wind ○ a gust of 30 feet per second ○ On final approach, the pilot must be prepared to counteract the effect of gusts in order to maintain a smooth descent along the extended centreline of the runway. ○ gust load an increased load to the airframe caused by a sudden increase in wind strength ■ verb to increase in strength suddenly ○ Wind is at 10 knots gusting to 20 knots.

gyro /ˈdʒaɪərəʊ/ noun same as gyroscope

gyro- /ˈdʒaɪərəʊ/ prefix gyroscopic

gyrocompass /ˈdʒaɪərəʊˌkʌmpəs/ noun a compass which uses gyroscopic directional stability rather than magnetism to indicate direction ○ The gyrocompas should be checked against the magnetic compass and reset if necessary.

gyroplane /ˈdʒaɪərəplən/ noun an aircraft fitted with an unpowered rotor for producing lift

gyroscope /ˈdʒaɪərəskəʊp/ noun a device consisting of a spinning wheel, mounted on a base so that its axis can turn freely in one or more directions and thereby maintain its own direction even when the base is moved ○ The traditional attitude indicator, heading indicator and turn coordinator contain gyroscopes. ○ directional (NOTE: The word is often shortened to gyro.)

COMMENT: A spinning gyro maintains its position even when an aircraft banks, climbs, or dives. Gyros drive the attitude indicator, direction indicator and turn coordinator to help pilots control an aircraft while flying in cloud or in poor visibility.

gyroscopic /ˈdʒaɪərəˈskɒpɪk/ adjective referring to a gyroscope or using the properties of a gyroscope

gyroscopic compass /ˈdʒaɪərəˈskɒpɪk kʌmpəs/ noun a compass which uses gyroscopic directional stability rather than magnetism to indicate directions. Also called gyrocompass

gyroscopic precession /ˈdʒaɪərəˈskɒpɪk prɪsəʃən/ noun a characteristic of a gyroscope, that the force applied to a spinning gyroscope will act at a point 90° in the direction of rotation, not at the point where the force is applied ○ Forces of gyroscopic precession act on the direction indicator to keep it aligned vertically and horizontally.
hail /hɛl/ noun precipitation as small pellets of ice. Precipitation is the falling of water, as rain, sleet, snow or hail onto the surface of the earth. Although hail, and in particular, heavy hail is rare and of short duration, damage to an aircraft may be severe.

COMMENT: In weather reports and forecasts, hail is indicated by the abbreviation ‘GR’.

hailstone /ˈheɪlstɔn/ noun a small pellet of ice which falls from clouds. A hailstone starts as a small ice particle in the upper portion of a cumulonimbus cloud.

hailstorm /ˈheɪlstɔrm/ noun a storm, where the precipitation is hail instead of rain or snow. Flying through the hailstorm damaged the leading edges.

hand flying /ˈhænd flɪŋ/ noun flying an aircraft by moving the flight controls with the hands rather than by using the autopilot.

hand-held /ˈhænd held/ adjective possible to hold in the hand. Nowadays, headsets are usually used in preference to hand-held microphones.

hold

handle /ˈhænd(ə)l/ noun a device for holding, or being operated, by the hand. A door handle or a fire control handle.

verb 1. to touch with the hands. Cabin staff should not handle unwrapped food which is to be served to passengers. 2. to move or operate by hand. The student pilot handled the aircraft well in the turbulent conditions. 3. to deal with, or to manage. Flight crew must be able to handle any emergency when it occurs.

handling /ˈhændlɪŋ/ noun 1. the act of touching with the hands. 2. the use of the hands to move or operate something. 3. the act of dealing with or managing something. Her handling of a difficult situation won the admiration of the whole crew.

hand luggage /ˈhænd lʌɡɪdʒ/ noun small bags that passengers can take with them into the cabin of an aircraft. The amount of hand luggage is limited to one bag.

hand signals /ˈhænd sɪɡn(ə)lz/ plural noun same as marshalling signals.

hands off /ˈhændz ˈɒf/ adjective, adverb where the operator does not control the operation, which is automatic. Automatic flight control system capable of landing an aircraft hands off.

hangar /ˈhæŋə/ noun a large shelter for housing and maintaining aircraft. Light aircraft should be left with parking brakes off so that they can be moved quickly in the event of a fire in the hangar.

hard landing /ˈhɑrd ˈlændɪŋ/ noun an uncontrolled landing by an aircraft that results in its being damaged or destroyed.

HASELL, mnemonic

haul /həʊl/ noun long-haul, short-haul.

hazard /ˈhæzd/ noun a possible danger. Thunderclouds are of special interest to aircrew because of the hazards they may pose to aircraft in flight.
hazardous /ˈhæzədəs/ adjective possibly risky or dangerous ○ Flying over mountainous terrain can be hazardous.
○ Structural icing is a hazardous phenomenon for rotary wing as well as fixed wing aircraft.

haze /heɪz/ noun dust or smoke in the atmosphere ○ Haze can seriously reduce air-to-ground visibility.

head /hɛd/ noun 1. the top part of the body above the shoulders 2. a person ○ head of department the most senior person in the department ○ verb to fly in a particular direction ○ head north to fly towards the north

heading /ˈhɛdɪŋ/ noun the direction in which the longitudinal axis of the aircraft is pointing, expressed in degrees from north

COMMENT: Wind affects an aircraft in flight, therefore heading does not always coincide with the aircraft’s track. The pilot must head the aircraft slightly into the wind to correct for drift.

heading bug /ˈhɛdɪŋ bʌg/ noun a movable plastic marker on the horizontal situation indicator

heading correction /ˈhɛdɪŋ kɔrrekʃәn/ noun a change of heading in order to deal with a new situation. Also called course correction

heading indicator /ˈhɛdɪŋ ɪndɪkətor/ noun an instrument which gives course or direction information e.g. a horizontal situation indicator (HSI) or direction indicator (DI)

COMMENT: The heading indicator is driven by a gyro and provides steady, exact indications of heading.

heading to steer /ˈhɛdɪŋ təˈstreɪ/ noun a gyro-compass point in which to direct the aircraft

head-on /ˈhed ən/ adjective, adverb ○ to approach head-on to approach from opposite directions

head-on collision /ˈhed ən kələzәn/ noun a collision between two things or vehicles coming from opposite directions

headphones /ˈhedfaʊnz/ noun small speakers with padding, worn over a person’s ears, used for private listening ○ Headphones are used to monitor the signal.

headset /ˈhedsett/ noun headphones with a microphone attached, used for RT communications ○ Headsets are usually used in preference to hand-held microphones.

head-up display /ˈhedʌp dɪˈspɛl/ noun a cockpit system where data from flight instruments is projected onto a screen or the windscreen so that the pilot can see it without having to look down. Abbreviation HUD

headwind /ˈhedwɪnd/ noun a wind which is blowing in the opposite direction to the direction of movement or flight. Compare tailwind (NOTE: The word is also written head wind.)

headwind component /ˈhedwɪnd kəmənənt/ noun one of the three possible components of a wind, the other two being crosswind and tailwind

heap /hɪp/ noun a group of things piled or thrown one on top of another

heap cloud /hɪp klaʊd/ noun same as cumulus cloud

heat /hɪt/ noun warmth, being hot ○ The heat generated by combustion is considerable. ○ verb to make warm or warmer ○ The air leaving the turbocharger is very warm and can be used to heat the cabin.

heater /ˈhɛtər/ noun a device for heating ○ Pitot heads contain heater elements to prevent icing.

heating /ˈhɛtɪŋ/ noun the process of making something warmer ○ the heating action of the sun ○ kinetic

heavier-than-air /ˈheviər ˈθi:ən ˈeə/ adjective weighing more than the air it displaces, and so needing power to fly

heavy /ˈhevi/ adjective having a lot of weight ○ a heavy load a load of great weight ○ heavy rain rain which is dense and distributes a lot of water over the surface of the Earth in a relatively short time

heavy-duty /ˈhevi dʒuːti/ adjective referring to something designed for
hard wear or use  a heavy-duty battery
Longeron is a heavy-duty steel member.

**heavy landing**  /hɛvi 'lændɪn/  noun
a routine landing in which the aircraft makes contact with the surface with more force than usual, thereby possibly causing damage to the undercarriage.
The pilot reported a heavy landing.

**hedgehop**  /'hɛdʒhɒp/  verb to fly at very low height above the ground

**height**  /hæt/  noun
the vertical distance of a point, level or object measured from a particular point, e.g. sea level.
Pressure decreases with increasing height. The height of the aircraft is measured in feet, of the aircraft above the surface of the earth

**held**  /hɛld/  a hold

**helicopter**  /hɛlɪkɒptə/  noun
an aircraft with one or more rotors rotating around horizontal axes which provide lift and control.
Helicopter operations are carried out at the airport.

**helicopter rotor**  /hɛlɪkɒptə 'rəʊtə/  noun
two or more rotating blades, known as the main rotor, which provide lift and thrust for a helicopter;

**helideck**  /hɛlɪdɛk/  noun a deck on something such as a ship or offshore oil platform that is used as a landing area for helicopters

**heliograph**  /'hɛliɡraf/  noun
an instrument with a mirror to send messages by reflecting the sun. Heliographs enable reflected sunlight to be directed to a ship or aircraft in periods of direct sunlight.

**helipad**  /hɛlɪpɑd/  noun
an area where helicopters take off and land

**heliport**  /hɛlɪpɔrt/  noun
an airport designed for helicopters

**helistop**  /hɛlɪstɔp/  noun
a place where helicopters can take off and land, but usually one that does not have the support facilities found at a heliport

**helo**  /hɛləʊ/  noun
1. a rotary-winged aircraft, same as **helicopter**

**hemi**  /hɛmɪs/  noun
half a sphere

**Hertz**  /hætˈs/  noun
the SI unit of frequency, defined as the number of cycles per second of time. Abbreviation Hz

**HF**  abbreviation
high frequency

**high**  /hæ/  adjective
1. having great vertical distance  a high mountain
2. great, large, a lot

**high altitude**  /hæɪtɑltɪˈdeɪt/  noun
an area of high atmospheric pressure
There is a high over the British Isles.

**high frequency**  /hæɪtˈfriɡwənsi/  noun
relating to frequencies between 3–30 MHz. Abbreviation HF

**high performance**  /hæɪt poˈrɪfərnsm/  adjective
a system which provides better-than-usual output on an engine with a high performance. Some high-performance engines have coolant and oil system thermostats which aid warming-up.

**high performance aircraft**  /hæɪt poˈrɪfərnsm ˈeɪkrəft/  noun
an aircraft capable of flying faster, higher or with more manoeuvrability than normal aircraft

**hijack**  /ˈhɪdʒək/  verb
to take over control of an aircraft by one or several unauthorised person or persons with the intention of forcing the crew to fly it to a different destination. The airliner was hijacked on its way to Paris.

**hijacker**  /ˈhɪdʒəkər/  noun
a person who hijacks an aircraft or other vehicle

**hijacking**  /ˈhɪdʒəkɪŋ/  noun
the act of taking over control of an aircraft by one or several unauthorised person or persons with the intention of forcing the crew to fly it to a different destination.
The crew must be alert at all times to the possibility of hijacking, bombs and stowaways.

**hill**  /hɪl/  noun
an easily-seen, natural elevation, smaller than a mountain
Slopes on the side of a hill or mountain facing away from the sun receive less intense radiation. Hill shading is pro-
**hinder** /ˈhɪndər/ verb to make it difficult for something to happen.  
Free flow of fuel may be hindered by a blockage in the fuel line.  
Her illness hindered his progress on the course.

**hinge** /ˈhɪndʒ/ noun a device which allows a door, flap or lid to open and close on a stationary frame.  
Flying control hinges should be inspected before flight.  
verb to move against a stationary frame.  
Access to the engine compartment is normally via hinged cowling panels.

**HIRF** abbreviation high-intensity radiated fields

**HMR** abbreviation helicopter main rotor

**hoar** /ˈhɔːr/ hoar frost noun a frozen dew which forms on outside surfaces when the temperature falls below freezing point.  
Rapid descent from cold altitudes into warm moist air may produce hoar frost on the aircraft.

**hold** /ˈhɔːld/ noun an area or compartment within the aircraft for carrying freight.  
Carry-on baggage is limited by regulations as to size and weight and items in excess of this should be stowed in the luggage hold.  
verb 1. to keep and prevent from moving.  
The function of the autopilot system is to hold the aircraft on a desired flight path by means of gyroscopes and/or accelerometers.  
2. to keep an aircraft in a particular position on the ground or in the air while waiting for further clearance from air traffic control.  
It is normal practice for ATC to hold taxing aircraft well clear of the glide path and localiser antenna when visibility is poor.  
3. to have and keep in the hand.  
Hold the microphone in your right hand.  
verb held possible to hold in the hand.  
Hand-held possible to hold in the hand.  
Previously used in preference to hand-held microphones.

**holding** /ˈhɔːldɪŋ/ noun 1. a particular location, in the air or on the ground, where aircraft spend time, waiting for further clearance from air traffic control.  
2. a place, often designated Alpha, Bravo, Charlie, etc., where aircraft wait before entering the runway, as instructed by air traffic control.

**holding stack** /ˈhɔːldɪŋ stæk/  
an area of airspace where planes are instructed to wait before landing if there are delays (NOTE: Aircraft circle and descend according to the controller’s instructions until they are released from the lowest height in the stack for their final approach to the airport.)

**holding point** /ˈhɔːldɪŋ pɔɪnt/ noun 1. a particular location, in the air or on the ground where aircraft spend time, waiting for further clearance from air traffic control.  
2. a position on a flight path where aircraft are instructed to wait before landing.

**holding fuel** /ˈhɔːldɪŋ fjuːl/  
extra fuel carried by an aircraft to allow for time spent in the hold waiting for air traffic control clearance.

**homing** /ˈhɔʊmɪŋ/ noun a racetrack-shaped flight pattern with two parallel sides and two turns, flown usually while an aircraft is waiting for clearance to land

**hollow** /ˈhəʊl/ adjective having a space within, not solid.  
noun a hollow drive shaft.  
Opposite **solid**

**home** /ˈhəʊm/ noun  
**home** airfield.  
**home** the airfield which one returns to alter a two-leg flight.

**homeward** /ˈhəʊmwərd/ adjective  
goings towards home.  
verb **homeward** journey.  
verb **homeward bound** heading towards home.

**homewards** /ˈhəʊmwədz/ adverb  
towards home.  
They were heading home when the accident happened.

**homing** /ˈhəʊmɪŋ/ noun  
a flight towards or away from a radio station while using direction finding equipment.  
Where an RB may be fitted, homing to an NDB can be made by initially turning the aircraft until the relative bearing is zero.
homogeneous /ˌhɔʊməʊdi'znɪəs/ adjective of the same kind o If the air over a large region were homogeneous, there would be no horizontal differences in surface temperature. o The atmosphere is not homogeneous — pressure, temperature and humidity can all change with height.

hop /hɒp/ noun a flight or section of a flight in an aircraft (informal)

horizon /hɔrrə'ziːən/ noun the line where the sky and the ground appear to join o visual horizon a horizon which can be seen

horizontal /ˈhɔrɪznəl/ adjective parallel to the horizon, or at right angles to the vertical o The horizontal motion of air is known as wind.

horizontal axis /ˈhɔrɪznəl əksɪs/ noun a horizontal reference line of a graph o The plot shows the effect of airspeed on lift with airspeed shown on the horizontal axis and lift on the vertical axis.

horizontal situation indicator /ˈhɔrɪznəl ˈsɪtʃuəʃən ɪndɪkətər/ noun a cockpit instrument which gives the pilot information about the direction of the aircraft’s flight path o On the aircraft, the horizontal situation indicator is located on the instrument panel below the attitude indicator. Abbreviation HSI

COMMENT: The horizontal situation indicator combines the function of the heading indicator and a VOR/ILS display.

horizontal stabiliser /ˈhɔrɪznəl ˈstɪbəlaɪzər/ noun a tailplane o The horizontal stabiliser provides stability about the lateral axis of the aircraft.

horn /hɔrn/ noun a device for projecting sound o warning horn device which emits a loud warning noise

horn balance /ˈhɔrn ˈbɔləns/ noun part of a control surface forward of the hinge line which reduces the force needed by the pilot to move the surface

horsepower /ˈhɔrspiːər/ noun the accepted unit for measuring the rate of doing work o Horsepower is defined as 33,000 foot-pounds of work done in one minute. Abbreviation h.p., HP

hose /həʊz/ noun a long, flexible pipe usually made of fabric, plastic or rubber for pumping gases or liquids o refueling hose a flexible pipe used to pump fuel from the bowser to the aircraft

hot /hɒt/ adjective very warm, having a high temperature o hot weather o hot air air introduced to melt ice forming in the carburettor in a piston engine aircraft

hour /ˈauər/ noun 1. a period of time which lasts sixty minutes o It’s a three-hour flight to Greece from London. 2. a method of indicating time o Flight BA 321 landed at Heathrow at 10.30 hours.

house /haʊz/ verb to contain or accommodate o The areas between the ribs in the wings are utilised to house fuel tanks. o The wing tips house the navigation lights.

housing /ˈhauznɪŋ/ noun a compartment or container o The crankcase is the housing that encloses the various mechanical parts surrounding the crankshaft. o engine housing engine compartment

hover /ˈhauvər/ verb to remain stationary, relative to the earth, while in the air o noun a period of stationary flight o During a hover, helicopter pilots must be able to coordinate movements of both hands and feet.

hovercraft /ˈhauvrɛkrɑːft/ noun a vehicle that can travel over land and water supported on a cushion of air that is produced by a powerful engine that blows air downwards. Also called air cushion vehicle, ground effect machine

however /ˈhauvər/ adverb but o The wind was gusty, however the landing was good. o The incident was serious, however she escaped with only a warning.

hrs abbreviation hours

HSI abbreviation horizontal situation indicator

hub /hʌb/ noun a major airport where international or long-distance flights take off and land
hub airport

hub airport /ˈhæb əˈpɔːst/ noun
same as hub

HUD abbreviation head-up display

human factors /ˈhjuːmən ˈfektəz/ noun the study of the way in which humans handle, and react to, things in their environment. It is used in aviation to develop safer systems and procedures. (NOTE: Human factors is followed by a verb in the singular.)

humid /ˈhjuːmɪd/ adjective containing a lot of water vapour ○ humid weather weather which, although warm, feels damp and uncomfortable

humidity /ˈhjuːmətɪdʒ/ noun a measurement of how much water vapour is contained in the air ○ the humidity is high there is a lot of moisture or water vapour in the air

hydraulic /ˈhaɪdrəlɪk/ adjective referring to any system or device which uses fluids such as oil to transmit a force from one place to another using pipes ○ a hydraulic pump

hydraulic fluid /ˈhaɪdralɪk ˈfluːd/ noun thin oil used in hydraulic braking systems, etc.

hydraulic pressure /ˈhaɪdralɪk ˈpreʃər/ noun the pressure exerted by hydraulic fluid

hydraulic tubing /ˈhaɪdralɪk ˈtjuːbɪŋ/ noun system of tubes or thin pipes connecting the main components of a hydraulic system

hydro- /ˈhaɪdrəʊ/ prefix water ○ a hydro-mechanical governor

hygrometer /ˈhaɪgrəməter/ noun an instrument used for the measurement of humidity ○ The most common type of hygrometer is the wet and dry bulb thermometer arrangement.

hypoxia /ˈhaɪpɒksɪə/ noun a medical condition in which not enough oxygen is supplied to the body ○ The symptoms of hypoxia are sometimes difficult to detect.

COMMENT: Cabin pressurisation or oxygen equipment is usually required for flying at altitudes at or above about 10,000 ft (3,048 m).

Hz abbreviation Hertz
which particular features on a chart, means by
tion of ground features

cross-section shaped like the letter 'I'
or some other strong substance with a
situation
possible
good as can be expected or the best pos-

extremely hazardous to flight.

cloud.
frame icing can be encountered in wave

troller to identify the aircraft
transponder panel which helps a con-

computers which are exactly the same

identical computers
computers which are exactly the same

identification /ɪdˈentɪfɪˈkeɪʃən/ noun
the process by which a person, aircraft,
etc., is recognised: identification

ground features means by

such as railway lines or bridges, are
matched with the real feature on the
ground

identification beacon /aɪˌdɛntɪˈfiŋˌbiːkən/ noun
an aeronautical beacon which gives out a Morse signal
which enables a pilot to establish their
location in relation to the beacon. The Civil
and military aerodrome identification
beacons can be distinguished by colour.

identifier /ˌɪdˈentɪfər/ noun
a grouped number/letter code by which a
weather station or beacon can be recog-
nised. When a TAF requires amend-
ment, the amended forecast is indicated
by inserting AMD (amended) after TAF
in the identifier and this new forecast
covers the remaining validity period of
the original TAF.

identify /ɪdˈentɪfaɪ/ verb

to recog-
nise: Crew members can be identified
by their uniforms. In conditions of
poor visibility, it is sometimes difficult
to identify ground features.

identity /ɪdˈentɪtɪ/ noun
the name and details of a person, aircraft,
etc. The air traffic controllers are trying to
establish the identity of the aircraft.

ident
idle /aɪdəl/ noun
the state of an
engine when it is running but not deliv-
ering power to move the vehicle or air-
craft: verb to turn over slowly without
providing enough power to move the
vehicle or aircraft. After starting a pis-
ton engine from cold, it is good practice
to allow it to idle for a short time before

opening the throttle wide.

idle cut-off /ˌaɪdəlˈkʌt/ noun
a position on the mixture control of a
idle rpm

light aircraft which allows the engine to be shut down without leaving a combustible fuel/air mixture in the engine

idle rpm /ˈaɪdl rɪmp/ noun the speed at which a piston engine turns when it is not running fast enough to move the vehicle or aircraft, i.e. on a light aircraft when the throttle is almost closed

idling /ˈaɪdəlɪŋ/ noun a state in which the engine is turning over slowly without providing enough power to move the vehicle or aircraft

idling speed /ˈaɪdəlɪŋ spɪd/ noun the rpm of the engine when it is idling

After start-up, the engine accelerates up to idling speed. Before the engine is stopped, it should normally be allowed to run for a short period at idling speed to ensure gradual cooling.

IF abbreviation 1. instrument flying 2. intermediate frequency

IFR abbreviation instrument flight rules

ignite /ɪɡˈneɪt/ verb to burn or cause to burn. The spark plug ignites the fuel/air mixture. The airfuel mixture ignites.

Ignition problems are a source of many engine failures.

Ignition should occur just before top-dead-centre.

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Igniter /ɪɡˈneɪtər/ noun a device for starting gas turbine engines.

An electric spark from the igniter plug starts combustion.

Ignition /ɪɡˈneɪʃən/ noun 1. the starting of burning of a substance. Satisfactory ignition depends on the quality of the fuel.

2. the moment, in an internal combustion engine, when a spark from the spark plug causes the fuel/air mixture to burn. Ignition should occur just before top-dead-centre.

3. an electrical system, usually powered by a battery or magneto, that provides the spark to ignite the fuel mixture in an internal-combustion engine. Ignition problems are a source of many engine failures.

A switch that activates the ignition system is in its position in the ignition lock. The key is in the ignition key used to switch on the ignition.

A key-operated switch for activating the ignition circuit of an aircraft or a vehicle

illuminant /ɪˌlɪməˈnænt/ verb 1. to give light to an otherwise dark area. A flare illuminates the ground below it.

2. to show a light or become bright. When the aircraft is 5 knots above stalling speed, a warning lamp illuminates.

illumination /ɪˌlɪməˈneɪʃən/ noun light: Batteries provide about 20 minutes illumination for the lamp.

illuminated light illumination the amount of light in normal daytime conditions

illustrate /ɪˈlɪstrɪteɪt/ verb 1. To demonstrate or explain clearly, often by using pictures. Contour charts illustrate the horizontal distribution of height above mean sea level.

2. to show as an example. A number of aviation disasters have illustrated the importance of clear, correct use of language in R/T (Radiotelephony) communications.

Illustration /ɪˈlɪstræʃən/ noun 1. a picture which explains something. The illustration on page 23 shows a cross section of a typical gas-turbine engine.

2. an example. The mechanics of the fohn wind provide a good illustration of the adiabatic process in action.

ILS abbreviation instrument landing system

ILS glideslope /ˈaɪliz glaɪdsləʊp/ noun a radio beam in an ILS which gives vertical guidance.

The angle of the glide slope is usually about three degrees to the horizontal.

A non-directional beacon used for final approach.

Power output can be as little as 15 watts for an ILS locator beacon.

IM abbreviation inner marker

Image /ˈɪmɪdʒ/ noun a reproduction of the form of an object or person. Although difficult to see, the photograph shows the image of the aircraft with part of the fin missing. (Note: It suggests that the image has no detail and that it is the shape which is important.)
that take-off is imminent.\n
on sure to very loud noise impairs the mission made it clear that the aircraft ward motion to a mass of air.

the base of the fuel tank. immersed booster pumps mounted on pumped from the main tanks via fully

immediate use in the event of an emergency. extinguishers should be ready for imme-

lessening of effectiveness imparting on impact with the ground). on impact

impairment to withstand an impact

the ability of a material to withstand an impact

imminent due to happen in a very short time. The transmission made it clear that the aircraft was in imminent danger. A message from the flight deck informs cabin staff that take-off is imminent.

impact the striking of one body against another, a collision on impact as soon as it hit something

One of the tyres burst on impact (with the ground). Super-cooled water droplets start to freeze on impact with an aircraft surface.

impact resistance the ability of a material to withstand an impact

impair cause to become less effective Constant exposure to very loud noise impairs the hearing. The pilot’s vision may be temporarily impaired by lightning flashes. An incorrect grade of fuel impairs engine performance.

impairment a lessening of effectiveness De-icing equipment is used to prevent impairment of the lifting surfaces through ice formation.

impact give, to pass on. A rotating propeller imparts rearward motion to a mass of air.

impedance total electrical resistance to current flow in an alternating current circuit Imped-

ance will vary with changes in frequency.

impede to hinder or obstruct progress. Hills and mountains impede the horizontal flow of air.

impeller a rotor used to force a fluid in a particular direction

import duty payment made to a government on particular goods imported or exported the duty payable on a carton of cigarettes Also called customs duty, duty

impose to force someone to pay a sum of money as punishment or to impose restrictions to place limitations on somebody’s actions

improve to make or become better Turbochargers improve aircraft performance. The trainee’s flying skills improved a lot in a short period of time.

improvement the process of becoming better, or something that makes a thing better An improvement in weather conditions enabled the flight to depart.

impulse a force of short duration. A magneto is designed to produce electrical impulses one after another at precise intervals, so that each separate impulse can be used to provide a spark at a spark plug.

impulse magneto a magneto with a mechanism to give a sudden rotation and thus produce a strong spark

inability the fact of being unable to do something

inactive not switched on, in a passive state. At the
### inadventent

*adjective* not intended, not meant, accidental

**Example:** A safety mechanism prevents inadvertent retraction of the undercarriage while the aircraft is on the ground.

### incline

*verb* to slope or slant from the horizontal or vertical

**Example:** The runway inclines slightly upwards. The inclinometer is a device used to measure the angle of incline.

### inclinometer

*noun* the lower part of a turn coordinator, in which a ball in a sealed curved tube indicates if a turn is coordinated. Also called rudder ball.

### incline

*adjective* towards a destination

**Example:** The aircraft flies inbound along the airway and inbound to the facility at the other end of the leg.

### inboard

*adverb* closer to the centre of an aircraft rather than the sides or edges

**Example:** The cockpit is located inboard of the wings.

### incidence

*noun* the frequency of occurrence

**Example:** The incidence of structural failure has decreased with the introduction of modern construction materials and techniques.

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*verb* to slope or slant from the horizontal or vertical

**Example:** The runway inclines slightly upwards. The inclinometer is a device used to measure the angle of incline.
indicated airspeed /'indik'tid 'ɛəspɪd/ noun the airspeed shown by the cockpit or flight-deck instrument. The aircraft stalls at an indicated airspeed of 50 knots. Abbreviation IAS.

indication /'ɪndɪkeɪʃ(ə)n/ noun 1. pointing out. 2. a sign or symptom. A drop in engine rpm is an indication of ice forming in the carburettor. An audible indication is a sound which serves as a warning, e.g., a bleep.

indicator /'ɪndɪkeɪtər/ noun something which shows information.

individual /'ɪndɪˈvɪduəl/ adjective existing as a separate thing. The hydraulic braking system consists of a master cylinder with individual brake chambers at each wheel. There is a maintenance manual for each individual engine.

index /'ɪndeks/ noun an alphabetical list of references to page numbers found at the end of a book or long document. The plural form is indices or indexes /'ɪndɪks/.

index letter /'ɪndeks ˌletər, 'ɪndeks ˌnʌmbər/ noun a letter- or number which makes it easier to reference or look up information. Each observing meteorological station is shown on the chart as a small circle, identified by its own index number.

indicate /'ɪndɪkeɪt/ verb 1. to show or point out. A lamp on the instrument panel will indicate when the pump is operating. The needle indicated to zero. 2. to serve as a sign or symptom. Black smoke from the exhaust may indicate a rich mixture or worn piston rings.

inductance /'ɪndʌktəns/ noun a measure of a conductor’s ability to bring a voltage into itself when carrying a changing current, e.g., during short times when the circuit is switched on or off. At low frequencies, the rate of collapse of the magnetic field will be slow and the inductance will be low.
induction /ɪndˈʌktʃən/ noun 1. the process by which the fuel/air mixture is drawn into the cylinders of an internal combustion engine. 2. the production of electrical current in a conductor by a change of magnetic field. A transformer is a static device that changes the amplitude or phase of an alternating voltage or current by electro-magnetic induction.

inductive /ɪnˈdʌktɪv/ adjective referring to the production of electrical current in a conductor by a change of magnetic field. One side effect of low frequency in an inductive circuit is that excess heat may be produced.

inductor /ɪnˈdʌktər/ noun a component in the ignition system that produces electrical current in itself by a change of magnetic field.

inert /ˈɪnɜːt/ adjective not reacting with other substance.

inert gas /ˈɪnɜːt ɡæs/ noun a gas that does not react with other substances. Inert gases, dust, smoke, salt, volcanic ash, oxygen and nitrogen together constitute 99% of the atmosphere. (NOTE: The inert gases include helium, neon, argon, krypton and xenon.)

inertia /ɪnˈɜːrə/ noun the tendency of a body at rest to stay at rest or of a moving body to continue moving in a straight line unless acted on by an outside force. Inertia switches operate automatically when a particular g (acceleration due to Earth’s gravity) loading occurs.

inertial /ɪnˈɜːrəl/ adjective referring to inertia.

inertial navigation system /ɪnˈɜːrəl nəˈvɪɡeɪʃən sɪstəm/ noun a navigation system which calculates aircraft position by comparing measurements of acceleration with stored data, using gyro rather than radios. Abbreviation INS.

indefinite /ɪnˈfɛrənt/ adjective obtained by deduction. The inferential method of ice detection is used in flight trials for aircraft certification.

inflammable /ɪnˈflɛməbl/ adjective easily set on fire. Petrol is an inflammable liquid. (NOTE: Flammable and inflammable mean the same thing.) highly inflammable, very easily set on fire, and therefore hazardous.

inflame /ɪnˈfleɪm/ verb to make something burn or give off flame. Opposite: extinguish.

inflation /ɪnˈflɪʃən/ noun 1. the act of blowing air into something, e.g. a balloon or a tyre, and so increasing its size. 2. a continuing increase in the price of things and a decrease in the buying power of money. Annual inflation is 4%. Opposite: deflation.

in-flight /ɪnˈflɪt/ adjective taking place during a flight. In-flight emergency. In-flight oil loss.

influence /ɪnˈflʊəns/ noun a power which affects people or things. The Atlantic Ocean has a great influence on the climate of the British Isles. Influenza of command will influence the reaction of passengers.

inform /ɪnˈfɔːm/ verb to tell somebody something. After a particularly heavy landing, the pilot should inform an engineer so that checks can be made to the aircraft structure.

information /ɪnˈfɔːrmeɪʃən/ noun a collection of facts or data. Meteorological visibility gives information on the transparency of the atmosphere to a stationary ground observer. (NOTE: Information has no plural form.)

infra-/infra/ prefix below or beneath.

infrared /ˌɪnfrəˈred/, infra-red adjective referring to the range of invisible radiation wavelengths from about 750 nanometres to 1 millimetre. Solar radiation is short wave and of high intensity while terrestrial radiation is infra-red.

infrequent /ɪnˈfrɪkwənt/ adjective not often. In northern Europe, thunderstorms are infrequent in winter time.
**ingest** /ɪnˈdʒest/ **verb** to take in, or to absorb into, something such as a jet engine through the intake → Jet engines may be damaged by ingested chunks of ice.

**ingestion** /ɪnˈdʒeʃən/ **noun** the act of taking something into something such as a jet engine through the intake → Ingestion of birds may seriously damage the blades of turbo-fan engines.

**inherent** /ɪnˈhɛrdənt/ **adjective** existing as a basic or fundamental characteristic → A boiling point of 100°C is an inherent characteristic of water.

**in hg** **noun** the unit for measuring absolute pressure. Full form **inch(es)** of mercury

**inhibit** /ɪnˈhaɪbɪt/ **verb** to prevent or to limit the effect of something → Cloud cover inhibits cooling of the Earth’s surface at night.

**inhibition** /ɪnˈhaɪbɪʃən/ **noun** the prevention or limitation of the effect of something → Fuel contains chemicals for the inhibition of fungal growth.

**inhibitor** /ɪnˈhaɪbɪtər/ **noun** a device or substance which prevents or limits the effect of something → **icing inhibitor** a substance added to fuel to prevent fuel system icing

**initial** /ɪˈnɪʃəl/ **adjective** relating to or occurring at the beginning, the first → **initial climb** the period of climb immediately after take-off or **initial letter** the first letter of a word or **initials** the first letters of a name → **His name is John Smith, his initials are JS**.

**initiate** /ɪnˈʃɪət/ **verb** to get something going by taking the first step, to start → In a serious emergency, a member of the cabin crew may initiate an evacuation of the aircraft.

**initiation** /ɪnˌʃɪəˈteɪʃən/ **noun** the act of getting something going by taking the first step, starting → **Normally speaking, the captain is responsible for the initiation of emergency procedures**.

**initiative** /ɪnˈʃɪətɪv/ **noun** the power or ability to begin or to follow through competently with a plan or task → Crew members must be able to act collectively and with initiative in unusual situations.

**inject** /ɪnˈdʒɛkt/ **verb** to force or to drive a fluid into something → An accelerator pump, operated by the movement of the throttle lever, injects fuel into the choke tube.

**injection** /ɪnˈdʒɛkʃən/ **noun** the forcing of fluid into something → **Power output** can be boosted to a value over 100% maximum power, by the injection of a water methanol mixture at the compressor inlet or at the combustion chamber inlet.

**injector** /ɪnˈdʒɛktər/ **noun** a device that will force or drive a fluid into something

**injury** /ˈɪndʒəri/ **noun** damage or harm done to a person → **Escape slides are designed to minimise the risk of injury to passengers when leaving the aircraft**.

**inland** /ˈɪnlaʊnd/ **adjective** referring to the interior of a country or land mass → **Sea fog can extend for considerable distances inland**.

**inlet** /ˈɪnleɪt/ **noun** 1. **a** an opening which allows an intake of something → **turbine inlet** **combustion chamber inlet** **Air enters the cabin through an inlet. 2. a** coastal feature such as at the mouth of a river

**inlet valve** /ˈɪnleɪt ˈvælv/ **noun** the valve in a piston engine which allows fuel to enter the cylinder

**inner** /ˈɪnər/ **adjective** positioned farther inside → **inner wing** the part of the wing near the fuselage

**inner marker** /ˈɪŋər ˈmɑrkər/ **noun** an ILS marker beacon placed between the middle marker and the end of the ILS runway

**inoperative** /ɪnˈəʊpərətɪv/ **adjective** not functioning → To prevent accidental retraction of the undercarriage, a safety switch is fitted in such a way to the oleo, that when it is compressed on the ground, the 'undercarriage up' selection is inoperative.

**input** /ˈɪnpyt/ **noun** something such as energy, electrical power or information, put into a system to achieve output or a result → **Pumps require high input cur-
rent. o If the number of turns on the secondary winding is greater than the number of turns on the primary, the output voltage from the secondary will be greater than the input voltage to the primary. o pilot control input movements on the flying controls made by the pilot.

**INS** abbreviation inertial navigation system

**insert** /'insərt/ verb to put in or into o To prevent tyre explosion due to overheating, fusible plugs are inserted into the wheel assemblies. o Insert your telephone number in the space provided on the form. o Insert the key in the lock and turn it.

**insertion** /'insəʃ(ə)n/ noun the act of putting in or into o There is a space on the form for the insertion of a postal address. o When the contours for a particular pressure level have been drawn in, the chart is completed by insertion of spot temperatures and wind speed information.

**insignificant** /ˌɪnsɪˈɡnɪkənt/ adjective not important, of no consequence o Minor changes in wind speed or direction are insignificant.

**inspect** /ɪnˈspekt/ verb to look at something closely and to check for problems or defects o Propellers should be inspected prior to flight.

**inspection** /ɪnˈspekʃ(ə)n/ noun a careful check for problems o Before flight, the pilot should carry out a careful inspection of the aircraft.

**instability** /ɪnˈstæbɪləti/ noun a condition in which a body or mass moves easily, and with increasing speed, away from its original position o Atmospheric instability often results in strong vertical currents of air. o The built-in instability of some modern fighter aircraft makes them highly manoeuvrable but difficult to control without fly-by-wire technology.

**install** /ɪnˈstæl/ verb to put in position, connect and make ready for use o Most carburettors are installed in a warm position to help against icing. o installed battery a battery in position in the aircraft

**installation** /ɪnˈstæləʃ(ə)n/ noun 1. the act of putting equipment or devices into position and connecting them for use o The installation of the computer took three hours. 2. equipment or devices which are installed o In some auxiliary-power-unit installations the air intake area is protected against ice formation by bleeding a supply of hot air from the compressor over the intake surfaces.

**instance** /ɪnˈstæns/ noun an example which is used to provide evidence of something o Failure to check fuel levels before take-off is an instance of bad airmanship. o for instance e.g.

**instant** /ˈɪnstant/ adjective immediate, happening immediately o A very short period of time o The pilot has to act in an instant to counteract the severe downdraughts of a microburst.

**instinctive** /ˌɪnˈstɪŋktɪv/ adjective natural, rather than thought-out o In most modern light aircraft, use of the trim wheel is instinctive, i.e. forwards for nose down and backwards for nose up.

**instruct** /ɪnˈstrʌkt/ verb to give information or knowledge, usually in a formal setting such as a lesson or briefing o The safety officer instructs employees on the use of the breathing equipment. o The training captain instructs trainee pilots in the simulator.

**instruction** /ɪnˈstrʌkʃ(ə)n/ noun 1. the act of giving information or knowledge, usually in a formal setting such as a lesson or briefing o The safety officer instructs employees on the use of the breathing equipment. o The training captain instructs trainee pilots in the simulator.

**instruction manual** /ɪnˈstrʌkʃ(ə)nˌmjuːˈneɪʃəl/ noun a book containing information on how something should be operated or used o You must follow the instructions.

**instructor** /ɪnˈstrʌktər/ noun a person who gives information or knowledge, usually in a formal setting such as a lesson or briefing.

**instrument** /ɪnˈstrʌmənt/ noun a device for recording, measuring or controlling, especially functioning as part of a control system o Airspeed is given...
on an instrument called the airspeed indicator.

**instrument approach procedure** /in'strument ə'prəuʃ/ prə 'sɪzdʒə/ noun a set of procedures which a pilot must follow when approaching an airport under instrument flight rules.

**instrumentation** /,ɪnstru'menʃən/ noun a set of specialised instruments on an aircraft. Instrumentation in some basic light aircraft is restricted to a few instruments only. Some modern light aircraft have very sophisticated instrumentation.

**instrument error** /in'strument, 'ɛrə/ noun the difference between indicated instrument value and true value.

**instrument flight rules** /,ɪnstru'ment 'flætʃ 'rʌdz/ plural noun regulations which must be followed when weather conditions do not meet the minima for visual flight. The flight from Manchester to Prestwick was conducted under instrument flight rules. Abbreviation IFR.

**instrument flying** /in'strument 'fliːŋ/ noun flying using no references other than the flight instruments. Some conditions require instrument flying. When in cloud, instrument flying is required. Abbreviation IF.

**instrument landing** /in'strument 'lændɪŋ/ noun the landing of an aircraft when a pilot is relying on information obtained from instruments rather than from what can be seen outside the aircraft.

**instrument landing system** /in'strument 'lændɪŋ 'sɪstəm/ noun aids for an instrument landing approach to an airfield, consisting of a localiser, glide slope, marker beacons and approach lights. The instrument landing system provides both horizontal and vertical guidance to aircraft approaching a runway. Abbreviation ILS.

**instrument meteorological conditions** /,ɪnstru'ment metə'ɒlədʒɪk kəndəˈtʃənz/ noun meteorological conditions of visibility and distance from cloud ceiling which are less than those for visual meteorological conditions.

**instrument meteorological conditions** does not permit the pilot to fly in instrument meteorological conditions. Abbreviation IMC.

**instrument rating** /,ɪnstru'ment 'reɪtɪŋ/ noun an additional qualification added to a licence, such as PPL, allowing a pilot to fly in instrument meteorological conditions. He gained his instrument rating in 1992. Abbreviation IR.

**insufficient** /ˌɪnsəˈfɪʃnt/ adjective not enough. Insufficient height resulted in the pilot landing short of the runway.

**insulate** /ˌɪnsjuˈleɪt/ verb 1. to prevent the passing of heat, cold or sound into or out of an area. 2. to prevent the passing of electricity to where it is not required, especially by using a non-conducting material. Bus bars are insulated from the main structure and are normally provided with some form of protective covering.

**insulating** /ˌɪnsjuˈleɪtɪŋ/ adjective preventing the unwanted passage of heat, cold, sound or electricity.

**insulating tape** /ˌɪnsjuˈleɪtɪŋ 'teɪp/ noun special adhesive tape which is used to insulate electrical wires. Insulating tape was used to prevent the electrical wires from touching.

**insulation** /ˌɪnsjuˈleɪʃən/ noun an act of or state of preventing the passing of heat, cold, sound or electricity from one area to another. For continuous supersonic flight, fuel tank insulation is necessary to reduce the effect of kinetic heating.

**insulator** /ˌɪnsjuˈleɪtər/ noun a substance which will insulate, especially which will not conduct electricity. Wood is a good insulator.

**intake** /ɪnˈteɪk/ noun an opening through which a fluid is allowed into a container or tube.
intake guide vane 124

**intake guide vane** /ˈɪnteɪk ɡaʊn/ noun a device to direct the flow of air at the air-intake

**intake lip** /ˈɪnteɪk ʌp/ noun the rim or edge of the air intake of a jet engine. As sonic speed is approached, the efficiency of the intake begins to fall because of shock waves at the intake lip.

**intake temperature gauge** /ˈɪnteɪk ˈtɛmpətʃər ɡeɪdi/ noun an instrument to indicate the temperature of air entering an engine

**integral** /ˈɪntəgrəl/ adjective which completes the whole or which belongs to a whole. Meteorology is an integral part of a flying training course.

**integral fuel tanks** tanks which are located within the structure of the aircraft

**integrity** /ɪnˈtɛgrɪti/ noun the state of being complete and in good working condition. The engine fire warning system is checked to test its integrity. The integrity of an aid used to conduct procedural approaches must be high.

**intend** /ɪnˈtɛnd/ verb to have a particular plan, aim or purpose. A battery is intended to supply only limited amounts of power. intended track desired course of flight

**intense** /ɪnˈtɛns/ adjective 1. extreme in amount. intense heat very high heat. 2. intense wind very strong wind. 3. intense concentration very hard or deep concentration

**intensity** /ɪnˈtɛnsəti/ noun the amount or strength of heat, light, radiation. Surface air temperatures depend mainly on the intensity and duration of solar radiation.

**intention** /ɪnˈtɛnʃən/ noun the course of action one means or plans to follow. It is not the intention of this chapter to give a detailed description of world weather. Our intention is to provide safe, cost-effective flying.

**inter-** /ɪntər/ prefix between

**interact** /ɪntərˈækt/ verb to act on each other. Angle of attack and the profile of the wing section interact to produce lift. Direct and reflected path signals can interact to cause bending of the localiser and/or generation of a false glidepath.

**intercept** /ɪntəsɛpt/ verb to stop or interrupt the intended path of something. When a radio transmission is made from a moving platform, there will be a shift in frequency between the transmitted and intercepted radio signals.

**interconnect** /ɪntəˈkɒənt/ verb to connect together. The fire extinguishers for each engine are interconnected, so allowing two extinguishers to be used on either engine.

**inter-crew** /ɪntə ˈkruː/ adjective inter-crew communications communications between members of the crew.

**interfere** /ɪntəˈfɪər/ verb to interfere with. to get in the way of something or come between things and thus create a problem. An engine intake close to another surface, such as the fuselage tail section, must be separated from that surface so that the slower boundary layer air does not interfere with the regular intake flow.

**interference** /ɪntəˈfrɛns/ noun the prevention of reception of a clear radio signal. Some equipment, such as generators and ignition systems, will cause unwanted radio frequency interference. precipitation interference interference caused by rain, snow or hail

**interlock** /ɪntəˈlɒk/ noun a series of switches and/or relays. Interlocks operate in a specific sequence to ensure satisfactory engagement of the autopilot. verb to connect together parts of a mechanism, so that the movement or operation of individual parts affects each other. The two parts interlock to create a solid structure.

**intermediate** /ɪntəˈmɪdiət/ adjective 1. in a position between two others. between beginners and advanced. he is at an intermediate stage in his studies he is in the middle of his course of study. 2. an intermediate level language student a second language learner who has reached a level between elementary and advanced level

**intermediate approach** /ɪntəˈmɪdiət əˈprəʊʃ/ noun the part
of the approach from arriving at the first navigational fix to the beginning of the final approach.

**intermediate frequency** /ˌɪntɪˈmɪdɪət/ 'frɪkwənsi/ noun the frequency in a radio receiver to which the incoming received signal is transformed. Abbreviation IF

**intermittent** /ˌɪntəˈmɪt(ə)nt/ adjective stopping and starting at intervals. The cycle of induction, compression, combustion and exhaust in the piston engine is intermittent, whereas in the gas turbine, each process is continuous.

**international** /ˌɪntəˈnɛʃ(ə)nəl/ adjective referring to the inside or interior of something. opposite: internal damage Opposite: external

**internal combustion engine** /ɪnˈtɛnʃənəl kəmˈbʌnstʃən əndʒɪn/ noun type of engine in which the fuel is burnt within the cylinders of the engine, as opposed to the steam engine.

**international** /ˌɪntəˈnɛʃ(ə)nəl/ adjective between countries. international call a telephone call between people in two different countries.

**International Air Transport Association** /ˌɪntəˈnɛʃ(ə)nəl æ s ˈtrænsport əˌreɪstərɪˈseɪʃən/ noun an international organisation that supervises and coordinates air transport and to which most major airlines belong. Abbreviation IATA

**International Calling Frequency** /ˌɪntəˈnɛʃ(ə)nəl ˈkærsɪŋ ˌfrɪkwənsi/.

**International Distress Frequency** /ˌɪntəˈnɛʃ(ə)nəl ˈdɪstrəs ˌfrɪkwənsi/.

**International Civil Aviation Organization** /ˌɪntəˈnɛʃ(ə)nəl ˈsɪvɪl ˌɛərˈveɪʃ(ə)n əˌrəʊznəˈɛrɪz(ə)n/ noun an organisation established in 1947 by governments that "agreed on particular principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner." Air traffic obstruction and winds in the United Kingdom are shown on ICAO aeronautical charts. Abbreviation ICAO

**COMMENT:** ICAO is based in Montreal (Canada).

**international standard atmosphere** /ˌɪntəˈnɛʃ(ə)nəl ˌstændəd ˌætmoʊˈfeər/ noun an internationally agreed unit of pressure used in the calibration of instruments and the measurement of aircraft performance. For en route weather the datum chosen is international standard atmosphere at mean sea level. Abbreviation ISA

**interphone** /ˈɪntrəfaʊn/ an internal telephone communications system within an aircraft that enables members of the crew to speak to one another.

**interpolation** /ˌɪntəˈprəʊʃən/ noun the estimation of a middle value by reference to known values each side. Spot temperatures at positions other than those printed are obtained by interpolation.

**interpret** /ˌɪntəˈprəʊt/ verb to understand something presented in code or symbolic form. Aircrew must be able to interpret information printed on a contour chart.

**interpretation** /ˌɪntəˈprəʊtʃən/ noun an understanding of something presented in code or symbolic form. Synoptic charts require interpretation in order to understand the information given.

**interrogate** /ˌɪntəˈreɪɡət/ verb to transmit SSR or ATC signals to activate a transponder. Secondary surveillance radar interrogates the aircraft equipment which responds with identification and height information.

**interrogation** /ˌɪntəˈreɪɡəʃən/ noun the transmission of a SSR or ATC signal to activate a transponder. A transponder replies to interrogation by passing a four-digit code.

**interrogator** /ˌɪntəˈreɪɡətər/ noun a ground-based surveillance radar beacon transmitter/receiver. The interrogator is fitted to the ground, while the responder, also known as the transponder, is an airborne installation.

**interrupt** /ˌɪntəˈræpt/ verb to break the continuity of something. The conversation was interrupted by a telephone call. In the northern hemisphere, the westerly flow of air is
<table>
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<tr>
<th>Word</th>
<th>Definition</th>
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<tr>
<td>interruption</td>
<td>interrupted by variations which occur in pressure patterns.</td>
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<tr>
<td>intersection</td>
<td>the point at which two lines cross each other.</td>
</tr>
<tr>
<td>interval</td>
<td>the amount of space between places or points.</td>
</tr>
<tr>
<td>inversion</td>
<td>an atmospheric phenomenon where cold air is nearer the ground than warm air.</td>
</tr>
<tr>
<td>inverse</td>
<td>reversed in order or effect. There is an inverse relationship between altitude and temperature, i.e., temperature decreases as altitude increases.</td>
</tr>
</tbody>
</table>
replacing a lost passport is very involved.

**inward** /ˈɪnɔːrd/ adjective directed to or moving towards the inside or interior o To provide protection against smoke and other harmful gases, a flow of 100% oxygen is supplied at a positive pressure to avoid any inward leakage of poisonous gases at the mask.

**inwards** /ˈɪnɔːrdz/ adverb towards the inside or the interior o The door opens inwards. Opposite *outwards*

**ion** /ˈaɪən/ noun an atom or a group of atoms that has obtained an electric charge by gaining or losing one or more electrons o negative ion o positive ion o Ultra-violet light from the sun can cause electrons to become separated from their parent atoms of the gases in the atmosphere, the atoms left with resultant positive charges being known as ions.

**ionisation** /ˌaɪənəˈzeɪʃən/, ionization noun the process of producing ions by heat or radiation o The intensity of ionisation depends on the strength of the ultra-violet radiation and the density of the air.

**ionosphere** /ˌaɪənəˈsfərə/ noun the part of the atmosphere 50 km above the surface of the earth o Since the strength of the sun’s radiation varies with latitude, the structure of the ionosphere varies over the surface of the earth.

**ionospheric** /ˌaɪənəˈsfərɪk/ adjective referring to the ionosphere

**ionospheric attenuation** /ˌaɪənəˈsfərɪk əˈtenʃən/ noun loss of signal strength to the ionosphere

**ionospheric refraction** /ˌaɪənəˈsfərɪk ɪˈtre[f]ækʃən/ noun a change in direction as the wave passes through an ionised layer

I/R abbreviation instrument rating

**irregular** /əˈrɛɡjələr/ adjective not regular o Plots of long-haul flights are subject to an irregular sleep pattern.

**irrespective** /ɪrˈspektɪv/ adjective such as ions.

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**irrespective** /ɪrˈspektɪv/ adjective such as ions.
J symbol joule
JAA abbreviation Joint Aviation Authorities
jack /dʒæk/ noun a powered device to move heavy components, such as control surfaces of large aircraft
jacket /dʒeɪkɛt/ noun 1. a short coat with long sleeves worn with trousers or skirt 2. an outer covering or casing ○ Liquid cooling of a piston engine is achieved by circulating a liquid around the cylinder barrels, through a passage formed by a jacket on the outside.
jam /dʒæm/ verb to cause moving parts to become locked and unable to be moved ○ a jammed door a door which has become fixed and unmovable ○ The investigation revealed that the accident had been caused by the controls being jammed due to a spanner caught in the control cables.
JAR abbreviation Joint Aviation Requirements
jato /dʒeɪtəʊ/ noun an auxiliary jet or rocket designed to aid the combined thrust of aircraft jet engines during take-off
jeopardise /dʒeɪpədɪz/, jeopardize verb to put in doubt or danger ○ Injury to a crew member will seriously jeopardise the successful evacuation of the aircraft.
Jeppesen chart /dʒɛpəs(ə)n tʃɑ/ length market a type of aeronautical chart produced by a US company and widely used in aviation
jet /dʒeɪt/ noun 1. a strong fast stream of fluid forced out of an opening ○ a jet of water from a pipe 2. a type of engine used to power modern aircraft which takes in air at the front, mixes it with fuel, burns the mixture and the resulting expansion of gases provides thrust ○ The turbo jet engine was invented by Frank Whittle in 1941. 3. a type of aircraft which has jet engines ○ The de Havilland Comet was the first commercial jet.
jetbridge /dʒetbrɪdʒ/ noun same as loading bridge
jet fighter /dʒeɪt, fætər/ noun a fighter plane that is powered by a jet engine or engines
jet lag /dʒeɪt læɡ/ noun the temporary disturbance of body rhythms such as sleep and eating habits, caused by high-speed travel across several time zones ○ When I fly to Canada, it always takes me a couple of days to recover from jet lag.
jetliner /dʒeɪtlɪnə/ noun a large passenger aircraft powered by jet engines
jet plane /dʒeɪt plən/ noun an aircraft powered by jet engines
jet-propelled aircraft /dʒeɪt prəˌpɛld ˈɛkəræft/ noun aircraft powered by jet engines
jet propulsion /dʒeɪt prəˌpəlsʃən/ noun jet power which provides thrust for an aircraft ○ The first known example of jet propulsion was when Hero, a Greek engineer, made a machine as a toy in the year 120 BC.
jet stream /dʒet strɪm/ noun 1. a band of strong winds at high altitude ○ The occurrence of the equatorial jet stream is due to a temperature gradient with colder air to the south. 2. the flow of gases from a jet engine
The undercarriage failed to retract and the captain had to jettison the fuel over the sea before landing the aircraft.

Join the two wires. With a pencil and ruler, join point A to point B. 2. to bring together to make one whole part. 3. to become a member of a club, etc. She had to pay a membership fee to join the gliding club.

The Joint Aviation Authorities currently has 37 member states, including all the countries of the European Union.

Joint Aviation Requirement is an arrangement between European countries which has developed since the 1970s. Abbreviation JAA

Joint Aviation Requirement

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K

K symbol kelvin
katabatic /ˌkætəˈbreɪtɪk/ adjective referring to a cold flow of air travelling down hillsides or mountainsides. Due to katabatic effects, cold air flows downwards and accumulates over low ground. Compare anabatic
katabatic wind /ˌkætəˈbreɪtɪk wɪnd/ noun a wind which occurs when the air in contact with the slope of a hill is cooled to a temperature lower than that in the free atmosphere, causing it to sink. Compare anabatic wind
kelvin /ˈkelvɪn/ noun the base SI unit of measurement of thermodynamic temperature. Symbol K (NOTE: Temperatures are shown in kelvin without a degree sign: 20K. Note also that 0°C is equal to 273.15 K.)
kerosene /ˈkərəsɛn/, kerosine noun a thin fuel oil made from petroleum. Kerosene will only burn efficiently at, or close to, a ratio of 15:1.
Kevlar /ˈkevlər/ noun a trademark for a light and very strong composite material. Kevlar and carbon fibre account for a large percentage of a modern jet airliner’s structure.
key /kiː/ noun a piece of metal used to open a lock
kg symbol kilogram
kHz symbol kilohertz
kick-back /ˈkɪkbæk/ noun the tendency of the engine to suddenly reverse the rotation of the propeller momentarily when being started. On most modern engines the spark is retarded to top-dead-centre, to ensure easier starting and prevent kick-back.
kilo /ˈkɪləʊ/ same as kilogram o This piece of luggage weighs 15 kilos.
kilo- /ˈkɪləʊ/ prefix one thousand
kilogram /ˈkɪləɡræm/ noun a measure of weight equal to one thousand grams. This piece of luggage weighs 15 kg. Abbreviation kg (NOTE: It is written kg after figures.)
kilohertz /ˈkɪləhɜːts/ noun a unit of frequency measurement equal to one thousand Hertz. Abbreviation kHz
kilometre /ˌkɪломɪtər/ noun a measure of length equal to one thousand metres. (NOTE: It is written km with figures: 150 km. The US spelling is kilometre.)
kilowatt /ˈkɪləwɔt/ a unit of measurement of electricity equal to 1000 watts. Abbreviation kW
kilowatt-hour /ˈkɪləwɔt ˈhɔːr/ noun a unit of 1000 watts of electricity used for one hour. Abbreviation kW-hr
kinetic /ˈkɪnɛtɪk, -nɛtɪk/ adjective referring to motion or something produced by motion. Kinetic heating is the heating of aircraft skin by friction with the air as it moves through it
kinetic energy /ˈkɪnɛtɪk ˈɛnədʒɪ/ noun energy of motion
kit /kɪt/ noun a set of items used for a specific purpose. A physician’s kit containing surgical equipment would be available to a qualified doctor assisting crew with major medical problems.
knob manu/ noun 1. a rounded handle 2. a rounded control switch or dial. When the control knob is moved from the central position, the
ailerons are moved. 3. a round button such as on a receiver: Turn the knob to increase the volume.

knot /nɒt/ noun a unit of speed equal to one nautical mile per hour, approximately 1.85 kilometres or 1.15 statute miles per hour. Abbreviation kt (NOTE: Wind speeds in aviation are usually given in knots.)

COMMENT: American light aircraft manufactured prior to 1976 had airspeed indicators marked in statute miles per hour. Knot means 'nautical miles per hour'. It is therefore incorrect to say 'knots per hour'.

knowledge /ˈnɒldʒ/ noun familiarity, awareness or understanding gained through experience or study. A knowledge of the factors which affect surface temperatures will contribute a great deal to the understanding of meteorology.

kt abbreviation knot
label /ˈleɪlb(ə)l/ noun a small piece of paper or cloth attached to an article with details of its owner, contents, use, destination, etc. • Hydraulic tubing has a label with the word HYDRAULIC. • verb 1. to identify by using a label • Parts are labelled with the manufacturer’s name. 2. to add identifying words and numbers to a diagram • There is a standard way of labelling the navigation vector.
lack /læk/ noun the absence of something or a need for something • The engine stopped because of a lack of fuel.
lag /læg/ noun a delay, especially the time interval between an input and the resultant output • There is a time lag between the piston moving down and the mixture flowing into the cylinder. • jet lag
Lambert’s projection /ˈlæmbərts prəˈdʒekʃ(ə)n/ a map projection of the earth based around two standard parallels of latitude. • Mercator’s projection
laminate /ˈlæmənɪt/ noun a sheet of man-made material made up of bonded layers • Direction of the fibres and types of cloth used in the laminate are all very important factors. • verb /ˈlæmənɪt/ to make by using bonded layers of material • laminated wind-screens
lamp /læmp/ noun a small light • warning lamp a small light, often red, which informs of a possible danger by lighting up • The switch is connected to a warning lamp on the instrument panel which will illuminate if the oil pressure falls below an acceptable minimum.
land /lænd/ noun solid ground, as opposed to the sea • a large land mass such as Greenland • verb 1. to set an aircraft onto the ground or another surface such as ice or water, after a flight • to force land the aircraft to land the aircraft when it can no longer be kept in the air for any particular reason 2. to arrive on the ground after a flight • Flight BA321 landed at London Heathrow at 10.30 hours. • crash-land. Opposite take off
landing /ˈlændɪŋ/ noun the act of setting an aircraft onto the ground or another surface such as ice or water after flight • Take-off and landing are normally made into wind in order to reduce the length of the take-off and landing run. • In order to achieve a safe landing in a cross wind, the correct techniques must be used.
landing beacon /ˈlændɪŋ bɪˈrɪks(ə)n/ noun a radio transmitter at an airfield that sends a beam to guide aircraft that are landing
landing beam /ˈlændɪŋ bɪm/ noun a radio beam from a beacon at a landing field that helps incoming aircraft to make a landing
landing charges /ˈlændɪŋ ˈkærɪdʒz/ plural noun money paid to an airport authority by an operator or private pilot for landing an aircraft
landing field /ˈlændɪŋ fɪld/ noun a place where aircraft can land and take off
landing gear /ˈlændɪŋ ˈɡɛər/ noun same as undercarriage
landing pad /ˈlændɪŋ ˈpæd/ noun same as helipad
landing run /ˈlændɪŋ rʌn/ noun the distance on the runway from the touchdown point to the stopping point or taxiing point.

landing speed /ˈlændɪŋ spɪd/ noun the lowest speed at which an aircraft must be flying in order to land safely.

landing strip /ˈlændɪŋ strɪp/ noun a specially prepared area of land for an aircraft to land on.

landing weight /ˈlændɪŋ wɛɪt/ noun the weight of an aircraft when it lands, which is made up of its empty weight, the weight of its payload, and the weight of its remaining fuel.

landmark /ˈlændmɑːrk/ noun something on the ground which enables the pilot to know where he/she is, e.g. a noticeable building, bridge, coastal feature, etc. ○ Railway lines are usually useful landmarks.

landside /ˈlændsайд/ noun the part of an airport farthest from the aircraft.

lane /leɪn/ noun same as air lane.

lapse rate /ˈleɪps rɛt/ noun the rate at which temperature changes according to altitude ○ adiabatic lapse rate ○ the rate at which air temperature decreases as it rises above the Earth’s surface. As the height increases, the temperature decreases.

COMMENT: It has been found that when dry or unsaturated air rises, its rate of fall of temperature with height (i.e. lapse rate) is constant at 3°C per 1,000 feet. Similarly, descending air warms by compression at that rate. This dry adiabatic lapse rate is normally referred to as the DALR. Air rising and cooling often reaches its dew point temperature, becomes saturated and any further cooling results in condensation and the release of latent heat. Release of latent heat delays the cooling process and the lapse rate at low levels is reduced to 1.5°C per 1,000 feet. This temperature change is called the saturated adiabatic lapse rate and is normally referred to as the SALR.

largely /ˈlɑːdʒli/ adverb mainly, mostly ○ Heat is transferred from the Earth’s surface upwards largely by convection. ○ The southern hemisphere consists largely of oceans.

laser ring gyro /ˈlɑːzər ˈrɪŋ ˈdʒeɪərəʊ/ noun an instrument that uses beams of laser light in a closed circuit to detect whether something is level or not.

last /lɑːst/ adjective coming or placed after all the others ○ verb 1. to continue for a period of time ○ A gust is a sudden increase in wind speed above the average speed lasting only a few seconds. 2. to stay in good or usable condition ○ A piston engine lasts longer if it is handled carefully and serviced regularly. ○ the last chapter 1. the final chapter in a book. 2. the chapter before the one being read.

latent heat /ˈlæt(ə)nt /ˈlɪdʒt/ noun heat taken in or given out when a solid changes into a liquid or vapour, or when a liquid changes into a vapour at a constant temperature and pressure ○ latent heat of fusion the quantity of heat that an aircraft required to convert ice, at its melting point, into liquid at the same temperature ○ latent heat of vaporization the quantity of heat required to convert liquid to vapour at the same temperature ○ latent heat of sublimation the quantity of heat required to convert ice to vapour at the same temperature.

lateral /ˈleɪtərəl/ adjective referring to the side ○ Drift is the lateral movement of the aircraft caused by the wind.

lateral axis /ˈleɪtərəl ˈæksɪs/ noun the axis of the aircraft from wing tip to wing tip about which the aircraft pitches up and down. ○ axis, pitch

latitude /ˈleɪtɪtjuːd/ noun the angular distance north or south of the Earth’s equator, measured in degrees, minutes and seconds, along a meridian, as on a map or chart, etc. ○ Parallels of latitude are imaginary circles on the surface of the Earth, their planes being parallel to the plane of the equator. ○ The centre of London is latitude 51°30’N, longitude 0°5’W. Compare longitude

latter /ˈlɑːtər/ adjective referring to something coming at the end or finish ○ the latter part of the take-off run the part of the take-off run immediately before the aircraft leaves the ground ○ noun the second of two things mentioned earlier. Opposite former ○ of the
Airbus A320 and A340, the latter is the larger aircraft. The A340 is the larger of the two.

Launch [ˈlʌntʃ] noun a small boat often used to transport people from a larger boat or ship to the shore. 

Lead 

2. To slide or drop a boat into the water to make it ready for use. 

While passengers are fitting life jackets, crew will open exits and launch the life rafts. 2. To force something into motion to launch a rocket.

Lavatory /ˈlævətri/ noun same as toilet 2.

Law /lɔː/ noun 1. A basic principle describing a relationship observed to be unchanged between things while particular conditions are met. 2. The law of gravity. 2. A set of agreed rules aviation law.

Layer /ˈleɪər/ noun 1. One horizontal part. 2. The lowest layer of the atmosphere is called the troposphere. 2. A thickness of something. Layers of fluid next to the surface over which it is flowing travels more slowly than layers further from the surface.

Layer cloud /ˈleɪər klaʊd/ noun same as stratus.

Layout /ˈleɪət/ noun the way in which things are arranged. Cockpit layout the design of the cockpit and the particular placement of controls, instruments, etc.

LC abbreviation Load controller.

LDR abbreviation Landing distance required.

Lead 

1. Lead /liːd/ noun a very heavy soft metallic element. Symbol Pb. Lead-free not containing lead. Low-lead or lead-free fuel is used in most modern piston engines.

2. Lead /liːd/ noun 1. An electrical wire or narrow cable. 2. A lead connects the monitor to the computer. 2. To take the lead to take control of a situation. 2. A crew member should take the lead. 

Lean 

1. Lean mixture noun a fuel/air mixture in which the ratio of air to fuel is greater than usual. Moving the mixture control lever aft to the lean position reduces the amount of fuel mixing with the air.

2. Lean mixture noun a fuel/air mixture in which the ratio of air to fuel is greater than usual. LED /el iːd/ noun a semiconductor diode that emits light when current is applied. LEDs are used in cockpit displays. Full form light-emitting diode.
ward side. The flow of air over and to the lee of hills and mountains may cause particularly severe turbulence. Opposite windward

leg /leg/ noun part of a flight pattern that is between two stops, positions, or changes in direction. An airfield traffic pattern is divided into take-off, crosswind leg, downwind leg, base leg and final approach.

...their route was across the States to Canada, Greenland and the North Pole, into Norway, through Europe, back to Iceland, then two long legs across the Atlantic via South Greenland and back to Seattle [Pilot]

legal /ˈlɪɡ(ə)l/ adjective lawful or within the law. Alcohol concentrations of 40 milligrams per 100 millilitres, i.e. half the legal driving limit in the UK, are associated with substantial increases in errors committed by pilots.

legend /ˈleɡənd/ noun a list explaining the symbols on a chart or a map. A legend is usually to be found at the edge or on the reverse side of most topographical charts.

length /lɛŋθ/ noun 1. a measurement along something’s greatest dimension. The length of the aircraft. 2. a piece of something that is normally measured along its greatest dimension. A length of pipe. 3. the extent from beginning to end. The length of a book. 4. extent or duration, the distance between two points in space or time. The length of a briefing. How much time the briefing takes. 5. the length of the working life of components. How long the components last. 6. the length of a flight. The time it takes to complete a flight. The length of the flight meant that there was no time for a meal to be served to the passengers. 7. the distance of the flight in nautical miles or kilometres. The length of the flight is 100nm.

lengthen /ˈlɛŋθən/ verb to make long or longer. The mercury column shortens when cooled and, due to expansion, lengthens when heated. Opposite shorten
level off /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/ 'level off' /ˈlevəl/'er lever, noun 1. a device with a rigid bar balanced on a fixed point and used to transmit force, as in raising a weight at one end by pushing down on the other. 2. a handle used to adjust or operate a mechanism. 3. throttle lever. 4. undercarriage selector lever. 5. Feathering is accomplished by moving the pilot's control lever. 6. verb to move as with a lever. 7. The door would not open so the emergency services had to lever it open with specialised equipment.

LF abbreviation low frequency
licence /ˈlaɪsns/ noun a document which is proof of official permission to do or to own something

COMMENT: Each licence has its own specific requirements and privileges. In the UK, one of the fundamental differences between a Private Pilot's Licence and other types of licence is that the holder of a PPL is not allowed to fly for 'hire or reward', i.e. the pilot cannot receive payment for flying.

licence holder /ˈlaɪsns həʊldər/ noun 1. a person who has a licence. 2. a leather case, etc., in which to keep the licence document
license /ˈlaɪsns/ noun US same as licence

license /ˈlaɪsns/ verb to give somebody a licence or official permission to do or to own something

lie /laɪ/ verb 1. to be in a flat position, often horizontal. 2. Seat rails are attached to the floor beams and lie level with the flooring. 3. Great circles are represented by curves which lie on the polar side of the rhumb line. (NOTE: Care should be taken with the verbs to lie, as defined here: lie – lay – lain; to lie meaning 'not to tell the truth': lie – lied – lied and lay, meaning 'to put down' as in 'lay the book on the table': lay – laid – laid.)

life jacket /ˈlaɪf dʒækɪt/ noun an inflatable device, sometimes resembling a sleeveless jacket, to keep a person afloat in water. 1. Pull down the toggles to inflate the life jacket.
life raft /ˈlaɪf rɑːft/ noun a small boat-like vessel for use on an emergency over water

life vest /ˈlaɪf vɛst/ noun same as life jacket 1. You will find a life vest under your seat.

lift /lɪft/ noun 1. a component of the total aerodynamic force acting on an aeroplane which causes an aeroplane to fly. 2. In level flight, a lift force equal to the weight must be produced. 3. The pilot can achieve maximum lift by pulling hard back on the controls. 4. an electrically operated machine for moving people or goods between the floors of a building (NOTE: The US English is elevator). 5. verb to move to a higher position. 6. A foot-pound is the ability to lift a one pound weight a distance of one foot.

COMMENT: Bernoulli's principle states that if the speed of a fluid increases, its pressure decreases; if its speed decreases, its pressure increases. Wings are shaped so that the high-speed flow of air that passes over the curved upper surface results in a decrease in pressure. Lift is created because of the pressure differential between upper and lower surfaces of the wing. Lift is also created because the angle of attack allows the airflow to strike the underside of the wing. Daniel Bernoulli (1700–82) was a Swiss scientist.

light /laɪt/ noun 1. brightness produced by the sun, the moon, a lamp, etc. 2. electromagnetic radiation which can be sensed by the eyes. 3. artificial light light made by using electrical, gas, etc., power. 4. a source of light such as a lamp. 5. Switch off the navigation lights. 6. adjective without much weight, not heavy. 7. Aluminium is a light metal. 8. of little force or requiring little force. 9. light wind. 10. light controls flying controls which do not need much pilot effort to move them.
light aircraft /ˈlɪtər ˈeɪrkraɪt/ noun a small, single engine aircraft generally for private not commercial use
lighting /ˈlaɪtnɪŋ/ noun lights or a system of lights ○ Cabin lighting is switched off for take-off and initial climb ○ Emergency floor lighting guides passengers to the emergency exits.
lightning /ˈlaɪtnɪŋ/ noun a powerful and sudden electrical discharge from a cloud ○ Lightning is the most visible indication of thunderstorm activity.
lightning activity /ˈlaɪtnɪŋ ˈæk tɪvɪtɪ/ noun a period of time when there are a lot of lightning flashes
lightning strike /ˈlaɪtnɪŋ ˈstraik/ noun the hitting of something by a discharge of lightning
light plane /ˈlaɪt ˈpleɪn/ noun US same as light aircraft
likely /ˈlaɪkəli/ adjective probable ○ rain is likely rain will probably fall ○ icing is likely to occur in cumulonimbus clouds icing is often a problem if flying in cumulonimbus clouds.
limit /ˈlɪmɪt/ noun a point or line past which something should not go ○ There is a time limit of one hour for the examination ○ The minimum age limit for holding a PPL in the UK is 17 ○ the upper limit of cloud the highest point at which there is cloud ● verb to restrict or to prevent from going past a particular point ○ the amount of cabin baggage is limited to one bag per passenger.
limitation /ˈlɪmɪteɪʃ(ə)n/ noun the act of limiting or the state of being limited ○ Limitation of the maximum engine rpm to a little above maximum engine cruise rpm prevents compressor stall at the higher rpm range.
line /ˈlaɪn/ noun 1. a thin continuous mark as made by a pencil, pen, etc. or printed ○ Draw a line from point A to point B. 2. a real or imaginary mark placed in relation to points of reference ○ An isobar is a line joining points of equal pressure. 3. a long row of people, etc. ○ a line of people ○ a line of cumulus clouds 4. a row of written or printed words ○ Look at line 4 on page 26. 5. a telephone connection to another telephone or system ○ Dial 9 to get an outside line. 6. an electrical cable or wire ○ telephone line cable supported on pylons from one telephone exchange to another ○ On final approach to an unfamiliar airfield, pilots of light aircraft should keep a sharp lookout for power lines and telephone lines. 7. a system of pipes ○ a fuel line 8. a company which owns and manages a system of transportation routes ○ a shipping line ○ an airline such as KLM or QANTAS
linear /ˈlɪnər/ adjective referring to a line, straight ○ Although air may appear to be still or calm it is, in fact, moving west to east in space, the linear velocity being zero at the poles and approximately 1,000 mph at the equator ○ linear scale a horizontal or vertical straight-line, rather than circular, scale on an instrument
linear actuator /ˈlɪnər ˈæktjuətə/ noun an actuator which operates in a straight back and forth manner, e.g. to open undercarriage doors
line feature /ˈlaɪn ˈfɪtʃər/ noun a useful navigational landmark, e.g. a railway line, road or river
line of position /ˈlaɪn əv ˈpəzəˈʃ(ə)n/ noun same as position line
line of sight /ˈlaɪn əv ˈsaɪt/ noun a clear path between sending and receiving antennas. Abbreviation LOS
line up /ˈlaɪn əp/ verb to move aircraft into position ready for departure ○ Line up with the nosewheel on the runway centre line.
link /lɪŋk/ noun 1. a connection ○ Light aircraft can be steered while taxiing via a direct link from rudder pedals to nosewheel. 2. a relationship ○ There is a link between alcohol abuse and pilot error resulting in accidents. ● verb 1. to make a connection, to join ○ The connecting rod links the piston to the crankshaft. 2. to establish a relationship between two situations ○ They link alcohol abuse and pilot error.
linkage

**linkage** /ˈlɪŋkɪd/ noun a system or series of mechanical connections such as rods, levers, springs, etc. 
- **throttle linkage**
- **rudder linkage**

The linkage from the control column to the control surfaces should allow full and free movement.

**liquid** /ˈlɪkwɪd/ adjective having a consistency like that of water
- **Liquid oxygen is stored in cylinders.**
- **noun a substance with a consistency like water**
- **Water is a liquid, ice is a solid.**

**liquid crystal display** /ˈlɪkwɪd ˈkrɪst(ə)l dɪˈspleɪ/ noun liquid crystals that reflect light when a voltage is applied, used in many watch, calculator and digital displays. Abbreviation **LCD**

**liquid fire** /ˈlɪkwɪd ˈfɜːə/ noun oil or petrol fire

**list** /ˈlɪst/ noun a series of names, words, things to do, etc., arranged one after the other in a vertical column

- **verb to write a series of names, words, etc. one after the other in a vertical column**

**liter** /ˈlɪtə(r)/ noun US same as litre

**lithium** /ˈlɪθiəm/ noun a soft silvery metallic element, the lightest known metal, often used in batteries

- **noun an alloy of aluminium and lithium**

**litmus** /ˈlɪtməs/ noun a substance which turns red in acid, and blue in alkali

**litmus paper** /ˈlɪtməs ˈpeɪpər/ noun small piece of paper impregnated with litmus to test for acidity or alkalinity

**litre** /ˈlɪtr/ noun the volume of one kilogram of water at 4°C (≈ 1,000cc or 1.76 pints) (NOTE: It is written l after a figure: 10l; also written liter in US English.)

**live** /ˈlɪv/ adjective carrying electricity

- **live wire**

**livery** /ˈlɪvəri/ noun the colour scheme and markings on the outside of an aircraft that identify it as belonging to a particular airline

**LMT** abbreviation local mean time

**load** /ˈləʊd/ noun 1. the weight or mass which is supported

- **The load on the undercarriage decreases as lift increases and,**
- **when the aircraft rises into the air, the aircraft is supported by the wings.**

- **load bearing** supporting some weight

- **2. a force which a structure is subjected to when resisting externally applied forces**

- **The load on the control column is increased when the aircraft is flown out of trim.**

- **3. something that is carried in the aircraft**

- **fuel load**

- **passenger load** the number of passengers on board

- **4. the power output of a generator or power plant**

- **5. the resistance of a device or of a line to which electrical power is provided**

- **verb 1. to put something into a container, often for the purpose of transportation**

- **The aircraft is loaded with fuel before take-off.**

- **2. to transfer data from disk into a computer main memory**

- **She loaded the software onto the computer.**

**load-bearing structure** /ˈləʊd ,ˈbeərɪŋ ˈstræktʃər/ noun a structure which supports the weight of the aircraft in flight or on the ground

**load controller** /ˈləʊd kanˌtrəʊələ/ noun a device which monitors the output of a generator

**load factor** /ˈləʊd ,fæktoʊr/ noun the stress applied to a structure as a multiple of stress applied in 1g flight

- **The higher the angle of bank, the greater the load factor.**

**COMMENT:** In straight and level, unaccelerated flight, the load factor is 1. When an aircraft turns or pulls up out of a dive, the load factor increases. An aircraft in a level turn at a bank angle of 60 degrees has a load factor of 2. In such a turn, the aircraft’s structure must support twice the aircraft’s weight.

**loading** /ˈləʊdɪŋ/ noun 1. the act or process of adding a load to an aircraft

- **loading is in progress** passengers, baggage, freight, etc., are being put on the aircraft

- **2. the total aircraft weight or mass divided by wing area**

- **Inertia switches operate automatically when a particular g (acceleration due to Earth’s gravity) loading occurs.**

- **3. a force or stress acting on an object**

- **centrifugal loading** centrifugal force acting on something

- **Centrifugal loading**
moves the valve towards the closed position. 4. the act of transferring data from disk to memory. Loading can be a long process.

**loading bridge** /ˈlɑʊdɪŋ brɪdʒ/ noun a covered walkway from an airport departure gate that connects to the door of an aircraft, used by passengers and crew getting on and off the aircraft.

**load manifest** /ˈlɑʊd ˈmænɪfɪst/ noun a detailed list of the cargo on a flight. Also called the load sheet.

**loadmaster** /ˈlɑʊdmeɪstər/ noun the person who is in charge of the work of loading cargo onto a military or commercial transport aircraft.

**load sheet** /ˈlɑʊd ʃɪt/ noun same as load manifest.

**lobe** /ˈlɑʊb/ noun one of two, four or more sub-beams that form a directional radar beam. Any system employing beam sharpening is vulnerable to side lobe generation at the transmitter.

**LOC** abbreviation localiser.

**local** /ˈlɑʊk(ə)l/ adjective not broad or widespread. Local meteorological conditions weather conditions in the restricted area of a particular place.

**local authority** /ˈlɔʊk(ə)l ˈɔːtɔrɪtɪ/ noun a government body responsible for the various services of an area.

**localised** /ˈlɑʊkəlaɪzd/ adjective restricted in area or influence. A localised fire a fire which has not spread.

**localiser** /ˈlɑʊkəlɪzaɪər/ localizer noun a component of the instrument landing system that provides horizontal course guidance to the runway. If, during the approach, the aircraft deviates beyond the normal ILS glideslope and/or localiser limits, the flight crew are alerted. Abbreviation LOC.

**locality** /ˈlɑʊkəlɪti/ noun a small geographical area. The highest point in a locality is marked by a dot with the elevation marked alongside.

**local mean time** /ˈlɑʊk(ə)l ˈmiːn ˌtæm/ noun the time according to the mean sun. Abbreviation LMT.

**logic** /ˈlɒgɪk/ noun electronic circuits which obey mathematical laws. Circuit packs consist of basic decision-making elements, referred to as logic gates, each performing operations on their inputs and so determining the state of their outputs.
logical /lɒdʒɪk(ə)/ adjective referring to something which, because of previous experience or knowledge, is natural or expected. Pre-flight checks on light aircraft are made in a logical manner from one side of the aircraft to the other.

longeron /ˈlɒndʒərən/ noun the main structural part of an aircraft fuselage extending from nose to tail. Longersons are normally used in aircraft which require longitudinal strength for holds underneath the floor.

long-haul /ˈlɒŋ ˈhɔːl/ adjective travelling over a long distance. Long-haul routes have to adapt to time changes. Opposite: short-haul

longitude /ˈlɒŋɡt jʊdʒɪ/ noun the angular distance on the Earth’s surface, measured east or west from the prime meridian at Greenwich, UK, to the meridian passing through a position, expressed in degrees, minutes, and seconds. The centre of London is latitude 51°30′N, longitude 0°5′W. Compare latitude.

longitudinal /ˈlɒŋɡt ˈtjuːdɪn(ə)/ adjective in a lengthwise direction

longitudinal axis /ˈlɒŋɡt ˈtjuːdɪn(ə) ˈæksɪs/ noun the axis of the aircraft which extends from the nose to the tail. Opposite: axis, roll

long-range /ˈlɒŋ rɛnˈdʒi/ adjective covering a long distance. Long-range radar 2. Long-range weather forecast covering a period more than 5 days ahead

lookout /ˈlʊkəut/ noun a careful watch. Keep a careful lookout for other aircraft. To be on the lookout for to watch carefully for something

loop /lʊp/ noun a flight manoeuvre in which the aircraft rotates, nose up, through 360° while holding its lateral position

loop antenna /ˈlʊp ənˌtɛns/ noun circular-shaped conductive coil which rotates to give a bearing to a ground station.

LORAN abbreviation long-range air navigation system

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LORAN abbreviation long-range air navigation system
the volume (of sound) to make something such as a radio quieter or less loud

**lower airspace** /ˌloʊər ˈɛəspər/ noun the airspace below FL245 (approximately 24,500 ft)

**lower atmosphere** /ˌloʊər ˈɛtˌməsfrə/ noun the layer of the atmosphere in which changes in the weather take place. Also called troposphere

**low frequency** /ˌloʊ ˈfrɪkwənsi/, **low frequency band** /ˌloʊ ˈfrɪkwənsi ˌbænd/ noun a radio communications range of frequencies between 30–300 kHz. Abbreviation LF

**lubricate** /ˈlʌbrɪket/ verb to oil or to grease moving parts in order to reduce friction. ○ Oil passes through the hollow crankshaft to lubricate the big-end bearings. ○ Turbo chargers are lubricated by the engine oil system.

**lubrication** /ˈlʌbrɪkeʃən/ noun the act or process of covering moving surfaces with oil or grease in order to reduce friction ○ Lubrication system the tank, pipes, pumps, filters, etc., which together supply oil to moving parts of the engine

**luggage** /ˈlæɡidʒ/ noun baggage, i.e. cases and bags that somebody takes when travelling
Mach /ˈmeɪtʃ/ noun the ratio of the speed of an object to the speed of sound in the same atmospheric conditions. Mach 2 equals twice the speed of sound.

Mach number /ˈmeɪtʃ nʌmər/ noun a number that expresses the ratio of the speed of an object to the speed of sound.

Machmeter /ˈmeɪktʃmɪtər/ noun an instrument for measuring the Mach number of an aircraft.

Mach number /ˈmeɪtʃ nʌmər/ noun a number that expresses the ratio of the speed of an object to the speed of sound.

Machine /ˈmeɪʃəin/ noun a device with fixed and moving parts that takes mechanical energy and uses it to do useful work. A drill is a machine for making holes in things. An electrical circuit is designed to carry energy to a particular device or machine which can then perform useful work.

Magnetic /ˈmeɪtʃɪk/ adjective referring to or having the power of a magnet or something with a magnetic field. A freely suspended magnet – not influenced by outside forces – will align itself with the Earth’s magnetic lines of force which run from the north magnetic pole to the south magnetic pole.

Magnetic bearing /ˈmeɪtʃ,netɪk ˈbeərɪŋ/ noun the angle measured in a clockwise direction of a distant point, relative to magnetic north.

Magnetic declination /ˈmeɪtʃ,netɪk ˈdekənʃən/ noun same as magnetic variation.

Magnetic field /ˈmeɪtʃ,netɪk ˈfɪld/ noun area of magnetic influence.

Magnetic north /ˈmeɪtʃ,netɪk ˈnɔːθ/ noun the direction of the Earth’s magnetic pole, to which the north-seeking pole of a magnetic needle points if unaffected by nearby influences.

Magnetic pole /ˈmeɪtʃ,netɪk ˈpəʊl/ noun one of the two poles which are the centres of the Earth’s magnetic field.

Magnetic variation /ˈmeɪtʃ,netɪk ˈveərɪəʃən/ noun differences in the Earth’s magnetic field in time and place. To convert magnetic bearing into true bearing it is necessary to apply magnetic variation at the point at which the bearing was taken. Also called magnetic declination.

Magnetism /ˈmeɪtʃɪzm/ noun a force exerted by a magnetic field. An electric current produces magnetism.

To magnetise /ˈmeɪtʃənaɪz/ verb to convert an object or material into a magnet. Ferro-magnetic materials are easily magnetised.

Magnetise /ˈmeɪtʃənaɪz/ verb to convert an object or material into a magnet. Ferro-magnetic materials are easily magnetised.

Magnesium /ˈmeɪtʃɪdʒəm/ noun a light, silvery-white metallic element that burns with a brilliant white flame. Symbol Mg (NOTE: The atomic number of magnesium is 12.)

Magnesium flare /ˈmeɪtʃɪdʒəm ˈflə/ noun a device for distress signalling at night to send off magnesium flares.

Magnet /ˈmeɪnət/ noun an object that produces a magnetic field, and attracts iron and steel. Magnetism in a magnet appears to be concentrated at two points called the poles.

Magnetic /ˈmeɪtʃɪk/ adjective referring to or having the power of a magnet or something with a magnetic field.
and movement of a magnet can produce electricity.

**magneto** /ˈmægnətəʊ/ noun a device that produces electrical current for distribution to the spark plugs of piston aero-engines

**COMMENT:** The crankshaft turns the magneto, which provides the electrical energy to create a spark from the spark plugs. This ensures that the spark plugs work even if the aircraft’s battery and electrical system fail. Most aircraft have two magnetos per engine in case one fails.

**magnify** /ˈmægnɪfaɪ/ verb 1. to increase the size of, especially by using a lens, microscope, etc. 2. It was only after the image was magnified that it was possible to see the flaw.

**magnitude** /ˈmægnɪtjuːd/ noun greatness in size or extent. The magnitude of the pressure gradient force is inversely proportional to the distance apart of the isobars.

**maiden flight** /ˈmiːdən ˈflaɪt/ noun the first flight of a new aircraft. The maiden flight of the A340 was in October 1991.

**main** /meɪn/ adjective most important; principal

**main gear** /meɪn ˈɡɛər/ noun two main landing wheel assemblies

**mainplane** /ˈmiːnplɛn/ noun an aircraft wing, compared with the tailplane. The region between the mainplane front and rear spars is commonly sealed off and used as tanks.

**maintain** /meɪntɛin/ verb 1. to keep up, to carry on or continue. 2. to maintain the present heading to continue on the same heading. 3. to maintain a constant selected engine speed not to change the engine speed.

**Aero-engines** must be maintained regularly to maximise engine life.

**maintenance** /ˈmeɪntəmən/ noun a regular periodic inspection, overhaul, repair and replacement of parts of an aircraft and/or engine. The gas turbine is a very simple engine with few moving parts when compared with a piston engine, giving it a high reliability factor with less maintenance.

**manual** the manufacturer’s instruction book of maintenance procedures.

‘…poor maintenance training is expensive for the airline who notices the problem in late departures, longer than necessary maintenance periods and worst of all, crashes’ [Civil Aviation Training].

**maintenance crew** /ˈmeɪntəmən ˈkruː/ noun ground staff whose responsibility it is to keep the aircraft serviceable. The maintenance crew worked through the night to complete the work.

**major** /ˈmeɪdʒər/ adjective important. There are two major cloud groups, stratus and cumulus. Opposite **minor**

**major airport** a large, important or international airport.

**majority** /ˈmeɪdʒərətɪ/ noun the greater number or larger part – anything more than 50%

**malfunction** /ˈmælˈfʌŋkʃən/ noun a failure to work or to function correctly. The oil pressure and temperature of the CSDU can be monitored by the pilot and if a malfunction occurs, the pilot can then choose to disconnect the CSDU from the engine. If function incorrectly or fail to function. Oscillating outputs from the alternators could cause sensitive equipment to malfunction.

**mandatory** /ˈmɛndətri/ adjective compulsory, required or ordered by an official organisation or authority.

**manoeuvre**
maneuverability /ˌmənjuːəˈbɪləti/ noun US same as maneuverability

maneuvering area /ˌmənjuːəˈvɜːriŋ/ ,ˈvɜːriŋ/ noun US same as maneuvering area

manifold /ˈmænɪfəʊld/ noun a system of pipes for a fluid from single input to multiple output or multiple input to single output o inlet and exhaust manifolds of a piston engine

manifold pressure /ˌmænɪfəʊld/ˈprɛʃə/ noun absolute pressure in the induction system of a piston engine measured in inches of mercury

manner /ˈmænər/ noun a way of doing something o Wind is said to be veering when it changes direction in a clockwise manner o Pre-flight checks should be done in the correct manner.

manoeuvrability /ˌmənjuːəˈbɪləti/ noun the ability and speed with which an aircraft can turn away from its previous path o Light training aircraft do not have great manoeuvrability but they are stable and therefore easier to fly. (NOTE: The US spelling is maneuverability.)

manoeuvre /ˌmənjuːəvə/ noun any deliberate or intended departure from the existing flight or ground path (NOTE: It is also written maneuver in US English) o Flight manoeuvre turns, loops, climbs and descents o Ground manoeuvre taxing and turning onto runways and taxiways, etc.

manoeuvring area /ˌmənjuːəˈvɜːriŋ/ ,ˈvɜːriŋ/ noun the part of the aerodrome used for the take-off, landing and taxiing of aircraft

manual /ˈmænjuːəl/ adjective referring to the hands, or done or worked by hand o The electronic flight instrument system has two self-test facilities — automatic and manual. ■ noun a reference book giving instructions on how to operate equipment, machinery, etc. o maintenance manual o aircraft operating manual

manual control /ˈmænjuːəl ˈkəntrəl/ noun hand-flying an aircraft equipped with an autopilot or automatic flight control system

manually /ˈmænjuːəli/ adverb by hand o The system is switched on manually.

manufacture /ˌmænjuːəˈfæktr/ noun a representation of the Earth's surface on a flat surface such as a sheath of paper o a map of Africa ■ verb to make measurements and calculations of part of the Earth's surface in order to produce a map

MAP abbreviation missed approach point

margin /ˈmærʒən/ noun 1. a blank space bordering the written or printed area on a page o Write notes in the margin of the book. 2. an amount allowed in addition to what is needed o safety margin o In some configurations, it is possible for the buffet speed to be less than the required 7% margin ahead of the stall.

maritime /ˈmɑrɪtɪm/ adjective referring to the sea o maritime wind a wind blowing from the sea o The Rocky Mountains of North America act as a barrier to the cool maritime winds from the Pacific Ocean.

mark /mɑrk/ noun 1. a visible trace on a surface, e.g. a dot or a line o There are marks on tyres and wheel rims which are aligned and indicate the extent of tyre creep. 2. the number of points or a percentage given for academic work ■ verb 1. to make a visible line, dot, etc., on a surface o Mark the departure point on the chart. 2. to show or indicate o The weather front marks the boundary between the two air masses. 3. to correct or check academic work done by a student o The instructor marked the exam papers.

marked /mɑrkt/ adjective very noticeable, clear and definite o a marked increase a noticeable, therefore possibly large, increase o a marked change in the weather a significant change in the weather
matter

**marker** /ˈmɑːkər/ noun 1. something which acts as an indicator of something such as distance or position 2. a radio beacon that is part of the ILS

**mass** /ˈmæs/ noun 1. the physical volume of a solid body 2. a large body of something with no particular shape 3. a land mass such as the continent of Africa • adjective involving a large number of people or things • **mass exit** the departure of everybody, or nearly everybody, from a place

**mass ascent** /ˈmæs əˈsent/ noun a slow ascent of a large body of air in regions of low pressure and of warm air rising over a cold air mass

**master** /ˈmæstər/ noun 1. a vertical pole for a flag or antenna • **mass exit** the departure of everybody, or nearly everybody, from a place

**marker dye** /ˈmɑːkər ˌdeɪ/ noun a brightly coloured substance used by people adrift at sea to draw the attention of flight crews to their position

**marsh** /ˈmɑːʃ/ noun a member of ground staff whose job is to direct aircraft into parking positions by means of hand signals

‘...when under a marshaller’s control, reduce speed to a walking pace’ (Civil Aviation Authority, General Aviation Safety Sense Leaflet)

**marshalling signals** /ˈmɑːʃlɪŋ ˈsɪɡnəlz/ plural noun hand signals used by a marshaller • **marshalling signals** are used to direct aircraft on the ground.

**MAS** abbreviation middle airspace service

**mask** /ˈmɑːsk/ noun a device to cover the face • **oxygen mask** a device to cover the nose and mouth which is connected to an oxygen supply • Anoxia at high altitudes can be overcome by breathing through an oxygen mask. • verb to hide or cover up • When practising instrument flying, the aircraft windows are masked to prevent the (student) pilot from seeing out of the aircraft.

**MASPS** abbreviation minimum aircraft system performance specifications

**matrix** /ˈmætrɪks/ noun a grid-like arrangement of circuit elements • Oil coolers consist of a matrix, divided into sections by baffle plates.

**material** /ˈmætriəl/ noun a substance out of which something can be made • Wood, fabric and paper are all free-burning materials.

**master key** /ˈmæstər ˈkiː/ noun a key which can open a number of doors, etc.

**master switch** /ˈmæstər ˈswɪtʃ/ noun the most important of a number of switches operating a system

**match** /ˈmætʃ/ verb 1. to go well together • The most important factor when matching a propeller to an engine is tip velocity. 2. to be equal to • The polarisation of the antenna must match that of the transmitter.

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**matter** /ˈmætər/ noun 1. a physical substance • **mass** is a basic property of matter. • **foreign matter** something unwanted which is found in a substance or a device (such as sand or water in fuel) • Turbine blades can be damaged by foreign matter such as stones entering through the engine intake on take-off. • **solid matter** solid substances 2. a subject for discussion, concern or
MATZ

action  ○  Safety is a matter of great importance. 3. trouble or difficulty  ○  what’s the matter?  what’s the problem?  ○  it doesn’t matter  it isn’t important, so don’t worry

MATZ  abbreviation  military aerodrome traffic zone

maximum  /'mæksɪməm/  adjective  greatest possible  ○  The maximum daily temperature is 35°C.  ○  The maximum speed of the aircraft is 200 kt.  ■  noun  the greatest possible quantity, amount, etc.  ○  There is a net gain of heat by the Earth until terrestrial radiation balances solar radiation when the daily temperature is at its maximum.

maximum total weight authorised  /'mæksɪməm ˈtʃærət(ə)l wætə/  noun  the maximum authorised weight of aircraft fuel, payload, etc., given in the Certificate of Airworthiness. Abbreviation MTWA

mb  abbreviation  millibar

MDA  /ˈɛm diː ˈɛt/  abbreviation  minimum descent altitude

mean  /ˈmiːn/  adjective  referring to something average, midway between two extremes  ○  mean daily temperature  ○  average daily temperature  ○  mean wind  the average speed of a wind  ■  noun  something having a medium or average position, midway between two extremes  ○  arithmetic mean  the average value of a set of numbers  ■  verb  1. to signify or to have something as an explanation  ○  Airspeed means the speed of the aircraft in relation to the air around it.  2. to intend to do something  ○  I meant to telephone the reservations desk this morning but I forgot.  3. to result in  ○  Installing a new computer network means a lot of problems for everybody. (NOTE: meaning – meant)

mean effective pressure  /ˈmiːn ˈɛfɪkts ˈpreʃər/  noun  the average pressure exerted on the piston during the power stroke. Abbreviation MEP

means  /ˈmiːnz/  noun  a way of doing something which brings a result  ○  A clear window fitted in the reservoir provides a means of checking hydraulic fluid level during servicing. (NOTE: Means has no plural form.)  ○  by means of by using  ○  Fuel is transferred from the tanks to the carburettor by means of pipes.  ○  there are various means for navigation  there are various different methods used for the purposes of navigation

mean sea level  /ˈmiːn ˈsiː ˈlev(ə)/  noun  the average level of the sea taking tidal variations into account  ○  Below FL50 cloud heights are referred to a datum of mean sea level. Abbreviation MSL

mean sun  /ˈmiːn ˈsʌn/  noun  the position of an imaginary sun in a solar day of exactly 24 hours, behind the real sun in February and in advance of the real sun in November  ○  Local mean time (LMT) is the time according to the mean sun.

mean time between failures  /ˈmiːn ˈtiːm biː ˈfjuərlıəz/  noun  1. an indication or way of assessing  ○  The way he dealt with the in-flight emergency is a measure of his skill as a pilot.  2. a reference for discovering the dimensions or amount of something  ○  The litre is a measure of capacity.  3. a device used for measuring  ○  a 1-metre measure  a ruler that is 1 metre long 4. an action taken to get a result  ○  Stricter safety measures were introduced.  5. an amount of something  ○  To be a good pilot, you need a measure of self-confidence.  ■  verb  1. to find the dimensions or amount of something  ○  to measure a distance  ○  to measure an angle  ○  to measure the speed of an aircraft  ○  Wind directions are measured from magnetic north.  2. to be of a particular size, length, quantity, etc.  ○  How much does the pipe measure?

measurement  /ˈmɛʒəmənt/  noun  1. an act of measuring  ○  Measurement of relative humidity is done using an instrument called a hygrometer.  2. the result of measuring  ○  The measurements of the room are: height = 4 metres, length = 10 metres, width = 4 metres.
mechanical /ˈmɪkənɪkl/ adjective referring to machines. Activation may be electrical or mechanical. mechanical pump a pump operated by the engine rather than by electrical power.

mechanical advantage /ˈmɪkənɪkl ədˈvaːntɪdʒ/ noun the ratio of the output force produced by a machine to the input force.

mechanical engineering /ˈmɪkənɪkl ˌendʒɪˈnɪərɪŋ/ noun the study of design, construction, and use of machinery or mechanical structures. She gained a degree in mechanical engineering from university.

mechanical linkage /ˈmɪkənɪkl ˈlɪŋkɪdʒ/ noun a system of rods, cables and levers in a light aircraft, which connect the control column in the cockpit to the control surfaces on the wings, tailplane and fin.

mechanics /ˈmɪkənɪks/ noun 1. the study of the action of forces on matter or material systems 2. the way something works. The mechanics of the Jumbo jet provide a good illustration of the adiabatic process.

mechanism /ˈmekənɪzəm/ noun 1. the arrangement of connected parts in a machine or system. 2. the landing gear mechanism. 3. the nose wheel steering mechanism. 4. a physical process. 5. the mechanism by which thunderstorms develop.

MEDA abbreviation military emergency division aerodrome.

medical certificate /ˈmedɪkəl ˈsərtɪfɪkət/ noun a document which confirms that the named person has been medically examined and declared to be in good physical condition.

medical emergency noun a situation when somebody is unwell and quickly needs medical care.

medium /ˈmɪdɪəm/ adjective referring to something that has a position or represents a condition midway between extremes. high, medium and low frequencies. medium level cloud. medium for cooling oil can be ram-air or fuel.

medium frequency /ˈmɪdɪəm ˈfriːkwənsi/ noun radio frequency range between 300 kHz and 3000 kHz – often referred to as medium wave (MW). Abbreviation MF.

megahertz /ˈmegəhɛrtz/ noun a measure of frequency equal to one million cycles per second. Abbreviation MHz.

melt /melt/ verb to become liquid by heating. Ice melts at temperatures above freezing. Melting point temperature at which a solid turns to liquid.

member /ˈmembər/ noun 1. a large, important structural unit. 2. a person who joins a club or organisation. 3. a person in a team or crew. Most large passenger aircraft are now operated by two crew members.

memorise /ˈmɛməraɪz/, memorize verb to fix in the memory, to learn by heart. If a student pilot can memorise certain items, such as downwind checks, early in his training.

memory /ˈmɛməri/ noun 1. the mental ability of remembering and recalling past events or information. He has a good memory, he remembers things easily. 2. part of a computer which is used for the fast recall of information. The computer cannot run many programs at the same time because it doesn’t have enough memory.

mental /ˈment(ə)l/ adjective referring to the mind or brain. Anoxia severely limits physical and mental performance.

mental calculation a calculation...
mention /men(ə)n/ verb to refer to something briefly or as mentioned in chapter 4 or as I mentioned yesterday. No one mentioned the incident.

MEP abbreviation mean effective pressure

Mercator's projection /ˈmɛkətər/ prəˈdɛkətər/ noun a map projection of the Earth onto a cylinder so that all the parallels of latitude are the same length as the equator. Since meridians on this projection are represented by parallel straight lines, it is impossible to represent the poles on Mercator's projection.

COMMENT: Named after the Latinised name of G. Kremer, the Flemish-born geographer who died in 1594.

mercury /ˈmɜːkəri/ noun a silver-coloured metallic element, liquid at room temperature, used in thermometers. Manifold pressure gauges are calibrated in inches of mercury.

mercury barometer /ˌmɜːkəri bəˈromɪtər/ noun type of barometer where the atmospheric pressure is balanced against a column of mercury. The principle of a mercury barometer has not changed since 1643 when Torricelli demonstrated that the atmosphere can support a column of liquid.

meridian /ˈmɛrdʒən/ noun an imaginary great circle on the Earth’s surface passing through the north and south geographic poles.

mesh /mɛʃ/ noun a net-like structure. Verb (of gears) to link together with cogs on another wheel.

message /ˈmesidʒ/ noun a short written, coded or verbal communication. The crew can use the public address system to broadcast messages to the passengers. There’s a message from Mr. Jones on your desk.

met /met/ abbreviation meteorology

metal /ˈmeɪtəl/ noun one of the metallic elements e.g. iron, gold, mercury, copper, aluminium.

metallic /ˈmeɪtəlɪk/ adjective referring to or like metal. Metals such as aluminium, titanium, steel, etc. Some fire extinguishers do not harm metallic, wooden, plastic or fabric materials.

meteorological conditions /ˌmɛtəˈrəʊlədʒɪkəl ˈkənˌdɪʃənz/ plural noun a description of the weather in a given area.

meteorologist /ˌmɛtəˈrəʊlədʒɪst/ noun a person who studies, reports and forecasts the weather. The analysis of the surface chart is the procedure in which the meteorologist completes the chart by inserting the fronts and isobars in their correct positions.

meteorology /ˌmɛtəˈrəʊlədʒi/ noun a science which studies weather and weather conditions. Terrestrial radiation plays an important part in meteorology.

meter /ˈmiːtər/ noun 1. US same as metre. 2. A device to measure current, rate of flow, vertical distance, speed, etc. a gas meter, an altimeter, ammeter, flowmeter.

methanol /ˈmeθənəl/ noun a colourless, toxic, flammable liquid, CH₃OH, used as an antifreeze, a general solvent, and a fuel, also called methyl alcohol or wood alcohol. Power output can be restored, or can be boosted to a value over 100% maximum power, by the injection of a water/methanol mixture.
radar information is on a cathode ray tube.

Collision between aircraft in mid-air is well thought out and systematic, especially if it is tackled with the minimum of delay.

The investigation revealed that the crew lost control of the aircraft as it flew through the microburst.

Fires should be extinguished as soon as possible. Operation of an aircraft may also be seriously affected by the freezing of moisture in controls, handles and micro-switches. (Note: The plural form is micro-switches.)

Microwave landing system is an extremely accurate guidance system for landing aircraft that uses microwaves. Abbreviation MLS.

Middle /ˈmɪd(ə)l/ adjective in the centre O middle marker • noun the centre or the seat in the middle of the row

Middle airspace service /ˈmɪd(ə)l ˈæsپeɪs ˈəzvɪs/ a radar service provided by an air traffic control area radar unit in the airspace between FL100 and FL245. Abbreviation MAS.

Middle marker /ˈmɪd(ə)l ˈmɑːkə/ noun an ILS marker beacon on extended runway centre line, usually 3500 feet from the runway threshold

MIL abbreviation military

Mile /ˈmaɪl/ noun • statute mile

Military /ˈmaɪlɪt(ə)ri/ adjective relating to war or to the armed services

Milk run /ˈmaɪlk rʌn/ noun a routine trip, especially an airline’s regular flight

Millibar /ˈmɪlɪbɑː/ noun one thousandth of a bar. Symbol mb

Milligramme /ˈmɪlɪɡræm/ noun one thousandth of a gramme

Millilitre /ˈmɪlɪlɪtə/ noun one thousandth of a litre

Millimetre /ˈmɪlɪmaɪtə/ noun one thousandth of a metre (Note: It is usually written mm after figures: 35mm. Also written millimeter in US English.)

Min abbreviation minimum

Minimal /ˈmiːnɪməl, ˈmiːnɪmən/ adjective very small in amount, importance or degree. O Safety equipment carried on some light aircraft may be as minimal as a portable fire extinguisher. O Any attempt to increase range by applying power is of minimal benefit.

Minimise /ˈmɪnɪmaɪz/, minimize verb to reduce or decrease to the smallest possible amount

Minimum /ˈmiːnɪmən/ adjective smallest possible • the minimum amount required. O Minimum weather requirements for a particular operation such as runway visual range (RVR) • noun the smallest or least possible quantity or amount. O Fires should be tackled with the minimum of delay. O To keep the weight of the fuselage structure...
minimum flying speed

To a minimum, the difference between cabin pressures and the external atmospheric pressures should be kept to a minimum. (NOTE: The plural form is minima or minimums.)

**minimum flying speed** /ˈmɪnɪm ˈfliːŋ/ noun the lowest true air speed at which an aircraft can maintain height

**minimum fuel** /ˈmɪnɪm ˈfjuːl/ noun the amount of fuel required to reach destination and land without delay

**minimum sector altitude** /ˈmɪnɪm ˈsɛktər ˈæltɪtjuːd/ noun the lowest altitude at which an aircraft may fly under emergency conditions and which will provide a minimum clearance of 1000 ft above all obstacles located within a particular sector

**minimum separation** /ˈmɪnɪm ˌsɛpəˈrɛf(ə)n/ noun the minimum vertical or horizontal distance allowed between two aircraft

**minor** /ˈmɪnər/ noun a person under the age of legal adulthood adjective small in size or amount and therefore relatively unimportant. Opposite **major**

**minor repairs** repairs which can be made quickly and with the minimum amount of equipment

**minus** /ˈmɪnəs/ preposition reduced by ○ 6 minus 2 equals 4 (6 – 2 = 4). noun a minus sign (-) ○ minus forty degrees Celsius (-40°C)○

**minute** noun /ˈmɪnɪt/ 1. a time period of 60 seconds ○ There are 60 minutes in one hour. ○ wait a minute wait a while or a short period of time 2. a unit of angular measurement equal to one sixtieth of a degree ○ 20 degrees and 20 minutes east (20° 20’E). adjective minimal ○ very small indeed ○ Metal fatigue begins as minute cracks, too small to be seen, at the point of maximum stress.

**miscellaneous** /ˈmɪskəˌlenəs/ adjective various, mixed, not all the same ○ The first aid box contains miscellaneous items for use in a medical emergency.

**miss** /mɪs/ verb not to get or catch ○ Two passengers arrived so late that they missed the flight.

**missed approach** /ˈmɪst əˈprəʊʃ/ noun an approach that does not result in a landing and is followed by a go-around

**missed approach point** /ˈmɪst əˈprəʊʃ ˈpɔɪnt/ noun the point at which a pilot must carry out a missed approach procedure if a particular visual reference has not been made

**missed approach procedure** /ˈmɪst əˈprəʊʃ ˈprəʊtʃ ə ˈprəʊʃ əˈprəʊʃ ˈprəʊtʃ ə ˈprəʊʃ əˈprəʊš...
COMMENT: Some of the well known mnemonics are: ARROW—Airworthiness Certificate, Registration Document, Radio Station Licence, Operating Handbook, Weight and Balance document — documents to be carried in (light) aircraft (US); BUMF checks— Brakes, Undercarriage, Mixture, Fuel — downwind checks in a light, single engine aircraft with a fixed-pitch propeller; FREDA— Fuel, Radio, Engine, Direction indicator, Altimeter — airfield approach checks; HASELL— Height, Airframe, Security, Engine, Location, Lookout — pre-stall checks; variation east, magnetic least; variation west, magnetic best— a mnemonic to help remember whether to add or subtract variation. 

MOA abbreviation military operations area

mode /məʊd/ noun 1. a particular selected setting for the operation or functioning of equipment ○ automatic mode ○ manual mode 2. a letter or number given to the various pulse spacings of airborne transponders and ground interrogators ○ Mode A and mode C for altitude reporting, are used in air traffic control.

model /ˈmɒdl/ noun a simplified description of a system, often in mathematical form, designed to make calculation simpler ○ The description of the weather patterns is a model only which, in reality, is modified greatly by a number of factors.

moderate adjective /ˈmɒdərət/ 1. referring to something well within limits, not extreme ○ a moderate climate a climate which is not too hot, not too cold 2. the middle of three descriptions of intensity or amount, i.e. light, moderate, severe ○ moderate humidity humidity which is not light or severe ○ light to moderate varying between light and moderate ○ light to moderate icing ○ moderate to severe varying between moderate and severe ○ moderate to severe turbulence ○ verb /ˈmɒdjʊərət/ to become or cause to become less extreme ○ The south west wind moderates the climate of the UK ○ As the wind moderated, the aircraft was allowed to take off.

modern /ˈmɒdən/ adjective up to date, referring to the present day ○ Modern engines are far more powerful than engines used in the past.

modification /ˌmɒdɪfɪˈkeɪʃən/ noun an alteration or change in character or form which is normally an improvement ○ There have been many modifications to the simple carburettor over the years. ○ As a result of the crash, modifications were made to the rudder linkage.

modify /ˈmɒdɪfaɪ/ verb to change or alter in order to improve ○ The landing gear was modified to provide greater strength. (NOTE: modifying — modified)

modulate /ˈmɒdjʊ,leɪt/ verb to change the frequency, amplitude, phase, or other characteristic of an electromagnetic wave ○ The ground station transmits a code in two short bursts, each of which is modulated with two tones.

modulation /ˌmɒdjuˈleɪʃən/ noun a change in a property of an electromagnetic wave or signal, such as its amplitude, frequency, or phase ○ Pulse modulation is a series of quick, short bursts of energy which are radiated from an antenna which serves both the transmitter and the receiver.

module /ˈmɒdjʊl/ noun a replaceable detachable unit

moist /mɔɪst/ adjective a little wet, damp or humid ○ Warm moist air from the Gulf of Mexico can extend into Canada.

moisture /mɔɪstʃər/ noun water or other liquid ○ When the air passing through the carburettor is reduced below 0°C (Celsius), any moisture in the air changes into ice.

moisture content /mɔɪstʃər kəntent/ noun the amount of water in the atmosphere or as seen when it condenses onto cold surfaces

mold /mɒld/ noun, verb US same as mould

molecule /ˈmɒlɪkjuːl/ noun the smallest particle into which an element or a compound can be divided without changing its chemical and physical properties ○ The molecules of a gas
moment 152

move more quickly than the molecules of a liquid.

moment /məʊmənt/ noun 1. a short period of time ○ It only takes a moment to fill in the log book. 2. a point in time ○ at the moment at this particular time ○ He’s not in the office at the moment. 3. the product of a quantity and its perpendicular distance from a reference point ○ A load on the end of a beam creates a bending moment. 4. the tendency to cause rotation about a point or an axis ○ The tailplane provides a pitching moment to keep the aircraft level.

momentum /məʊ'məntəm/ noun a measure of the motion of a body equal to the product of its mass and velocity ○ In rain, the faster an aircraft travels the more water it meets and the greater the relative momentum of the water droplets.

monitor /'mɔnɪtaɪ/ noun a visual display unit for a computer ○ verb to check, on a continuing basis ○ Flowmeters are fitted which allow crew to monitor the flow of fuel to each engine.

monitor system /'mɔnɪtoʊ 'sɪstəm/ noun system for checking and warning

monocoque /'mɒnəkɒk/ noun a three-dimensional body with all the strength in the skin and immediately underlying framework ○ In monocoque construction there is no internal stiffening, as the thickness of the skin gives the strength and stability.

monoplane /'mɒnəplɛn/ noun an aircraft that has only one pair of wings

monsoon /mɒnˈsuːn/ noun a wind from the south-west or south that brings heavy rainfall to southern Asia in the summer ○ Although the monsoon winds are thought of as being Asiatic phenomena, they do occur over Africa and parts of North America, especially the Gulf of Mexico. ○ monsoon season a season of wind and heavy rainfall in tropical countries

morning mist /ˌmɔrɪŋ 'mɪst/ noun a mist which usually disappears before midday, as the result of warming from the sun

Morse /mɔrs/ noun a code used for transmitting messages in which letters of the alphabet and numbers are represented by dots and dashes or short and long signals ○ VOR (very high frequency omni-directional radio range) stations transmit a 2 or 3-letter aural Morse callsign on the reference signal at least every 30 seconds. (NOTE: Morse is still used for identifying some radio beacons.)

COMMENT: Named after S. F. B. Morse, the American electrician who died in 1872.

motion /ˈmɔtʃ(ə)n/ noun movement, the act of changing position or place ○ horizontal motion movement from side to side ○ rotary motion circular movement ○ vertical motion up and down movement

MOTNE noun a network for the exchange of meteorological information needed by meteorological offices, VOLMET broadcasting stations, air traffic service units, operators and other aeronautical users. Full form Meteorological Operational Telecommunications Network Europe

motor /ˈmɔtər/ noun a machine which provides power for moving a vehicle or device with moving parts ○ an electric motor ○ a hydraulic motor (NOTE: Piston or jet power plants for aircraft are referred to as engines not motors.)

mould /ˈmɔuld/ noun a hollow shape for forming plastics, etc. ○ Moulds are used in the manufacture of plastic components. ○ verb to shape, often using a mould ○ Thermo-plastic material become soft when heated and can be moulded again and again. (NOTE: It is also written mold in US English.)

mount /maʊnt/ verb to fix to a support ○ A propeller consists of a number of separate blades mounted in a hub.

mountain /ˈmaʊntən/ noun a mass of rock rising above ground level, higher than a hill ○ They flew over mountains in the south of the country.

Mountain Standard Time /ˈmaʊntən 'stændəd 'taim/ noun a time zone of the west-central part of the USA and Canada, 7 hours behind GMT
mounted /ˈmaʊntɪd/ adjective fixed to a support. □ rear-mounted mounted at the rear of the aircraft. □ Some aircraft such as the Boeing 727 have rear-mounted engines.

mounting /ˈmaʊntɪŋ/ noun a supporting component or attachment point. □ Airbus aircraft have engine mountings under the wings.

movement /ˈmɛvmənt/ noun a change in place or position. □ The upward movement of the piston compresses the fuel/air mixture. □ movement of the crankshaft: the rotation of the crankshaft is the downward movement of cool air, the downward flow of cool air.

mph abbreviation miles per hour

MSL abbreviation mean sea level

MTA /ˈem tiː/ abbreviation military training area

MTBF /ˈem tiː biːˈɛlf/ noun the average period of time that a piece of equipment will operate between problems. □ Full form: mean time between failures

MTTR /ˈem tiː tiːˈɛlf/ noun the average period of time required to repair a faulty piece of equipment. □ Full form: mean time to repair

MTWA abbreviation maximum total weight authorised

muff /mʌf/ noun an acoustic ear muffs

multi- /ˈmulɪ/ prefix multiple or many

multi-engine /ˈmulɪ ˈendʒɪn/ noun an aircraft with more than two engines

multi-function display /ˈmulɪˌfʌŋkʃən dɪˈspleɪ/ noun an electronic cockpit instrument which displays information such as weather radar or navigation data. Abbreviation: MFD

multi-mode receiver /ˈmulɪ məʊd rɪˈsɪvər/ noun a type of radio receiver used in navigation and landing that can receive signals from a variety of different transmission systems

multiplane /ˈmulɪpliˈpliːn/ noun an aircraft with more than one pair of wings

multiple /ˈmulɪpl/ adjective many

MTBF /ˈmɛtɪlbɛf/ noun the time between failures

MTTR /ˈmɛtɪltr/ noun the time required to repair a faulty piece of equipment

multi-wheel combinations /ˈmulɪˌwɛl ˌkwɛmbərˈniːʃən/ plural noun undercarriages consisting of a number of wheels on each unit

multi-purpose /ˈmulɪˌpɜːpəs/ adjective suitable for many different uses

multi-purpose tool /ˈmulɪˌpurəs ˈtʊl/ noun a tool which can be used in many different ways

multi-mode multi-plane /ˈmulɪˌməʊd ˈmulɪˌpliːn/ noun a type of radio receiver used in navigation and landing that can receive signals from a variety of different transmission systems

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N abbreviation north
nacelle /ˈnæsəl/ noun a streamlined housing for an engine. The ram air intake is located in a wing leading edge or an engine nacelle fairing.
narrow /ˈnærəʊ/ adjective not wide. A narrow band of cloud. A narrow beam of electrons. The narrow aisles of passenger aircraft make it difficult to evacuate an aircraft quickly. Opposite wide, broad
NAS abbreviation national airspace system
NASA /ˈnæsə/ abbreviation National Aeronautics and Space Administration
national /ˈnæʃənəl/ adjective belonging to a country. KLM is the national airline of the Netherlands.
National Aeronautics and Space Administration /ˈnæʃənəl əˈɛərənɔt̬ɪkstrɪks ən ˈspeɪs əd ˈmɪnstreɪʃən/ noun a US organisation for flight and space exploration. Abbreviation NASA
national airspace system /ˈnæʃənəl əˈɛərəns ˈsɪstəm/ noun an integrated system of control and communications facilities that is responsible for ensuring the safe and efficient movement of aircraft through the national airspace of the US. Abbreviation NAS
National Air Traffic Services /ˈnæʃənəl əˈtɹæfɪk ˈsərvɪsɪz/ plural noun the organisation that is responsible for air traffic control at most UK airports. Abbreviation NATS
NATS abbreviation National Air Traffic Services
nature /ˈnetʃər/ noun 1. the world, especially plants, animals and their environment in general. Electricity is one of the fundamental forces of nature. 2. sort or type. Action taken by the crew will depend on the nature of the emergency. 3. the essential qualities of something. The convective nature of thunderstorms. Magnesium is a fire hazard of unpredictable nature.
nautical /ˈnɔːtɪkl/ adjective referring to the sea. The terms pitch, roll and yaw are nautical in origin.
nautical mile /ˈnɔːtɪkl miːl/ noun 1.852 kilometres. One knot is equal to one nautical mile per hour. Abbreviation nm. Compare statute mile (note: A nautical mile is precisely defined as the length of an arc on the Earth's surface subtended by an angle of one minute at the centre of the Earth.)
NAVAID /ˈnævəɪd/ abbreviation navigational aid
navigation /ˈnævəɡeɪʃən/ noun the theory and practice of planning, controlling and recording the direction of an aircraft. The basis of air navigation is the triangle of velocities.
navigational /ˈnævɪɡəʃənəl/ adjective referring to navigation. The accuracy of modern navigational equipment is much greater than older systems.
navigational aid /ˈnævɪɡəʃənəl ˈeɪd/ noun a mechanical or electronic device designed to help a pilot navigate. Any type of navigational aid but particularly electronic aids, for example ADF (automatic direction finding) and
NDBs (non-directional beacons). Abbreviation NAVAID

**Comment**: Navigation lights must be used between sunset and sunrise.

**Navigation log...**

**NECESSARY** /'nesɪs(ə)rɪ/ adjective needed or essential ○ A rich mixture is necessary at slow running. a as necessary when needed ○ Warnings, cautions and advisory messages are displayed only when necessary.

**Necesity** /niːsəsɪtɪ/ noun something that is necessary or very important ○ Student pilots should understand the necessity for treating thunderstorms with great respect.

**Needle** /ˈnɪld(ə)/ noun a thin metal pointer in an instrument ○ The needle indicated to zero.

**Needle valve** /ˈnɪld(ə)vləv/ noun a valve formed of a tapered needle projecting into a small opening in a tube, etc., usually connected to a float, which provides fine adjustment of fluid flow ○ Atmospheric pressure will allow the capsule to expand, causing the needle valve to move into the opening thus reducing the flow of fuel.

**Negative** /ˈnegətɪv/ adjective 1. a value of less than 0 ○ In a reversing propeller, the propeller mechanism includes a removable ground fine pitch stop which enables the propeller to be set to a negative pitch. 2. referring to an electric charge of the same sign as that of an electron ○ the negative terminal of a battery the terminal of a battery marked with the symbol – and normally coloured black rather than red ○ 3. showing refusal ○ a negative answer no 4. showing resistance or non-co-operation ○ a negative attitude

**Negligible** /ˈnɛglɪdʒəb(ə)/ adjective small or unimportant to the extent that it is not worth considering ○ Atmospheric attenuation is negligible until the upper end of the UHF (ultra high frequency) band when it increases rapidly. ○ negligible risk almost no risk

**Neoprene** /niːəˈprɛrn/ noun a type of synthetic rubber

**Net dry weight** /ˈnet drai ˈweɪt/ noun the basic weight of an engine without fluids and without accessories not essential for the engine to function

**Network** /ˈnetwərk/ noun 1. a complex interconnected group or system ○ A network of meteorological stations around the world exchange information. 2. a system of lines or channels which cross each other ○ On a map, meridians of longitude and parallels of latitude form a network of lines called a graticule. 3. a system of computers interconnected in order to share information

**Neutral** /ˈnjuːtrəl/ adjective, noun 1. indicating an electrical charge which is neither positive nor negative ○ 2. indicating the position of a switch or lever which leaves a system active but not engaged, e.g. an engine gear lever position in which the engine is disconnected from the driven parts ○ 3. indicating the middle position of a control surface providing no aerodynamic effect other than that as part of the wing ○ After a turn, the auto-control will return the ailerons to neutral as the aircraft returns to straight flight.

**Neutralise** /ˈnjuːtrəlaɪz/, neutralize verb to cancel the effect of ○ Spillage from a lead acid battery may be neutralised by washing with a diluted solution of sodium bicarbonate.

**Never-exceed speed** /ˌnevər ɪk ˈsɪpt/ noun a speed which must not be exceeded. Also called Vne (Velocity Never Exceeded)
night rating 156

night rating /ˈnaʊt ˈreɪtɪŋ/ noun an additional qualification gained from a course of training for night flying
nil /nɪl/ noun nothing, zero ◼ nil drizzle no drizzle
nimbostratus /ˈnɪmbəʊstrətəs/ noun a cloud forming a low dense grey layer from which rain or drizzle often falls
nitrogen /ˈnaɪtrədʒən/ noun a colourless, odourless gas which makes up four fifths of the Earth’s atmosphere ◼ Some aircraft have high pressure air or nitrogen bottles provided in the undercarriage and flap circuits for emergency lowering. (NOTE: The atomic number of nitrogen is 7.)
nm abbreviation nautical mile
nocturnal /ˈnɒkˈtɜːrn(ə)l/ adjective happening or appearing during the night ◼ Because there is a requirement for a cold ground, a katabatic wind tends to be nocturnal, but if the slope is snow-covered, it can also occur during the day.
no-fly zone /ˈnəʊ flai/ noun an area over which aircraft, especially those of another country, are forbidden to fly
nominal /ˈnɒmɪn(ə)l/ adjective 1. not significant or not important ◼ a nominal increase a very small increase 2. named, specific ◼ As an installed battery becomes fully charged by the aircraft generator, the battery voltage nears its nominal level and the charging current decreases.
non-/ˈnɒn/ prefix not or no
non-directional beacon /ˌnɒn dɪˈrɪkʃənəl bɪˈkeɪn/ noun a radio beacon transmitting a signal by which the pilot can determine his or her bearing. Abbreviation NDB
non-essential /ˌnɒn ɪˈsesn(ə)l/ adjective not necessary ◼ In order to ensure the shortest possible take-off run, all non-essential equipment was removed.
non-return valve /ˌnɒr ˈrɛtərv ˈvel/ noun a valve which allows a fluid to pass in one direction only ◼ As the piston moves upwards in the cylinder, fluid is drawn in through a non-return valve.
non-smoking area /ˌnɒn ˈsmɔːkɪŋ ˈeərə/ noun an area where smoking is not allowed
normal /ˈnɔːrm(ə)l/ adjective referring to something which is usual and is to be expected ◼ under normal conditions when everything is as it usually is
normal room temperature /ˈnɔrm(ə)l ˈroʊm ˈtɛmprətʃər/ noun the temperature regarded as comfortable for usual daily activity
north /nɔːθ/ noun compass point 360°, the direction towards which the magnetic needle points on a compass ◼ Fly towards the north. ◼ The wind is blowing from the north ◼ north facing mountain side the face of the mountain which looks towards the north ◼ North America ◼ adverb towards the north ◼ The aircraft was heading north ◼ compass, magnetic, true northbound /ˈnɔːθbaʊnd/ adjective travelling towards the north ◼ a northbound flight
north-east /nɔːθ ˈiːst/ noun the direction between north and east ◼ After take-off, the aircraft turned to the north-east. ◼ adjective 1. situated in the north-east ◼ the north-east coast of England 2. blowing from or coming from the north-east ◼ a north-east wind ◼ adverb towards the north-east ◼ We are heading north-east.
north-easterly /ˌnɔːθ ˈiːstəli/ adjective 1. blowing from or coming from the north-east ◼ A north-easterly wind was blowing. 2. moving towards the north-east ◼ Follow a north-easterly direction.
north-eastern /ˌnɔːθ ˈiːstən/ adjective referring to or situated in the north-east ◼ the north-eastern part of the United States
northerly /ˈnɔːθəli/ adjective 1. situated towards the north ◼ the most northerly point of a country 2. blowing from or coming from the north ◼ northerly airflow airflow coming from the north
a northerly airflow from the polar regions

We are flying in a northerly direction.

nose dive /ˈnɔːz daɪv/ noun an extremely steep descent by an aircraft front first

no-smoking sign /ˈnɔʊz ˈsmaʊkɪŋ/ a sign, usually lit-up, warning passengers and crew that smoking is not allowed

North Pole /ˌnɔːθ pəʊl/ noun the area of the Earth to the north of the equator

North Pole /ˌnɔːθ pəʊl/ noun the point which is furthest north on the earth

Follow a north-westerly wind. We are heading north-west.

nose cone /ˈnɔːz kəʊn/ noun the foremost part of the nose of a multi-engine aircraft, but not an engine

nose gear /ˈnɔːz ɡeər/ noun the nose wheel and supporting struts and linkages

notice /ˈnəʊtɪs/ noun

1. a written or spoken announcement

2. a formal warning or notification to give notice to inform an employee or employer in advance and in writing, of a termination to a period of employment

As a result of the accident, the instructor was given three months' notice.

3. the student pilot is grounded until further notice the student pilot cannot fly again until told by those in authority that he or she can continue

While
noticeable

doing the pre-flight checks. Captain Smith noticed that there was a leak of hydraulic fluid from one of the brake cylinders.

noticeable /nəʊtsəb(ə)/ adjective catching the attention, easily noticed o a noticeable increase an increase which is important enough to be observed o There was a noticeable improvement in the trainee’s recent exam results.

notice board /'nəʊtɪs bɔ/ noun a usually wooden board in a corridor or classroom, etc., where information on paper can be displayed

notification /ˌnəʊtɪfəˈkeɪʃ(ə)n/ noun the act of informing somebody about something o Notification of the new procedures will follow in a few days. o She received notification that she had been accepted for the job.

notify /ˈnəʊtɪfɪ/ verb to inform o Students were notified of their exam results by post. o The authorities must be notified of all in-flight incidents.

nozzle /ˈnəʊz(ə)/ noun a projecting part with an opening at the end of a pipe, for regulating and directing a flow of fluid o The nozzle of a portable fire extinguisher should be pointed at the base of the fire.

nucleus /ˈnjuːklɪəs/ noun the central part around which other parts are grouped o An atom consists of a nucleus with orbiting electrons. o Condensation occurs on very small particles suspended in the air which are known as condensation nuclei. (NOTE: The plural form is nuclei.)

null /nʌl/ noun an instrument reading of zero o the null position the zero position o Nulls are used for direction sensing because they are better defined than the maxima.

numerical /ˈnjuːmərɪkl/ adjective referring to numbers or digits

numerical value /ˈnjuː,mərɪkl ˈvælju/ noun a number

numerous /ˈnjuːmərəs/ adjective very many, a lot o Large transport aircraft have numerous clearly-marked exits to facilitate rapid evacuation of passengers. o Numerous refinements to the simple actuator will be found in use.

nut /nʌt/ noun a metal ring which screws on a bolt to hold it tight o Turn the nut anticlockwise to loosen it.
OAT abbreviation 1. operational air traffic 2. outside air temperature

obey /əˈbeɪ/ verb 1. to carry out or comply with a command ○ Pilots must obey landing instructions. 2. to follow a physical law ○ Winds obey Buys Ballot’s Law.

OBI abbreviation omni-bearing indicator

object /ˈɒbdʒekt/ noun 1. something that you can touch and see and that has a particular form and dimensions ○ Any given object will collect more ice when travelling at high speed than at low speed. 2. intention or aim ○ The object of the briefing is to inform all aircrew of the new procedures. ○ verb /əbˈdʒekt/ to raise or voice opposition ○ Staff objected to the introduction of longer working hours.

oblong /ˈoblɒŋ/ adjective rectangular ○ an oblong piece of aluminium ○ a rectangle

OBS abbreviation omni-bearing selector

obscure /ˈɒbskjuː/ adjective not clearly understood ○ the explanation was obscure the explanation was difficult to understand because it wasn’t clear ○ verb to make difficult to see ○ Deposits of ice crystals on the windscreen will obscure vision.

obscured /ˈɒbskjuəd/ adjective ○ sky obscured a meteorological term to mean that fog or mist prevents sight of the sky

observation /ˌɒbsəˈveɪʃ(ə)n/ noun careful watching ○ The type of cloud is established by observation and comparison with cloud photographs.

observe /əbˈzɜːv/ verb to watch carefully ○ Local wave action can be observed from a height of 200 feet. ○ Wing deflection can be observed from the passenger cabin.

observer /əbˈzɜːvər/ noun a person working in a meteorological station who assesses weather conditions by visual means ○ Meteorological visibility is the greatest horizontal distance at which objects can be seen and recognised by an observer on the ground with normal eyesight and under conditions of normal daylight illumination.

obstacle /ˈɒbstəkl/ noun something which blocks a path or prevents progress ○ Low frequency transmissions can penetrate obstacles such as mountains. ○ Knowing the heights of obstacles en route, it must be ensured that in the event of an emergency, the flight may be continued in safety.

obstacle clearance /ˈɒbstəklklər(ə)ns/ noun the fact of being at a sufficient height to be able to fly over any obstacles in the area

obstruct /əbˈstrʌkt/ verb to block a path or to prevent the progress of something ○ Bags and luggage must not obstruct the aisles. ○ A safety valve is normally provided, in case the water separator assembly becomes obstructed by ice.

obstruction /əbˈstrʌkʃ(ə)n/ noun 1. the act or process of obstructing ○ The glidepath antenna cannot be placed close to the centre line of the runway because it would cause an obstruction. 2. something which blocks a path or prevents progress ○ Before start-up, the
Occasionally turbulence happens, decreasing the safety of the aircraft and its occupants. Designed to successfully combat air turbulence, probes are positioned in the gas stream in order to obtain an accurate temperature reading. The probes are positioned in the gas stream in order to obtain an accurate temperature reading. Occasional rain occurs during the monsoon season, Tropical revolving storms generally occur from June to October. An accident occurred on June 12th.

Occurrence /ˈɒkərəns/ noun a happening or event. There were a number of occurrences of hijacking in the eighties. The occurrence of the equatorial jet stream is due to a temperature gradient with colder air to the south.

Ocean /ˈɔːʃən/ noun 1. the body of salt water which covers the earth (NOTE: This is a chiefly American usage: British English prefers the word sea.) 2. any of the major sea areas of the world. o the Atlantic Ocean

COMMENT: The five oceans are: the Atlantic, the Pacific, the Indian, the Arctic, and the Antarctic (or Southern).

Oceanic /əˈɒnjɪk/ adjective referring to the oceans. The trade winds maintain their direction over the oceanic areas, especially the Pacific, more than over land areas. An oceanic crossing a flight across sea or ocean.

Octane rating /ˈɒktni, retɪŋ/ noun the ability of the fuel to resist detonation, i.e. the higher the number, the greater is the fuel’s resistance to detonation.

Odd /əd/ adjective 1. strange, peculiar. An odd situation. The fact that moist air is lighter than an equivalent volume of dry air seems odd to many people. 2. An odd tenth an odd decimal, e.g. 0.1, 0.3, etc. Frequency allocation of localisers in the VHF band is 108–112 MHz at odd tenths e.g. 108.1 and 109.3, the even decimals being allocated to VOR facilities. 3. indicating a number a little greater than the approximate number given; e.g. it is 60 odd miles to our destination.
odd number /′ɒd ‘nʌmbə/ noun a number which cannot be exactly divided by two, e.g. 1, 3, 5, 7, etc. • A (battery) cell contains an odd number of plates.

OEM /′ɔ:mi/ abbreviation original equipment manufacturer

offer /′ɒfr/ noun something, e.g. a sum of money, that is presented for acceptance or rejection • He made an offer of $85,000 for the aircraft. • verb 1. to show readiness to do something • He offered to pick up the tickets in advance. 2. to present for acceptance or rejection • The company offered her a job and she accepted it. 3. to provide • The battery offers a short term power capability.

official /′ɒfɪʃəl/ adjective referring to an authority, such as the government or a recognised organisation • an official weather report a weather report produced by a meteorological station • noun a person employed by a government authority or a corporation • An official of the civil aviation department will be visiting today.

offshore /′ɔfʃɔr/ adjective at a distance from the shore

offshore wind /′ɔfʃɔr wɪnd/ noun a wind which blows from the coast towards the sea. Compare onshore wind

ohm /′oʊm/ noun a unit of measurement of electrical resistance. • ampere

COMMENT: Ohm’s Law states that the current in a circuit is directly proportional to the voltage causing it and inversely proportional to the resistance of the circuit.

oil /′ɔil/ noun a thick mineral liquid used as a fuel or to make mechanical parts move smoothly

oil pan /′ɔil pæn/ noun US same as sump

okta /′ɔktə/ okta noun a unit of visible sky equal to one eighth of total area visible to the horizon • The amount of cloud cover is given in oktas.

COMMENT: To measure cloud cover, the sky is divided into imaginary sections, each covering one eighth of the total. A cloudless sky is ‘zero oktas’, and a sky which is completely covered with clouds is ‘eight oktas’ or ‘eight eighths’.

oleo /′ɔliəʊ/ noun a telescopic strut in the undercarriage which absorbs impact loads on landing • A safety switch is fitted in such a way to the oleo, that when the oleo is compressed on the ground, the ‘undercarriage up’ selection cannot be operated. Full form oleo-pneumatic

OM abbreviation outer market

omit /′əmit/ verb to leave out, not to include • High charts show only information relevant to high altitude flights and many beacons/airways which are provided for low operations are omitted to keep the chart clear. (NOTE: omitting – omitted)

omni-bearing indicator /′ɒmnı bɪˈrɪŋ ɪndɪkətər/ noun a cockpit instrument that displays VOR information and is used for radio navigation. Abbreviation OBI

omni-bearing selector /′ɒmnı bɪˈrɪŋ ˈsɪliktər/ noun a knob on an omni-bearing indicator which the pilot turns to select a radial from a VOR station. Abbreviation OBS

omnirange /′ɒmnɪreɪndʒ/ noun a very-high-frequency radio navigation network that allows pilots to choose and fly on any bearing relative to a transmitter on the ground

one-in-sixty rule /′wʌn ɪn ‘sɪksti ruːl/ noun in navigation, every 1° of track error, and every 60 nautical miles flown, results in the aircraft being 1 nm off track

onshore /′ɒnʃɔr/ adjective towards the coast

onshore wind /′ɒnʃɔr wɪnd/ noun a wind which blows from the sea towards the coast. Compare offshore wind

opacity /′ɒpəsɪtɪ/ noun the state of not allowing light to pass through • Sometimes, it is possible to estimate the depth and opacity of the layer of mist or fog from the ground observations.

opaque /′ɔpək/ adjective not allowing light to penetrate or pass through • Rime ice is an opaque, white, granular ice which forms on leading edges.
opening /ˈɔpjɪnɪŋ/ noun 1. a space which acts as a passage through which something or somebody can go. 2. an inlet valve, operation 3. the opening of the new flying school. 4. a formal start of operation 5. the opening of the new flying school.

operational /ˈɒpəreɪʃənl/ adjective referring to a policy of allowing aircraft belonging to any country to fly over an area, without restrictions on surveillance of military installations.

operate /ˈɒpəreɪt/ verb 1. to control the working of. 2. The control column operates the ailerons and elevators. 3. The flaps are operated by a switch. 4. In flying, a change of direction is caused by operating the rudder, elevator, or aileron. 5. The surgeon operated on the patient.

operational air traffic /ˈɒpəreɪʃənl ˈɛə træfɪk/ noun flights operating in accordance with military air traffic service procedures. Abbreviation OAT.

operations department /ˌɒpərəˈteɪʃən dɪˈpɑːrtmənt/ noun the part of an airline or airport organisation which deals with flight operations.

operative /ˈɒpərətɪv/ adjective functioning or working. 1. A person who operates or uses equipment. 2. The system is now operative after the recent maintenance.

operator /ˈɒpəreɪtə/ noun a person who operates or uses equipment. 1. A person who operates or uses equipment. 2. The surgeon operated on the patient.

operating jack /ˈɒpəreɪtɪŋ dʒeɪk/ noun a device which converts rotary motion into linear or reciprocating motion in order to move heavy control surfaces.

operating weight /ˈɒpəreɪtɪŋ wɛt/ noun the total mass of aircraft ready for flight but excluding fuel and payload. 1. The type of undercarriage fitted to an aircraft is governed by the operating weight.

operation /ˈɒpərəʃən/ noun 1. the process of making something work. 2. The operation of the ignition system in a light aircraft is quite simple. 3. The operation of the ignition system in a light aircraft is quite simple. 4. A surgical procedure. 5. The doctor performed an operation. 6. A procedure such as addition or subtraction.

oppose /ˈɔpəs/ verb 1. to work against. In level flight, the force of lift opposes the force of gravity. 2. to reject, be in conflict with or try to prevent. 3. as opposed to in contrast with over sea as opposed to over land.

opposite /ˈɒpəzɪt/ adjective 1. situated or placed directly across from something, facing. 2. opposite sides of a building. The back and front of a building. 3. completely different, the reverse. 4. For every action there is an equal and opposite reaction.

opposition /ˌɒpəˈzɪʃən/ noun 1. moving away from each other. 2. moving towards each other. 3. in opposition against. 4. Drug acts in opposition to thrust. 5. The electromotive force that is produced by all motors is in opposition to supply volt age and is...
orbit round the sun. The time taken for the Earth to complete one orbit around the sun. A pilot of a powered aircraft always has the option of going around. It was given the option of buying two aircraft instead of one.

orifice noun an opening, mouth or vent. The liquid expands and builds up a pressure differential across an orifice which leads to the expansion chamber.

orientate verb to locate in relation to the compass. The first step in map reading is to orientate the chart by relating the direction of land features to their representation on the chart.

organise organize verb 1. to arrange into a system. Organise your notes so that you can find things easily. 2. to plan. The trip was well organised and everybody enjoyed themselves.

order noun 1. an instruction given as a command by somebody in authority. The captain gave the order to evacuate the aircraft. 2. the sequence of occurrence. The firing order of sparking plugs in a piston engine is 1, 3, 4, 2. alphabetical order arrangement in which words beginning with letter A come first, followed by those beginning with letter B, then C, etc. numerical order arrangement in which the lowest numbers (1, 2, 3, etc.) come first and higher numbers (25, 26, 27, etc.) come later. condition or state. Although the aircraft is old, it is in good working order. out of order not working. The telephone is out of order. in the order of approximately. VOR (very high frequency omnidirectional radio range) beacons of 200 watts have a range in the order of 200 nm (nautical miles). in order to so as to. Indicated airspeed must be corrected in order to obtain true airspeed.

origin noun a source, the place where something starts. An air mass takes on the characteristics of its place of origin. 2. the base from which a map projection is drawn. The value of convergence used is correct at the parallel of origin.

original adjective before all others, the first. The atmosphere is said to be stable if, when a parcel of air is displaced vertically, it tends to return to its original level.

originat originat originat originat verb to be created or to come into being. Tropical revolving storms originate within 5–15° of the equator.
emergency landing, often originate in the wing area.

**Orographic** /ˈɔːrəɡrəfɪk/ adjective referring to mountains. **Orographic uplift** the lifting of air masses in contact with mountain regions.

**Orographic cloud** /ˈɔːrəɡrəfɪk ˈklaʊd/ noun a cloud formed by air being forced upward over mountainous areas.

**Orthomorphic** /ˌɔːθəˈmɔːfɪk/ adjective of the correct shape. An orthomorphic chart is one which has meridians and parallels which intersect at right angles and, at any point on the chart, the scale must be the same in all directions.

**Orthomorphism** /ˌɔːθəˈmɔːrﬁzəm/ noun a shape representation on a map. Orthomorphism means that bearings may be measured correctly at any point on a chart.

**Oscillate** /ˈɒsɪleɪt/ verb 1. to move regularly between extremes. 2. to increase or decrease regularly so as to produce oscillations. **Instability protection** is incorporated to guard against oscillating outputs from the alternators.

**Oscillation** /ˌɒsɪləˈʃən/ noun 1. a regular movement between extremes. Ridge waves can be thought of as oscillations about the stable state of the undisturbed air flow with the range of hills providing the disturbance. 2. a regular increase and decrease of electrical current. The supply is subject to oscillation.

**Oscillator** /ˈɒsɪleɪtər/ noun an electronic circuit that produces a pulse or a signal at a particular frequency. The local oscillator replicates the radio frequency of the frequency generator at the transmitter.

**Out** /aʊt/ adverb 1. out of away from, no longer in. **Outboard** /aʊtˈboʊrd/ adverb in a direction away from the centre of an aircraft. **Outbound** /aʊtˈbaʊnd/ adjective, adverb towards a destination away from a VOR.

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from the beacon along the airway and inbound to the facility at the other end of the leg.

**Outbound traffic** aircraft flying away from an airfield.

**Outbreak** /ˈautbrɛk/ noun a sudden start. Showers are local outbreaks of precipitation from detached cumulus or cumulonimbus. Hand operated fire extinguishers are provided to combat any outbreaks of fire in the flight crew compartment and passengers cabins.

**Outer** /ˈaʊtər/ adjective 1. external. Pneumatic de-icer boots are made from vulcanised rubber fabric with an outer covering of neoprene. 2. positioned away from the centre. Winds near anticyclones are normally light near the centre, but tend to be stronger towards the outer edges.

**Outer wing** the part of the wing nearest the tip.

**Outer marker** /ˈaʊtərˈmɑrkər/ noun an ILS marker beacon, usually on centre line of approach at about 4.5 nm from the runway threshold.

**Outflow** /ˈaʊtfləʊ/ noun flow in an outward direction. The outflow valve is controlled by the cabin pressure controller.

**Outgoing** /ˈaʊtˈɡəʊɪŋ/ adjective going out. There is a fall of temperature until about one hour after dawn when incoming solar radiation balances outgoing terrestrial radiation. Opposite **incoming**.

**Outlet** /ˈaʊtˌlɛt/ noun a passage for exit or escape. The air leaves the compressor outlet and passes through a matrix assembly of the secondary heat exchanger. When the controlling super-charger outlet pressure is reached, the capsule is compressed sufficiently to open its bleed valve.

**Outline** /ˈaʊtlaɪn/ noun 1. a line around the shape of something. Warning labels have a solid red outline. 2. a shape. At low level, features are most easily recognised from their outline in elevation. Cumulus cloud has detached domes or towers which are generally dense and have sharp outlines. **Verb** to explain simply and briefly. The changes in conditions outlined in the next paragraph.
out-of-balance turn /aʊt ˈɔːvərtɜːn/ a turn in which the aircraft ‘skids’ upwards and outwards from the turn or ‘slips’ inwards and downward. ◦ During an out-of-balance turn, the ball in the slip indicator will be deflected to the left or right.

out of trim /aʊt ˈɔːvətrɪm/ adjective referring to a situation in which the aircraft is not in static balance in pitch, so that if the pilot releases the yoke or control stick, the aircraft will start to climb or descend.

output /ˈaʊt pʊt/ noun the product of a process. ◦ The function of the supercharger is to increase the power output. ◦ The power output of an engine depends on the weight of mixture which can be burnt in the cylinders in a given time.

outtrigger /ˈauttrɪŋɡər/ noun a projection attached to an aircraft to stabilise it or to support something.

outward /ˈaʊt wərd/ adjective moving away from the centre or starting point. ◦ The piston draws fluid into the cylinders on the outward stroke and expels fluid into the system on the inward stroke.

outwards /ˈaʊt wərds/ adverb away from the centre or starting point, towards the outside. ◦ The door opens outwards.

overhead /ˈəʊvərhed/ adjective 1. vertically above the point where a course is measured or timed. ◦ The aircraft started from overhead A at 1000 hours on a heading of 230°T. 2. above the level of people’s heads. ◦ Overhead baggage lockers must be secured immediately prior to take-off.

overheat /ˈəʊvərheɪt/ verb to get too hot. ◦ An acceleration/deceleration control is fitted to prevent the turbine assembly from overheating during acceleration, and to prevent flame-out during deceleration.

overlap noun /ˈəʊvərlæp/ part of one thing covering something else. ◦ verb /ˈəʊvərlæp/ to have an area or range in common with something else, or to cover part of something else. ◦ The maps overlap each other at the edges by three centimetres.

overalls /ˈəʊvərɔːlz/ plural noun protective trousers with a bib and straps over the shoulders. ◦ Wear overalls to protect your clothes.

overcome /ˈəʊvərkeɪm/ verb to beat, to conquer, to win against. ◦ The effects of anoxia at high altitudes can be overcome by breathing through a mask. ◦ Drag must be overcome with thrust in order for an aircraft to increase speed.

overflown /ˈəʊvərflaʊn/ verb to fly over an area (note: overview – overflown).

overhang /ˈəʊvərheɪŋ/ noun 1. the distance from the last outer strut to the end of a monoplane’s wing. 2. a distance equivalent to half of the difference in the spans of the two wings of a biplane.

overhaul /ˈəʊvərhol/ to take apart and examine carefully in order to repair and clean, etc. ◦ To overhaul the system will take a couple of days. ◦ noun /ˈəʊvərhaul/ the act of taking apart in order to repair and clean. ◦ Other than the oil pump and the generator rotor, there are no other moving parts in the system to wear or which require periodic overhaul.

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overload noun /ˈəʊvərləʊd/ an excessive amount of work or electricity. ◦ Resettable circuit protective devices should be designed so that when an overload or circuit fault exists, they will open the circuit.
overload operations

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to load a device or system, such as an electrical circuit, with too much power; to demand more than a system is capable of. Operating pressure is maintained in that part of the system which leads to the selector valves, and some method is used to prevent overloading the pumps. The aircraft failed to gain height after take-off because it was overloaded.

override /əʊvəˈreɪd/ verb to take over control of the operation of an automatic device or system. A circuit-protective device must not be of a type which can be overridden manually. (NOTE: overriding – overrode – overridden)

overshoot /əʊvəʃʊt/ verb to fly past a target. The pilot tried to land but the aircraft overshot the runway. (NOTE: overshooting – overshot)

overspeed verb /əʊvəˈspɪd/ to go too fast. A fault in the constant speed drive unit causes the generator to overspeed. A speed that is too fast. Overspeed is usually a fault in the constant speed drive unit which causes the generator to overspeed.

overspeeding /əʊvəˈspɪdɪŋ/ noun the act of going too fast. Overspeeding of the engine is prevented by a governor in the fuel system.

overstress /əʊvəˈstres/ verb to subject to too much force. It takes less g force to overstress a heavy aircraft than a light one.

owing to /əʊnɪŋ tu/ preposition because of. Integral tanks are now favoured for aircraft owing to the very high utilisation of space and saving of weight. Owing to the aerodrome being unserviceable, the landing was made at another aerodrome some distance away.

oxidation /ˌɒksəˈdeɪʃən/ noun the combination of a substance with oxygen, with loss of electrons. When aluminium surfaces are exposed to the atmosphere, a thin invisible oxide skin forms immediately that protects the metal from further oxidation.

oxide /ˈɒksaɪd/ noun a compound of an element with oxygen. When aluminium surfaces are exposed to the atmosphere, a thin invisible oxide skin forms immediately that protects the metal from further oxidation.

oxidise /ˌɒksɪdaɪz, əˈkoʊdɪz/ verb to form an oxide by the reaction of oxygen with another chemical substance. Over a period of time, the metal is oxidised by contact with air.

oxygen /ˈɒksɪdʒən/ noun a colourless, odourless gas, which is essential to human life, constituting 21% by volume of the Earth’s atmosphere. Our bodies can get oxygen through the lungs. At very high altitudes the flying pilot must be on oxygen at all times, unless an aircraft dispensation has been obtained. (NOTE: The atomic number of oxygen is 8.)

ozone /ˌɔːzoʊn/ noun a poisonous form of oxygen found naturally in the atmosphere which is toxic to humans at concentrations above 0.1 parts per million. The maximum concentration of ozone is between 20 and 25 km above the Earth’s surface. Symbol O₃
PA *abbreviation* public address

Pacific Standard Time /pə'stændəd 'taim/ *noun* the time zone of the west coast area of the USA and Canada, 8 hours behind Greenwich Mean Time

**pack** /pek/ *noun* 1. a detachable system ○ Circuit packs consist of basic decision-making elements, referred to as logic gates, each performing combinational operations. ○ A power pack system is one in which most of the major components, with the exception of the actuators and, in some systems, the pumps, are included in a self-contained unit. 2. a small package containing a set number of items ○ The survival pack includes heliographs, sea marker dyes, day/night distress flares and parachute flares.

**pad** /pæd/ *noun* same as helipad

**pair** /peə/ *noun* two matched items, similar in appearance and function ○ A brake control valve usually contains four elements, one pair for the brakes on each side of the aircraft, to provide duplicated control.

**pancake** /ˈpæŋkki/ *(informal)* *noun* same as pancake landing ○ verb to make a pancake landing, or cause an aircraft to make a pancake landing

**pancake landing** /ˈpæŋkki 'lændɪŋ/ *noun* a landing in which an aircraft drops suddenly straight to the ground from a low altitude, usually because of engine failure

**panel** /ˈpæn(ə)l/ *noun* 1. a flat, often rectangular piece of the skin of the aircraft ○ Access to the engine compartment is normally via hinged cowling panels. 2. a board with switches, dials, control knobs, etc. ○ The pilot is trained to scan an instrument panel.

**panic** /ˈpænɪk/ *noun* a sudden overpowering fear or terror ○ In order to prevent mass panic amongst passengers in an emergency situation, crew may have to use force.

**PAPI** *abbreviation* precision approach path indicator

**PAR** *abbreviation* precision approach radar

**parachute** /ˈpærəʃu/ *noun* a device used to slow down free fall from an aircraft, consisting of a light piece of fabric attached by cords to a harness and worn or stored folded until used in descent

**parachute flare** /ˈpærəʃu 'flɛə/ *noun* a distress signal, suspended from a parachute to allow more time for the flare to be seen, which is fired to a height of 1200 ft

**parachutist** /ˈpærəʃu/st/ *noun* a person who returns to the ground from an aircraft using a parachute

**parallel** /ˈpærəlel/ *adjective* 1. side by side and having the same distance between them at every point ○ As one aircraft flew round to attempt another landing, a Boeing 757 was taking off on the parallel runway. ○ The runway is parallel to the main road. 2. *in parallel* arranged so as to join at common points at each end ○ When batteries are connected in parallel, voltage remains constant but capacity increases ○ *noun* a line which is parallel to another ○ *parallels of latitude* imaginary lines of
parameter 168
constant latitude around the Earth’s surface.

parameter /paˈrəmətər/ noun a set of measurable values such as temperature which define a system and determine its behaviour. Parameters required by the crew to set and monitor engine thrust are permanently displayed on the screen.

parasite drag /ˈpərəsaɪt drag/ noun a component of total lift, caused by friction between the airflow and the structure of the aircraft. Parasite drag increases as speed increases.

parcel /ˈpærskəl/ noun a small package. When a parcel of air is heated, its volume increases and its density decreases thus there is a fall in pressure.

park /pɑːrk/ verb to leave a vehicle such as a car or an aircraft in a particular place when no one is using it. Park beside the Cessna 150.

parking brake /ˈpɑːkɪŋ breɪk/ noun a brake that is set, often by hand, when the aircraft is stationary for a period of time. Make certain that the parking brake is on before doing engine run-up checks.

particle /ˈpær tɪkəl/ noun a very small piece or part. Solid particles in the atmosphere include sand, dust, volcanic ash and atmospheric pollution. Hailstones start as ice particles in the upper part of a cumulonimbus cloud.

particular /paˈtɪkjʊlər/ adjective special, given, distinct, not general. A particular time, a particular speed. The size and number of valves required for a particular type of aircraft is governed by the amount of air necessary for pressurisation and air conditioning.

pass /pɑːs/ noun 1. a badge or document which allows one to enter a restricted or prohibited area. A pass 2. a successful result in an exam.

verb 1. to move. Tropical storms dissipate as they pass from sea to land. The air leaves the compressor outlet and passes through a matrix assembly.

2. to pass information to give information to a pilot to give information via radio to an air traffic control facility.

3. to pass an exam to be successful in an exam.

4. to pass a book to someone to pick up and give a book to somebody nearby.

5. to pass another aircraft to move past another aircraft.

passage /ˈpɑːsɪdʒ/ noun 1. movement over, along, or through something. The passage of air over a turbine is used to power a small emergency generator. The passage of a trough is marked by a sharp veer in the wind.

2. a channel through which something can pass. Liquid cooling is achieved by circulating a liquid around the cylinder barrels, through a passage formed by a jacket on the outside.

3. a book or speech, etc. A passage from a training manual.

passenger /ˈpɑːsɪndʒər/ noun a person who travels in an aircraft, car, train, etc., and has no part in the operation of it. The Piper Archer has seating for a pilot and three passengers.

passenger aircraft /ˈpɑːsɪndʒər eəkrɪfr/ noun an aircraft specially designed for carrying people.

passive /ˈpɑːsɪv/ adjective receiving an action but taking no action. In primary radar systems, the target is passive. A passive state referring to a system or device which may be switched on or ‘live’ but not reacting to any input. Opposite active.

pass-mark /ˈpɑːsmɑːrk/ noun the mark which separates those who fail and those who pass an examination.

passport control /ˈpɑːspɔːt kənˈtrəʊl/ noun 1. the action of checking passports of people arriving in or leaving a country. We now have to go through passport control.

2. the place where passports are checked when people arrive in or leave a country. At
passport control, a customs official checks passports.

patch /ˈpætʃ/ noun a small area o a patch of fog o a patch of cloud o Patches of early morning fog made identification of ground features difficult.

path /ˈpaθ/ noun a route or course along which something moves o Projection of the path of the aircraft over the ground is called its track.

pattern /ˈpætərən/ noun a form or method which shows particular, consistent characteristics o pressure pattern changes in pressure areas which take place regularly, e.g. every year

pavement /ˈpɑːvəmənt/ noun a prepared concrete or tarmac surface for ground manoeuvring of aircraft, including taxiways and runways ( NOTE: The bearing strengths of pavements intended for aircraft of 5,700 kg MTWA (maximum total weight authorised) or less are reported as the maximum allowable weight and maximum allowable tyre pressure. )

pavement classification number /ˈpɑːvəmənt ˈklɑːsɪfɪkeɪʃn ˈnʌmbər/ noun a number expressing the bearing strength of a pavement for unrestricted operations. Abbreviation PCN

PAX abbreviation passengers

payload /ˈpɛləʊd/ noun the money-earning load carried by the aircraft including the passengers, baggage and freight o The shape of an aircraft is determined by the requirement to provide an aerodynamic lift force great enough to support the weight of the aircraft and payload whilst in flight.

PCN abbreviation pavement classification number

PDC abbreviation pre-departure clearance

peak /ˈpiːk/ noun the highest point o The intensity of solar radiation reaches a peak around noon. o peak value maximum value

PED abbreviation portable electronic device

pedal /ˈped(ə)l/ noun a foot-operated lever

penalty /ˈpɛnəlti/ noun 1. an unwanted result of an action o The penalty of using a circular polarisation transmission may be some loss of definition. 2. a punishment or fine o Fuel penalties can be incurred if fuel surplus to requirements is carried.

penetrant /ˈpɛnətremt/ noun something which forces or gets entry into an area or substance o Penetrant dye inspection is a non-destructive test used mainly for the detection of defects open to the surface. o Penetrant oil can be used to loosen rusty bolts, etc.

penetrate /ˈpɛnətret/ verb to force a way into o Cool air from the Atlantic can sometimes penetrate far into Europe. o Occasionally, thunder cloud will penetrate through the tropopause.

penetration /ˌpɛnəˈtreɪʃn/ noun the act of forcing a way into or through o Long-range radars are little affected by weather interference and have good cloud penetration characteristics.

per /pɜːr, pər/ preposition for each, for every o feet per minute (fpm) o gallons per hour (gph)

per cent /ˈpɜːr ˈsɛnt/ noun the number out of each hundred o fifty per cent (50%) half or ½ or 50 out of 100 o twenty-five per cent (25%) one quarter or ¼ or 25 out of 100

percentage /ˈpɜːrəntɪdʒ/ noun 1. a fraction with 100 as the understood denominator o Volumetric efficiency is usually expressed as a percentage. 2. part of the total o Only a small percentage of passengers take in the pre-departure safety briefing.

perform /pɜːrˈfɔːm/ verb to do o Circuit breakers perform the same function as a fuse. o The pilot performed a loop to conclude his flying display.

performance /pɜːrˈfɔːrəns/ noun the ability of a system such as an aircraft or an engine to function as required o The performance of the turbojet engine is measured in thrust produced at the propelling nozzle or nozzles.

period /ˈpɜːriəd/ noun a length of time o a 24 hour period o a period of 3 minutes
periodic maintenance is made at a particular time interval. Periodic calibration of ILS (instrument landing system) installations is recommended.

Permit to Fly

A passenger who has a certificate issued by the Civil Aviation Authority in the UK for aircraft which do not qualify for a Certificate of Airworthiness

perpendicular

passing to the operations department will be sufficient to permit the flight to be planned.

Permit to Fly

To fly a document or pass that is proof of official permission to do or have something. You need a permit to enter the restricted area.

phase

An emergency situation may occur during any phase of the flight.

phase angle

The difference between two periodic phenomena expressed as an angle.

phase difference

a measure of phase angle from any VOR radial related to that on bearing 360°.

phenomenon

an occurrence or circumstance which can be perceived by the senses. Metal fatigue is not a modern phenomenon. Of all meteorological phenomena, thunderstorms present the greatest hazard to aviation. (Note: The plural form is phenomena.)

photographic film

a celluloid material usually contained in a small metal cylindrical casing for use in cameras

physical

referring to matter and energy or the sciences dealing with them, especially physics. Oxygen and nitrogen together constitute 99% of the atmosphere and

Oxygen and nitrogen together constitute 99% of the atmosphere and
obey the physical laws as any other gas.
2. referring to the human body ○ In some aircraft operating for long periods at high altitudes, physical discomfort may arise from low relative humidity. ○ physical fitness the state of health of the body

PIC abbreviation pilot in command

piece /piːs/ noun 1. a bit, portion or part ○ The upper and lower skin panel of each wing can be made in one piece. (NOTE: Piece is often used to show one item of something which has no plural: a piece of equipment, a piece of information.) ○ piece of equipment an item of equipment ○ Early rescue depends on rapid location of survivors and the survival beacon is the most important piece of equipment in this regard.

pilot /ˈplaɪət/ noun 1. a person who operates an aircraft in flight 2. the part of a system or device that leads the whole ○ verb to operate or guide ○ to pilot an aircraft

COMMENT: A pilot holding a private or commercial pilot's licence may log as pilot-in-command time only the flight time during which he or she is the only operator of the aircraft's flying controls.

pilot in command /ˈplaɪət ɪn kəˈmɑnd/ noun the pilot who has responsibility for the operation and safety of the aircraft during flight time. Abbreviation PIC

Pilot’s Operating Handbook /ˈplaɪət ˈɒpəreɪtɪŋ hændbʊk/ noun a book giving details of an aircraft with recommendations and instructions regarding its use. Abbreviation POH

pin /pɪn/ noun a short, usually cylindrical metal rod

pinpoint /ˈpɪnpɔɪnt/ noun a visual observation of the precise position of an aircraft ○ The pinpoint is a very positive means of establishing position, as long as the feature is properly identified. ○ verb to draw attention to ○ to pinpoint a problem

pipe /paɪp/ noun a hollow cylinder or tube to convey a fluid ○ a delivery pipe ○ an exhaust pipe

pipeline /ˈpaɪplɪn/ noun a long hollow cylinder or tube to convey a fluid such as oil or natural gas ○ The incompressibility of liquids enables force to be transmitted long distances through pipelines.

piston /ˈpɪstən/ noun a solid cylinder that fits into a larger cylinder and moves under fluid pressure, as in petrol and diesel engines or compresses fluids, as in pumps and compressors

piston engine /ˈpɪstən ˈɛndʒɪn/ noun a petrol or diesel engine in which pistons are moved by combustion of fuel, this reciprocating movement producing rotating movement

piston ring /ˈpɪstən rɪŋ/ noun one of the metal rings which seals the space between the piston and the cylinder wall ○ There should be a loose fit between the cylinder and the piston, the difference being taken up by the piston rings.

pitch /pɪtʃ/ noun 1. a nose up/down movement of the aircraft about its lateral axis ○ If the control column is moved forward or aft, the pitch attitude of the aircraft changes. 2. the distance a propeller would advance in one rotation if there was no slip ○ fine pitch setting and coarse pitch setting angular propeller-blade settings ○ Variable pitch propellers were originally produced with two blade-angle settings – fine pitch to enable full engine speed to be used on take off and coarse pitch to allow an economical engine speed to be used for cruising. ○ verb to move about the lateral axis ○ Move the yoke fore and aft to pitch down and up.

pitch angle /ˈpɪtʃ əˈŋɡəl/ noun the angle between the blade element chord line and the plane of rotation of the propeller

pitch lock /ˈpɪtʃ ˈlɒk/ noun a means of holding the fine pitch stop in a prescribed position (NOTE: Some manufacturers use the term to describe a device which locks the blades at whatever angle they are at if there is a failure of the pitch change mechanism.)

pitch trim /ˈpɪtʃ ˈtrɪm/ noun the trim of the aircraft in the lateral axis so that
pitot head 172

there are no forward/aft forces on the control stick or yoke.

**pitot head** /ˈpiːtəʊ hɛd/ noun an externally mounted device which senses and sends airspeed information to the airspeed indicator in the cockpit.

**pitot-static system** /ˈpiːtəʊ ˈstætɪk, ˈsɪstəm/ noun a pressure system for the airspeed indicator, altimeter and vertical speed indicator.

**pitot tube** /ˈpiːtəʊ tjuːb/ Pitot tube noun an open-ended tube used to measure the speed of flow of a fluid or device to sense pitot pressure created by the movement of air over the aircraft.

**pivot** /ˈpiːvət/ noun a short rod on which another part rotates or verb to turn on a point or The rocker arm pivots on a bearing and opens the valve.

**place** /pleɪs/ noun 1. a space or area or Greenwich is a place on the 0° meridian. 2. a position or decimal place 3. in place of instead of or to take place to happen or The explosion took place just before the aircraft landed. or verb to put or Place the chart on the seat next to you. or Rotate the grid to place the wind direction under true.

**plain** /pleɪn/ adjective without pattern or marking or writing or a plain sheet of paper a sheet of paper with nothing on it.

**plan** /plæn/ noun 1. a drawing or diagram of a place viewed from above or The horizontal situation indicator presents a selectable dynamic colour display of flight progress and plan view orientation. 2. a scheme or programme worked out in advance of putting something into operation or verb to organise a scheme or programme or Jeppesen charts are used to plan and fly a safe route to a destination.

**plane** /pleɪn/ noun 1. an imaginary surface containing all the straight lines that connect any two points on it or The planes of parallels of latitude are parallel to the plane of the equator. or The pitch angle is the angle between the blade element chord line and the plane of rotation of the propeller. 2. an airplane (note: Because of possible confusion with meaning 1, plane as in meaning 2 is considered bad usage by some. The word aircraft is preferred in that case.)

**planning** /ˈplænɪŋ/ noun making plans or The instructor gave a talk on flight planning.

**plan position indicator** /ˈplæn po ˈzɪf(ə)n ɪndikətər/ noun the normal type of display for a radar signal, which resembles a map with the radar site at the centre.

**plant** /plɔnt/ noun large and usually heavy equipment or tools used for doing something.

**plate** /pleɪt/ noun a smooth, flat rigid object with the same thickness all over or The basic construction of a lead-acid cell consists of a positive electrode and negative electrode, each of which is made up of lead-antimony alloy grid plates.

**play** /pleɪ/ noun a slightly loose fitting of engineering parts which allows them to move freely or Some play should be felt in the aileron actuator rod linkage. or verb to play a part or to be part of a whole which has an effect on something or Contrast and colour play a part in identifying coastlines.

**plot** /plot/ noun a graph or diagram that shows a relationship between two sets of numbers as a series of points joined by a line or a plot of applied stress and resulting strain or verb to calculate and mark a line on a graph or chart, etc. or to plot a course to calculate and draw the desired route of an aircraft on a chart.

**plug** /plʌɡ/ noun 1. a device for making an electrical connection or Alternating current ground power can be fitted to an aircraft via a six-pin ground power plug. or a 3-pin plug an electrical supply plug with three electrodes: live, neutral and earth. 2. a device for igniting fuel in an engine or An electric spark from an igniter plug starts combustion. or The fuel/air mixture is ignited by a spark plug. 3. a device to prevent liquid flowing out of a container or oil drain plug or spark plug or verb 1. to plug a hole to fill a hole so that fluid cannot escape or 2. to plug something in to
make an electrical connection, often by inserting the plug on an electrical device such as a computer into an electrical supply socket
plunger /ˈplʌndʒə/ noun a machine part that operates with a thrusting or plunging movement, e.g. a piston ○ A flow indicator valve comprises a body, a spring-loaded plunger connected to an actuator arm, and a micro-switch.
plus /plʌs/ preposition increased, added to ○ At the selected decision height plus 50 feet, an aural alert chime sounds. ○ Four plus four equals eight (4 + 4 = 8).

PMS /piːˈɛs/ abbreviation performance management system
pneumatic /ˈnjuːmætɪk/ adjective operating by means of air under pressure or compressed air ○ High-pressure pneumatic systems are generally fitted on the older types of piston-engine aircraft to operate the landing gear, wing flaps, wheel brakes.

pneumatically /ˈnjuːmætɪkli/ adverb by using air under pressure or compressed air ○ Clamshell doors are hydraulically or pneumatically opened.
PNR abbreviation point of no return
POH abbreviation Pilot’s Operating Handbook
point /poʊnt/ noun 1. a particular figure on a scale ○ The melting point of ice is 0°C (Celsius), 2. a particular place ○ a point on a map a particular place on a map 3. the sharp end of something ○ a pencil point ○ Point the aircraft towards the airfield. 2. to indicate direction, often with a finger ○ point to the east 3. ○ to point out to draw attention to ○ The instructor pointed out the dangers of not keeping a good lookout.
pointer /ˈpɔɪntə/ noun an indicating device on an instrument, e.g. a needle ○ The pointer centralises to indicate that the aircraft is aligned with the runway centre line.

point of no return /ˈpɔɪnt əv nɔʊ riŋ/ noun a place on the route where the aircraft does not have enough fuel to return to the starting place ○ The point of no return is calculated before departure to cover the chance that both the terminal airfield and its alternate become unavailable during flight. Abbreviation PNR
polar /ˈpɔʊlər/ adjective 1. located in or coming from the region around the north or south pole ○ polar air ○ a polar region ○ The greatest horizontal gradients of mean temperatures of a layer are found at the boundaries between cold polar and warm tropical air masses. 2. referring to the pole or poles of an electrical device or of a magnet ○ Bar magnets attract each other because of polar differences.
polar diameter /ˈpɔlər daɪəˈmɛtər/ noun the distance from one pole, passing through the centre of the Earth, to the other pole ○ The Earth’s polar diameter is shorter than its average equatorial diameter.
polar ice cap /ˈpɔlər ˈaɪs ˈkeɪp/ noun the permanent area of ice at north or south pole
polarisation /ˌpɔlərəˈzaʃən/, polarization noun 1. a characteristic of light or radio or other electromagnetic waves in which the waves are aligned in one direction and show different properties in different directions ○ The antenna must have the same effective length and the same polarisation as the transmitter. 2. partial or complete polar separation of positive and negative electric charge
polarise /ˈpɔləraɪzə/, polarize verb 1. to align in one plane ○ The frequency allocation for VOR (very high frequency omni-directional radio range) is 108–117.975 MHz (megahertz) and transmissions are horizontally polarised. 2. to separate positive and negative electric charges
polarity /ˈpɔlərətɪ/ noun the direction of flow of flux or current in an object ○ During discharge, when the
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polarity of the supply changes, the stored energy is returned to the supply. • polarity test a test to see which terminal is positive and which is negative.

pole /pɔl/ noun 1. the north or south point of the Earth’s axis • A meridian is a line joining pole to pole. 2. a terminal, e.g. of a battery • negative pole • positive pole 3. a long, rounded piece of wood or metal • a flag pole.

pollution /pəljuʃn/ noun the presence of unusually high concentrations of harmful substances in the environment.

pontoon /pəntu:n/ noun same as float.

poor /pɔr/ adjective bad • poor weather conditions • poor visibility • Air is a poor conductor.

poppet valve /ˈpɒpet vælv/ noun an intake or exhaust valve of a piston engine, operated by springs and cams.

porous /ˈpɔrəs/ adjective referring to substances which allow fluid to pass through them • The de-icing fluid passes through a porous plastic sheet.

port /pɔrt/ noun 1. an entrance which is opened periodically • inlet port • As a piston in the pump moves outwards into its cylinder, it covers the inlet port and forces fluid out of the top of the cylinder. 2. the left-hand side of an aircraft when facing forwards when inside the aircraft • Unless an aircraft is flying in the same or exactly opposite direction to the wind, it will experience either port or starboard drift. Opposite starboard.

portable /ˈpɔrtəbəl/ adjective capable of being carried in the hands • a portable fire extinguisher • The aneroid barometer is a more portable device than a mercury barometer.

portable electronic device /ˈpɔrtəbəl ˌelektrənɪk dɪˈvɑːs/ noun a piece of electronic equipment such as a mobile phone or laptop which is small enough to be carried onboard an aircraft, and which may cause problems with the aircraft’s systems during flight. Abbreviation PED.

portion /ˈpɔʃn/ noun a part or section • A hailstone starts as a small ice particle in the upper portion of a cumulus cloud.

position /ˈpəzɪʃn/ noun 1. a place or location where something is • The Greenwich or prime meridian and the equator are the axes of the system called latitude and longitude which is used for expressing position on the Earth. 2. the setting of a control, etc. • the neutral position 3. in a sitting position

seat • verb to place something in a special location • The magnetic compass is positioned away from magnetic sources.

position line /ˈpəzɪʃn lайн/ noun a line along which an aircraft is known to be at a particular time, usually by taking a VOR bearing. Also called line of position, navigational line.

position report /ˈpəzɪʃn ri,ˈpɔrt/ noun a report over a known location as transmitted by an aircraft to an air traffic control station.

positive /ˈpɔzɪtɪv/ adjective 1. definite, without doubt • The pinpoint is a very positive means of establishing aircraft position. 2. referring to a number greater than zero • Oil is ducted to the front of the pitch change piston and the blades move to a positive angle. 3. referring to the + symbol • positive terminal the terminal of a battery marked +.

positive idling speed /ˈpɔzɪtɪv ˈaɪdlɪŋ spɪd/ noun idling speed selected with the throttle to ensure that the engine runs correctly without spark plug fouling • An adjustable stop on the throttle control ensures a positive idling speed.

possibility /ˈpɔsəbləti/ noun a chance occurrence • Anti-braking systems are designed to prevent the wheels from locking during landing thus reducing the possibility of wheel skid.

possible /ˈpɔsəbl/ adjective capable of happening • If possible, control surfaces should be moved by hand. • There will be a possible delay. • Fire in a toilet could present difficulties due to the confined space and possible smoke accumulation.
potential /pəˈtenʃəl/ adjective capable of being, but not yet in existence. A designated fire zone is a region where a potential fire risk may exist.

danger /ˈdeɪndʒər/ noun possible future danger.

precipitation /prɪˈspiːtʃəˈeɪʃən/ noun static electricity that results from friction between the aircraft surfaces and precipitation causing the aircraft to become charged to a high potential.

powder /ˈpaʊdər/ noun a substance made of ground or otherwise finely dispersed solid particles. Dry chemical fire-extinguishers contain a non-toxic powder.

power /ˈpaʊər/ noun energy or force necessary to move something, especially such as a type of energy or motor. System powered by electricity.

power line /ˈpaʊər laɪn/ noun a thick cable, supported by pylons, which carries electricity for long distances.

power plant /ˈpaʊər plænt/ noun an engine used to move a vehicle or aircraft. Additional strength is required for the powerplant attachment point.

power supply /ˈpaʊər səˈplʌi/ noun an electrical circuit that provides particular direct current voltage and current levels from an alternating current source for use in other electrical circuits. If the power supply from the amplifier to the gauge fails, the needle slowly falls to zero.

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precise

precise /prɪˈsɪzd/ adjective exact or accurate. A pinpoint is an indication of the precise position of the aircraft. A precise interval is essential to obtain correct ignition timing on all cylinders during engine running.

precision /prɪˈsɪʒ(ə)n/ noun exactness or accuracy. Precision flying is only achieved by constant practice.

precision approach path indicator /prɪˈsɪʒ(ə)n ˈprɛətʃəp ˈpatədɪkærɪtə/ noun a set of lights that enables pilots to judge whether their glide slope is correct on the final approach to landing.

precision approach radar /prɪˈsɪʒ(ə)n ˈprɛətʃəp ˈrɛrədə/ noun a ground-based primary radar system to give vertical and lateral information about an aircraft’s final approach path. Abbreviation PAR

precision area navigation /prɪˈsɪʒ(ə)n əˈrɪəˌnɛvərˈeɪʃ(ə)n/ noun a standard of performance for navigation that requires an aircraft to remain within 1 nautical mile of the centreline of its course for 95% of the time. Abbreviation PRNAV

pre-departure /priˈdiːpɔːtʃə/ adjective taking place before a departure. Only a few passengers absorb the pre-departure safety information.

pre-departure clearance /priˈdiːpɔːtʃərˈklɔːrəns/ noun a message that the pilot must receive from air traffic control before the plane is allowed to take off.

predetermine /prɪˈdɛtəmən/ verb to decide and set or fix beforehand.

predetermined /prɪˈdɛtəmənd/ adjective decided and set beforehand.

predict /prɪˈdɛkt/ verb to foretell or to say beforehand. Rain is predicted within the next hour. Dead reckoning position is the position of the aircraft as predicted by calculation.

predictable /prɪˈdɛktəb(ə)l/ adjective 1. reliably regular and therefore foreseeable. Only the high frequency band has predictable, reliable sky wave propagation by day and by night. 2. capable of being foreseen, expected or anticipated. The accident was predictable. It was possible to know that the accident would happen before it happened.

prediction /prɪˈdɛkʃən/ noun the act of saying what will happen in the future. The map display combines current ground speed and lateral acceleration into a prediction of the path over the ground to be followed over the next 30, 60 and 90 seconds.

predominance /prɪˈdɒməns/ noun greatest importance or influence. The predominance of a cold northerly airstream during the winter months.

predominant /prɪˈdɒmənt/ adjective most important or influential. More powerful than others. The ocean surface usually consists of a predominant...
swell three or four feet high and 500 to 1,000 feet between crests.

predominate /prɪˈdɒmɪneɪt/ verb to have greater number or importance, or to be more powerful than others ○ A cold northerly airstream predominates during the winter months.

prefer /prɪˈfɜːr/ verb to like more, to favour ○ Of the two basic types of fuel pump, where lower pressures are required at the burners, the gear-type pump, where lower pressures are preferable, is preferred because of its lightness. (NOTE: preferring – preferred).

preferable /prɪˈfɜːrəbl/ adjective better than, more desirable ○ For some applications, e.g. landing gear and flaps, hydraulic systems are used in preference to mechanical or electrical systems.

prefix /ˈprɪfiks/ noun part of a word added at the beginning of a word to alter the meaning. ○ Pre- is a prefix meaning 'before'. (NOTE: The plural form is prefixes.)

COMMENT: The prefixes for cloud types are: alto- medium level cloud (6,500 feet to 23,000 feet); cirro- high cloud (16,500 feet to above); nimbo- any height, but rain-bearing as for example nimbostratus: rain carrying, low-level cloud; strato- low cloud (up to 6,500 feet).

pre-flight /ˌprɪ.fliːt/ adjective taking place before a flight ○ pre-flight briefing a short instructional talk before a flight ○ pre-flight checks checks made on the aircraft structure and systems before taking off ○ During pre-flight checks, control surfaces should be moved by hand to ascertain that they have full and free movement. ○ noun the set of procedures and checks that pilots and ground crew must carry out before an aircraft takes off ○ verb to inspect an aircraft before it takes off to ensure that it is airworthy.

pre-ignition /ˌprɪsɪɡˈnɪʃ(ə)n/ noun the ignition of the fuel/air mixture in the combustion chamber, occurring before the spark. ○ Pre-ignition is often caused by a hot spot in the combustion chamber which ignites the mixture.

preparation /ˌprɛpreɪˈʃ(ə)n/ noun a state of readiness or act of making something ready for use beforehand ○ Normal aircraft preparation are actions and precautions taken by the cabin crew on every flight to ready the aircraft for any abnormal or emergency situation which may occur during any phase of the flight.

prepare /prɪˈpeər/ verb 1. to make ready beforehand for a particular purpose, as for an event or occasion ○ The instructor prepared the students for the exams. ○ prepare for take-off to get ready for take-off 2. to make by putting various elements or ingredients together ○ Regional area forecasting centres use information about upper wind speeds and temperatures to prepare specific forecasts and significant weather charts.

prescribe /prɪˈskraɪb/ verb to set down as a rule or a guide ○ prescribed procedures a set or fixed pattern of doing something ○ A means of holding the fine pitch stop in a prescribed position is also called 'pitch lock'.

pre-select /ˌprɪsɪˈlekt/ verb to select or to choose in advance.

pre-selected /ˌprɪsɪˈlektəd/ adjective selected or chosen in advance ○ The CSU (constant speed unit) maintains the pre-selected propeller speed.

presence /prɪˈz(ə)n/ noun existence ○ The presence of cloud by day decreases the value of the maximum temperatures. ○ A fuel sample hazy or cloudy in appearance would indicate the presence of water.

present /ˈprɛz(ə)n/ adjective 1. in place, existing ○ Fuel, oxygen and heat must all be present for fire to exist. 2. the period in time through which we are now living, between the past and the future ○ at the present time at this time, now ○ present day aircraft modern aircraft ○ present weather the weather at the moment of speaking ○ verb/prez/ˈzent/ 1. to create or to make ○ A fire in a toilet could present difficul-
presentation noun showing, a display. The most widely acceptable presentation of flight fuel data is in a tabular form.

presently adverb 1. soon I’ll be there presently, 2. US now, at the present time he’s presently in France.

preset verb to set in advance, a switch which is activated when a number of different frequencies are currently in use.

press verb to push or exert pressure on or to press to test/talk (PTT) button Press the button.

pressure noun force applied uniformly over a surface, measured as force per unit of area. pressure exerted by fuel as it is pumped from the tanks to the engine pressure difference across the filter element. absolute pressure.

pressure differential noun the act of increasing the air pressure inside a space, e.g. an aircraft cabin, so that it feels normal for the occupants when the outside air pressure decreases.

pressurise verb to increase the pressure of. When air pressure is used to transfer fuel, it will be necessary to pressurise the fuel tanks.

pressurisation noun the act of pressurising an instrument on the hydraulic panel which electrically indicates pressure on a switch which is activated when a number of different frequencies are currently in use a number of methods are presently in use.

pressure relay noun a component which transmits fluid pressure to a direct reading pressure gauge, or to a pressure transmitter which electrically indicates pressure on an instrument on the hydraulic panel.

primary flight instruments noun the six instruments displayed on the instrument panel immediately in front of the pilot: airspeed indicator, attitude indicator, altimeter, turn coor-
normally necessary to prime the engine. After the first flight of the day, it is not urgent in the circumstances. PRNAV abbreviation precision area navigation. Probability /prəˈblɪtɪ/ noun likelihood, the chance of occurrence. The probability of aquaplaning increases as the depth of tyre tread decreases. Probable /prəbəbəl/ adjective likely, most possible. Pilot error was the probable cause of the accident. Probe /prɔʊb/ noun a metal sensing device. Ice is allowed to accumulate on a probe which projects into the airstream. Procedural /prəˈsidʒərəl/ adjective referring to procedure procedural approach /prəˈsidʒərəl əˈprɒk/ noun a specific approach made often after procedure turns as part of timed, accurately flown flight pattern to prepare for a landing at a particular aerodrome. It is important that the integrity of an aid used to conduct procedural approaches is high. Procedure /prəˈsidʒər/ noun 1. a series of actions taken to achieve something. 2. An emergency procedure. The process by which aircraft are brought into position for an instrument approach and landing. Procedure turn /prəˈsidʒər tuːrn/ noun a turn made at 3° per second to align the aircraft with the runway. Process /ˈprɔses/ noun a series of actions or changes which achieve a particular result. Production /prəˈdʒʌs/ verb 1. to create. Low altostratus clouds often produce rain. 2. To make or to manufacture. Most light aircraft are produced in the United States. 3. To show. The pilot must produce her licence to the authorities within two weeks. Product /ˈprɔdʌkt/ noun 1. something created or made by human or natural methods. 2. Carbon monoxide is a product of the combustion process. 3. The amount of power produced in a purely resistive...
3. Stress analysis is always carried out.

The load imposed on it and in order to determine such loads a programme of procedures to be followed may require the production of a certificate of airworthiness.

Profile is an outline or shape of something, seen from a side view. The de-icing panels are formed to the profiles of the wing and tail unit leading edges into which they are fitted.

The handbook gives a short profile of the different aircraft types.

1. Noun. A chart which predicts the weather for a given area. Prognostic or forecast charts are prepared, by the central meteorological office of each region, normally for periods up to 24 hours ahead. Also called forecast chart.

Programme is the schedule of events to take place or procedures to be followed. Every part of the aircraft must be designed to carry the load imposed on it in order to determine such loads a programme of stress analysis is always carried out.

Progress is movement towards an end or aim. The movement of an aircraft in flight.

Progression is a continuous series or sequence. The instruments are checked in logical progression from left to right.

Progressive is an adjective. Throttle movements should be kept to a minimum and be smooth and progressive.

production /prəˈdəkʃən/ noun 1. The movement of air over the aerofoil is necessary for the production of lift. 2. The process of manufacturing something. Production of aircraft in the factory came to a stop in 1974.

programme /ˈprɒdʒəkər/ noun 1. The act of showing or making known through official means. The instructor projected a diagram of the fuel system onto the screen.

project noun /ˈprɒdʒekt/ a large-scale plan or scheme. A project to modernise the airport.

pronounce /prəˈnaʊnst/ adjective noticeable or marked. Turbulence caused by convection is more pronounced over paved surfaces than over forest or grassy terrain.

propel /prəˈpel/ verb to cause to move. Fronts are propelled by the wind behind them.

propeller /prəˈpɛlə/ noun a rotating shaft with blades which, together with the engine, moves an aircraft through the air.

propeller blade /prəˈpɛlə bled/ noun one of the elements of a propeller which generate lift when the unit is turning.
**propeller pitch** /ˈprɑːpələr pɪtʃ/ noun the distance a propeller would advance in one rotation if there was no slip

**propeller tip** /ˈprɑːpələr tɪp/ noun the part of the blade of a propeller furthest from the central hub

**propelling nozzle** /ˈprɑːpɛlnɔʊzəl/ noun the extreme rear part of the jet engine where the jet exhaust enters the atmosphere

**properly** /ˈproʊpəlɪ/ adverb correctly ○ When the chart is properly orientated, it is easier to compare distance between landmarks. ○ The pinpoint is a very positive means of establishing position, as long as the feature is properly identified.

**property** /ˈprɒprəti/ noun 1. a characteristic or quality ○ Mass is a basic property of matter. ○ One of the properties of mercury is that it is liquid at room temperature. 2. the things that somebody owns, possessions ○ personal property things belonging to a particular person

**propjet** /ˈprɒprədʒet/ noun same as turbojet

**proportion** /ˈprəprəʃən/ noun 1. part of the whole compared with another part ○ Only a small proportion of passengers absorb the pre-departure safety information. 2. in proportion to directly related to ○ The force required to move the control column is in proportion to the force being exerted by the control surface.

**proportional** /ˈprəprəʃənal/ adjective 1. comparable 2. related ○ (directly) proportional directly related ○ The wind blows along contours with low values on the left, and the speed is directly proportional to the contour gradient. ○ inversely proportional so that as one thing increases and another decreases by the same amount ○ Temperature is inversely proportional to altitude. ○ The magnitude of the pressure gradient force is inversely proportional to the distance apart from the isobars.

**propulsion** /ˈprɔpəlnʃən/ noun an act or instance of pushing or driving forwards (NOTE: The verb is to propel.)

**propulsive** /ˈprɔpəlsɪv/ adjective pushing or driving ○ The propeller is a means of converting engine power into a propulsive force called thrust. (NOTE: The verb is to propel.)

**propulsive power** /ˈprɔpəlsɪv pərəus/ noun the power needed to produce thrust

**protect** /ˈprɔtek(t)/ verb to keep from harm, injury or damage ○ Gloves are worn to protect the hands in the event of a fire.

**protection** /ˈprɔtekʃən/ noun the act of keeping something from harm, injury or damage ○ Bush bars are insulated from the main structure and are normally provided with some form of protective covering.

**protrude** /ˈprɔtrud/ verb to extend above a surface ○ Prominent mountains frequently protrude above low-lying cloud and mist.

**protrusion** /ˈprɔtrʌʒən/ noun something which protrudes or extends above a surface ○ When it has been necessary to physically remove a layer of snow, all protrusions and vents should be examined for signs of damage.

**prove** /pruːv/ verb 1. to show that something is true ○ The pilot proved that she was not at fault. 2. to be found to be, to be discovered to be (NOTE: proving – proved – has proved ○ to prove useful to be discovered as useful by experience ○ dry chemical extinguishers are used primarily for electrical fires and have also proved effective on liquid fires it was discovered that, although these extinguishers were designed for electrical fires, they were good at putting out liquid fires such as petrol fires

**provide** /prəˈvaɪd/ verb to supply or to give ○ Radio altimeters provide a continuous indication of height above the surface immediately below the aircraft up to a maximum of 5,000 feet. ○ Flight crews are frequently provided
provision /prəˈvɪʒ(ə)n/ noun 1. providing something, or what is provided o The provision of fresh air is important for passengers’ comfort. o Catering companies are responsible for the provision of food. o There is a generator for the provision of emergency power. o The oil tank has provision for filling and draining. 2, a legal statement which provides for something such as particular circumstances

psychological stress /ˌsaɪkəlɒdʒɪk(ə)r/ noun 1. stress, a mental or emotionally upsetting condition which affects one’s health

public /ˈpʌblɪk/ noun people in general o adjective referring to the people in general

publication /ˈpʌblɪkjuʃ(ə)n/ noun 1. the act of making something public, publishing o the publication of the latest figures 2, a book, magazine, chart, etc., which has been published o The book is a Civil Aviation Authority publication

public relations /ˈpʌblɪk rəˈleɪʃ(ə)nz/ noun the task of maintaining good relations with the public. Public relations may also involve putting across a point of view or publicising a product. o The arrangements for the VIPs are being handled by the public relations department. Abbreviation PR

publish /ˈpʌblɪʃ/ verb to prepare and issue a book, magazine, chart, etc., and sell or distribute it to the public o All known air navigation obstructions in the UK are published in the Air Pilot.
pull out /pʊl ‘ɒut/ verb to stop a dive in an aircraft and return to level flight

purple /ˈpɜːpl/ noun 1. heat energy to mechanical energy. 2, a colour of the spectrum between red and blue

purple airway /ˈpɜːpləˈeərweɪ/ noun an area of temporarily controlled airspace, established to provide special protection to Royal flights in fixed-wing aircraft, in which additional rules for air traffic apply at all times and in all weathers

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pump /pʌmp/ noun a device with rotary or reciprocating action which is used to move fluids along pipes or for compressing fluids. o verb to move or compress a fluid by means of a pump o Fuel is pumped from the tanks to the carburetor.

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purpose /ˈpɜːps/ noun 1. function o The purpose of the engine is to convert heat energy to mechanical energy. 2, a use o For practical purposes, any straight line drawn on a Lambert’s chart represents a great circle. o gen-
**pyrotechnic**

**eral purpose** for all-round or general use

**push-back** /puʃ bæk/ **noun** the process of pushing a plane out from its parked position using a special vehicle

**pushrod** /pʊʃrɒd/ **noun** a steel or aluminium rod which moves the rocker arm. *(Note: The pushrod is part of the valve mechanism.)*

**pylon** /ˈpaɪlən/ **noun** 1. a structure on the wing of an aircraft to support an engine *(Note: Most modern jet passenger transport aircraft have pylon-mounted engines.)* 2. a tall metal structure built to support electricity or telephone cables. *(Note: Electricity pylons are difficult to see from the air so pilots of light aircraft should be particularly careful to note their positions.)*

**pyrotechnic** /ˌpaɪroʊˈtɛknɪk/ **adjective** of or relating to fireworks

**pyrotechnic lights** lights created by rockets or flares
Q-code /ˈkjuː kɑːd/ noun an international telegraph code which is now used in RTF operations

QDM noun in the Q-code system, the magnetic bearing to a direction-finding station

QFE noun in the Q-code system, the atmospheric pressure at aerodrome level

QFI abbreviation qualified flying instructor

QNE noun in the Q-code system, the altimeter setting for flight level reading, 1013.25 mb

QNH noun in the Q-code system, the atmospheric pressure at mean sea level

QNH datum /ˈkjuː en ˈeɪtʃ ˌdeɪtəm/ noun the barometric level from which altitude is measured

QTE noun in the Q-code system, the true bearing from a direction-finding station

quadrant /ˈkwədənt/ noun 1. a device shaped like a quarter of a circle 2. a quadrant with a device preventing a lever from being moved to an incorrect setting 3. the part of a circle centred on a navigational aid

COMMENT: NE quadrant = 000° – 089°; SE quadrant = 090° – 179°; SW quadrant = 180° – 269°; NW quadrant = 270° – 359°.

quadrantal /ˈkwədəntəl/ adjective referring to a quadrant or to a quarter of a circle

radio signal error caused by the metal structure of the receiving aircraft

quadrantal height flight levels in each of the compass quadrants designed to provide safe separation for aircraft heading towards each other

qualified /ˈkwəlɪfɪd/ adjective having gained a certificate after having completed a specialised course of study

qualified flying instructor /ˈkwəlɪfɪd fɪˈlɪŋ ɪnˈstrækta/ noun a pilot with an instructor’s rating. Abbreviation QFI

qualify /ˈkwəlɪfɪ/ verb 1. to add reservations or modify an earlier statement to make it less absolute 2. to study for and obtain a diploma which allows to do a particular type of work

He qualified as an engineer in 1996.

quality /ˈkwɒləti/ noun the amount of excellence of something

Satisfactory ignition depends on the quality of the fuel.

quantity /ˈkwɒntəti/ noun the size, extent, weight, amount or number of something

A small quantity of illegal drug was found in the passenger’s bag.

quarter /ˈkwɔːtər/ noun one fourth of something

The fuel tank is only a quarter full.

QUJ noun in the Q-code system, the true track to reach a destination
radar /ˈrædər/ noun a method of detecting distant objects and establishing their position, velocity, or other characteristics by analysis of very high frequency radio waves reflected from their surfaces

radar advisory service /ˌrædər əˈvaɪzərɪd əˌsɜːvɪs/ noun an air traffic radar service which gives pilots advice on actions necessary to ensure that they remain at a standard distance from other aircraft that are also receiving the service. Abbreviation RAS

radar beam /ˈrædər bɛm/ noun a shaft of radar waves directed towards a distant point

radar information service /ˌrædər ɪnˈfərəmʃən əˌsɜːvɪs/ noun an air traffic radar service which gives pilots details of the positions, distances and levels of other aircraft to enable them to decide on any avoiding action which may be appropriate. Abbreviation RIS (NOTE: An RIS is often provided when it is not possible or practical to provide an RAS.)

radar screen /ˈrædər skrɪn/ noun a cathode ray tube screen on which radar information is displayed

radar vectoring /ˌrædər ˈvɛktərɪŋ/ noun the provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar

radial /ˈrædiəl/ adjective referring to lines of radius having a common centre • radial engine engine in which the pistons are arranged like the spokes of a wheel • noun a line of radio bearing from a VOR beacon • To get to a facility you must track the reciprocal of the VOR radial.

radiate /ˈrædiət/ verb to send out rays or waves • The Earth radiates low intensity infrared waves. • Short bursts of energy are radiated from an antenna.

radiation /ˈrædiʃən/ noun the act or process of sending out rays or waves • terrestrial radiation radiation from the Earth

radiation fog /ˌrædiʃən ˈfɔɡ/ noun fog caused by the cooling of the Earth to below the dew point, combined with saturation and condensation and a light mixing wind • Radiation fog cannot form over the sea.

radiator /ˈrædiətər/ noun a liquid-to-air heat exchanger that transfers engine heat to the outside air • Anti-icing additives are used in radiator coolants.

coolant

radio /ˈrædiəʊ/ noun wireless transmission through space of electromagnetic waves in the approximate frequency range from 10 kHz to 300,000 MHz • radio waves electromagnetic radiation waves • The atmosphere absorbs radio waves.

radio aid /ˈrædiəʊ eɪd/ noun a navigation aid utilising radio waves

radio altimeter /ˈrædiəʊ ˈæltɪmətər/ noun a device for measuring the height of the aircraft above the Earth using reflected radio waves

radio horizon /ˌrædiəʊ hɔrən/ noun a line along which direct rays from a radio frequency transmitter become tangential to the Earth’s surface

radio magnetic indicator /ˌrædiəʊ ˈmæɡ.nɪtɪk ɪndɪkətər/ noun
radiotelephony

a cockpit navigation instrument which combines a bearing indicator and a heading indicator and can be used with ADF or VOR. Abbreviation RMI.

radiotelephony /ˌreɪdiəˈteləfəni/ noun the transmission of speech by radio. Correct use of R/T phraseology avoids ambiguity. Abbreviation R/T.

radius /ˈreɪdiəs/ noun 1. the radius of a circle a line drawn from a point on the circumference of a circle to the centre point. (Note: The plural form is radii. /ˈreɪdiəɪ/)

radome /ˌreɪdəʊm/ noun a dome that protects a radar antenna, made from materials that do not interfere with the transmission and reception of radio waves. RAF abbreviation Royal Air Force.

raft /raft/ noun a flat-bottomed inflatable rubber craft for floating on water. Railway line /ˈreɪliweɪ laɪn/ noun a railway track or train track. A railway line is a useful landmark.

rain /reɪn/ noun precipitation or water which falls from clouds in small drops. Rain is falling heavily. Rain and weather present fewer problems for area radar compared to the other types.

verb to fall as drops of water from clouds. It is raining. I don’t think it will rain.

rainstorm /ˌreɪnstɔrm/ noun heavy rain accompanied by wind. In heavy rainstorm, the windscreen wipers may not be able to cope.

raise /reɪz/ verb 1. to lift. Raise the landing gear retract the undercarriage. 2. to increase. To raise the temperature. 3. to cause problems. Fuel vaporisation can raise problems when starting the engine. (Note: Do not confuse with the verb to rise. Grammatically, the verb raise takes an object whereas the verb rise does not: temperature rises; The sun’s rays raise the temperature of the surface.)

rake /reɪk/ noun the angle between a wing or propeller blade of an aircraft and a perpendicular or line of symmetry.

ram /reɪm/ noun an increase in air pressure caused by the forward speed of the aircraft. Due to ram effect from aircraft forward speed, extra air is taken into the engine.

ram air /ˈreɪm ər/ noun airflow created by the movement of the aircraft which is used to cool, ventilate or drive turbines. Oil cooling is often achieved by using ram air or fuel.

ramjet /ˈreɪm dʒet/ noun a type of jet engine in which fuel is burned in a duct with air compressed by the forward motion of the aircraft.

ramp /ræmp/ noun 1. an inclined track for loading and unloading. The height of the cabin floor to the ground on large jet transports means that injuries can occur by exiting through the doors when steps or ramps are not available. 2. US same as apron.

range /reɪndʒ/ noun 1. the amount or extent of variation. Range of frequencies. Range of temperatures. 2. a row or chain of mountains or hills. The Rocky Mountain range. 3. the maximum distance an aircraft can fly on a given amount of fuel. Cruise level is selected to give the greatest fuel economy, i.e. the greatest range for least fuel. 4. the maximum effective distance of operation. Precision approach radar (PAR) is subject to weather interference and has a limited range.

verb to range from … to … to vary from … to … Temperatures range from 0°C (Celsius) at night to 40°C (Celsius) at midday.

rapid /ˈreɪpɪd/ adjective fast, with great speed. Hoar frost is a light crystalline deposit which can form on the aircraft as a result of rapid descent from cold altitudes into warm moist air. Rapid changes fast changes.

rapidly /ˈreɪpɪdli/ adverb with great speed, quickly. Rime ice is formed when individual droplets of water freeze rapidly on striking the aircraft surface.
The tops of thunderstorm clouds can reach through the tropopause.

react /riˈekt/ verb 1. to act in response to an action. Because the rotors and stators of a compressor are of aerofoil shape, the airflow reacts in a similar way to the airflow over a wing. 2. to do or to say something in response to words or to an event. The cabin crew reacted swiftly when the fire broke out. 3. to react to something to change chemical composition because of another substance. The electrolyte in the cells of a lead-acid battery reacts chemically with the plates.

reactance /riˈektəns/ noun a component of impedance in an alternating current circuit. Reactance is a form of resistance which varies as the frequency changes.

reaction /riˈekeɪʃən/ noun a response to an action or stimulus. For every action there is an equal and opposite reaction. Passenger reaction may be slower than usual in an emergency situation. Quick reactions are needed in an emergency.

reaction thrust principle /ˈriˌekeɪʃən ˈθrēsθ p rinˈsipl/ the process by which exhaust gases coming off the back of an object cause a reaction force to act on the object and push it forwards.

readback /ˈriːdbaːk/ noun the action of repeating an ATC message to the controller to enable him or her to check that it was correctly received.

readily /ˈredəli/ adverb 1. promptly, immediately. Fire extinguishers must be readily available for use. Ice melts very readily at 0°C (Celsius). 2. it can be readily seen it can be easily understood. It can be readily seen from the preceding paragraph that density and pressure are linked.

reading /ˈrɛdɪŋ/ noun 1. information indicated by an instrument or gauge. Altimeter reading the altitude indicated by the altimeter. Barometer reading the barometric pressure indicated by the barometer.

reach /riːtʃ/ verb 1. to arrive at a place. The aircraft reached its destination on time. 2. to get to a particular level. Upcurrents in thunderstorms can reach 3,000 feet per minute. Temperatures can reach 49°C (Celsius) in summertime in the Gulf region. 3. to extend

The tops of thunderstorm clouds can reach through the tropopause.
The antenna is highly directive in transmission and reception.

**reciprocal** /ˈrɪsprəkl/ adjective □ reciprocal heading an opposite heading, $180^\circ$ from a given heading □ The reciprocal heading of $090^\circ$ is $270^\circ$.

**recognise** /ˈreɡnəsai/ recognize verb to identify, or to know to be something that has been seen, heard, etc. before □ It may be difficult to recognise a particular stretch of coastline simply by its appearance.

**recording** /ˈrekɔrdɪŋ/ noun the process of seeing or hearing something or somebody and knowing what it is or who he or she is □ Hydraulic fluids are coloured for recognition purposes.

**recommend** /ˈrekəmend/ verb to say that something is worthy, desirable or suitable □ Dry chemical extinguishers are recommended for use on aircraft brake fires. □ Aircraft should be operated to the manufacturers recommended limits.

**record** /ˈrekɔrd/ 1. a written account of facts and information for future reference □ a set of electronically stored data □ verb /ˈrkɔrd/ 1. to write down something such as information or data □ Measure track angles and distances and record them in a log. 2. to capture and store electronically □ Details of wind speed, direction, visibility and cloud cover are recorded onto a cassette.

**recorder** /ˈrkərda/ noun a device for capturing sound onto cassette or magnetic tape □ cockpit voice recorder

**recent** /ˈrɛk(ent)/ adjective referring to a time immediately before the present □ Recent engine designs include variable angle stator blades. □ A more recent development is the barograph which utilises the electrical output of the digital display barometer. □ recent weather significant weather observed in the period since the previous observation, but not now

**reception** /ˈriːsepʃən/ noun an act or instance of receiving radio signals □ recover from a stall to return the air-
to straight and level flight 2. to rescue and remove from a particular area, often the sea. Emergency services recovered two bodies from the wreckage of the helicopter.

**recovery** /riˈkævəri/ noun 1. a return to an earlier, normal condition or attitude a recovery from unusual attitudes. A flight exercise requiring the student pilot to return the aircraft to its previous, normal, that is, straight and level attitude, after it has been in an unusual attitude 2. rescue and removal from a particular area. The recovery of survivors from the sea was carried out by helicopters.

**rectangle** /ˈrektəŋgəl/ noun a 4-sided plane figure with 4 right angles, and with opposite sides of equal length. The colour identification of refuelling equipment for AVGAS is: blue rectangle, red decal with AVGAS 100LL in white letters.

**rectangular** /ˈrektəŋɡjuələr/ adjective referring to something with the shape of a rectangle.

**rectification** /ˌrektɪfɪˈkeɪʃən/ noun the process of changing an alternating current into direct current. Part of the generator alternating current (AC) is passed through a rectification circuit.

**rectified airspeed** /ˌrektɪfɪd ˈɛəˌspɪd/ noun indicated airspeed corrected for instrument error and pressure error. When rectified airspeed (RAS) is corrected for density error the resultant is known as the true airspeed.

**rectifier** /ˈrektɪfaɪər/ noun an electronic circuit that converts an alternating current supply into a direct current supply. The ignition unit receives an alternating current which is passed through a transformer and rectifier.

**rectify** /ˈrektɪfaɪ/ verb 1. to change alternating current into direct current. Alternating current output is rectified and regulated externally and returned as direct current to the stator field winding. 2. to correct a mistake to put right a mistake

**redeye** /ˈredaɪ/ noun a late night or overnight airline service

**reduce** /riˈdjuːs/ verb to decrease. Opposite increase. Reduce altitude to descend. Reduce temperature to make cooler. Reduced separation the previous minimum separation which is smaller than the previous minimum separation.

**reduction** /riˈdʌkʃən/ noun a decrease. Reduction in temperature, pressure, speed

**reduction gear** /riˈdʌkʃən ˈɡiər/ noun gears in an engine which allow the propeller to turn at a slower speed than the engine.

**redundancy** /riˈdʌndænsi/ noun the duplication of component parts of a system to enable the system to function even if one component fails. With system redundancy, a single failure within a system will have little effect on the aircraft’s performance during the approach and landing operation.

**redundant** /riˈdʌndənt/ adjective referring to a system which provides extra component parts to enable the system to function even if one component fails. Redundant structure design is composed of a large number of members, all of which share a load, so that if one of the members is lost, the load carried by the member is divided between all the others in such a way that the total load-carrying ability is reduced only slightly.

**redux** /ˈredaks/ noun a method of fixing components together using adhesives and glues.

**re-enter** /riˈeɪntər/ verb to enter again. For engine checks the aircraft should be headed into wind to prevent hot exhaust gases re-entering the engine.

**refer** /riˈfɜːr/ verb 1. to describe or give a name to. The term wind is used to refer to the horizontal motion of air. 2. to direct someone to a source of help or information. (NOTE: referring referred) refer to chapter 10 for more details look at or read chapter 10 for more information.
reference /ˈrefərəns/ noun something used as a basis for further calculation or investigation ○ visual reference anything seen and used as a guide to something else ○ Use the large building as a visual reference for the turn onto final approach. ○ reference book a book in which you can look for information, e.g. a dictionary ○ by reference to by looking at and comparing reference datum /ˈrefərənsˌdeɪtəm/ noun a line fixed by the designer from which measurements are made when checking or adjusting wing angles, etc.

reference point /ˈrefərəns ˌpɔɪnt/ noun a fixed datum near the centre of the airfield landing area

reference signal /ˈrefərəns ,ˈsɪgnəl/ noun a signal against which telemetry data signals are compared

refinement /ˌrɛfnɪmənt/ noun an improvement ○ An internal locking device is one of the numerous refinements to the simple actuator.

reflect /rɪˈlekt/ verb to throw back something such as radio waves or light ○ Snow surfaces reflect up to 90% of radiation while rock, sand and concrete reflect only 10–20%.

reflection /rɪˈlektʃən/ noun the process of throwing back of something such as radio waves or light ○ Glare caused by reflection of sunlight from the top of a layer of fog or haze can seriously reduce the air-to-ground visibility.

reflective /rɪˈlektɪv/ adjective able to throw back something such as radio waves or light ○ Reflective power means that at low angles of elevation of the sun, water reflects a great amount of solar radiation thus slowing down the rise in sea surface temperatures.

reflector /rɪˈlektər/ noun a device which throws back something such as light ○ The shape of a water droplet makes it a good reflector, so water in the atmosphere absorbs and scatters radio waves.

refract /rɪˈfrækt/ verb to cause a wave, such as light or sound, to change direction or turn as it passes from one medium into another of different density ○ A sky wave starts life as a direct wave and, on reaching the ionosphere, the direct wave is refracted and returns to the Earth’s surface.

refraction /rɪˈfракʃən/ noun the change in direction or turning of a wave, such as light or sound, as it passes from one medium into another of different density

refrigerant /rɪˈfrɪdʒərənt/ noun a substance to provide cooling either as the working substance of a refrigerator or by direct absorption of heat ○ Heated air from the main air supply system passes through the evaporator matrix and by induction releases heat into the liquid refrigerant.

refuel /rɪˈfjuːl/, re-fuel verb to fill with fuel again ○ Fire risk is always present when you defuel and refuel.

regain /rɪˈgɛn/ verb to obtain again or to acquire again ○ The omni-bearing selector/course deviation indicator is a demand instrument which indicates which way to turn to regain the required bearing.

regard /rɪɡərd/ noun a particular point or aspect ○ in this regard concerning this or with reference to this ○ with regard to concerning or with reference to ○ With regard to the turbo-propeller engine, changes in propeller speed and pitch have to be taken into account. ○ verb to look upon or consider in a particular way ○ Thoughtful concern for others is regarded as an essential component of good airmanship.

regardless /rɪˈɡɜrdəls/ preposition in spite of, despite, with no thought of ○ with fly-by-wire technology, the aircraft’s stalling angle of attack cannot be exceeded regardless of control stick input the stalling angle of attack cannot be exceeded, despite or no matter what the pilot does with the flying controls

region /rɪˈdʒɪzn/ noun 1. an area, usually a large geographical area ○ The troposphere is deepest in equatorial regions and shallowest near the poles. 2. in the region of about or approximately ○ The burning temperature of
191 **relative bearing**

The fuel is in the region of 2,000°C (Cel- sius).

**register** /ˈredʒistər/ noun an official list or record ○ The student’s name was not on the register. ■ verb 1. to record or to indicate on an instrument ○ During ground running checks, if oil pressure does not register within a few seconds, the engine should be stopped and the cause investigated. ○ Electrically operated pressure gauges register main and emergency system pressure. 2. to enter details on an official list ○ to register an aircraft.

**registration** /ˌredʒɪˈstreɪʃ(ə)n/ noun the entry of civil aircraft into records of national certification authority with details of letter and number code displayed on aircraft ○ certificate of registration a document issued as proof of registration.

**regular** /ˈregjələr/ adjective 1. occurring at fixed time intervals ○ a regular flight ○ regular inspections inspections taking place at equal intervals of time 2. ordinary or standard ○ part of the regular menu.

**regulate** /ˈregjəleɪt/ verb to control, to adjust to a specific requirement ○ Controllable cowl flaps regulate the amount of air flowing across the cylinders.

**regulation** /ˈregjəleɪʃ(ə)n/ noun an act or instance of controlling or adjusting the required requirement ○ Regulation of cabin temperature is controlled by the manual setting of a mechanically controlled switch.

**regulations** /ˌregjəˈleɪʃ(ə)nz/ plural noun rules or laws.

**regulator** /ˈregjəleɪtər/ noun a device used to control the flow of fluids or electric current ○ voltage regulator a device to control the level of voltage.

**Reid vapour pressure test** /rɪd ˈvæpər prɛʃər tɛst/ noun a test to determine the pressure required above a liquid to hold the vapours in the liquid at a given temperature.

**reinforce** /riˈɪnfaʊrs/ verb to make stronger or to strengthen ○ Typical skin materials used in aircraft are made from epoxy resins which are reinforced with glass, carbon or Kevlar fibres.

**reinforced** /ˌriɪnˈfɔːst/ adjective made stronger or strengthened.

**reinforced plastics** /ˌriɪnfrəstˈplæstɪks/ plural noun plastic materials used with glass fibres to repair some types of aircraft structure.

**reinforcement** /ˌriɪnˈfɔːsmənt/ noun the act of strengthening, or a material or structure used to strengthen something ○ There is reinforcement around each opening in the pressure cabin, such as the cabin door, escape hatch and windows.

**relate** /rɪˈleɪt/ verb 1. to make a connection or link, to associate ○ Orientating the chart relates the direction of land features to their representation on the chart and aids recognition. 2. to relate to to concern or to be about ○ Kepler derived the laws which relate to the motion of planets in their orbits.

**relation** /rɪˈleɪʃ(ə)n/ noun 1. a natural or logical association between things ○ the relation between thrust and drag ○ this bears no relation to that this is not connected with that in any way 2. a in relation to with reference to ○ The range at which objects can be recognised is affected by the direction of viewing in relation to the position of the sun or the moon. ○ The VOR station on the ground does the calculation and, depending on where the aircraft is in relation to the VOR station, it will receive signals which define the bearing of the aircraft from the VOR.

**relationship** /rɪˈleɪʃ(ə)nʃ(ə)lp/ noun a natural or logical association between things ○ There is a close relationship between altitude and pressure.

**relative** /rɪˈlɑːтив/ adjective a relative to compared to, with reference to ○ Ground-speed is the speed of the aircraft relative to the ground.

**relative airflow** /ˈrelətɪv ˈleɪflɔː/ noun airflow over an aerofoil, often related to the chord line of the aerofoil. Also called relative wind.

**relative bearing** /ˌrelətɪv ˈbɛərɪŋ/ noun the bearing of a radio station or
relative density

object with reference to the aircraft’s heading

relative density /ˈrɛlətɪv ˈdɛnɪsɪti/ noun the ratio of density of a liquid with reference to water, or of a gas with reference to air

relative humidity /ˈrɛlətɪv ˈhjuːmətəri/ noun the ratio between the amount of water vapour in the air and the amount which would be present if the air was saturated, at the same temperature and the same pressure

relative wind /ˈrɛlətɪv ˈwɪnd/ noun same as relative airflow

relay /ˈrɛli/ noun a device which responds to a small current or voltage change by activating switches or other devices in an electric circuit. Thermo-couple detectors operate a sensitive relay or electronic circuit when a predetermined temperature is exceeded. – verb to pass an AFC message to an aircraft via another aircraft that is on the same frequency and within radio range (NOTE: Messages may have to be relayed when atmospheric conditions make a direct transmission impossible)

release /rɪˈliːs/ noun the act of freeing something from something that holds it. – verb to be dependent on. Air rising and cooling often reaches its dew point temperature, becomes saturated and any further cooling results in condensation and the consequent release of latent heat. – verb to free from something that holds it. Push the button to release the lever. – release the brakes let the brakes off. – to release the pressure to allow pressure to reduce

relevant /ˈrɛləvənt/ adjective having a connection with the matter in hand. High charts show only information relevant to high altitude flights and many beacons and aids which are provided for low operations are omitted to keep the chart clear. – relevant information useful information which is related to the matter in question

reliability /rɪˈlɪəbəlɪtɪ/ noun dependability, trustworthiness. The gas turbine is a very simple engine with few moving parts, giving it high reliability with less maintenance.

...where a State introduces drug testing, high standards of medical reliability must be maintained. [INTER PILOT]

reliable /rɪˈleɪbl/ adjective dependable, trustworthy. The gas turbine is a very simple and reliable engine.

release /rɪˈliːʃən/ noun 1. variations in elevation of the surface of the earth. Relief is usually represented on aeronautical charts by contours, gradient tints or hill shading. 2. a lessening of pressure

relief valve /rɪˈliːv vəl/ noun a valve which opens at maximum safe pressure and closes again upon return to normal operating conditions

relieve /rɪˈliːv/ verb to cause a lessening in, or to remove, excess pressure or tension. Safety valves relieve excess cabin pressure. – A trim tab on the elevator relieves the forward and aft forces on the control stick or yoke.

relight /rɪˈlaɪt/ verb to ignite again. The ability of the engine to relight will vary according to the altitude and the forward speed of the aircraft.

relay /rɪˈleɪv/ verb to be dependent on. Pressure carburettors do not rely on venturi suction to discharge fuel into the airstream.

remain /rɪˈmeɪn/ verb to stay, to continue to be. During the evacuation, crew must remain at their assigned stations and redirect passengers. The fuel/air ratio does not remain constant, but, as the speed increases, the mixture gets richer. The audible fire warnings may be cancelled but the red warning light will remain on.

remainder /rɪˈmɛrnər/ noun 1. something left after excluding other parts, the rest. The auxiliary power unit is usually found in the tail section, separated from the remainder of the fuselage by a firewall. 2. the number left over when one number is divided by another

remote /rɪˈmɒrnt/ adjective 1. far away, and not near anything else. A remote area. When the destination is a remote island, the calculation of the point of no return (PNR) becomes...
but unlikely possibility

removal /rɪˈmuːv(ə)/ noun the act of taking something away, or of moving something from the position it occupies

remove /rɪˈmuːv/ verb to take something away or move it from the position it occupies - Filters are fitted in lines in a hydraulic system, in order to remove foreign particles from the fluid.

engine will have to be removed for repeated stress cycling.

the nosewheel took three hours.

stable in its lower layers.

face cooling and rendered increasingly moving northwards is subjected to sur-

rendered help

render assistance

The system inoperative.

in the fire detection system will render something to provide help.

Only when all possible assistance has been rendered inside the cabin will crew themselves evacuate.

repair /rɪˈpeə/ noun an action designed to return to good condition after damage

The repair to the aircraft required the removal of the engine.

The nosewheel took three hours.

The engine will have to be removed for repeated stress cycling.

To say again - I didn’t hear.

The message was repeated a few minutes later.

repel /rɪˈpel/ verb to push away by a force - Like poles (i.e., north and north, or south and south) of a magnet repel each other.

NOTE: repelling – repelled

repellent /rɪˈpelənt/ noun a substance used to resist the effect of something - Rain repellent is sprayed onto the windscreen and spread by the wipers.

replace /rɪˈpleɪs/ verb to take the place or to fill the place of

As warm air rises, cold air moves in to replace it.

The term Greenwich Mean Time (GMT) is being replaced by the term Coordinated Universal Time (UTC).

replacement /rɪˈpleɪsmənt/ noun 1. the act of replacing something with something else - The replacement of moist air by dry air is the only sure way of dispersing advection fog. 2. something or somebody that replaces something or somebody else - She was hired as a replacement for a manager who had recently retired.

reply /rɪˈplaɪ/ noun an answer or response

Secondary surveillance interrogation is made on 1030 MHz (megahertz) and the reply on 1090 MHz (megahertz).

verb to answer.

He replied to the letter. (NOTE: replying – replied)

report /rɪˈpɔːt/ noun an official account of an occurrence - A weather report - The observer measures this distance in a number of directions and reports the minimum value as the meteorological visibility.

An accident must be reported.

reporting point /rɪˈpɔːtɪŋ pɔɪnt/ noun a specified geographical location on an aircraft’s route at which the crew must report to air traffic control

represent /rɪˈprɛzent/ verb to indicate or to show, using signs or symbols - On a Mercator projection, meridians are represented as parallel straight lines.

representation /rɪˈprɛzentəʃ(ə)n/ noun a way of showing something, using signs or symbols - The synoptic chart provides a representation of the weather over a large area at a particular time.
representative

representative /ˈreprɪzɛntətɪv/ adjective 1. representative of which is a typical example of what all others are like ○ Surface air temperatures are taken in such a way as to be representative of the air temperature near the surface yet unaffected by the direct surface heating or cooling effects. 2. representative for an organisation such as a company

request /rɪˈkwɛst/ noun 1. a polite demand, or what is asked for ○ ATC (air traffic control) received a request from the pilot for departure clearance. 2. on request when asked for ○ A personal flying log book must be retained for production on request by an authorised person. 3. verb to ask for something ○ The pilot requested vectors to enable him to locate the airfield.

require /rɪˈkrɛɪr/ verb 1. to need ○ Dynamic seals require lubrication to remain effective. 2. to impose an obligation, to compel by law ○ Transport operations over water require the carriage of life rafts, life jackets, survival beacons and pyrotechnics.

requirement /rɪˈkrɛriːntmənt/ noun 1. what is necessary ○ Planning for an in-flight emergency is a standard requirement of pre-departure preparation. 2. legal requirement an obligation by law 3. something which is demanded or required ○ The airframe had to be built to very specific requirements.

re-register /rɪˈzɛriːst/ verb to register again ○ The aircraft had to be re-registered because of an administrative error.

rescue /rɪˈskjuː/ noun the act of freeing from danger ○ Early rescue depends on the rapid location of survivors. 1. verb to free from danger ○ Passengers were rescued from the burning aircraft.

reserve /rɪˈzɜːv/ noun something kept back for possible future use 1. verb to keep something such as a seat for somebody ○ Seats 23A and 23B are reserved for Mr and Mrs Smith. 2. reserve fuel ○ reserve fuel used only in a situation when the aircraft has to be in the air for a longer time than expected, as because of a go-around or diversion.

reservoir /ˈrezərvəʊr/ noun a container for holding a store of fluid ○ A reservoir provides both storage space for the system fluid, and sufficient air space to allow for any variations in the volume of the fluid in the system.

reset /rɪˈset/ verb to set again ○ Instruments which need resetting in flight must be accessible to the crew. (Note: resetting – reset)

resettable /rɪˈsetəb(ə)l/ adjective possible to reset ○ Circuit breakers are resettable protective devices.

residual /rɪˈzɪdjuəl/ adjective referring to the residue of something

residue /ˈrezɪdjuː/ noun the remainder of something after the removal of the main part ○ The leaking oil left a sticky residue on the ground.

resin /ˈrezɪn/ noun materials which are used with fillers and other components to form plastics, e.g. polyesters, epoxies and silicones ○ To make a composite it is necessary to combine the reinforcing glass fibres with some form of special glue or resin.

resist /rɪˈzɪst/ verb to fight off the effects of something ○ A tube resists bending in any direction but beams are designed usually to resist bending in one or two directions only. ○ In order for an aeroplane to fly, lift and thrust must resist and overcome the forces of gravity and drag.

resistance /rɪˈzɪstəns/ noun 1. a force that opposes 2. the opposition of a body or substance to current passing through it ○ The shunt coil is made of fine wire which gives a high resistance and small current flow.

resistant /rɪˈzɪstənt/ adjective referring to something which is unaffected by a force, process or substance ○ crash resistant and heat resistant materials ○ Some alloys are less resistant to corrosion than others.

resistive /rɪˈzɪstɪv/ adjective referring to resistance ○ Windscreen heating and electrical de-icing systems are resistive load circuits.
**resistor** /rɪˈzɪstrə/ noun a device used to control current in an electric circuit by providing a resistance. Components such as resistors, rectifiers and internal switches are all embedded in micro-size sections of semi-conductor material.

**respect** /rɪˈspekt/ noun 1. in some respect. 2. with respect to. 3. concerning or with reference to. 4. The flat chart inevitably misrepresents the Earth's surface in some respect. 5. with respect to. 6. The temperature to which air must be cooled at constant pressure in order to reach a state of saturation

**response** /rɪˈspɔns/ verb 1. to reply or to answer. 2. to react, to act in return. 3. to answer or reply. 4. to reply or answer. 5. to react, to act in return. 6. to reply or answer. 7. to reply or answer. 8. to reply or answer. 9. to reply or answer.

**responder** /rɪˈspɔnda/ noun same as transponder.

**transponder** noun 1. an answer or reply. 2. to transponder response. 3. Despite repeated air traffic control transmissions, there was no response from the pilot. 4. a reaction. 5. in response to. 6. as a reaction to. 7. The primary function of the outflow valves is to regulate the discharge of cabin air in response to the pressure signals received from the controller.

**responsibility** /rɪˈspɒnsɪlɪti/ noun the condition of being responsible. 1. It is the responsibility of the captain to order an evacuation.

**responsible** /rɪˈspɒnsəbl/ adjective 1. being a source or cause. 2. Frontal systems are responsible for much of the weather and clouds which occur in temperate latitudes. 3. directing or being in. 4. with respect to. 5. the condition of being responsible. 6. being a source or cause. 7. responsible to. 8. responsible to. 9. responsible to. 10. responsible to.

**result** /ˈrɛzəlt/ noun a consequence or outcome. 1. Engine oil and cylinder temperature will also increase as a result of higher combustion temperatures. 2. to result from. 3. to happen as a consequence. 4. The cooling of the land rises, causing the layer of air in contact with it to warm up and expand with a resultant decrease in density. 5. one vector that is the equivalent of a set of vectors.
retain /rɪˈteɪn/ verb to keep or to hold
○ Retentivity is the ability of a material has to retain magnetism. ○ When fuel-dumping, sufficient fuel must be retained for landing.

retard /rɪˈtɑrd/ verb 1. to cause to occur later, or to delay ○ On most modern engines the spark is retarded to top dead centre, to ensure easier starting and prevent kick-back. 2. to move backwards ○ When reducing power, always retard the throttles before reducing RPM (revolutions per minute) with the propeller levers.

retentivity /ˌrɛtənˈtɪvəti/ noun the ability to remain magnetised after the magnetising force has gone ○ Steel has high retentivity, but soft iron has low retentivity.

retract /rɪˈtrækkt/ verb to move back, or to raise ○ Mechanically operated sequence valves ensure that the landing gear does not extend until the doors are open and that the landing gear is retracted before the doors close.

retractable /rɪˈtræktəb(ə)l/ adjective possible to pull back or raise ○ retractable undercarriage an undercarriage which can be raised into the fuselage or wings after use ○ Early aircraft had non-retractable undercarriages.

retraction /rɪˈtrækʃən/ noun the act of pulling back or raising ○ retraction of the undercarriage the raising of the undercarriage into the fuselage after use

return /rɪˈtɜrn/ noun the act of coming back or going back to a place ○ We’re waiting for the return of the aircraft. ○ return flight a flight back to the point of departure ○ verb to cause to come back or to go back to an earlier position or place ○ Fly from A to B and return. ○ The auto-control will return the alterations to neutral as the aircraft returns to level flight.

return valve /rɪˈtɜrn vəlv/ noun a valve which allows flow of fluid in both directions

reveal /rɪˈvɪul/ verb to allow to be seen ○ Radiographic inspection of the aircraft structure is able to reveal fatigue cracks without the need to dismantle the aircraft.

reversal /rɪˈvɜrs(ə)l/ noun a change to the opposite position, direction, or order ○ Stationary eddies can be hazardous, not only because of the down currents but also because an aircraft encountering the reversal of direction might have its airspeed momentarily reduced below stalling speed.

reverse /rɪˈvɜrs/ noun the opposite ○ One would expect a unit of humid air to be heavier than a similar unit of dry air but, in fact, the reverse is true. ○ adjective going backwards or in the opposite direction ○ reverse flow the flow of a fluid in the opposite direction to normal ○ verb to go backwards or in the opposite direction ○ to reverse a vehicle to make a vehicle go backwards

reverse panic /rɪˈvɜrs pænɪk/ noun a form of shock which makes passengers unable to comprehend the need for urgency

reverser /rɪˈvɜrsər/ noun ○ thrust reverser a device to change the direction of thrust so that it operates in the opposite direction to the normal direction ○ In many turbo-jet thrust reversers, clamshell doors direct the exhaust gases forward.

reverse thrust /rɪˈvɜrs ˈθrɔːst/ noun thrust in the opposite direction to normal in order to decelerate the aircraft after landing

reversible /rɪˈvɜrsəb(ə)l/ adjective that can be made to go backwards or to change direction ○ a reversible electric motor

reversible pitch propeller /rɪˈvɜrsəbl pɪtʃ prəˈpɜrl/ noun a propeller which allows the aircraft to be propelled backwards when taxiing

reversion /rɪˈvɜrs(ə)n/ noun a return to an earlier condition or state ○ In smaller aircraft, reversion to manual
control is possible if complete loss of hydraulic power occurs.

**revert** /rɪ'vɜːt/ verb to return to an earlier condition or state. The elevator system has the ability to revert to manual control after a hydraulic failure.

**revolution** /ˌrevəˈluːʃ(ə)n/ noun 1 a rotation or turn about an axis. 2 a revolution of the crankshaft. A 360° turn of the crankshaft.

**revolutions per minute** /ˌrevəˈluːʃ(ə)nz pəˈmɪnt/ noun the speed of an engine or the number of rotations of the crankshaft per minute. RPM is the number of revolutions per minute that the engine crankshaft is making. The actuator control is sensitive to engine rpm. Abbreviation rpm, r.p.m.

**revolve** /rɪˈvɔlv/ verb to turn about an axis. The Earth revolves around the sun.

**revolving** /rɪˈvɔlvɪŋ/ adjective. Tropical revolving storms an intense depression of a kind that can develop over tropical oceans. Tropical revolving storms originate within 5–15° of the equator. Tropical revolving storms generally occur from June to October.

**rhumb** /rʌm/ noun one of the points of a compass.

**rhumb line** /rʌm lайн/ noun 1. a regularly curved line on the surface of the Earth which cuts all meridians at the same angle. 2. a steady course taken by aircraft along one compass bearing.

**rhumb line direction** /rʌm lain dəriŋ/ noun the average of all the great circle directions between the two points. Because the great circle direction between two points on the surface of the Earth is not constant, it is often more convenient to consider the rhumb line direction.

**rib** /rɪb/ noun one of many cross pieces of the airframe that provide an aircraft wing with shape and strength. Additional strength is required for the rib sections which are placed in the area of the undercarriage mountings, flaps and power plant attachment point.

**rich** /rɪtʃ/ adjective referring to a mixture in which the ratio of fuel to air is greater than usual. Moving the mixture control lever forward to the rich position increases the amount of fuel mixing with the air.

**rich mixture** /rɪtʃ 'mɪkstʃə/ noun a fuel/air mixture in which the proportion of fuel is greater than normal.

**ridge** /rɪdʒ/ noun 1. a long narrow hill with a crest. 2. a long zone of relatively high atmospheric pressure. 3. a ridge of high pressure. On average, the wind backs with the passage of a ridge.

**ridge waves** /rɪdʒ wɜːvz/ plural noun oscillations about the stable state of the undisturbed air flow with the range of hills providing the disturbance.

**rigging position** /ˈrɪŋjɪŋ pəˈzɪʃn/ noun an attitude of the aircraft in which the lateral axis and usually the longitudinal axis are horizontal. The aircraft was put into the rigging position.

**rigid** /rɪdʒ/ adjective unbending, inflexible. The areas between the ribs are utilised to house fuel tanks which can be either rigid or flexible. Opposite flexible rigid pipes pipes that do not bend easily. a rigid structure a firm unbendable structure.

**rigidity** /rɪdʒɪdɪtɪ/ noun inflexibility, stiffness. Extra strength and rigidity must be provided in the tail section for aircraft with a tail wheel unit. Opposite flexibility.

**rim** /rɪm/ noun the outer edge of something circular, e.g. a wheel. Creep marks are painted on the tyre and the wheel rim. The rim of the air intake is prone to icing.

**rime ice** /rɪm aɪs/ noun ice formed when individual droplets of water freeze rapidly on striking the aircraft surface.

**ring** /rین/ noun a circle. Around the impeller is a ring of stationary vanes called a diffuser ring.

**ripcord** /ˈrɪpkɔrd/ noun a cord that is pulled to release a parachute from its pack and open it.

**RIS** abbreviation radar information service.
rise 198

rise /raɪz/ noun 1. an increase ○ a rise in temperature 2. ○ to give rise to ○ to cause ○ Hills and mountains may give rise to particularly severe turbulence. ○ verb 1. to move upwards ○ air rises 2. to increase ○ The temperature is rising. ○ raise

risk /rɪsk/ noun the possibility of suffering harm or injury, danger ○ When starting an engine, it is bad practice to pump the throttle lever as there is a risk of fire in the carburettor air intake. ○ verb to take a dangerous chance ○ to risk the lives of passengers to put the lives of passengers in danger by taking a particular course of action

rivet /ˈrivət/ noun a type of metal bolt or pin with a head on one end, inserted through one of the aligned holes in the parts to be joined and then compressed on the plain end to form a second head ○ Tensile or compressive loading makes the joined materials tend to slide and break the rivet or bolt. ○ verb to join with rivets ○ The skin is riveted to both stringers and frames.

RMI abbreviation radio magnetic indicator

RNAV abbreviation area navigation

robot pilot /ˈrɒbot ˈpɪlət/ noun same as autopilot

rocker arm /ˈrɒkə ˈærm/ noun part of the valve mechanism in an internal combustion engine, which transmits the movement of the pushrod to the valve

rod /rɒd/ noun a thin straight piece of metal ○ Aluminium rods and bars can readily be employed in the high-speed manufacture of parts.

rogallo /ˌrɒɡələʊ/ noun a fabric-covered delta-shaped wing that can be folded compactly, used on ultralight aircraft

role /rəʊl/ noun function ○ Movement of air plays a major role in the development of weather patterns. ○ the role of the aircraft the type of operation the aircraft is required to perform

roll /rəʊl/ noun 1. a rotation about the longitudinal axis of the aircraft, created by movement of the ailerons ○ Roll is produced by moving the stick to the left or right. ○ bank 2. a flight manoeuvre with 360° rotation about the longitudinal axis of the aircraft ○ Loops and rolls are aerobatic manoeuvres. ○ verb to rotate the aircraft around its longitudinal axis ○ Move the control column to the left to roll the aircraft to the left. ○ to roll into a turn to roll or bank the aircraft so that it turns left or right ○ By rotating the yoke the ailerons are moved and the aircraft rolls into a turn.

COMMENT: The difference between roll and bank is that roll is movement whereas bank suggests a fixed attitude of the aircraft. Consequently, a turn might be expressed in angles of bank: turn at a bank angle of 30°; and the movement to obtain the bank might be expressed as roll: roll the aircraft to the left.

roll cloud /ˈrɒl klaʊd/ noun cloud created in the rotor zone on the downwind side of mountain ranges

roller /ˈrɒlə/ noun a cylindrical metal device which rotates ○ The most common bearings used in gas turbine engine are the ball or roller type.

RON abbreviation remain overnight

root /rʊt/ noun ○ the root of the problem the cause of the problem

rose /roʊz/ noun ○ compass rose the compass card or its marking of 32 points on a map ○ An arc of the compass scale, or rose, covering 30° on either side of the instantaneous track, is at the upper part of the display.

rotary /ˈrəʊtərɪ/ adjective rotating ○ rotary motion ○ rotary actuator /ˌrəʊtərɪ ˈæktjʊətə/ noun an actuator which rotates and operates a screw jack, e.g. to extend flaps

rotary inverter /ˌrəʊtəri ɪnˈvɜrtə/ noun a DC motor driving an AC generator, the output of which must be regulated to give constant voltage and frequency

rotary wing aircraft /ˌrəʊtərɪ wɪŋ ˈeəkrɪft/ noun an aircraft with a rotor which provides lift, such as a helicopter

rotate /ˈrəʊtət/ verb to turn around on an axis or centre ○ In the event of flame extinction in flight, the engine will continue to rotate, due to the air-

Hills and mountains may give rise to particularly severe turbulence.
flow through it caused by the forward speed of the aircraft. The aircraft should be rotated to the recommended nose-up attitude for touch down. Counter-rotating propellers rotate in opposite directions.

**rotation** /ˈroʊʃ(ə)n/ noun 1. the act of moving the control yoke or stick aft to raise the nose of an aircraft during the take-off run to facilitate the aircraft becoming airborne. Rotation should begin at about 60 knots. 2. the act of turning around an axis or centre. The rotation of the earth. Crankshaft rotation. The speed of rotation determines the frequency of the generator output.

**COMMENT:** The aircraft rotates around three axes: pitch = rotation around the lateral axis; roll = rotation around the longitudinal axis; yaw = rotation around the vertical axis.

**rotational** /ˌroʊˈtɛʃənəl/ adjective rotating. The rotational movement of the propeller blades creates lift at right angles to the blade.

**rotor** /ˈrəʊtər/ noun a device which turns about an axis or centre. The rotor blade of a compressor.

**rotor blade** /ˈrəʊtər bled/ noun a long thin aerofoil on a helicopter rotor.

**rotorcraft** /ˈrəʊtərkraft/ noun same as rotary wing aircraft.

**rough** /rʌf/ adjective. 1. not smooth, having an irregular surface. Opposite smooth. Rough air turbulent air. Rough running referring to a piston engine which is not operating correctly. 2. not fully detailed. A rough estimate an approximate calculation, good enough for a given purpose. A rough drawing a quick drawing usually used to illustrate or explain.

**roughness** /ˈrʌfnəs/ noun unevenness of a surface. The strength of turbulence near the Earth’s surface depends largely on the surface temperature, the surface wind, and the roughness of the surface.

**rough terrain** /ˌrʌf ˈtroʊnəri/ noun uneven ground.

**rudder** /ˈrʌdər/ noun a control surface on the fin which rotates the aircraft about its vertical axis to produce yaw. The A320 retains a backup mechanical linkage for elevator trim and rudder to allow control in the unlikely event of complete electrical failure.

**COMMENT:** The rudder does not turn the aircraft. It is used, together with aileron deflection, to initiate turns, to balance forces in turns and to counteract yawing motions created by the propeller during flight. The rudder pedals are mounted on the floor of the cockpit.
rudder ball 200

rudder ball /ˈrʌdə ball/ noun same as inclinometer

rudder pedal /ˈrʌdə ped(ə)l/ noun a foot-operated lever which moves the rudder. § Just before take-off, the pilot should make sure that his or her feet are correctly positioned on the rudder pedals.

rule /ruːl/ noun 1. a standard and authoritative instruction or guide § According to the rules, your ticket must be paid for two weeks in advance. § as a rule usually § As a general rule, radio signals travel in straight lines. 2. an instrument for determining length

rule of thumb /ˈruːl əv ˈθʌm/ noun easily remembered, useful guide to a more complex principle

run /rʌn/ noun a route or distance § verb 1. to extend § Magnetic lines of force run from the north magnetic pole to the south magnetic pole. 2. to operate an engine § An engine should be run at low r.p.m. (revolutions per minute) after flight to allow engine components to cool to a more uniform temperature.

run up /ˈrʌn ʌp/ noun § engine run-up the testing of a piston engine at high power, in a light aircraft, just before take-off § Make certain that the parking brake is on before doing engine run-up checks.

runway /ˈrʌnweɪ/ noun a strip of level, usually paved ground on which aircraft take off and land § Heathrow airport has four terminals and two main runways. § To achieve a safe landing, an aircraft has to be controlled so that its wheels make contact with the runway smoothly. § The aircraft lined up perfectly on the runway extended centre line. Abbreviation R/W

COMMENT: Large airports often have more than one runway, arranged to cope with varying wind directions. Some busy airports have parallel runways which can be used simultaneously.

runway visual range /ˈrʌnweɪ ˈvɪʒuəl ˈrɛnɪdʒ/ noun the distance along a runway at which selected lights can be seen, adjusted to simulate approach visibility § Runway visual range is obtained by an observer standing at the side of the runway in the vicinity of the threshold counting the number of markers or lights visible along the side of the runway. Abbreviation RVR

rupture /ˈrʌptʃər/ noun the process of breaking open or bursting § Pressure in the fuel tanks must be controlled to prevent rupture or collapse. § verb to break open or burst § The impact ruptured the fuel tank.

RVR abbreviation runway visual range

R/W, RWY abbreviation runway
S abbreviation south
safe /sefl/ adjective free from danger ○ Approach to land must be made at a safe speed. ○ safe landing a landing which does not endanger people or damage the aircraft. ○ fail safe
safeguard /səfɡərd/ noun something done as a precaution ○ A propeller is feathered after engine failure, or as a safeguard when low oil pressure or excessive temperature have indicated the development of a possible defect. ○ verb to take action to make sure that something is protected from harm ○ A pressure maintaining valve is generally used to safeguard operation of important services, such as flying controls and wheel brakes.
safe life /sefl laʃf/ noun the principle of putting the least load or force on each component, so that it will last well beyond a plane’s expected life
safety /sefi/ noun freedom from danger, injury or risk ○ Turbulence can have serious effects on aircraft safety and performance and makes air travel uncomfortable. ○ safety conscious the state of being aware at all times of the importance of safety and the means by which it is achieved and maintained
safety pilot /səfi ,paɪlət/ noun a pilot present in the cockpit to ensure the safety of the flight, e.g. when a student is practising instrument flying
safety regulations /səfi ,rɛɡjʊleɪʃənz/ plural noun rules or laws which must be followed to make a place safe ○ Equipment and furnishings on modern jet transports must comply with safety regulations concerning fire resistance.
safety straps /ˈseftə stræps/ plural noun device to keep a person in position in a seat
sailplane /ˈseiplpleɪn/ noun a light glider particularly well adapted to making use of rising air currents
St Elmo’s Fire /st ˈɛlməʊz ˈfaɪə/ noun a luminous electrical discharge sometimes seen on aircraft during storms
SALR abbreviation saturated adiabatic lapse rate
salvage /ˈsælˌvɪdʒ/ verb to save items of property which may be in danger of being lost ○ In the event of a crash landing in a remote area on land, an attempt should be made to salvage all items of survival equipment from the wreckage including beacons, rafts and raft equipment.
sample /ˈsæmpəl/ noun a small amount which is representative of the whole ○ If a sample of fuel taken from a tank was found to be hazy or cloudy in appearance, this would indicate the presence of water in suspension. ○ If fuel contamination by water is suspected, a sample of fuel should be drained from the tank for inspection.
sandwich /ˈsændwɪdʒ/ noun a construction of three layers, the material of the one in the middle being different from the two on each side ○ Standard connectors consist of a metal coupling with a rubber sandwich joint.
SAR abbreviation 1. special aerodrome report 2. search and rescue (ICAO)
requires an adequate supply of oil.

satisfactory operation, an engine could absorb no more water possible amount of another substance to combine with the greatest partial prescribed standard.

requirements of aviation there are three types of meteorological offices for aviation.

in relation to the Earth’s surface. Abbreviation SATNAV

to meet the needs or requirements of something. To satisfy the requirements of aviation there are three types of meteorological offices for aviation, each with a specific role to fulfil.

Shell Avgas 100LL satisfies British specification.

satisfaction point

satisfactory drop in rpm or manifold pressure’ [Civil Aviation Authority, General Aviation Safety Sense Leaflet].

satisfactory operation, an engine requires an adequate supply of oil.

‘…during the engine run-up, check that the use of carburettor heat gives a satisfactory drop in rpm or manifold pressure’ [Civil Aviation Authority, General Aviation Safety Sense Leaflet].

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static seal

Static seals, gaskets and packing effect a seal and packing are used in many locations. An integral fuel tank may be completely sealed by being squeezed between two seals, gaskets and packing.

Sea level

The average level of the surface of the sea, used for measuring atmospheric pressure.

Sealing compound

A substance painted or sprayed onto a surface to prevent the escape of a liquid or gas. The integral fuel tank may be completely coated on the inside with a layer of sealant.

Sealant

A substance painted or sprayed onto a surface to prevent the escape of a liquid or gas.
identify aircraft, determine altitude and range, etc. Secondary surveillance radar (SSR) is normally used to supplement data from primary systems. Abbreviation SSR

section /ˈsekʃən/ noun 1. a component or part of a structure or tail section and nose section of the aircraft or the non-smoking section of the aircraft. 2. part of a text. The book is divided into four sections, and the first four chapters form the first section. 3. a diagram of a solid object as it would appear if cut, so that the internal structure is displayed.

cross-section sectional /ˈsekʃən(ə)l/ adjective 1. referring to a section or composed of sections, showing a solid object as it would appear if it were cut.

sector /ˈsektər/ noun 1. part of the flight between an aircraft moving under its own power until it next stops after landing in its allocated parking position. 2. part of a circle inside two radii and the included arc. 3. a segment of airspace with its own team of air traffic controllers.

secure /ˈsiːkər/ adjective fastened or locked, safe. Overhead baggage lockers must be secure. 1. verb to attach firmly, to fasten or to make safe. If the onset of turbulence is sudden, crew must immediately secure themselves in the nearest available seats.

security /ˈsekjərəti/ noun 1. safety. 2. people whose job is to protect buildings or other people against crime.

SELCAL noun a high-frequency radio system which alerts the crew of an aircraft to the fact that air traffic control is trying to contact them. Full form selective call.

seldom /ˈseldəm/ adverb not often, rarely. Aircraft are seldom hit by lightning. The wet sump system of lubrication is seldom used on modern aircraft.

select /ˈselkt/ verb to choose something such as a particular instrument or system setting. A reverse thrust lever in the crew compartment is used to select reverse thrust. The cabin pressure controller is used to select cabin altitude.

selection /ˈseləkʃən/ noun 1. a choice of something such as a particular instrument or system setting. 2. By manual selection of the heating switch, the formed ice can be dispersed. 3. a selection of carefully chosen things.

selector /ˈselktər/ noun a manually operated device like a switch, which offers a choice of settings. 1. Turn the selector control. 2. The purpose of this selector is to direct fluid to the appropriate side of an actuator.

self-contained /ˌself kənˈtēnd/ adjective independent. The auxiliary power unit is a self-contained unit.

self-positioning /ˌself pəˈzɪʃ(ə)n/ noun the positioning of the aircraft on the extended centreline of the runway using the on-board navigation system. Also called centre fix.

semiconductor /ˈsɛmɪkənˈdəktr/ noun a solid crystalline substance with electrical conductivity greater than that of insulators but less than that of conductors. Semiconductor material is used to make many electronic devices.

senior /ˈsenjər/ adjective older or more important in rank. Senior cabin supervisor.

sense /sens/ noun 1. manner, way. After turning the aircraft, the auto-control will operate in the opposite sense and return the ailerons to neutral as the aircraft returns to level flight. 2. any of the physiological means by which we experience our surroundings: sight, hearing, smell, taste and touch. When flying in cloud, pilots must rely on the instruments and not on their senses. 3. wisdom or natural intelligence. He has a lot of (common) sense. 4. the meaning
takes place.
in the oil tank, where partial separation
mixture flows over the de-aerator tray
trip off.
The actuator is sensitive to
engine rpm.
sensitive adjective able to
register very small differences or
changes in conditions
Monitors detect disturbances which are below the sensitivity
level of the gyros.
sensor noun a device which
receives and responds to a signal or
stimulus
The inlet pressure
is sensed by a single pitot-type sensor
probe which is situated just in front of the compressor.
separate adjective existing as an independent thing
Propellers consist of a number of separate
blades mounted in a hub.
separation noun 1.
the condition of being spaced apart
2.
the removal of something from a mixture
or combination
The oil and air
mixture flows over the de-aerator tray
in the oil tank, where partial separation
takes place.
separation standards internationally agreed minimum separation limits for aircraft in flight
separator noun a device which removes something from a mixture
or combination
The water separator will extract a percentage of free
moisture from the air.
sequence noun a series of things or events which follow one
another, an order
The ignition system
provides a rapid series of sparks timed to fire in each cylinder in the correct
sequence.
sequence valves noun a fluid flow controller which performs a number of actions in a particular order
Sequence valves are often fitted in a landing gear circuit
to ensure correct operation of the landing
gear doors and actuators.
series noun a number of things or events which come one after
the other in a particular order
a series of photographs
a series of switches
series circuit noun an electric circuit connected so that current
passes through each component of the circuit in turn without branching
serious adjective important, or giving cause for great concern or worry
serious damage very bad damage
gives serious injury very bad injury
serve verb 1.
to act or to function as
In some aircraft, pressure
gauges also serve as a maintenance
tool.
2.
to be used for a
purpose
Different colour-coded warning lights serve to alert the observer
that something is wrong with the system.
...a recent incident in Argentina serves
to highlight some of the many safety
problems in Latin America' [INTER PILOT]
service noun a facility
A pressure reducing valve is often used to
reduce main system pressure to a value
suitable for operation of a service such as the wheel brakes.
2.
work done for others as a profession
Automatic Terminal Information Service (ATIS)
Cabin crew provide a commercial service
to passengers.
3.
maintenance or repairs carried out
a verb to do maintenance
or repairs on
Jet engines are simpler to dismantle and service than
piston engines.
serviceability noun the ability to function as required
When carrying out engine checks, it is usual to turn off the magnetos in turn to
check their serviceability.
serviceable

/serviceable/ /səˈvɪsəb(ə)r/ adjective able to function as required. (NOTE: setting – set) 1. cold setting materials materials which do not need heat to harden set down /,set ˈdaʊn/ verb to land an aircraft, or land somewhere in an aircraft setting /ˈsetɪŋ/ noun 1. a particular figure or position which a device is adjusted to; a setting adjustment of the sub-scale of the altimeter to read QFE, QNH, etc. 2. the action of adjusting a device to a particular position, etc. (NOTE: Generally speaking, weather conditions can be described as light, moderate or severe, depending on the amount or intensity of the condition.) 3. severe icing bad icing 4. severe turbulence violent turbulence severity /ˈsɛvrətɪ/ noun the amount, intensity or seriousness of a condition When the wind is strong the vertical currents become quite vigorous with the resultant increase in the severity of turbulence.

SFAR abbreviation Special Federal Aviation Regulation shade /ʃeɪd/ noun 1. intensity or richness of colour: Shades of colour of the landscape become lighter in misty conditions. 2. cover or shelter from the sun Surface air temperature is the temperature recorded in the shade at a height just above ground level.

shadow /ˈʃeɪdəʊ/ noun an area which is not affected by full radiation because of partial or full blocking of rays by something between the area and the source of the radiation Solar radiation does not exist at night when the rotation...
of the Earth creates a shadow zone from the sun. • Line-of-sight transmission path means that obstacles and terrain can create shadow zones.

**shaft** /ʃaft/ noun A long, generally cylindrical bar, especially one that rotates and transmits power • engine drive shaft • propeller shaft

**shaft horsepower** /ʃaft hɔrˈspɔːr/ noun The unit used for stating the power delivered to the shaft of a turboshaft or turboprop engine. Abbreviation SHP

**shaker** /ʃeɪkə/ noun A device which shakes or vibrates violently • Large aircraft use a stick shaker to supplement the natural stall warning of buffet.

**shallow** /ʃeloʊ/ adjective Not deep • shallow angle

**shallow depression** /ʃeloʊ dɪˈpɛrʒən/ noun An area of slightly low relative atmospheric pressure

**shape** /ʃeɪp/ noun The shape of an aircraft is determined by the requirement to provide an aerodynamic lift force great enough to support the weight of the aircraft and payload whilst in flight.

**sharp** /ʃɑrp/ adjective 1. Thin and capable of cutting or piercing • If a piece of thermosetting plastic is hit hard enough, it breaks into pieces with straight sharp edges. 2. Clear • The sharp setting means the bandwidth is reduced to $1kH$ (kilohertz) to minimise noise or interference. 3. Clear and distinct • Cumulus clouds have sharp outlines. 4. Sudden and acute • a sharp increase

**shatter** /ʃɑtər/ verb To break into a number of pieces when hit • Clear ice is hard to shatter and break off.

**shear** /ʃɪər/ verb To break by lateral movement

**shearing load** /ʃɪərɪŋ lɔːd/ noun Load caused by sliding apart the layers of a structure

**shear stress** /ʃɪər stres/ noun Stress that occurs in riveted and bolted joints when a force causes one layer of material to slide over an adjacent layer

**shed** /ʃɛd/ verb To get rid of • Non-essential loads may need to be shed in order to reduce weight.

**sheet** /ʃiːt/ noun 1. A large, thin, flat piece of material • aluminium sheet 2. A relatively large piece of paper • instruction sheet

**shell** /ʃel/ noun The outer covering of something such as an aircraft fuselage

**shield** /ʃild/ noun A protective covering • heat shield • verb To protect by covering • The beacon should be sited on the highest ground to prevent the transmitted signal from being shielded.

**shift** /ʃɪft/ noun 1. Movement from one place to another • a shift in position 2. A change • When a radio transmission is made from a moving platform, there will be a shift in frequency between the transmitted and intercepted radio signals. • verb To change the position of something • to shift a load

**shock** /ʃɒk/ noun 1. A sudden violent impact • On all undercarriages some form of accepting the shock of landing must be included. 2. Disturbance of mental functions caused by a terrible experience or injury • Crew should be aware of reverse panic, a form of shock which makes passengers unable to comprehend the need for urgency.

**shock absorber** /ʃɔk əbˈzɔrər/ noun device to minimise the shock to the main structure of the aircraft when it lands

**shock wave** /ʃɔk wɜːv/ noun Compression wave caused by supersonic motion • As sonic speed is approached, the efficiency of the intake begins to fall, because of the formation of shock waves at the intake lip.

**shore** /ʃɔː/ noun A stretch of land at the edge of the sea or a lake, etc. • At a height of 3,000 feet it was possible to see the shore. • offshore, onshore

**shorten** /ʃɔrtən/ verb To make short or shorter in length or duration • Mis-handling of aero-engines during operation can cause considerable damage and wear which can shorten the life of the engine. • The length of the mercury
Short-haul 208

column shortens when cooled. Opposite
lengthen

short-haul /ʃɔt hɔl/ adjective travelling over a short distance

short-haul flight /ʃɔt hɔl ˈflæt/ a flight over a short distance, up to 1,000km. On short-haul flights, passengers are usually offered only light meals.

short-term conflict alert /ʃɔt tɜrmˈkɒnflɪkt ə lɛnt/ noun a warning that an aircraft may soon be flying too close to another aircraft

shot /ʃɔt/ noun a discharge ○ Extinguishing of a fire in an auxiliary power unit (APU) compartment is normally done by a single-shot fire extinguisher.

shower /ˈʃɔʊə/ noun a short period of rain or snow ○ Showers are forecast for the evening. ○ Snow showers are expected in the area.

SHP abbreviation shaft horsepower

shroud /ʃraʊd/ noun 1. an extension of a fixed surface of a wing towards the rear, which covers the leading edge of a movable surface hinged to it 2. any one of the lines by which the harness of a parachute is attached to the canopy

shunt /ʃaʊnt/ noun a low-resistance connection between two points in an electric circuit that forms an alternative path for a portion of the current ○ The shunt-wound generator, used in conjunction with a voltage regulator, is the most common type of DC (direct current) generator system for aircraft. Also called bypass

shutter /ˈʃɔtə/ noun a hinged door which controls the flow of air ○ oil cooler shutters ○ radiator shutters

SID abbreviation standard instrument departure

sidestick controller /ˈsaɪdɪstɪk kanˈtrəʊlə/ noun a small side-mounted control column used on aircraft such as the Airbus A340

sight /sɑt/ noun 1. view ○ The fog cleared and the mountain came into sight. 2. ○ with the airfield in sight a transmission to air traffic control to confirm that the pilot can see the landing airfield 3. the ability to see using the eyes ○ verb to see something when it is a long way away ○ Sea marker dyes can only be used once and should only be used when a search aircraft is sighted.

sight glass /ˈsaɪt glɑs/ noun a simple fluid-level gauge

SIGMET /ˈsɪgmɛt/ abbreviation significant meteorological information

sign /sɑn/ noun 1. a small quantity or amount of something which may suggest the existence of a much larger quantity ○ Any sign of smoke or fire outside a wing exit means it cannot be used. 2. a display with letters and/or numbers, sometimes lit up ○ the 'fasten seat belt' sign ○ 'no-smoking' sign 3. a symbol such as: - , +, x or ÷, which represents an operation ○ verb to put one's signature on a document, a letter, etc. ○ Remember to sign the letter.

signal /ˈsaɪnəl/ noun 1. a device, action or sound which passes information 2. a radio wave transmitted or received ○ As a general rule, radio signals travel in straight lines.

signals area /ˈsɪgnəlz əˈreə/ noun an area on an aerodrome used for displaying ground signals

signals mast /ˈsɪgnəlz mɑst/ noun a vertical pole on an airfield from which signal flags are flown

signals square /ˈsɪgnəlz ˈskweə/ noun a vertical pole on an airfield from which ground signals are displayed

signature /ˈsɪgnətʃər/ noun the name of a person written in a special way to show that a document has been authorised or to show who is the author of a letter, etc. ○ Look at the signature to see who wrote the letter.

significance /ˈsɪgnɪfɪkəns/ noun importance ○ Except near a coastline where the sea breeze may augment the upslope motion, anabatic winds are of little significance.

significant /ˈsɪgnɪfɪkənt/ adjective important and therefore noticeable ○ a significant change in temperature ○ The vertical currents and eddies formed by the flow of air over hills and mountains have a significant effect on aircraft encountering them.
significant meteorological information /siɡˈnɪfɪkənt maˈtɪərɪəl ɪnˈfɒrmeɪʃ(ə)n/ noun a weather advisory concerning weather conditions important to the safety of all aircraft, such as severe or extreme turbulence. Abbreviation SIGMET

significant points /ˌsiɡnɪfɪkənt ˈpɔɪnts/ plural noun geographical positions used in air navigation, which are defined by latitude and longitude and have names consisting of five letters

significant weather chart /ˌsiɡnɪfɪkənt ˈweðər ˈʃɑrt/ noun a weather chart with important weather information marked on it

signify /ˈsɪɡnaɪfɪ/ verb to indicate, to suggest, to mean

signifying — signified

silence /ˈsaɪləns/ noun the absence of sound. Total silence the complete absence of sound. Verb to stop, or stop something, making a noise. When an engine fire warning is received on the flight deck, the first action should be to silence the warning bell.

silencer /ˈsaɪlənəs/ noun a device to reduce noise. In order to reduce the level of noise from the blower, silencers are incorporated in the main supply ducting.

similar /ˈsɪmələr/ adjective nearly the same. Turbo-shaft engines are similar to turboprop engines.

similarity /ˈsɪmələrɪti/ noun the fact of having features that are nearly the same. There are points of difference and similarity between the two aircraft.

simple /ˈsɪmpl/ adjective 1. basic, not complex. A simple fuel system consists of a gravity feed tank, a filter, a shut-off valve and pipes. 2. easy. A simple question

simplicity /ˌsɪmplɪˈsɪtɪ/ noun the quality of having a basic, uncomplicated design or concept. Because of its lightness, cheapness and simplicity, a fixed pitch propeller is often fitted to single-engine aircraft.

simplify /ˈsɪmplɪfɪ/ verb to make easy, to make less complex or complicated. Repair procedures are being further simplified by increasing use of cold setting resins.

simulate /ˈsɪmjʊleɪt/ verb to imitate the conditions or behaviour of something. The computer program simulates the action of an aircraft.

simulated instrument flight /ˈsɪmjʊleɪtɪd ɪnˈstrʊmənt ˈflaɪt/ noun an instrument flight carried out in a simulator on the ground or in a specially prepared aircraft with screens on the windows

simulation /ˌsɪmjʊˈleɪʃ(ə)n/ noun an imitation of a real situation, created often for training purposes. The computer animation showed a simulation of the events which followed the explosion on board the aircraft.

simulator /ˈsɪmjʊleɪtər/ noun a machine that is constructed to look like an aircraft cockpit with a full set of instruments, in which people can be trained to fly a particular type of aircraft

simultaneous /ˌsɪmltəˈrɪəməs/ adjective happening at the same time. Most aircraft are now fitted with remote magnetic indicator displays which can be selected to show two simultaneous bearings from different radio nav aids.

sine /saɪn/ noun a trigonometric function defined as the length of the side opposite to an angle in a right-angled triangle divided by the length of the hypotenuse. Abbreviation sin

single /ˈsɪŋɡəl/ adjective one only

single-engined aircraft /ˈsɪŋɡəl ˈɛŋˈɡɪn ˈesˌkrɪft/ noun a single-engine aircraft

sink /sɪŋk/ noun a downdraught of air. Rate of sink the rate of descent of a glider. In order to achieve a safe landing, a glider has to be controlled so that it makes contact with the runway smoothly at a very low rate of sink. Verb to move downwards as in a fluid. If water enters the fuel tank, it will sink to the bottom of the tank where it can be drained off.

sit /sɪt/ verb to be resting with your behind on a seat such as a chair. The
site

pilot sits in the cockpit. (NOTE: sitting = sat)
site /saɪt/ noun a selected area of land
landing site • verb to position or to put in a particular place ○ Where it is impossible or inadvisable to site the localiser antenna on the runway centreline, it may be positioned to one side.
sitting /ˈsɪtɪŋ/ adjective • sitting position the position of a person who is on a seat ○ The correct technique of using the escape slides is to assume a sitting position.
sistrate /ˈsɪstrət/ verb to put in a particular place, to locate ○ The inlet pressure is sensed by a single pitot-type probe which is situated just in front of the compressor.
situation /ˈsɪtʃuəʃən/ noun 1. a location, the place where something is ○ The situation of the flight controls is important. 2. the conditions or circumstances in a particular place or at a particular time ○ The synoptic chart is a graphical representation of the general weather situation over a given area at a given time.
six character group /ˌsɪksˌkærəkˈtər ˈgrʊp/ noun a group of six letters and/or numbers
six degrees of freedom of motion /ˌsɪksˈdiːə ˌfʌrˈmən/ plural noun the six types of movement that an aircraft must be able to make: forward, upward and downward, and roll, yaw and pitch
size /saɪz/ noun the extent of a thing, how big something is ○ Whether or not an object can be seen by an aircrew at a given distance will depend on factors such as the size, shape and colour of the object.
skid /skɪd/ noun 1. a slide on slippery ground ○ Anti-skiad braking systems units are designed to prevent the brakes locking the wheels during landing, thus reducing the possibility of wheel skid. 2. a condition of uncoordinated flight then the aircraft moves away from the centre of a turn ○ Deflection of the ball in the turn coordinator indicates a slip or a skid. ○ anti-skid (NOTE: To correct a skid, the pilot should increase the bank, or increase rudder pressure on the same side as the ball has moved to in the turn coordinator.) • verb 1. to slide on slippery ground ○ If you brake too hard on a wet surface, you might skid. (NOTE: skidding – skidded) ○ to skid to a halt to slide or skid until you stop 2. to move sideways towards the outside of a turning manoeuvre
skill /skɪl/ noun expertise, an excellent ability in something ○ Skill in accurate flying can only be achieved by constant practice.
skin /skɪn/ noun the outer layer of a body, or the outer layer of an aircraft ○ The aircraft skin is riveted to stringers and frames.
skip distance /ˈskɪp ,dɪstəns/ noun the shortest distance at which a sky wave can be received ○ The higher the layer in which a direct wave signal is totally refracted and returns as a sky wave, the greater the skip distance.
skiplane /ˈskiːpliːn/ noun an aircraft equipped with skis for taking off from and landing on snow
sky /skai/ noun the atmosphere and outer space as seen from the earth ○ The sky is the barycenter of the meteorological science ○ The higher the sun is in the sky, the more intense is the radiation per unit area.
skyjack /ˈskiːdʒæk/ verb to use force to take illegal control of an aircraft, especially a commercial aircraft, when it is in the air
sky wave /ˈskiː wɛv/ noun part of a radiated wave which is returned to Earth by refraction from the ionosphere
skyway /ˈskiːweɪ/ noun a route used by aircraft
skywriting /ˈskiːwraɪtɪŋ/ noun 1. the use of an aircraft releasing coloured smoke to form letters in the sky 2. letters or a message formed in the sky by coloured smoke released from an aircraft
slack /slaŋk/ adjective 1. not tight ○ a slack cable a loose cable 2. not busy ○ Early afternoon is a slack period of the day. 3. widely spaced ○ Throughout the tropics and sub-tropics, where pressure gradients are normally slack, the sea breeze is a regular feature. ○ Land and...

skid

A condition of uncoordinated flight when the aircraft moves away from the centre of a turn. A skid is usually caused by lack of rudder control or by the application of brake pressure on one side of the aircraft. To correct a skid, the pilot should increase the bank, or increase rudder pressure on the same side as the ball has moved to in the turn coordinator.
sea breezes occur in coastal areas when there is a slack pressure gradient.

slant /slænt/ noun a slope or inclination. Distance Measuring Equipment (DME) is a radio aid which measures aircraft slant range to a ground beacon.

- verb to slope ○ The wing slants upwards from the root to the tip.

slat /slæt/ noun a movable device on the leading edge of a wing which, when extended, creates a gap that allows air to pass smoothly over the top of the wing thus reducing the possibility of a stall ○ The Socata Rallye is one of the few light aircraft with leading edge slats.

sleet /slɛt/ noun 1. melting snow or a mixture of rain and snow falling together 2. US frozen rain in the form of clear drops of ice or glaze ice covering surface objects (NOTE: Care should be taken to avoid any ambiguity.) ○ verb to fall in the form of sleet ○ It is sleeting.

slide /slaid/ noun a device which allows continuous movement over a smooth surface ○ verb to move continuously over a smooth surface ○ Shear stress is the stress that resists the force tending to cause one layer of a material to slide over an adjacent layer. (NOTE: sliding – slid)

slide raft /slaid ræft/ noun an escape slide which, when detached from the aircraft, can be used as a life-raft

slide rule /slaid rul/ noun a graduated device with sliding parts for performing complex mathematical operations

slight /slæt/ adjective small, minor ○ a slight increase a small increase ○ a slight drop in temperature a small decrease in temperature

slip /slip/ noun a condition of uncoordinated flight when the aircraft moves towards the inside of a turn ○ Slip is indicated by deflection of the ball in the turn and slip indicator. ○ verb to move sideways towards the inside of a turning manoeuvre as a result of excessive bank (NOTE: slipping – slipped)

COMMENT: To correct a slip, the pilot should decrease the bank, or increase rudder pressure on the same side as the deflected ball in the turn coordinator. Slips are often used in aircraft with no flaps to increase the rate of descent without increasing the airspeed.

slippery /ˈslipəri/ adjective which is difficult to grip firmly because of wetness, smoothness, etc. ○ a slippery surface such as a wet or snow-covered runway

slipring /ˈslɪprɪŋ/ a metal ring in a generator to which current is delivered by the brushes

slipstream /ˈslɪpstrɪm/ noun the flow of air sent backwards by an aircraft’s propeller

slope /sləʊp/ noun 1. a slanting surface or slanting piece of ground, an incline ○ A slope of the runway may increase or decrease the take-off and landing runs. 2. a state in which one end of an aircraft is higher than the other ○ verb to be inclined, to be at an angle ○ When the runway slopes upwards, away from the aircraft, the approach may appear to be higher than it actually is.

slot /slɔt/ noun 1. a groove or channel into which something can be fitted ○ The float engages with a slot cut in the tube, so that, as the fuel level changes, the float moves up and down. 2. the particular time at which an aircraft is scheduled to depart ○ Flight GF 506 missed its slot and will have to wait 45 minutes for another.

sm abbreviation statute mile

smog /ˈsmɔɡ/ noun a mixture of smoke and fog ○ Smog is now rare because of pollution control.

smoke /ˈsmɔk/ noun a white, grey or black product formed of small particles given off by something which is burning ○ The weather associated with visibility reductions by particles suspended in the atmosphere is classified either as fog, mist, haze or smoke. ○ verb 1. to give off smoke ○ Somebody noticed that one of the engines was smoking. 2. to breathe in smoke from a cigarette, cigar, etc. ○ Passengers are not allowed to smoke in the toilets.

smoke alarm /ˈsmɔk əˌlaʊm/ noun a warning system that will ring or light
smoking

up if there is smoke somewhere o Wash-
rooms are fitted with smoke alarms.

smoking /ˈsməʊkɪŋ/ noun the act of 
breathing in smoke from a cigarette,
cigar, etc. o the airline has a no-smok-
ing policy the airline does not allow
passengers to smoke during a flight

smooth /smuːθ/ adjective 1. even and
without lumps or dents o a smooth sur-
face 2. not rough or turbulent o High
ground will disturb the smooth, hori-
zontal flow of air. Opposite rough o a
smooth running engine an engine
which is operating well

SMR abbreviation surface movement
radar

snap roll /ˈsnæp rəʊl/ noun a
manoeuvre in which an aircraft turns a
complete circle longitudinally while
maintaining altitude and direction of flight

snow /snəʊ/ noun atmospheric water 
vapour frozen into ice crystals and fall-
ing to Earth as white flakes o Snow
tends to persist on north-facing slopes of mountai-
nous regions after it has melted on south-facing slopes.

snowfall /ˈsnəʊfɔːl/ noun a quantity of snow which comes down at any one
time o a heavy snowfall

snowflake /ˈsnəʊflɛk/ noun a small piece of snow formed from a number of 
ice crystals o The size of a snowflake depends on the temperature.

snow plough /ˈsnəʊ plʌ/ noun a
vehicle built to push the snow from
roads, tarmac, etc.

snowstorm /ˈsnəʊstɔːrm/ noun a heavy fall of snow accompanied by
wind o The airport is closed because of
the snowstorm.

soft /sɒft/ adjective not hard o Ther-
omplastic materials become soft when
heated.

soften /ˈsɒfn(ə)n/ verb to make soft o Ther-
omplastic materials are softened by
many aircraft fluids.

solar /ˈsəʊlər/ adjective referring to the sun

solar-powered /ˈsəʊlər ,pəʊəd/ adjective powered by energy derived from the sun's rays

...a 210–240-foot wingspan solar-
powered aircraft for flight at 100,000 feet,
is being designed in California’ [Pilot]

solar radiation /ˌsəʊlar ˈreɪdɪən/ noun the total electromagnetic radiation given off by the sun

solar system /ˌsəʊlər ˈsɪstəm/ noun the sun and the planets governed by the sun

sole /səʊl/ adjective only o the sole survivor of the air crash

solenoid /ˌsəʊləˈnɔɪd/ noun a cylindrical
coil of wire acting as a magnet when
operating electric current o Fuel is
measured from the aircraft fuel system by
a solenoid-operated control valve.

solid /ˈsəʊlɪd/ adjective 1. referring to something which is not liquid or gase-
ous o Visibility is reduced by the pres-
ence of solid particles such as dust or sand in the atmosphere. 2. o a solid line
unbroken line o a substance which is
not a liquid or a gas o Ice is a solid,
water is a liquid and vapour is a gas.

solid-state /ˈsəʊlɪd stɛt/ adjective
referring to semiconductor devices

solid-state device /ˌsəʊlɪd stɛt di:
ˈveis/ noun an electronic device that
operates by using the effects of electro-
cal or magnetic signals in a solid semi-
conductor material

solid-state technology /ˌsəʊlɪd
stɛt ˈtekˌnɒlədʒɪ/ noun technology
using the electronic properties of solids
to replace those of valves

solo /ˈsəʊləʊ/ adverb done by one
person alone o to go solo or to fly solo o He
flew solo across the Atlantic.

solution /ˈsəʊljuʃ(ə)n/ noun 1. an
answer to or means of solving a prob-
lem or difficulty o The navigation com-
puter or slide rule is suitable for the
solution of many different types of
mathematical problem. 2. a liquid made
by dissolving a solid or gas in water or
some other fluid o Spillage from a lead
acid battery may be neutralised by
washing with a dilute solution of
sodium bicarbonate.

solve /səlv/ verb to find the answer to,
or a way of removing, a difficulty or
problem o The triangle of velocities is
used to solve navigation problems.
somewhat /ˈsʌmwaɪt/ • adverb to some extent, a bit • The usefulness of pure aluminium as a structural material is somewhat limited.

sonic /ˈsɒnɪk/ • adjective 1. referring to sound 2. within the human hearing range • sonic speed the speed of sound

sonic boom /ˈsɒnɪkˈbʌm/ • noun a noise, due to shock waves, produced when an aircraft travels through the air faster than the speed of sound

sophisticated /ˈsɒfɪstɪkeɪtɪd/ • adjective highly developed and complex • The electronic flight instrument system, commonly known as EFIS, is a highly sophisticated type of flight director system. • The A340 is a sophisticated aeroplane.

sortie /ˈsɔrti/ • noun an operational flight by one aircraft • The test programme has accumulated 1,146 sorties.

sound /ˈsaʊnd/ • adjective strong • A stressed skin structure is used on modern aircraft which gives a sound structure with relatively low weight. • noun something that can be heard and is caused by vibration of the surrounding air • FM (frequency modulation) gives a wide range of sounds or a very high data rate. • verb 1. to make a noise • If the trim position is incorrect, a warning horn will sound when number three thrust lever is advanced for take off. • sonic 2. to seem • It sounds as if the pilot is having trouble.

source /ˈsaʊs/ • noun a supply • Under emergency conditions, the battery may be the only source of electrical power. • Jet aircraft have a ready source of compressed air from the compressor sections of their engines.

south /souθ/ • noun a compass point on the mariner’s compass 180° clockwise from due north and directly opposite north • Fly towards the south. • south facing mountain side the face of a mountain which looks towards the south • adjective 1. referring to areas or regions lying in the south, referring to the compass point 180° from north • the south side of the river 2. the southern part of a region or country • South America • South Dakota • adverb towards the south • The aircraft is flying south.

southbound /ˈsouθbaʊnd/ • adjective travelling towards the south • a southbound flight

south-east /ˌsauθˈiːst/ • noun the direction between south and east • a region in the south-east of Canada • adjective 1. situated in the south-east • the south-east coast of England 2. blowing from or coming from the south-east • adverb towards the south-east • We were heading south-east.

south-easterly /ˌsauθiˈɛsti/li/ • adjective 1. blowing from or coming from the south-east • a south-easterly wind 2. moving towards the south-east • We were following a south-easterly direction.

south-easterly /ˌsouθiˈɛsti/li/ • adjective referring to or situated in the south-east • the south-eastern coast of Spain

southerly /ˈsauðəli/ • adjective 1. situated towards the south • the most southerly point of a country 2. coming from the south • A southerly wind was blowing. 3. moving to or towards the south • We were flying in a southerly direction. • noun a wind which blows from the south

southern /ˈsauðən/ • adjective situated in the south • the southern hemisphere • the southern Atlantic

southern hemisphere /ˈsauðənˈhæmɪstrɪ/ • noun the area of the Earth to the south of the equator

South Pole /ˌsauθˈpəʊl/ • noun the point which is furthest south on the earth • to fly over the South Pole

southward /ˈsauθwaːrd/ • adjective going towards the south • to go in a southward direction • adverb US same as southwards

southwards /ˈsauθwaːdz/ • adverb towards the south • The aircraft was flying southwards.

south-west /ˌsauθˈwest/ • noun the direction between south and west • a region in the south-west of France • adjective 1. situated in the south-west • the south-west tip of England 2. blowing from or coming from the south-west
south-westerly

adverb towards the south-west ☀ We were heading south-west.

south-westerly /ˌsauθ ˈwestəli/ adjective 1. blowing from or coming from the south-west ☀ a south-westerly wind 2. moving towards the south-west ☀ We were following a south-westerly direction.

south-western /ˌsauθ ˈwestən/ adjective referring to or situated in the south-west ☀ The south-western corner of England includes Cornwall and Devon.

south wind /ˌsauθ wɪnd/ noun a wind blowing from or coming from the south (NOTE: A wind is named after the direction it comes from.)

space /speɪs/ noun 1. an empty area ☀ A major problem with fuel storage is finding space within the airframe. 2. the physical universe outside the Earth’s atmosphere ☀ VHF (very high frequency) waves tend to pass through the layers of the ionosphere into space.

span /spæn/ noun the distance between two points

spar /spɑːr/ noun the main longitudinal beam of an aircraft wing ☀ Designing a wing skin, a rib or a spar as a single big item rather than assembling it from many smaller components minimises the number of structural parts.

spark /spɑːk/ noun a light produced by a sudden electrical discharge ☀ verb to suddenly start a process or action ☀ Crew must quickly establish control to ensure panic does not spark a premature evacuation.

spark plug /ˈspɑːk plʌɡ/ sparking plug /ˈspɑːkɪŋ plʌɡ/ noun a device screwed into each cylinder head in spark ignition engines, which initiates fuel combustion by an electric spark. ☀ air gap. Also called sparking plug

spat /spæt/ noun a streamlined covering for a wheel fitted on a light aircraft to reduce drag. Also called wheel fairing.

spatial disorientation noun a situation of bad visibility and/or unusual manoeuvres which result in the pilot not knowing what attitude the aircraft is in

speaker /ˈspiːkər/ noun 1. loudspeaker

special /ˈspeʃəl/ adjective particular, specific, or not ordinary ☀ To make a composite, it is necessary to combine the reinforcing glass fibres with some form of special glue. ☀ noun a special meteorological report

special aerodrome report /ˈspeʃəl əˈɛərədrəm riːpɔːrt/ noun report used if there are significant weather changes since the last meteorological aerodrome report. Abbreviation SAR

special VFR flight noun a controlled VFR flight permitted by air traffic control to fly within a control zone in meteorological conditions below visual meteorological conditions

specific /ˈspɛsɪfɪk/ adjective clearly defined and definite ☀ Flight levels are specific pressure altitudes. ☀ The airframe has to be built to very specific requirements.

specification /ˈspeʃəˌfɪkeɪʃən/ noun a detailed description that sets out what something consists of, what is needed, what is involved, etc. ☀ Fluids are coloured for recognition purposes and fluids of different specifications must never be mixed.

specific gravity /ˈspɛsɪfɪk ˈɡrævɪtɪ/ noun the density of a substance compared with that of water, which is 1.00 (NOTE: This is the old name for relative density.)

specify /ˈspeʃɪfɪ/ verb to name in detail ☀ The minimum values for decision heights are specified by the national licensing authorities for various types of aircraft and for various airports. ☀ Pressure must be maintained within specified limits during all phases of flight.

specimen /ˈspesɪmən/ noun a part taken as an example of the whole ☀ By testing specimen structures and components to destruction a safe life can be assessed for all such structures and components.

speed /spɪd/ noun the rate of motion over a distance in time
spheric  /ˈsɛrɪk(ə)r/  adjective shaped like a sphere. The Earth is almost spherical in shape.

spherical  /ˈsɛrɪk(ə)rəl/  adjective winding continuously in circles as it ascends or descends.

spill  /spɪl/  noun the running out of a liquid from a container, especially when it is unintentional. If fuel is spilled, it creates a fire hazard.

spillage  /ˈspɪldʒ/  noun the spilling of a liquid. Any fuel spillage must be cleaned up immediately. (NOTE: Spillage is used in a more general sense than the word spill.)

spin  /spɪn/  noun 1. fast rotation of the spin axis of the earth. 2. the continued spiral descent of an aircraft where the angle of attack of one wing is greater than the stalling angle. To rotate rapidly. The Earth is spinning on its axis.

spiral  /ˈspɪrəl/  noun a hinged surface on the upper wing which, when opened, decreases lift and increases drag. If a problem occurs in the spoiler system, a master caution light illuminates.

spool  /spʊl/  noun one complete axle of a seaplane to keep it steady on water.

sponson  /ˈspɒnsoʊn/  noun an air-filled structure or small wing projecting from the lower hull of a seaplane.

spontaneous  /ˈspɒntənɪəs/  adjective happening without external cause. Spontaneous ignition may occur if oxygen is allowed to come into contact with oil or grease.

spool  /spʊl/  noun one complete axle of a seaplane to keep it steady on water.

spool compressor consists of one rotor assembly and stators.
spot 216

b) fan engine to decrease o to spool up to increase the revolutions per minute of a turbofan engine.

'\textit{spot} /ˈspɒt/ noun 1. a special or small place o Charts should be kept in a convenient spot in the cockpit. 2. a small roundish mark or piece o a spot of oil on a shirt o \textit{spot height} the height of a particular place, e.g. a mountain peak, marked on a chart.

'\textit{spotlight} /ˈspɒtliːt/ noun a powerful, often moveable light which illuminates a small area o A spotlight is mounted on the roof.

'\textit{spray} /ˈspreɪ/ noun 1. a body of liquid in fine drops o The generator is cooled by oil spray delivered by the constant speed drive section. 2. a container that sends out liquid in fine drops o verb to apply or to send out liquid in the form of fine drops o Some engines have the coolant sprayed directly into the compressor inlet, but for axial flow compressor engines, it is more suitable to spray the coolant into the combustion chamber inlet.

'\textit{spread} /ˈspred/ noun an extension of the area covered or affected by something o Measures are taken to prevent the spread of fire. o verb to extend the area of something o Strong jets of water should not be used on a liquid fire as this may cause the fire to spread. o The system sprays a quantity of fluid onto the windscreen, which is then spread by the wipers. (\textsc{Note}: spreading – spread)

'\textit{spring} /ˈsprɪŋ/ noun 1. a metal device which, when under tension, tries to resume its previous position o The pitch lock piston is held in the forward position by a spring. 2. the season between winter and summer.

'\textit{squall} /ˈskwɔl/ noun a sudden increase in wind speed lasting for several minutes o Surface squalls are due to the spreading out of strong down draughts at the surface. o Even with a light mean wind speed, squalls of 50 kt (knots) or more can occur with sudden changes in direction.

'\textit{square} /ˈskwɔr/ noun a shape with 4 equal sides and 4 right angles o adjec-

'\textit{square foot} /ˈskwɔr fʊt/ noun a unit of measurement of area, which is one foot long by one foot wide.

'\textit{square metre} /ˈskwɔr mɪtə/ noun a unit of measurement of area, which is one metre long by one metre wide o The room is 3m x 9m so the area is 45 square metres (45\text{m}^2).

'\textit{square root} /ˈskwɔr rʊt/ noun a divider of a quantity that, when multiplied by itself, gives the quantity o 3 is the square root of 9.

'\textit{squawk} /ˈskwɔk/ noun an identification code o \textit{transponder} /t rænsˈpɜːdər/ verb to activate specific modes, codes or functions on a transponder o Garbling occurs when two signals are received simultaneously and can be resolved either technically or by making one of the aircraft squawk.

'\textit{squeeze} /ˈskwiːz/ verb to press hard from opposite directions o Static seals, gaskets and packing are used in many locations, and these effect a seal by being squeezed between two surfaces.

'\textit{SS} /ɛs ɛs/ abbreviation sunrise.

'\textit{SSR} /ɛs ɛs ɛr/ abbreviation sunset.

'\textit{stabilise} /ˈstɛbɪləzaɪ/; stabilize verb to become steady and unchanging o After the engine has been started, engine speed is increased to 1,000 r.p.m. (revolutions per minute) until cylinder head and oil temperatures have stabilised at normal operating temperatures.

'\textit{stabiliser} /ˈstɛbɪləzaɪ/; stabilizer noun a device to improve the tendency of an aircraft to return to its original attitude after being deflected.

Comment: Some aircraft have an all-moving tailplane called a ‘stabilator’ (a combination of the words stabiliser and elevator).

'\textit{stabilitor} /stəˈbɪlɪtər/ noun o stabiliser

'\textit{stability} /stəˈbɪlɪtɪ/ noun 1. being stable or steady o The stability of the Cessna 150 makes it an ideal training air-


craft. 2. a state of the atmosphere in which air will resist vertical displacement. When air moves away from its source region, the stability of the lower atmosphere changes.

COMMENT: Stability can be classified as three types. Positive stability is the tendency of a body to return to its original state after being displaced. Light training aircraft have positive stability. Neutral stability is the tendency of a body to remain in its new position after displacement. Negative stability is the tendency of a body to continue moving away from its original position after displacement.

stability augmentation system /stəˈbɪlɪtɪ əˈɡɜːmənt(ə) ʃəm/ noun a flight control system which automatically adjusts pitch and yaw to improve an aircraft's stability. Abbreviation SAS

stable /ˈsteɪbl/ adjective 1. steady 2. referring to an atmosphere in which there is little or no vertical movement. Layer cloud occurs in a stable atmosphere.

stack /stæk/ verb 1. to put one on top of the other. By stacking rows of horizontal dipole one above the other, a well-defined electronic glide path can be transmitted. 2. to keep aircraft circling at different heights while they are waiting to land at an airport. A number of aircraft waiting to land at an airport that are circling at different heights

stacked /stækt/ adjective circling at different heights prior to landing

stackup /stæk pik/ noun same as stack

stage /stedʒ/ noun 1. one of several sections, steps, or levels into which a process can be divided. There are three stages in the life cycle of a thunderstorm: process of formation, development and decay. Calculate headings to steer for each stage of the flight. 2. cruise stage of the flight the section of a flight between top of climb after takeoff and start of descent to land. 3. at a later stage at a later time 4. a group components forming part of an electrical or electronic system.

stall warning system /stɔl ˈwɔrɪnɡ ʃɪstəm/ noun a system to warn the pilot that the aircraft is about to stall

flow compressor, many stages of moving and stationary blades are needed, each row of rotors and a row of stators forming a stage.

stagger /ˈstæɡə/ noun a design in which the leading edge of one wing of a biplane project beyond that of the other wing. Verb to make the leading edge of one wing of a biplane project beyond the leading edge of the other wing.

stall /stɔl/ noun 1. a loss of lift caused by the breakdown of airflow over the wing when the angle of attack passes a critical point. In some configurations it is possible for the buffet speed to be less than the required 7% margin ahead of the stall. 2. a situation in which an engine or machine stops suddenly because an opposing force overcomes its driving power. Compressor stall can be caused by ice formation in the air intake. Recovery verb to lose lift by the breakdown of airflow over the wing when the angle of attack passes a critical point. Many light aircraft stall when the angle of attack exceeds 15°.

recover /rekər/ verb

COMMENT: A stall has nothing to do with the engine stopping. An aircraft can stall at any airspeed and in any attitude.

stalling angle /ˈstɔlən ˈæŋɡ(ə)/ noun the angle relative to the horizontal at which the flow of air around an aerofoil changes abruptly, resulting in significant changes in the lift and drag of an aircraft.

stalling speed /ˈstɔlɪŋ ˈspiːd/ noun the speed at which the angle of attack is such that lift over the wing surface breaks down

COMMENT: Traditionally, an aircraft can stall at any airspeed, providing the angle of attack is great enough. Stalling speed is often used to refer to the speed below which the aircraft cannot remain airborne.

stall warning system /stɔl ˈwɔrɪnɡ ʃɪstəm/ noun a system to warn the pilot that the aircraft is about to stall
standard /stændəd/ noun something, e.g. a quality or measure, that is officially recognised as an example that others must conform with. Water is the standard for determining relative density. a high standard of skill a high level of skill

magnitudes standard procedure normal procedure

standard atmosphere /stændəd ˈætməsfər/ noun a unit of pressure defined as the pressure that will support a 760 mm column of mercury at 0°C at sea level, equal to 1.01325 x 10^5 newtons per square metre

standard instrument departure /stændəd ɪnstrəmənt dəˈpɜːtʃər/ noun a published navigational chart showing the route an aircraft must take as it takes off and climbs away from an airport. Abbreviation SID

standard parallels /stændəd ˈpærələlz/ plural noun (in a conical projection) the parallels of latitude where the cone cuts the surface

standard pressure setting /stændəd ˈprɛʃər ˈsetɪŋ/ noun 1013.25 millibars. Abbreviation SPS

standard rate turn /stændəd rət ˈtɜːn/ noun a turn made at a precise number of compass degrees per second

COMMENT: Rate 1 turn = 180 ° in 1 minute, Rate 2 turn = 360 ° in 1 minute. Rate 3 turn = 540 ° in 1 minute, Rate 4 turn = 720 ° in 1 minute. Standard rate turns are made using particular angles of bank for specific airspeeds and are used while flying under Instrument Flight Rules (IFR). The pilot can make accurate turns to given headings by banking at the standard rate and timing the turn.

standard time /stændəd ˈtaɪm/ noun a universally adopted time for all countries based on zone time

standby /ˈstændbæ/ adjective secondary, able to be used as a back-up. Some aircraft use a ram air turbine that can be very useful as a standby power source in the event of failure of a complete main AC (alternating current) generating system.

standby ticket /ˈstændbæ tɪkɪt/ noun a cheaper air ticket bought just before departure time.

standing agreement /ˈstændɪŋ əˈɡrɛmənt/ noun an agreement between controlling units in different flight information regions to allow the transfer of control from one sector to the next without individual coordination, provided agreed parameters are met

standing wave /ˈstændɪŋ wɛv/ noun the motion of air downwind of a steep hill or mountain in which the high and low points of the wave do not move

STAR abbreviation standard arrival route

starboard /ˈstɑːbɔrd/ noun, adjective the right-hand side of an aircraft when facing forwards when inside the aircraft

The angle between heading and track of an aircraft is called drift and is expressed in degrees to the port or starboard side of aircraft heading. Opposite port

starter /ˈstɑːtər/ noun a device to start an engine

starter motor /ˈstɑːtər ˈmɔːtər/ noun in a piston engine, a small electrically operated device to turn the engine until ignition starts

start-up /ˈstɑːtəp/ noun a procedure to start an engine. After start-up, the engine accelerates up to idling speed.

state /stæt/ noun the existing condition of something. a state of equilibrium. Ice in a liquid state is called water. Water in a gaseous state is known as vapour. A logic gate is a two-state device i.e. on/off. In a poor state in a bad condition. a verb to say or to mention, or to give information clearly.

It states in the information that you must not open the can near a flame.

Please state your name and address.

statement /ˈstɛtmənt/ noun something formally expressed in words. After the crash, the president and chief executive of the company made a brief statement to the waiting news reporters.

static /ˈstætɪk/ adjective not acting, not changing, passive or not moving. noun the background noise during radio transmission.
static display /'stætɪk dɪsplɛt/ noun a display of parked aircraft on the ground

static electricity /'stætɪk ɪlektrəlɪ/ noun electricity not flowing as a current ○ When the aircraft travels through the air, friction causes a charge of static electricity to be built up on the airframe.

static ground running /'stætɪk ɡraʊnd ˈrʌnɪŋ/ noun the running of the engine while the aircraft is stationary on the ground

static line /'stætɪk 'lайн/ noun a rope attached to an aircraft and a parachute that automatically opens the parachute when the parachutist jumps

static port /'stætɪk pɔrt/ noun a small hole in the side of the aircraft which senses static pressure and is used in the operation of the altimeter, vertical speed indicator and airspeed indicator ○ Ensure that the static port is clear.

static pressure /'stætɪk 'presʃə/ noun the pressure of a fluid acting on and moving with a body

station /'steɪʃən/ noun 1. a particular assigned location ○ The interphone system allows the flight deck to communicate with cabin crew stations. 2. the location of a radio transmitter ○ a VOR station

stationary /'steɪʃənəri/ adjective not moving ○ The aircraft was stationary on the ground with engine running.

stator /'stætər/ noun a fixed part of a rotary machine ○ The low-pressure compressor has large rotor blades and stator blades and is designed to handle a far larger airflow than the other two compressors. ○ A temperature probe is embedded into the stator of the generator ○ a trip to the generator stator temperature can be monitored.

status /'stætəs/ noun condition ○ The centre-zero ammeter tells the pilot the status of the aircraft battery.

statute mile /'stætjuː mɪl/ noun a non-SI unit of length equalling 1.609 kilometres ○ It is 20 statute miles to the airport. Abbreviation sm

STC abbreviation supplemental type certificate

STCA abbreviation short-term conflict alert

steady /'stedɪ/ adjective constant and unchanging ○ The manual test will give a steady red light. ○ a steady wind a wind of constant speed and direction

steam fog /'stɛm fɔɡ/ noun fog formed when cold air moves over relatively warm water ○ Visibility was impaired because of steam fog.

steel /stɛl/ noun a metal alloy of iron, carbon and other compounds ○ stainless steel steel containing chromium and nickel that is highly resistant to corrosion ○ Tubing in parts of the system containing fluid at high pressure are usually made from stainless steel.

steep /step/ adjective 1. sloping sharply ○ a steep angle of approach the angle formed by the aircraft approach flight path and the horizontal is greater than usual 2. closely spaced 3. referring to marked changes in pressure or temperature in a relatively short horizontal distance ○ Cooling of the air in contact with the ground at night can cause a very steep inversion of temperature at the surface. ○ Pressure gradients in anti-cyclonic curvature tend not to be steep.

steer /stɪər/ verb to direct by using a wheel or control stick ○ The aircraft is steered on the ground by using the rudder pedals.

steering /'stɪərɪŋ/ noun 1. guiding or directing ○ Steering is controlled by rudder pedals. 2. a system for guiding or directing a car, aircraft, etc. ○ Most modern light aircraft have nose-wheel steering but older tail-draggers are steered on the ground by using differential braking.

step /step/ noun 1. a stage ○ The first step in map reading is to orientate the chart. 2. one stair ○ Mind the step!

steward /'stjuːərəd/ noun a male member of airline staff who look after passengers during the flight. ○ a cabin crew, flight attendant, stewardess (NOTE: Different airlines use different terminology for their staff.)
stewardess 220

stewardess /ˈstjuːdəs/ noun a female member of airline staff who look after passengers during the flight. cabin crew. flight attendant, steward (NOTE: Different airlines use different terminology for their staff.)

stick /stɪk/ noun the main hand control used by the pilot to control the aircraft roll and pitch. Using fly-by-wire technology, the stalling angle cannot be exceeded regardless of stick input. verb to become fixed, as if with glue. Ice crystals and snowflakes do not stick to airframes, and so icing is a problem only when super-cooled water droplets are present.

stiff /stɪf/ adjective 1. rigid or inflexible. ☀ Kevlar 49 is stiffer than glass, but only about half as stiff as carbon fibres. 2. not easily bent or turned. control surfaces may become stiff as a result of icing. control surfaces may become difficult to move. a stiff wind a fairly strong wind

stiffen /stɪf(ə)n/ verb 1. to make rigid or inflexible, to make stiff. Beams can be additionally stiffened in a downward direction by vertical and diagonal members. 2. to become stronger

STOL /stɒl/ noun 1. a flying system that allows an aircraft to take off and land on a very short runway. 2. an aircraft fitted with the STOL system. Full form short takeoff and landing stop /stɒp/ noun 1. the end of a movement. ☀ to come to a stop to stop moving. 2. a component which limits the distance that a moving part can move. an adjustable stop on the throttle control ensures a positive idling speed.

storage /ˈstɔːrɪdʒ/ noun the act of storing something. a reservoir provides storage space for the system fluid.

store /stɔː/ noun 1. a supply. ☀ The maintenance section keeps a store of spare components. 2. US a shop. verb to put away for future use. a capacitor is a device with the ability to temporarily store an electric charge.

stores /stɔːz/ plural noun goods. Freight carrying aircraft have supporting members of greater strength to allow for the carriage of heavy stores.

storm /stɔːm/ noun a violent weather disturbance with high winds and rain or snow. ☀ Storms produced by daytime heating are most frequently encountered in the afternoon and early evening.

stow /stau/ verb to place something in its correct position in the aircraft. ☀ Make sure the fire-extinguisher is stowed.

stowage /ˈstɔʊdʒ/ noun a space for stowing things. ☀ A multi-wheel combination has the advantage of smaller and lighter undercarriage structures, and wing stowage problems can be overcome by suitable mechanisms.

stowaway /ˈstauwet/ noun a person who travels secretly by hiding in an aircraft, or a ship, not paying the fare. ☀ The crew must be alert at all times to the possibility of hijacking, bombs and stowaways.

strain /streɪn/ noun deformation caused by stress.

strap /stræp/ noun a long narrow strip of fabric with a buckle. ☀ verb to strap to fasten a seat or safety belt around somebody.

stratocumulus /ˌstrætəˈkjuːmələs/ noun a layer of small cumulus clouds lower than altocumulus, i.e. below 3,000 m. ☀ Light rain may fall occasionally from stratocumulus.

stratosphere /ˌstrætəˈsfɪə/ noun the layer of the atmosphere which extends from the tropopause to about 50 km above mean sea level. a cumulonimbus cloud may extend vertically, into the stratosphere.

stratus /ˈstreɪtəs/ noun a low-altitude layer cloud. ☀ Drizzle falls from shallow layer cloud such as stratus.

stream /strɛm/ noun a steady current of a fluid. ☀ Thermocouple probes are positioned in the gas stream, so as to obtain a good average temperature reading.

strength /streŋθ/ noun 1. the ability of a material to take pressure or support a load. ☀ Aircraft wheels require great strength and are constructed in two halves which are bolted together after the tyre is fitted. ☀ Magnesium does not
possess sufficient strength in its pure state for structural uses, but when mixed with zinc, aluminium, and manganese it produces an alloy having the highest strength-to-weight ratio of any of the commonly used metals. High-strength materials materials which are very strong, the degree of clarity and volume of a signal. A radio wave loses strength as range increases. The degree of dilution of a liquid. Incorrect mixture strength may cause detonation. Intensity of radiation. The strength of the sun’s radiation varies with latitude. The speed and force of a wind. High ground will disturb the smooth horizontal flow of air with the degree of disturbance depending upon the strength of the wind and the roughness of the terrain.

**strengthen** /stren@ð/ verb to make strong or stronger. Some alloys are hardened and strengthened by heat treatment. The wind is strengthening; the wind is increasing in speed.

**strengthening** /stren@ð@ŋ/ noun: 1. the act of making stronger. Aircraft which require large apertures in the fuselage for freight doors, etc., need increased strengthening around these areas. 2. the fact of becoming stronger.

**stress** /stres/ noun 1. the load per unit area to which a body that resists distortion or change of shape is subjected by internal forces. Turbine blades in the average jet engine vibrate at frequencies of 1 million per minute, and in each cycle experience stress. 2. a worried, anxious and tired state brought on e.g. by overwork. He gave stress as the reason for wanting a week off work. 3. emphasis. To emphasise. It must be stressed that the description is a model and departures from it often occur.

**stretch** /stretʃ/ noun a continuous unbroken length. A stretch of coast. **verb** to extend or enlarge beyond the proper limits. Tensile stress or tension is the resistance of a material to being stretched.

**stretching** /stret@ŋ/ noun extending or enlarging beyond the proper limits. Tensile stress is the resistance to pulling apart, or stretching, produced when two forces in opposition act along the same straight line.

**strict** /strɪkt/ adjective precise, exact. Fuels for aircraft must conform to strict requirements. All generator voltages, frequencies and their phase sequence must be within very strict limits to ensure proper system operation.

**strike** /strɪk/ noun an impact or collision. **verb** to hit. (NOTE: striking – struck)

**stringer** /strɪŋ/ noun a thin metal or wood strip which goes from one end of the fuselage to the other. Some Stringers are made of a light alloy material.

**strip** /strip/ noun a long narrow piece, usually of the same width from end to end. A strip of paper. **verb** to dismantle. After the collision, the engine was stripped down to its component parts.

**stroke** /strəʊk/ noun any of a series of movements of a piston from one end of the limit of its movement to another. The connecting rod links the piston to the crankshaft.

**structural** /strəktʃəl/ adjective referring to the structure of something such as an aircraft. As laid down in the flight manual, the structural limitations must never be exceeded. Structural failure a breaking of part of the aircraft structure.

**structure** /strʌktʃər/ noun 1. something constructed. Aircraft structure serves the same purpose for an aircraft as the skeleton for a human body. 2. framework.

** strut** /strʌt/ noun a bar or rod used to strengthen a structure against forces from the side. A strut is designed to withstand compressive loads.

**stub** /stʌb/ noun a short rectangular extension. The plan-form of a military air traffic zone is in the shape of a circle with a stub.

**sub-** /səb/ prefix 1. of less importance in rank. 2. below

**sub-beam** /səb bɛm/ noun a less important or minor beam. A lobe is one...
of two, four or more sub-beams that form a directional radar beam.

subject /ˈsʌbdʒekt/ noun a topic or matter for discussion or study • A knowledge and understanding of the subject of ice accretion is essential in order that the hazard can be minimised.

subjected /ˈsʌbdʒektɪd/ adjective • subjected to • The barometric pressure is set to subject to air pressures of different value, • and division.

subjective /ˈsʌbdʒektɪv/ adjective • subjective to to subject to to make something or somebody experience something, often something unpleasant • The aircraft was subjected to rigorous tests.

subjective /ˈsʌbdʒektɪv/ adjective

subject /ˈsʌbdʒekt/ noun subject to

subsequent /ˈsʌbˌskwənt/ adjective • a subsequent occasion a following occasion

subside /ˈsʌbˈsайд/ verb 1. to sink to a lower level • the storm subsided the storm grew quiet

subsidence /ˈsʌbˌsайдəns/ noun the act of sinking to a lower level

subsonic /ˈsʌbˈsʌnɪk/ adjective flying at speeds slower than the speed of sound, or not designed to fly above the speed of sound

substance /ˈsʌbˈstɑːns/ noun a material of a particular sort • Specific heat is the amount of heat required to raise the temperature of a substance by 1°C (Celsius) compared to the amount of heat required to raise the temperature of water by 1°C.

substantial /ˈsʌbˈstænʃəl/ adjective considerable, important • substantial increase a big increase

subtract /ˈsʌbtrækt/ verb to deduct or to take away • 6 subtracted from 10 equals 4 (10 – 6 = 4).

subtraction /ˈsʌbtræktʃən/ noun the operation of taking away or deducting • The major arithmetic operations are addition, subtraction, multiplication and division.

subtropical /ˈsʌbˈtrəpɪk(ə)l/ adjective referring to the areas between the tropics and the temperate zone • In winter, the subtropical high retreats and gives way to cyclonic pressure patterns.

sub-zero /ˈsʌbˌzoʊrov/ adjective below zero degrees • In sub-zero conditions sublimation will occur when air is cooled below the frost point, producing a deposit of ice crystals.

success /ˈsʌksɪs/ noun the achievement of something wanted • The key to
success in navigation is pre-flight planning.

successful /ˈsʌksəsfl/ adjective satisfactory, as wanted. His second attempt at landing was successful.

succession /ˈsʌkˌʃən/ noun the process of following in a particular order. A succession of minor incidents created a more serious situation.

successive /ˈsʌkˌsɛsɪv/ adjective following one after the other without interruption. All aircraft remained grounded for three successive days because of fog. A day is the period between successive transits of a meridian by the sun.

such /sʌʃ/ adjective 1. of this kind. An example of such a chart is shown on page 3. 2. of a large enough extent or amount. The height of the cabin floor to the ground on large jet transports is such that serious injuries can occur by exiting through the doors when steps or ramps are not available.

suction /ˈsʌkʃən/ noun a force that causes a fluid or solid to be drawn into a space because of the difference between the external and internal pressures. In a fuel injection system, fuel is induced into the inlet port or combustion chamber by a pump rather than suction caused by the venturi of a carburator.

sudden /ˈsʌdən/ adjective immediate and without warning. A sudden change or sudden drop in temperature.

suffer /ˈsʌfər,ˈsʌfər frəm/ verb to be affected by, to experience. Piston engines suffer from icing in moist air when the ambient air temperature is well above 0°C (Celsius).

sufficient /ˈsʌfɪʃənt/ adjective enough. During pre-flight checks, the pilot must ensure that there is sufficient fuel for the flight.

suffix /ˈsʌfiks/ noun an addition to the end of a word creating a new word. Apart from cirrus and stratus, which are complete names, all layer cloud names consist of a prefix according to height of base, and a suffix according to shape. (NOTE: In the word cloudless, -less is the suffix meaning without.)

suggest /ˈsədʒest/ verb 1. to indicate a possibility. A strong cloud echo on radar suggests that hailstones are present. 2. to mean, to imply. Heap clouds, as the name suggests, often have great vertical extent.

suit /sjuːt/ verb to meet the requirements of. On some engines, the ignition can be varied as the engine is running and is moved to suit the engine speed and load.

suitable /ˈsjuːtəbəl/ adjective appropriate or right for a particular purpose. Taking into account the limits imposed by aircraft performance, a suitable route must be chosen.

sulfur /ˈsʌlfər/ noun US same as sulphur

sulphur /ˈsʌlfər/ noun a yellow non-metallic chemical element. Turbine fuels tend to corrode the components of the fuel and combustion systems mainly as a result of the sulphur and water content of the fuel. (NOTE: The atomic number of sulphur is 16.)

sum /sʌm/ noun the result of two or more numbers added together. When the component velocities act in the same direction, the resultant velocity is equal to the sum of their speeds in that direction.

summarise /ˌsʌməˈraɪz, -ˈsʌməraɪz/ summarise verb to present something in a shortened, concise form. The effects of ice deposits on aircraft can be summarised as follows.

summary /ˈsʌmərɪ/ noun a brief account of something more detailed. At the end of each chapter there is a summary.

sump /sʌmp/ noun the oil reservoir of a piston engine situated at its base. The oil level in the sump or tank is normally checked after the engine has been stopped for a particular length of time.

sun /sʌn/ noun a very bright star around which the Earth travels and which gives light and heat. The sun was just rising when we landed. The sun and the planets governed by the sun form the solar system. /ˈsəʊlər/
supplemental type certificate /ˈsəpləməntəl ˈtaɪp ˈsæpəˌment/ noun a certificate issued by an airworthiness authority to indicate that a modification to an aircraft or engine design has been approved. Abbreviation STC

supplementary /ˌsəpləˈmentəri/ adjective extra or additional © supplementary information

supplementary angle /ˌsəpləˈmentəri ˈæŋɡəl/ noun an angle that, when added to a given angle, makes 180°

supply /ˈsəˈplaɪ/ noun the amount of something available for use © An engine requires an adequate supply of oil. © verb to make available for use, to provide © A battery is designed to supply limited amounts of electrical power. (NOTE: supplies — supplying — supplied)

support /ˈsərˈpɔrt/ noun. 1. a device to hold something in position © Direct-reading indicators consist of a float contained within a metal support tube. 2. practical assistance © verb to bear the weight of © The wings support the aircraft in flight.

support facilities /ˈsərˈpɔrt ˈfɔrˌsəlɪtɪz/ plural noun equipment and buildings used by ground staff when working on aircraft at an airport

support services /ˈsərˈpɔrt ˈsɜrvɪsɪz/ plural noun services provided to an aircraft while it is at an airport

suppress /ˈsəpərəs/ verb 1. to prevent the development or spreading of something © the fire crew suppressed the fire the fire crew brought the fire under control 2. to prevent electrical interference from affecting a radio signal © R/T noise interference can be suppressed.

suppressed antenna /ˈsəpəˌprest ənˈtenə noun an antenna which is mounted under the airframe skin © Static interference can be reduced by installing suppressed antennas.

suppression /ˈsəpəˈpreʃən/ noun 1. the prevention of the development or spreading of something © a fire suppress-
sion system 2, the prevention of electrical interference of a radio signal

suppressor /ˈsoʊpresə/ noun a device used in an electrical or electronic system to reduce unwanted currents, e.g. a resistor or grid • A suppressor improves the quality of the signal.

surface /ˈsaɪfls/ noun 1. an outer covering of something, or the top part of something • the surface of the wing 2. the Earth’s surface or ground

surface air temperature /ˈsaɪfls ˈtɛmprətʃə/ noun the temperature recorded in the shade at a height just above ground level

surface front /ˈsaɪfls frʌnt/ noun a weather front at the surface of the earth • The cirrus cloud can be 900 miles ahead of the surface front with a rain belt as wide as 200 miles.

surface heating /ˈsaɪfls ˈheɪtɪŋ/ noun the heating of the ground by the sun

surface movement radar noun a type of radar used at airports to monitor aircraft traffic on the ground. Abbreviation SMR

surface synoptic chart /ˈsaɪfls ˈsɪnəptɪk ˈʃɑrt/ noun a chart of a geographical area with symbols, fronts and isobars giving a representation of the weather over the area at a particular time

surface tension /ˈsaɪfls ˈtenʃən/ noun the tension of the surface film of a liquid

surface wind /ˈsaɪfls wɪnd/ noun a wind which blows across the land surface

surge /ˈsaɪdʒ/ noun a sudden increase in something such as electrical power • engine surge instability in the power output of an engine • verb to move with force like a wave • If combustion pressure increases above compressor outlet pressure, the airflow will reverse in direction and surge forward through the compressor.

surplus /ˈsaɪplaʃ/ adjective excess, more than is needed • Fuel penalties can be incurred if fuel surplus to requirements is carried.

surround /ˈsaʊraʊnd/ noun something which encloses or borders • The design of windows, hatches or door surrounds is very critical. • verb to encircle or to enclose • The Earth is surrounded by the atmosphere.

surveillance /ˈsaʊərveɪləns/ noun the act of watching or monitoring

surveillance radar /ˈsaʊərveɪləns ˈreɪdiəs/ noun primary radar scanning, often through 360°

survey noun /ˈsaʊrvəri/ a detailed examination • An aerodrome meteorological office maintains a continuous survey of meteorological conditions over the aerodromes for which it is designated to prepare forecasts. • verb /ˈsaʊ ˈveɪ/ to determine the boundaries, area, or elevations of land by means of measuring angles and distances • Take care when using wooded areas to fix position because the cutting down of trees may have led to a change in shape since the map was made.

survival /ˈsaʊərveɪvl/ noun the fact of remaining alive after an accident • The survival of passengers in the sea depends on rapid location and rescue.

…survival training is a vital element of all aircrew knowledge. Just because modern aircraft are more reliable than their predecessors, the need for such training does not diminish.” [Civil Aviation Training]

survival beacon /ˈsaʊərveɪvl ˈbiːkən/ noun a beacon which transmits a signal which enables search aircraft to locate survivors in the water • VHF and/or UHF survival beacons are carried on all jet transports.

survivor /ˈsaʊərvaʊər/ noun a person who continues to live after an accident • Whilst awaiting rescue on land or at sea, survivors should avoid exposure and conserve energy. • The aircraft crashed into the sea and there were no survivors.

susceptible /ˈsaʊəsɛptəbəl/ adjective prone to, likely to be affected by • A rough surface is more susceptible to fatigue cracking than a smooth one, and for this reason highly stressed members are often polished.
**suspect** 226

**suspect** adjective /ˈsuspekt/ referring to something believed to be causing problems. 1. The magnetic flaw detection technique is to induce a magnetic field in the suspect part and then to brush over it an ink containing a magnetic powder. 2. to believe to be the case. If fuel contamination by water is suspected, a sample of fuel should be drained from the tank for inspection.

**suspend** /ˈsəʊspænd/ verb 1. to hang freely from a point. When it is freely suspended, a magnet will turn until one pole is towards the Earth’s magnetic north pole. 2. to float freely in the air or in a liquid. The weather associated with visibility reductions by particles suspended in the atmosphere is classified as fog, mist, haze or smoke.

**suspension** /ˈsəʊspaʃən/ noun 1. the act of state of hanging freely from a point. 2. the dispersion of particles in a liquid or gas. If a sample of fuel taken from a tank is hazy or cloudy in appearance, this indicates the presence of water in suspension.

**sustain** /ˈsəʊsteɪn/ verb 1. to continue. 2. to receive, experience or suffer. The aircraft sustained major damage in the crash. 3. The pilot sustained minor injuries.

**sweep** /ˈswɪp/ verb to move across quickly and with force. Cold arctic air sweeps over North America in winter.

**sweepback** /ˈswɪpbæk/ noun an aircraft wing that slopes backwards towards the tail, forming an acute angle with the body of the aircraft.

**swell** /ˈswel/ noun a long wave on water that moves continuously without breaking. When ditching an aircraft the selection of a landing direction which will result in the minimum relative speed between the aircraft and sea swell will reduce impact forces and minimise structural damage.

**sweptback** /ˈswɪptbæk/ adjective referring to a wing that slopes backwards towards the tail of the aircraft.

**swing** /ˈswɪŋ/ verb 1. to move from side to side with some force. There is often a tendency for a propeller driven aircraft to swing or yaw on take-off. 2. to swing a compass to calibrate compass deviation by recording its value on a compass base while rotating the aircraft through 360°. 3. to swing a propeller to turn a propeller by hand to start the engine.

**swirl** /ˈswɜːl/ noun a movement with a twisting motion. Swirls of smoke came out of the engine.

**swirl chamber** /ˈswɜːl/ ˈʃɛrɪmbə/ noun a small chamber in the cylinder head to promote swirl. The usual method of atomising the fuel is to pass it through a swirl chamber, so converting its pressure energy to kinetic energy.

**switch** /ˈswɪtʃ/ noun a device to open or break an electric current. There is an on/off switch on the front panel. A centrifugal switch a switch operated by centrifugal force. 2. to connect or disconnect two lines by activating a switch. 3. to switch on to start to provide power to a system by using a switch. 4. Switch on the light. 5. to switch off to disconnect power supply to a device or system. 6. Switch off the navigation lights.

**symbol** /ˈsɪmbəl/ noun a printed or written sign used to represent something. The work done by an electrical circuit or the power consumed is measured in watts and is given the symbol P.

**symbolic** /ˈsɪməˈbɒlɪk/ adjective referring to symbols. A symbolic code is used for synoptic charts.

**symmetric** /ˈsɪmtrɪk/ adjective referring to something which has an exact likeness of form on opposite sides of a central dividing line. The area covered by the forecast is divided into a series of grid or reference points at approximately 300 km (kilometres) symmetrical spacing.

**symptom** /ˈsɪmtptəm/ noun a sign or indication of something, possibly a
Buffet caused by turbulent airflow acting on the tailplane is one of the first symptoms of the approaching stall.

**synchronisation** /ˌsɪŋkrənɪˈzeɪʃən/, **synchronization** noun occurrence at the same time or rate

Prior to engagement, when the aircraft is being flown manually, the autopilot system will be following the aircraft flight attitude, thus ensuring that synchronisation is achieved.

**synchronise** /ˌsɪŋkrəˈnaɪz/, **synchronize** verb to cause to occur or operate at the same time or rate

The aircraft must be trimmed for the desired flight attitude before engaging the autopilot, which must be synchronised to maintain that attitude when it is engaged.

**synchronous** /ˌsɪŋkrəˈnəʊs/ adjective referring to something operating at the same time or rate

Synchronous motors will run at constant speed and are small and light in weight.

**synoptic** /ˌsɪnˈɒptɪk/ adjective referring to something which gives a brief outline or general view of something more complex

With the addition of fronts and isobars, the synoptic chart provides a representation of the weather over a large area, at a particular time.

**synthetic** /ˌsɪnˈθetɪk/ adjective not natural, artificial

Mineral-based fluids are normally coloured red, and must be used with synthetic rubber seals and hoses.

**system** /ˈsɪstəm/ noun a group of interdependent parts forming and operating as a whole

a braking system an electrical system

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tab /ˈteɪb/ noun the hinged rear part of flight control surface used for trimming or Trim tabs remove the pilot's control loads by aerodynamically holding the control surface in the required position.

table /ˈteɪbl/ noun a set of facts or figures displayed in columns and rows. Charts are issued at UK meteorological offices and show, for selected locations, a table of winds and temperatures at selected flight levels.

tabular /ˈteɪbjuələ/ adjective in tabular form arranged in a table. The most widely acceptable presentation of fuel data is in tabular form but graphical presentations may also be used.

Tacan /ˈteɪkən/ noun an aircraft navigation system that uses UHF signals from a transmitting station for distance and bearing. Full form Tactical area navigation aid.

tachometer /ˈteɪkəmətər/ noun an instrument for the measurement of revolutions per minute of a rotating shaft. The pilot checks the tachometer and notes the resulting drop in r.p.m. for each magneto.

TAF abbreviation 1. terminal aerodrome forecast 2. aerodrome forecast (ICAO).

tail /ˈteɪl/ noun the rear part of the aircraft. The tail section is the aft part of the fuselage to which is fitted the tail unit, comprising the tailplane, elevators, fins and rudders.

tail assembly /ˈteɪl əˈsembli/ noun the aft part of the fuselage with the fin and rudder, tailplane and elevators attached.

tail-dragger /ˈteɪl ˈdrægər/ noun same as tailwheel aircraft (informal).

tailplane /ˈteɪplən/ noun a horizontal stabiliser, a horizontal aerofoil at the rear of the aircraft. On most high performance aircraft the incidence of the horizontal stabiliser (or tailplane) can be varied in flight.

tail rotor /ˈteɪl ˈrəʊtər/ noun a small rotor on the tail of a helicopter that prevents the helicopter from spinning in the direction opposite to the rotation of the main rotor.

tailskid /ˈteɪlskɪd/ noun a support or runner on the underside of the tail of an aircraft.

tailspin /ˈteɪlspɪn/ noun a rapid and uncontrolled spiral descent of an aircraft.

tail unit /ˈteɪl ˈjuːnɪt/ noun the rear part of the aircraft, usually consisting of the fin and tailplane.

tailwheel /ˈteɪlwɪl/ noun a small wheel under the tail of an aircraft. Compare nosewheel.

tailwheel aircraft /ˈteɪlwɪl əˈɛkruːtəl/ noun aircraft with a small wheel at the tail instead of a nosewheel. Also called tail-dragger.

tailwheel conversion course /ˈteɪlwɪl kɔnˈvɜːzʃən ˌkɔrs/ noun a course which familiarises qualified pilots with the differences in handling characteristics between nosewheel and tailwheel aircraft.

tailwind /ˈteɪlwɪnd/ noun a wind which is blowing in the same direction as the direction of movement or flight. Because of the tailwind, the flight took only six hours. Compare headwind.
take off /teikˈof/ verb to leave the ground. When flying speed is reached the aeroplane takes off.
take-off /ˈteikəf/ noun the procedure when an aircraft leaves the ground. The aircraft has to accelerate before take-off. There is a tendency for propeller driven aircraft to swing or yaw on take-off. Abbreviation TO T/O
take-off run /ˈteikəf rən/ noun the distance from the start of take-off to the point where the wheels leave the ground. Acceleration forces can be felt as the aircraft begins its take-off run.
take-off weight /ˈteikəf wɛt/ noun the weight of an aircraft at take-off, made up of its empty weight, plus the weight of its passengers, freight and fuel.
talk down /ˈtalk daʊn/ verb to give advice to a pilot by radio on how to land an aircraft.
tan abbreviation tangent
tangent /ˈtændʒənt/ noun a straight line, curve or surface which meets another curve or curved surface at a point, but which, if extended, does not cut through at that point. The glide path is at a tangent to the runway. Abbreviation tan
tangential /ˈtæŋʒənʃəl/ adjective positioned at a tangent to something else.
tank /tæŋk/ noun a large container for storing fluid. An aluminium alloy fuel tank is housed in each wing.
taper /ˈteɪpər/ verb to reduce in thickness towards one end. Fuel flowing from the float chamber passes through a jet, in which is positioned a tapered needle valve.
tapered wing /ˈteɪpərd wɪŋ/ noun a wing which becomes narrower in width from root to tip.
target /ˈtærɪt/ noun the indication shown on a radar screen resulting from a primary radar return or a radar beacon reply. In a secondary radar system, the target is active.
tarmac /ˈtæmək/ noun the runway and taxiways of an airport. They were working fast to clear the snow from the tarmac.
TAS abbreviation true airspeed
task /tæsk/ noun a function or duty. Present day transport aircraft are required to fly accurately, in all weather, for long distances or long periods of time and, in order to carry out this task efficiently, an autopilot is used.
taxi /ˈteksɪ/ verb to move an aircraft along the ground under its own power before take-off or after landing. Light aircraft can be steered while taxiing via a direct link from rudder pedals to the nosewheel. (NOTE: taxies – taxiing – taxied; the US English is taxiing.)
taxiing /ˈteksɪŋ/ noun the movement of an aircraft along the ground under its own power before take-off or after landing. The taxing of tail-wheel aircraft is more difficult than nosewheel aircraft. (NOTE: The US spelling is also taxiing.)
taxiway /ˈteksɪweɪ/ noun a tarmac surface connecting the ramp or apron of an area given over to runways, taxiways and aprons.
TCA abbreviation terminal control area
TCAS abbreviation traffic alert and collision avoidance system
TCDS abbreviation type certificate data sheet
technical /tekˈnɪk(al)/ adjective 1. referring to mechanical subjects or applied sciences. A technical education is the preparation of charts is done by computer using numerical forecasting techniques. 2. referring to the mechanical, electrical, hydraulic or pneumatic systems of an aircraft. A technical problem with the aircraft prevented it from taking off on time.
technique /tekˈnɪk/ noun a special method for doing something. The use of fly-by-wire in airliners was delayed to allow thorough development and
tendency to be late he is often late ◆ he has a tendency to forget things he is forgetful
tensile /tɛnsəl/ adjective referring to stretching or pulling out ◆ Reinforced plastic may have to support a tensile load, a compressive load or a bending load.
tensile load /tɛnsəl ˈloʊd/ noun the load caused by forces acting in opposite directions away from each other
tensile strength /tɛnsəl strɛŋθ/ noun the strength of a structure to resist forces pulling it apart from opposite directions
tensile stress /tɛnsɪl streʃ/ noun the forces that try to pull a structure apart from opposite directions
tension /ˈtenʃən/ noun a strained condition resulting from forces acting in opposition to each other ◆ A rod which is bent is shortened or in compression on the inside of the bend and is stretched or in tension on the outside of the bend.
term /ˈtɜrm/ noun 1. a word or expression ◆ The term ‘payload’ includes passengers, baggage and freight. 2. a limited period of time ◆ a 5 year term a period of 5 years ◆ in the long term when considering a long period of time ◆ short term forecast a weather forecast for the next few hours only
terminal /ˈtɜrmiənl/ adjective referring to a limit or to a final point ◆ noun 1. the departure and/or arrival building at an airport ◆ The flight leaves from terminal three at Heathrow airport. 2. an electrical connection point ◆ The negative terminal of the battery is marked -
terminal aerodrome forecast /ˈtɜrmɪnl əˈɛərədram ˈfɔːkast/ noun the weather forecast for the area around an aerodrome ◆ In terminal aerodrome forecasts, the height of the cloud base forecast is above field level unless otherwise stated. Abbreviation TAF

COMMENT: TAFs are scheduled four times daily for 24-hour periods beginning at 0000Z, 0600Z, 1200Z, and 1800Z.
terminal airfield /ˈtɜːmɪnəl/ noun the airfield at which a flight finishes

terminal area forecast /ˈtɜːrnɪnl/ˌɛərɪəˈfɔːst/ noun the weather forecast for the area around an airport. Abbreviation TAF

terminal control area /ˈtɜːrnɪnl/ˌkɔntroʊləˈreɪə/ noun an air traffic control area established at the meeting place of a number of routes near one or more major airports. In some areas where there is a local concentration of traffic, terminal control areas are set up. Abbreviation TCA, TMA

terminate /ˈtɜːrnɪnet/ verb to end, or to bring to a close. The flight terminates in New York. the transmission terminated abruptly the transmission stopped suddenly and unexpectedly

terminology /ˈtɜːrnɪnolədʒi/ noun a set of words or expressions used for a particular subject. It is necessary to learn some of the terminology associated with aircraft navigation.

terrain /ˈtɛrɪn/ noun land, especially in relation to its physical geography. Special attention should be paid to wind flow when flights are made over hills or mountainous terrain.

terrestrial /ˈterɪstrəl/ adjective referring to the earth. Clear skies allow terrestrial radiation to escape.

territory /ˈterɪtɔrɪ/ noun the extent of the surface of the Earth governed by a particular country, ruler, state, etc. All places in the same territory, or part of the same territory, maintain a standard of time as laid down by the government responsible for that territory.

tertiary /ˈtɜːrɪəri/ adjective referring to something which is third in order of rank, behind primary and secondary. Tertiary radar systems are synonymous with long-range navigation aids. Tertiary structures, for example fairings, wheel doors and minor component brackets, are essential parts of the airframe.

tertiary radar /ˈtɜːrɪəri/ˈrɛədər noun long-range navigation aids

test /ˈtest/ noun 1. a series of operations to find out if something is working well. The manual test for the engine fire warning system will give a steady red light on all the fire control handles. 2. an examination to assess the knowledge of a person. There is a navigation test for students at 0800 hours. verb 1. to operate something in order to find out whether it functions correctly. Oxygen under pressure is used to test the oxygen masks and equipment for fit and leakage. 2. to examine somebody in order to assess his or her knowledge. The students are tested in five subjects.

test pilot /ˈtest pələt/ noun a pilot who flies new aircraft in order to check their performance.

TGT abbreviation turbine gas temperature

theory /ˈθɪəri/ noun a system of ideas or principles explaining something. The theory of navigation must be studied before any practical plotting exercises are done.

theory of flight /ˈθɪəri əv ˈflaɪt/ noun the ideas and principles which contribute to our understanding of how things fly.

thereafter /ˈðeərəfɔr/ adverb after that, beyond that. Meteorological visibility is given in metres up to 5,000 metres and thereafter in km (kilometres).

thereby /ˈðeəri/ adverb by that means or in that way. The evacuation was carried out at a slower rate, thereby minimising the risk of injury to passengers.

therefore /ˈðeərəfɔr/ adverb as a result, consequently. At small throttle openings, the depression at the choke is very small and therefore no fuel flows from the main jet.

thermal /ˈθɜːrməl/ adjective referring to heat. Intense surface heating causes thermal currents to develop and create convection. noun a rising current of relatively warm air in the lower atmosphere. Glider pilots circle in thermals in order to gain height.

thermal activity /ˈθɜːrməl/əkˈθɪvəti/ noun a period of time when there is a lot of vertical movement of air caused by heating. Cumulus clouds
thermal barrier

may develop because of thermal activity resulting from the warming of the surface.

thermal barrier /ˈθɜːml bærɪər/ noun the heat caused by air friction on an aircraft flying at high speed

thermo-/θɜːm- prefix heat

thermocouple /θɜːməkʌpl/ noun a device for measuring temperature. Variation in temperature of the cooling air will give some indication of engine trouble through a thermocouple system to a temperature gauge.

thermodynamic /θɜːmədəʊm/ noun referring to the conversion of one form of energy into another and how this affects temperature, pressure, volume, mechanical action and work

thermometer /θɜːməmətər/ noun an instrument for measuring temperature. Ground temperature is the temperature recorded by a thermometer placed at ground level.

thermoplastic /θɜːməplæstɪk/ noun a type of plastic which can be softened by heating then shaped, then softened again by heating

thermosetting plastic /θɜːməsɛtɪŋ plæstɪk/ noun a type of plastic which is heated while being shaped but which cannot be softened by reheating. If a piece of thermosetting plastic is hit hard enough, it breaks into pieces with straight sharp edges.

thick /θɪk/ adjective 1. of great or particular extent between two surfaces a 1cm thick steel bar b. This sheet of aluminium is not very thick. 2. with a large diameter a thick wire, dense thick fog b. thick cloud. 4. of a consistency which does not flow easily a thick oil. Opposite thin

thickness /θɪknəs/ noun 1. the extent between two surfaces. In monocoque construction, there is no internal stiffening because the thickness of the skin gives strength and stability. 2. the extent of the diameter of a wire. 3. the state or condition of being thick. 4. a consistency which does not flow easily a thin mist. Opposite thick

wire 3. not dense a thin mist b. Altostratus cloud is thin enough for the sun to be dimly visible. 4. of a consistency which flows easily a thin oil. Opposite thick

thorough /ˈθɜːrə/ adjective complete a. All cabin crew must have a thorough knowledge of fire fighting equipment and procedures. b. a thorough inspection a very detailed, comprehensive inspection

THP abbreviation thrust horsepower

three-letter group /ˌθriː/ noun three letters of the alphabet found together

three-point landing /ˌθriː pɔɪnt lændɪŋ/ noun an aircraft landing in which the two main wheels of the landing gear and the nosewheel or tailwheel touch the ground at the same time

threshold /ˈθreʃhəʊld/ noun the beginning of the part of the runway, usable for landing a Runway visual range is obtained by an observer standing at the side of the runway in the vicinity of the threshold counting the number of markers or lights visible along the side of the runway.

COMMENT: The threshold is marked with a single white line on visual runways or by eight parallel white lines arranged longitudinally in two groups of four each side of the runway centreline for runways with instrument approach/landing facilities.

throttle /ˈθrəʊt(ə)l/ noun 1. a throttle lever 2. a throttle valve a verb to throttle back to reduce engine power a Throttle back to increase the rate of descent.

COMMENT: The verbs ‘open’ or ‘advance’ (= to increase engine power) and ‘close’ or ‘throttle back’ (= to decrease engine power) are frequently used by instructors to explain the required movement of the throttle lever in the cockpit.

throttle lever /ˈθrəʊt(ə)l ˈliːvə/ noun a device operating the throttle valve
When starting an engine, it is inadvisable to pump the throttle lever because of the risk of fire.

**throttle quadrant** /ˈθrutəʊd/ noun an arc-shaped device in which the throttle levers move

**throttle setting** /ˈθrutəʊl settıŋ/ noun the particular position of the throttle which gives a required revolutions per minute or power

**throttle valve** /ˈθrutəʊl vɛlv/ noun a device controlling the flow of fuel in an engine

throughout /ˈθrutəʊaut/ adverb from the beginning to the end of a time or place

Emergency lighting is provided throughout the cabin. Heavy snow fell throughout the night. Throughout the life of the aircraft during the entire life of the aircraft throughout the world all over the world throughout the year from January 1st to December 31st

**thrust** /θrutst/ noun a force produced by a propeller, jet or rocket

A propeller is a means of converting engine power into a propulsive force known as thrust. In order for the aircraft to increase speed, thrust must overcome drag. A reverser, reverser verb to push suddenly with force

A nozzle is an opening at the rear of a jet engine through which exhaust gases are thrust.

**thrust** /θrutst/ noun[1] the amount of horsepower of an engine that is transformed into thrust. Abbreviation THP

**thrust reversal** /θrutst rɪvərsəl/ noun setting of throttle levers to provide thrust in the opposite direction to decelerate the aircraft after landing

**thunder** /ˈθʌndər/ noun the noise created by the violent expansion and contraction of air momentarily heated by a lightning discharge

Thunder immediately following the flash of lightning usually indicates that the storm is overhead.

**thunderstorm** /ˈθʌndərstorm/ noun a violent weather condition in which wind speeds increase, rain or hail falls and there is lightning activity

Thunderstorms occur in well-developed cumulonimbus clouds. The process of formation, development and decay of a thunderstorm.

**thunderstorm activity** /ˈθʌndərstɔm əˈkɛktɪvɪtɪ/ noun the occurrence of weather conditions associated with thunderstorms, such as rain, thunder, wind or lightning

Thus /ðʌs/ adverb 1. in this way

This device fits with the other thus. 2. therefore, as a result

The glide slope and localiser beam signals control the aircraft about the pitch and roll axes, thus maintaining alignment with the runway.

Anti-skid braking systems are designed to prevent the brakes locking the wheels during landing, thus reducing the possibility of wheel skid.

**tie** /ˈtai/ noun a basic structural member which is designed to withstand mainly tensile loads

Diagonal ties can be used to relieve tension and increase the effectiveness of the top boom.

**tight** /ˈtæt/ adjective closely or firmly fitting or put together

A tight fit a situation when there is just about enough space to fit closely or firmly, with no air leaks

The door must be shut tight.

**tilt** /tɪlt/ noun a sloping position

Land creates a drag effect on an electromagnetic wave-front, reducing the velocity of the wave thereby causing a tilt. A verb to be at an angle to the vertical or horizontal, to slope

The Earth tilts on its axis.

**timetable** /ˈtɪmətəl/ noun a printed list which shows the times of departure from and arrival to various destinations

All the scheduled flights are listed in the airline timetable.

**timetabled** /ˈtɪmətəld/ adjective listed in a timetable

A scheduled landing is an arrival at a timetabled destination.

**time zone** /ˈtɪm zəʊn/ noun one of the 24 parts of the Earth in which the same standard time is used

**tip** /tɪp/ noun the end of a small or tapering thing

**tire** /ˈtaɪr/ noun US same as tyre
**titanium** 234

**titanium** /ˈtaɪtəniəm/ noun a light metal used to make strong alloys. ○ The fatigue resistance of titanium is greater than that of aluminium or steel.

**TKOF** abbreviation take off (ICAO)

**TMA** abbreviation terminal control area

**T/O, TO** abbreviation take off

**toggle** /ˈtɒg(ə)l/ noun a short piece of wood or other material, attached with a string to e.g. a life jacket. ○ Pull the toggle downwards to inflate the life jacket.

**toilet** /ˈtɒlɪt/ noun 1. a bowl with a seat on which you sit to get rid of waste from your body. 2. a room or cubicle with a toilet bowl in it. ○ There are two toilets at the rear of the plane and one at the front.

**tolerance** /ˈtɒlərəns/ noun an allowable variation in something which can be measured. ○ A tolerance of 2°. ○ A tolerance of 1 mm (millimetre)

**tone** /ˈtɒn/ noun a sound of one pitch. ○ The ground transmits a code in two short bursts each of which is modulated with two tones.

**tool kit** /ˈtəʊlkɪt/ noun a set of tools consisting of spanners, screwdrivers, pliers, etc.

**top** /ˈtɒp/ noun the highest point or part. ○ If cumulonimbus clouds cannot be avoided then flight through the top is less hazardous than through the centre or bottom of the cloud.

**top-dead-centre** /ˈtɒp dɪd ˈsentə/ noun the position of the piston at the extreme top of its stroke in a piston engine. ○ Ignition should occur just before top-dead-centre.

**topic** /ˈtɒpɪk/ noun the subject of something heard, said, written or read. ○ The first section in the book deals with the topic of airmanship.

**topographical** /ˌtɒpəˈɡræfikl/ adjective referring to topography. ○ An advantage of using airfield QNH is that altimeter readings can be compared directly with heights represented on topographical maps.

**topography** /ˈtæpəɡræfɪ/ noun 1. a representation of detailed natural and man-made features of the Earth’s surface as represented on a map. ○ The chart shows the topography of the area. 2. a relative elevations of the Earth’s surface, or features of a geographical area. ○ The general circulation is complicated because the Earth tilts and its surface is neither level, because of topography, nor uniform due to areas of land and sea.

**tornado** /ˈtaʊnədɔ/ noun a violent storm of small extent, with rotating winds. ○ The winds of a tornado are of hurricane force.

**torque** /ˈtɔrk/ noun a moment of forces causing rotation. ○ Torque forces try to bend the propeller against the direction of rotation. ○ High current flows through both the field and armature windings producing the high torque required for engine starting.

**torquemeter** /ˌtɔrkˈmɪtər/ noun a device for measuring forces (torque) causing rotation. ○ Engine torque is used to indicate the power that is developed by a turboprop engine and the indicator is known as a torquemeter.

**torsion** /ˈtɔrʃən/ noun twisting, especially of one end of a body while the other is fixed. ○ Rivets are subjected to torsion and may break.

**torsion load** /ˈtɔrʃən lɔd/ noun the load caused by twisting of a structure.

**total** /ˈtəʊt(ə)l/ adjective complete, whole. ○ Of the total amount of radiation emitted by the sun, the Earth receives only a very small part. ○ Total system failure: complete system failure.

**total seating capacity** the maximum number of passengers who can be accommodated on seats

**touch down** /ˈtʌʃ daʊn/ verb to make controlled contact with the landing surface after a flight. ○ If the atmospheric pressure at an airfield is 1,000 millibars (mb) and that pressure is set on the sub-scale of an aircraft altimeter, when the aircraft touches down at the airfield, the altimeter will read zero.

**touchdown** /ˈtʌʃdaʊn/ noun the moment, after a flight, when the aircraft makes controlled contact with the land-
ing surface ○ One of the aircraft’s tyres bursts on touchdown.

touchdown point /ˈtʌʃdaʊn pɔnt/ noun the place on the runway where the aircraft undercarriage first touches the ground on landing
tow /taʊ/ verb to pull an aircraft or vehicle using a bar, rope, etc. attached to another aircraft or vehicle ○ The glider was towed into the air by a Rollason Condor.
tower /ˈtaʊə/ noun a tall airport or airfield air traffic control building ○ Wait for permission from the tower before crossing an active runway.
'T' piece adapter /ˈtiː pɪs əˈdʒeptʃə/ noun a device for connecting two inputs to one output or vice versa
track /træk/ noun a projection on the Earth’s surface of the path of an aircraft, which can be expressed in degrees from north ○ Where an aircraft track and wind direction are the same, there will be a headwind component acting on the aircraft ○ The actual track does not necessarily follow the planned track and is given the name track made good. ○ verb to follow a line of the flight path of an aircraft, as projected on the Earth surface ○ On final approach, track the imaginary extended centre line of the runway.
tractor /ˈtraktaɪə/ noun 1. an aircraft that has its propeller in front of its engine 2. a propeller in front of an aircraft engine, which has the effect of pulling the aircraft through the air
trade winds /ˈtræd wɪnts/ plural noun steady winds which blow on the side of the sub-tropical highs nearest to the equator ○ Trade winds maintain their direction over the oceanic areas, especially the Pacific, more than over land areas.
traffic /ˈtræfɪk/ noun the number of aircraft in operation ○ Standard instrument routes are structured to provide the safest and most efficient flow of traffic from entry and exit points to the airfield.
traffic pattern /ˈtræfɪk _pætn/ noun 1. the shape marked out on the ground of an aircraft track in the aero-
drome circuit 2. the pattern of routes that an aircraft must keep to when approaching or circling an airport

trailing /ˈtrælɪŋ/ adjective referring to something which comes after something else ○ The trailing edge is positioned behind the main brush on the rotor arm, thereby giving a retarded spark.

trailing edge /ˈtrælɪŋ ˈɛdʒ/ noun aft part of an aerofoil ○ The trailing edge of the wing is the section behind the rear spar and is of light construction because the aerodynamic loads on this area are relatively low.

train /trɛn/ verb to teach a person a particular skill ○ The student pilot is trained to scan an instrument panel, whilst at the same time listening to the aircraft radio and flying the aircraft. ○ noun a series of connected parts or wheels in machinery ○ The turboprop turbine transmits increased power forward through a shaft and a gear train, to drive the propeller.

trainee /ˈtrɛnɪ/ noun a person who is being taught ○ a trainee pilot

transducer /trænsˈdʒʊər/ noun a device which converts a non-electrical signal into an electrical one ○ The manifold is connected into the pressure ratio transmitter, which consists of a transducer, to sense the pressure ratio, and an associated electrical circuit, providing signals to the servo indicator in the cockpit.

transfer /ˈtrænsfər/ the act of passing or moving to another place ○ External cooling of the engine is necessary to prevent the transfer of heat to the aircraft structure. ○ verb to transfer fuel to pass or to move to another place ○ It is sometimes necessary to transfer fuel from one tank to another tank. (NOTE: transferring – transferred)

transform /ˈtrænsfɔːm/ verb to change completely ○ The purpose of an actuator is to transform fluid flow into motion, i.e. it converts pressure energy into mechanical energy. ○ Friction results in some of the power available from a pump being transformed into heat.
The undercarriage is in transit.

Indicates the undercarriage is locked.

Age fluctuations.

By the busbar with a minimum of voltage fluctuations.

Altitude (barbs) is used.

Above the transition altitude, the standard pressure setting of 1013.25 mb (millibars) is used.

When a flight takes place or temporary, lasting only a short time. Transient loads can be absorbed by the busbar with a minimum of voltage fluctuations.

Transit: an act of moving in transit moving. A green light indicates the undercarriage is locked down, and a red light is displayed when the undercarriage is in transit.

Transit route: a route taken by one aircraft through controlled airspace.

Transition: an act of passing from one place, state or condition to another.

Transition altitude: altitude in the vicinity of an airport, at or below which the vertical position of the aircraft is controlled by reference to altitudes above mean sea level, when a flight takes place above the transition altitude, the standard pressure setting of 1013.25 mb (millibars) is used.

Transition layer: the airspace between the transition altitude and the transition level.

Transition level: the lowest flight level above the transition altitude.

Transition lounge: a room where transit passengers wait for connecting flights.

Transit passenger: a traveller who is changing from one aircraft to another.

Translation: the movement of an object in a straight line in which every part of the object follows a parallel course and no rotation takes place. The act of expressing the meaning of words in one language in words from another language.

Transmission: the sending of a radio signal. The combination of loop and sense antennas can determine the direction from which a transmission is made.

Transmit: to pass, to convey. As the camshaft rotates, the cam will transmit a lifting force through rods and pivots to open the valve. The charts are transmitted from one station to another by fax. To send out a radio signal. Survival beacons transmit a signal which enables search aircraft to rapidly locate survivors in the water.

Transmitter: a device for sending out radio signals. Although continuous wave radars operate continuously, separate transmitter and receiver antennas must be used. Signal strength is inversely proportional to the distance from the transmitter.

Transparency: the condition of being transparent. Meteorological visibility gives information on the transparency of the atmosphere to a stationary ground observer.

Transparent: allowing light to pass through so that things can be seen. Aircraft windows and canopies are usually made from transparent acrylic plastic.

Transponder: a device in an aircraft for receiving a radio signal and automatically transmitting a different signal so that an air traffic control station can identify the aircraft. The transponder in the aircraft comprises a transmitter and a receiver. ‘...flight trials began recently of a low-cost hand-held IFF transponder’ (Pilot)

COMMENT: The pilot sets an identification code, or 'squawk', assigned by ATC, on the transponder in the aircraft.

Transport: a system for moving people, freight and baggage from one place to another. On a large
transport aircraft, the safety of hundreds of passengers is involved.

**transport aircraft** /ˈtrəːspɔːrt/ noun an aircraft designed to carry ten or more passengers or the equivalent cargo and having a maximum take-off weight greater than 5,670 kg

**trap** /træp/ verb to catch and prevent from escaping ◆ If there is a failure of the pressurised air supply, the check valve will close and trap pressurised air in the cabin. ◆ Smog is smoke or pollution trapped on the surface by an inversion of temperature with little or no wind.

**thread** /tred/ noun a series of patterns moulded into the surface of a tyre to provide grip ◆ The risk of aquaplaning increases as the depth of tyre tread is reduced.

**treat** /trɪt/ verb
1. to behave or act towards something or somebody in a particular way ◆ Pilots should treat the engine carefully, if they want to prolong its life. 2. to apply a process to something in order to get a particular result ◆ treated water water which has been made drinkable ◆ heat-treated alloys alloys which have undergone a process of hardening by using heat

**treatment** /ˈtrɪtmənt/ noun subject to the action of a chemical or physical process ◆ anti-corrosion treatment ◆ heat treatment

**trembler** /ˈtrɛmlər/ noun an automatic vibrator for making and breaking an electrical circuit

**trend** /trend/ noun
1. a general direction or tendency ◆ Continuous VOLMET, which is normally broadcast on a designated VHF (very high frequency) channel, contains current aerodrome reports and trends where available. 2. an up-to-date or modern way of doing things ◆ Warning systems can take the form of lights, captions, and aural signals, and the modern trend is to incorporate them into a central warning system.

**triangle** /ˈtræŋɡəl/ noun a plane figure with three sides and three angles ◆ The triangle of velocities is a vector solution of what happens to an aircraft when wind causes drift. ◆ wind

**trigger** /trɪɡər/ verb to cause to operate, to set off ◆ Normally, both the captain’s and first officer’s airspeed indicator trigger an aural warning if the airspeed limits are exceeded.

**trijet** /ˈtrɪdʒɪt/ noun an aircraft powered by three jet engines

**trim** /trɪm/ noun a condition in which an aircraft is in static balance in pitch ◆ Trim indicators have a green band, to show when the trim is correct for take-off. (NOTE: Some aircraft have rudder and aileron trim.) ◆ verb to adjust trimmers in order to get the required hands-off pitch attitude ◆ Trim the aircraft for level flight.

**trim wheel** /ˈtrɪm wɪl/, **trimmer** /ˈtrɪmaɪr/ noun a wheel-shaped device, sometimes situated between the front seats of light aircraft, to trim the aircraft by hand ◆ The trimmer is used to ease the loads imposed on the flying controls during flight.

**trip** /trɪp/ verb to cause an electrical device to suddenly stop working ◆ Oscillating outputs from alternators could cause sensitive equipment to malfunction or trip.

**triplane** /ˈtrɪpleɪn/ noun an aircraft with three main wings fixed one above the other

**triple** /ˈtrɪpl/ adjective consisting of three parts ◆ Probes may be of single, double or triple element construction.

**tropical** /ˈtrɒpɪkl/ adjective referring to the area between the parallels of latitude 23° 26’ north and south of the equator ◆ Tropical air moving northwards is subjected to surface cooling and becomes increasingly stable in its lower layers.

**tropical storm** /ˈtrɒpɪkl stɔːrm/ noun a violent wind system which forms over tropical oceans ◆ Tropical storms often dissipate when they pass from sea to land.

**tropics** /ˈtrɒpɪks/ noun the tropics the area between the parallels of latitude 23° 26’ north and south of the equator ◆ Throughout the tropics and
tropopause

_sub-tropics, the sea breeze is a regular feature._

**tropopause** /trəˈpɒpəs/ **noun** the level at which the troposphere and the stratosphere meet **_THE._** The altitude and temperature of the tropopause are of concern to aircraft because they affect aircraft performance.

**troposphere** /trəˈpɒsfər/ **noun** the lowest region of the atmosphere **_THE._** The troposphere is at its deepest near the equator and shallowest near the poles.

**trench** /trɛf/ **noun** a long area of low barometric pressure **_Severe icing and turbulence can be experienced when flying through a trough and the precipitation may be of hail, rain, snow or sleet._**

**true** /truː/ **adjective** referring to a calculation or reading which has been corrected for errors

**true airspeed** /truː ˈɛəspɪd/ **noun** airspeed corrected for instrument and position error in addition to altitude, temperature and compressibility errors

**true altitude** /truː ˈæltɪtjuːd/ **noun** real or actual height above sea level

**true bearing** /truː ˈbɛərɪŋ/ **noun** bearing with reference to true north, not magnetic north

**true degrees** /truː diˈɡriːz/ **noun** degrees of direction measured from true north, not magnetic north. Also called **_degrees true._** Symbol **°T**

**true north** /truː ˈnɔːθ/ **noun** the direction towards north pole along a meridian through the observer

**tube** /tjuːb/ **noun** a long, hollow cylindrical device for holding or carrying fluids **_A liquid-type fire detector consists of a tube and expansion chamber filled with liquid._**

**tubing** /tjuːˈbɪŋ/ **noun** tubes in general **_hydraulic tubing._**

**tubular** /tjuːˈbjuːlər/ **adjective** referring to something which is shaped like a tube **_Diagonal members can be of angle section, box spar or tubular in shape._**

**tune** /tjuːn/ **verb** 1. to set a system at its optimum point by careful adjustment **_The engine has not been properly tuned._** 2. to adjust to the particular frequency of the required signal **_The RB1 shows the bearing of the tuned radio beacon with reference to the aircraft's heading._**

**tuner** /ˈtjuːnaʊ/ **noun** a part which allows the operator to select the particular frequency of the required signal **_The tuner reduces interference._**

**turbine** /ˈtɜːrbən/ **noun** a rotary motor or engine formed of a wheel driven by a flow of air or gas

**turbo-** /ˈtɜːbəʊ|ˈtɜːbəʊ/ **prefix** turbine

**turbocharger** /ˈtɜːbəʊtʃɑrə|ˈtɜːbəʊtʃɑrə/ **noun** a supercharger driven by a turbine powered by exhaust gases **_The turbocharger significantly increases engine power._**

**turbofan** /ˈtɜːbəʊfæn/ **noun** a jet engine in which most of the thrust is produced by air, accelerated by a large fan, which does not pass through the combustion chamber of the engine **_The Airbus A340 is powered by four CFM56 turbofans. (NOTE: The US term is fanjet.)_**

COMMENT: Turbofan engines are much quieter than older turbojets and make a characteristic sound when in operation. The fan can be clearly seen in the front part of the engine. Modern airliners use turbofan engines produced by major manufacturers such as Rolls Royce, CFM or Pratt and Whitney.

**turbojet** /ˈtɜːbəʊdʒɛt/ **noun** a jet engine which includes a turbine-driven compressor for the air taken into the engine **_The de Havilland Comet was the world’s first turbojet commercial transport aircraft._**

COMMENT: In recent years turbofan engines have taken over from turbojet engines. Frank Whittle (1907–96) was an English engineer and RAF officer who invented the turbojet aircraft engine. Whittle developed a jet aircraft by 1941 and the first military jet aircraft, the Gloster Meteor, became operational in 1944.

**turboprop** /ˈtɜːbəʊprɒp/ **noun** a turbojet engine in which the turbine also drives a propeller **_The turboprop
engine is often used in transport aircraft.

COMMENT: Turboprop aircraft are efficient at lower speeds than turbojet aircraft and are often used for short-haul operations.

turboshaft /ˈtɜːbəʊˈʃɑːft/ noun an engine similar to a turboprop engine, except that it is used primarily in helicopters

turbulence /ˈtɜːbləns/ noun an irregular motion of the atmosphere

turbulent /ˈtɜːblənt/ adjective referring to the irregular motion of the atmosphere o When flying in turbulent air conditions, an aircraft is subjected to upward and downward gust loads.

turn /tɜːrn/ noun 1. an angular change in track o a 180° turn o The autopilot may be engaged during a climb or descent but not usually in a turn. 2. a section of a wire which is wound 360° in track o The voltage in each winding is directly proportional to the number of turns in each winding. ■ verb 1. to make an angular change in track o turn right o Turn to the west. 2. to rotate o The crankshaft turns through 720° for every cycle of four strokes. o turn the knob rotate the knob or control 3. o to turn (in)to to change state o As it descends into warmer air, snow turns to rain. 4. to find a page, section, passage, etc., in a book o Turn to page 64. o in turn 1. for its or their part o Drag must be overcome with thrust, which requires engines, which in turn consume fuel. 2. one after the other o Turn off the magneto in turn to check their serviceability.

turnaround /ˈtɜːrnərənd/ noun US same as turnaround

turn coordinator /tɜːrn ˈkɑːrədɪnər/ noun an instrument that shows the pilot if the aircraft is in coordinated flight or if it is slipping or skidding

turn off /tɜːrn ˈɒf/ verb 1. to switch an electrical device or system ‘off’ o When carrying out engine checks, turn off the magneto in turn to check their serviceability. 2. to stop the flow of something by using a valve o Turn off the fuel.

turn on /tɜːrn ˈɒn/ verb 1. to switch an electrical device or system ‘on’ o Can you turn the light on or turn on the light? 2. to start the flow of something by using a valve o Turn on the fuel.

turnround /ˈtɜːrnraʊnd/ noun unloading, loading and preparing an aircraft for another flight and the time taken to do this (NOTE: The word turnaround is preferred in US English.)
twin engine aircraft /ˈtɪn ˌendʒɪn ˈɛəkrɑːft/, twin-engined aircraft /ˌtɪn ˌendʒɪn ˌɛəkrɑːft/ noun an aircraft with two identical engines
twist /twɪst/ verb to turn against resistance o Centrifugal, bending and twisting forces act on a propeller during flight.

TWR abbreviation aerodrome control tower

type /taɪp/ noun 1. a sort or kind o Temperature and oil pressure are critical to any type of system. 2. a class of things having shared characteristics o The type of undercarriage fitted to an aircraft is governed by the operating weight. □ type of aircraft or aircraft type all aircraft of the same basic design

type certificate /ˌtaɪp ˈsətɪrɪfɪkət/ noun a document issued by an aviation authority which indicates that the design of a certain aircraft, engine etc has been approved

type certificate data sheet noun a document associated with a type certificate, giving information about why the certificate has been granted and general information about the design which has been approved. Abbreviation TCDS

type rating /ˈtaɪp ˈretɪŋ/ noun authorisation, usually entered on a licence, which allows the pilot to fly a particular aircraft type

typical /ˈtɪpɪkl/ adjective 1. normal, standard □ a typical fuel system a standard type of fuel system 2. representative of a particular class of things o The Piper Archer is a typical single-engine light aircraft.
tyre /ˈtaɪər/ noun a rubber covering for a wheel (NOTE: The US spelling is tire.)
tyre creep 240

**tyre creep** /ˈtaɪr kriːp/ noun the gradual rotation of the tyre in relation to the wheel, caused by landing to convert magnetic bearing into true bearing it is necessary to apply magnetic variation at the point at which the bearing was taken

COMMENT: Tyre creep can lead to damage to the tyre valve and subsequent unwanted and possibly dangerous deflation of the tyre.

**tyre pressure** /ˈtaɪr prɛʃə/ noun the air pressure in a tyre to maximum allowable tyre pressure
U

UAR abbreviation upper air route
UAS abbreviation upper air space
UHF abbreviation ultra high frequency
UIR abbreviation upper air region
UK abbreviation United Kingdom
ultimate /ˈʌltmət/ adjective final, from which no further advance can be made. To determine the ultimate load, which a structure must be capable of withstanding, a multiplier, called the ultimate factor of safety is used. The ultimate responsibility for safety rests with the crew.
ultra-/əlˈtrə/ prefix beyond
ultra high frequency /ˈʌltə hætˈfrɪkweənsi/, ultra high frequency band /ˈʌltə hætˈfrɪkweənsiˌbænd/ noun a radio frequency range between 300 MHz and 3000 MHz. Abbreviation UHF
ultralight /ˈʌltəlait/ noun a small single-seat or two-seat aircraft constructed of light materials and powered by a small motor, flown mainly for recreation
ultrasonic /ˌʌltrəˈsɒnɪk/ adjective referring to frequencies in the range of 20,000 Hz which cannot be heard by the human ear
ultrasonic inspection /ˌʌltrəˈsɒnɪk ɪnˈspekJ(ə)nm/ noun a non-destructive inspection of materials using extremely high frequency vibrations. Also called ultrasonic detection
ultraviolet /ˌʌltrəˈvaɪələt/ adjective referring to or occurring in the invisible part of the light spectrum beyond violet. Abbreviation UV • ultraviolet radiation the invisible part of the light spectrum beyond violet
unaccompanied /ˌʌnəˈkæmpəniid/ adjective • unaccompanied baggage baggage that travels on a different flight from the passenger who owns it.
unaccompanied
uncontrolled /ˌʌŋkənˈtrɔːld/ noun airspace in which air traffic control does not provide a service and in which an ATC clearance is not required to fly. While first learning to handle an aircraft, student pilots fly in uncontrolled airspace. (NOTE: Pilots must still follow certain rules when flying through uncontrolled airspace.)
uncoordinated flight noun flight, especially during turns, in which the horizontal and vertical forces acting on the aircraft are out of balance. This can result in the aircraft going into a slip or a skid.
undercarriage /ˌʌndəˈkærɪdʒ/ noun the landing gear of an aircraft. To reduce the effect of drag by fixed undercarriages a retractable type of undercarriage was introduced. (NOTE: The undercarriage is often called the landing gear or simply gear.)
COMMENT: The main landing gear are nearest the aircraft’s centre of gravity. Main landing gear are designed to withstand a greater landing shock than the nose wheel or tail wheel and consequently should make contact with the surface first when landing.
undercarriage assembly /ˌʌndəˈkærɪdʒ əˈsembli/ noun wheels, struts and linkages which make up the complete unit
undergo /ˈʌndərˌɡʌm/ verb to experience, to pass through a process. When water changes from vapor to liquid, energy is released into the atmosphere which is thus warmed, although the water itself does not undergo a change of temperature. (NOTE: undergoing — underw ent — has undergone)

underlying /ˌʌnderˈlʌɪŋ/ adjective 1. being under. Thermal modifications occur when the temperature of the underlying surface differs from that of the source region. 2. forming the basis of a theory or principle. The principle underlying the construction of a mercury barometer has not changed since 1643, when Torricelli first demonstrated that the atmosphere has weight.

undershoot /ˈʌndərʃaut/ verb to land before, or in front of the intended target. Because of the strong wind, the student pilot undershot the runway and landed before the runway threshold.

underside /ˈʌndərsaid/ noun the surface underneath something. The underside of the wing should be carefully inspected for damage or leaks.

underwrite /ˈʌndərˌriːt/ verb to do. In light aircraft, pilot/passenger communication can be satisfactorily undertaken verbally on a one to one basis. (NOTE: undertaking — undertook — has undertaken)

undulating /ˈʌndʒʊleɪtɪŋ/ adjective rising and falling in gentle slopes. Flight over undulating terrain will result in changing indications of aircraft height on the indicator of the radio altimeter.

uniform /jʊˈmɪnəf/ adjective the same, not varying in quality, dimensions, etc. An engine should be run at low r.p.m. (revolutions per minute) after flight to allow engine components to cool to a uniform temperature.

unique /juːˈniːk/ adjective the one and only of its sort, having no like or equal. The pulse coded message contains a unique 4-number identification.

unit /ˈjuːnit/ noun 1. a quantity or amount used as a standard, an accepted measurement. The internationally agreed unit of pressure is the millibar. The higher the sun is in the sky, the more intense is the radiation per unit area. 2. a person, group or device, complete in itself. The operation of flying controls is by means of self-contained power flying control units (PFCUs).

universal /juːˈvɜːs(ə)l/ adjective affecting all or everybody. The use of fly-by-wire systems in airliners was delayed to allow thorough development and encourage universal acceptance of the new technology.

Universal Time
unload /ʌnˈləʊd/ verb to remove a load from an aircraft. It took three hours to unload the aircraft.

unloading point /ʌnˈloʊdɪŋ pɔɪnt/ noun the place where an aircraft is unloaded. After taxiing, a marshaller marshals the aircraft to the disembarkation and unloading point.

unsaturated /ʌnˈsætərətɪd/ adjective. The undershoot/undershoot air is unsaturated; it does not contain the maximum amount of water vapour for its temperature.

unserviceable /ʌnˈsɜːvɪsəb(ə)l/ adjective not operative. The aircraft cannot be flown because the radio is unserviceable. (NOTE: It is often abbreviated in spoken English as U (you) S (uss).)

unstick /ʌnˈstɪk/ (informal) verb to cause an aircraft to take off, or take off in an aircraft. A take-off in an aircraft

update /ˈʌpˌdeɪt/ verb to bring up to date, to add the latest information to something. Forecasts are updated and reissued every four hours.

updraft /ˈʌpdraʊft/ noun US same as updraught

updraught /ˈʌpdraʊft/ noun a rising current of air. In cumulonimbus clouds, there are updraughts of tremendous force. Opposite downdraught.

uplift /ʌplɪft/ noun the lifting of air by surface features. Thunderstorms are
triggered off by convection and/or oro-graphic uplift.

upper /ˈʌpər/ adjective 1. at high altitude 
  upper air 2. upper winds 
  In modern meteorological practice, upper air analysis and the construction of contour charts is carried out by computer.

Upper

lower /ˈləʊər/ adjective the upper surface of the wing the surface of the wing facing upwards, as opposed to the underside

Upper air

Upper air analysis and the construction of contour charts is carried out by computer.

Upper air route /ˈʌpər erˈeɪt/ noun a route above FL245, approximately 24,500 ft. Abbreviation UAR

Upper airspace /ˈʌpər æˈseɪps/ noun the airspace above FL245, approximately 24,500 ft. Abbreviation UAS

Upper information region noun airspace which covers the same geographical area as a flight information region but above 24,500 ft. Abbreviation UIR

Upward /ˈʌpwiːd/ adjective moving or directed up: As the aircraft accelerates down the runway, the forces on the wing tips and wing surfaces start reversing direction and instead of being only downward forces of weight, they become upward forces of lift. (Note: In US English, upward is used as an adjective and as an adverb.)

Upwards /ˈʌpwɔːdz/ adverb towards the top: Heat is transferred from the Earth’s surface upwards by convection. Opposite downwards

Upwind /ˈʌpwiːnd/ adverb against the wind: The glider was released from the aero-tow 3 miles upwind of the airfield. Opposite downwind

Urgency /ˈɜːdʒənsi/ noun importance or need for prompt or fast action: Warnings, cautions and advisory messages are displayed only when necessary and are colour coded to communicate the urgency of the fault to the flight crew.

USA, US abbreviation United States of America

Usable /ˈjuːzəbl/ adjective capable of being used: On receiving the evacuate order, cabin crew must assess if their exits are usable.

Usage /ˈjuːzɪdʒ/ noun the act of using something, consumption: Fuel flight planning combines navigation data with fuel usage.

Use noun /juːs/ the act of using something, or the state of being used: It must be ensured that smoke masks are available for use by employees within the aircraft.

UTC abbreviation Coordinated Universal Time

Utilisation /juːtɪˈlɪzaʃən/ utilisation noun the act of making use of: Integral tanks are now favoured for aircraft owing to the high utilisation of space and reduction in weight.

Utilise /ˈjuːtɪlaɪz/, utilize verb to make use of: The most common type of barograph is one which utilises an aneroid capsule mechanically connected to a pen.

UV abbreviation ultraviolet
vacuum "vækjʊəm/ noun a space completely empty of everything including air. If the fuel tank vent pipe is blocked, a vacuum will form in the tank and fuel flow to the engine will be restricted.

valid "vɛld/ adjective 1. having official force or effect. All passengers should have valid passports. 2. worth taking seriously, acceptable because it is true or well-based. Significant weather charts use abbreviations and symbols to illustrate en route weather phenomena and are valid for a specified time. a valid assumption a well-based supposition

d validity "vəldɪtɪ/ noun the state of being valid. the period of validity of a visa. Aerodrome forecasts included in VOLMET should have a validity period of 9 hours.

valley "væli/ noun an area of low-lying land between mountains or hills. An example of a valley wind is the Mistral.

value "vælu/ noun 1. a quantity shown as a number. Deviation is not a constant value but varies from one aircraft to another. 2. the quality of being useful or desirable. the value of doing something the usefulness or worth of doing something

valve "vɛlv/ noun a mechanical device for controlling the flow of a fluid

valve overlap "vælv əʊvəlæp/ noun the period when both the exhaust and inlet valves are open together, with the exhaust valve closing and the inlet valve opening

valve seat "vælv sɪt/ noun an angled ring in the cylinder head on which the poppet valve sits when closed

vane "vɛn/ noun a flat surface acted on by the wind or an airflow. A centrifugal compressor consists of a disc on which is formed a number of radially spaced vanes.

vapor "vɛpər noun US same as vapour

vaporise "væpəraɪz/, vaporize verb to turn into vapour. Water vaporises when heated.

vapour "væpə/ noun the gaseous form of a liquid. Over desert areas, the lack of water vapour in the atmosphere produces cold nights. (NOTE: It is also written vapor in US English.)

vapour lock "væpə lɒk/ noun a blockage of fuel flow from a tank caused by a bubble of vapour at a high point in the pipeline

vapour trail "væpə trɪl/ noun a visible trail of condensed vapour left behind by an aircraft flying at high altitude

variable "vɛrəriəb(ə)/ adjective changing or changeable. Winds are more variable in the northern hemisphere than in the southern hemisphere.

variable geometry "vɛrəriəb(ə) dʒɪˈɒmətrɪ/ noun technology which allows the angle between wing and fuselage to be altered to give a more or less swept wing for better high-speed and low-speed flight characteristics

variable-geometry "vɛrəriəb(ə) dʒɪˈɒmətrɪ/ adjective referring to an aircraft with hinged wings that can move backwards or forwards during
flight (Note: The wings are swept back to give low drag in supersonic flight and are moved forwards for takeoff and landing.)

**variable pitch propeller**

A propeller with a mechanism to change the blade angle, to suit flight conditions.

**variable-sweep**

The wings are swept back to provide a large, immense, huge 

cabin. Consequently ventilates and pressurises the

cold air to extract a percentage of free moisture from the air, which subsequently ventilates and pressurises the cabin.

**vector**

A quantity with magnitude and direction indicated by a line of a given length, representing magnitude and specific direction.

The triangle of velocities is a vector solution of what happens to an aircraft when wind causes drift.

2. a heading given to a pilot to provide navigational guidance by radar.

**veer**

The shifting of the wind in a clockwise direction in the northern hemisphere.

**velocity**

The rate of change of position in a given direction which is composed of both speed and direction.

**vent**

A hole serving as an inlet or outlet for a fluid, usually a gas such as air.

**venturi**

A tube which narrows at the centre, a choke tube.
vertical /vəˈzɪtl̩k/ adjective at right angles to the Earth’s surface or to another line or plane ○ Beams can be additionally stiffened in a downward direction by vertical and diagonal members. ○ Height is defined as the vertical distance of a level, point or object, considered to be a point, from a specified datum. ◊ noun a vertical line or plane ○ The hot rod ice detector head consists of an aluminium alloy oblong base on which is mounted a steel tube detector mast, angled back to approximately 30° from the vertical.

vertical axis /vəˈzɪtl̩k(ə)s/ noun 1. an imaginary line running through the fuselage at the centre of gravity from top to bottom, around which the aircraft rotates when it yaws ○ The rudder is a control surface on the fin which rotates the aircraft about its vertical axis to produce yaw. ○ yaw 2. a vertical reference line (V axis) of a graph ○ The vertical axis shows engine power available.

vertically /vəˈzɪtl̩k(ə)l/ adverb in a vertical position ○ The aircraft pitched up vertically.

vertical speed indicator /vəˈzɪtl̩k(ə)l spɪd _ɪndɪkətə/ noun a flight instrument which indicates the rate of climb and descent. Abbreviation VSI

vertical stabiliser /vəˈzɪtl̩k(ə)l _stiːblɪˈləzər/ noun same as fin

very high frequency /ˈveri hæt ˈfrɪkwaːnsi, _ˈvɜːrɪ hæt ˈfrɪkwaːnsi_ band/ noun the radio frequency range between 30 MHz and 300 MHz. Abbreviation VHF

very high frequency omni-directional radio range /ˈveri hæt _ˈfrɪkwaːnsi ɪˌmɒndɪˈrektʃər_ rəndɪˈfeɪn/ noun full form of VOR

directions

vessel /ˈvɛs(ə)l/ noun a boat or ship ○ When flying over the sea you must not fly closer than 500 feet to a vessel.

VFR abbreviation visual flight rules

VHF abbreviation very high frequency

VOR abbreviation very high frequency omni-directional radio range

verbatim /ˈvɜːrɪbərət/ noun something presented in a particular way ○ She wrote the report with a view to improving in-flight services. ○ In view of the area nearby ○ After an emergency evacuation, passengers should be directed to move away from the vicinity of the aircraft quickly. ○ in the vicinity of the airport near the airport

VFR abbreviation visual flight rules

view /vju/ noun 1. what you are able to see from a particular place ○ Cabin crew must have a clear view of the aisles from their stations. 2. a picture of something presented in a particular way ○ a cross-sectional view of an aerofoil

vigor /ˈvɪɡər/ noun the intensity of feeling or spirit ○ She expressed strong views on the subject of airport security.

vice versa /ˌvɪsəˈvɜːrsə/ adjective the other way around ○ when engine demand is high, fuel pressure tends to be low and vice versa when the engine demand is low, fuel pressure tends to be high

vicinity /ˈvɪsɪnəti/ noun the area nearby ○ After an emergency evacuation, passengers should be directed to move away from the vicinity of the aircraft quickly. ○ in the vicinity of the airport near the airport

violate /ˈvəʊlət/ verb 1. to enter without permission ○ The aircraft violated a danger area. 2. to break rules or
regulations ♦ By not wearing a cap, the cadet is violating the dress code.

violent /ˈvɪələnt/ adjective with great force ♦ Flying through atmospheric dust causes the airframe to build up a static electrical charge and the associated discharges can be violent.

VIP abbreviation very important person

virtually /ˈvɜːʃəli/ adverb almost ♦ Resistance to alternating current remains virtually constant and is independent of frequency.

viscosity /vɪˈskɒsɪtɪ/ noun a liquid’s internal resistance to flowing ♦ Excessive oil temperatures are dangerous, as the oil viscosity is reduced and inadequate bearing lubrication results.

visibility /vɪzɪˈbɪlɪtɪ/ noun the ability to see unlighted objects by day and lighted objects by night, subject to atmospheric conditions ♦ Measurement of visibility by day is made by direct observation of objects at known distances and is therefore an estimated value. ♦ poor visibility a situation in which things cannot be seen clearly, e.g. because of fog, mist or smoke

visibility-by-day values

visible /ˈvɪzəb(ə)l/ adjective that can be seen ♦ When the undercarriage is selected down it may be visible from the crew compartment, but it is not usually possible to tell if it is securely locked. ♦ If the sun is seen through cumulus cloud it will be clearly visible.

vision /ˈvɪʒ(ə)n/ noun 1. the power of seeing, the ability to see ♦ Lightning at night may cause temporary loss of vision. 2. what you are able to see ♦ In low wing aircraft, downward vision may be limited by the airframe.

visual /ˈvɪʒuəl/ adjective referring to seeing ♦ The instrument landing system is to provide guidance in the horizontal and vertical planes to an aircraft on final approach into a position from which a safe visual landing can be made.

visual approach slope indicator /ˌvɪʒuəl əˈprəʊʃ ˈsləʊp ˌɪndɪkətər/ noun an arrangement of red and white lights on each side of the runway touchdown point to give the pilot information about the plane’s height on final approach. Abbreviation VASI

visual control room /ˌvɪʒuəl kənˈtɹɔːl ˈrʊm/ the control room in the tower at an airport. Abbreviation VCR

visual examination /ˌvɪʒuəl ɪɡˈzæmɪneɪʃən/ noun a close observation or inspection with the eyes. Also called visual inspection

visual flight rules /ˌvɪʒuəl ˈflaɪt ˈruːlz/ plural noun rules set down by an authority for flight in visual conditions, regarding such things as flight visibility and distance from cloud. Abbreviation VFR ♦ special VFR flight

visual indication /ˌvɪʒuəl ɪndɪˈkeɪʃən/ noun something which is seen and which suggests a more serious cause, e.g. a warning lamp ♦ Distorted wing panels are often a visual indication of structural damage to the airframe.

visual meteorological conditions /ˌvɪʒuəl ˌmɪtəˈrələdʒɪk(ə)l kəndəˈʃənzd/ visual meteorological conditions criteria /ˌvɪʒuəl ˌmɪtəˈrələdʒɪk(ə)l kəndəˈʃənz/ plural noun all the factors which define the limits of flying in visual meteorological conditions. Abbreviation VMC

visual warning /ˌvɪʒuəl ˈwɔrɪnɪŋ/ noun a warning that can be seen as opposed to a audible warning that can be heard

vital /ˈvɪt(ə)l/ adjective extremely important ♦ Verbal commands from the crew are vital at all times but particularly so if smoke restricts cabin visibility. ♦ Accurate measurements of atmospheric pressure and the rate of change of pressure are of vital interest to the meteorological forecaster.

viz /vɪz/ adverb namely, in other words, that is to say ♦ There are two types of inverter, viz rotary and static.
VMC 
*abbreviation* visual meteorological conditions

Vne *abbreviation* never-exceed speed

volatile /ˈvoʊlətəl/ adjective describes a liquid which easily changes into a gas or vapour. To aid starting in cold weather, more volatile fuels can be used.

volatility /ˈvɒlətɪlɪtɪ/ noun the ease with which a liquid changes into a gas or vapour. With kerosene-type fuels, the volatility is controlled by distillation and flash point, but with the wide-cut fuels it is controlled by distillation and the Reid Vapour Pressure test.

VOLMET /ˈvɒlmɛt/ noun a routine ground-to-air broadcast of meteorological information. The meteorological Operational Telecommunications Network Europe (MOTNE) is provided for the exchange of meteorological information needed by meteorological offices, VOLMET broadcasting stations, air traffic service units, operators and other aeronautical users.

volplane /ˈvɒlpɛln/ noun a glide towards the ground in an aircraft with the engine turned off.

volt /ˈvɑlt/ noun the SI unit of electrical potential. The system requires a power supply of either 115 volts AC (alternating current), 28 volts DC (direct current), or both. Abbreviation V

voltage /ˈvɑltɪdʒ/ noun electrical force measured in volts. As an installed battery becomes fully charged by the aircraft generator, the battery voltage nears its nominal level and the charging current decreases.

volume /ˈvɔlju/ noun 1. the amount of space occupied by a solid. A liquid or a gas. 2. If the pressure of a given mass of gas is maintained constant, the volume of gas increases as its temperature is increased. 2. the loudness of a transmission.

volume control /ˈvɒlju mən kənˌtrəʊl/ noun a knob used to adjust the volume by making it louder or less loud.

VOR /ˈvɑːr/ noun a navigational aid based on the ground, to help the pilot establish the bearings of the aircraft. Full form very high frequency omni-directional radio range.

COMMENT: The VOR projects 360 radials which can be followed to fly a particular path over the ground. VORs operate on VHF frequencies between 108.0 to 177.95 MHz.

VOR bearing /ˈvər ˈbɛrɪŋ/ noun the direction of the VOR transmitter relative to the aircraft measured in degrees.

VORTAC /ˈvɔrtæk/ noun a system that combines VOR and Tacan.

VSI *abbreviation* vertical speed indicator.

V/STOL /ˈvɪstəʊl/ noun 1. a system used by some aircraft that allows them to take off and land vertically or on a short runway. 2. an aircraft that is able to take off and land vertically or on a short runway. Full form vertical and short takeoff and landing.

VTOL /ˈvɪtʃəl/ noun 1. a system used by some aircraft that allows them to take off and land vertically. 2. an aircraft that is able to take off and land vertically. Full form vertical takeoff and landing.

vulnerable /ˈvʌlnərəbəl/ adjective unprotected and liable to attack or damage. Some engines still retain the centrifugal type of compressor because it is simple, comparatively cheap to manufacture, robust in construction and less vulnerable to damage.
W

W abbreviation west
WAAS noun a US navigation system which processes and improves data from GPS satellites to provide location information. Full form Wide Area Augmentation System (NOTE: The European equivalent is EGNOS.)

wake turbulence /wɛk tʌblətʃəns/ noun the disturbance of the air remaining after the passage of an aircraft

wall /wɔl/ noun the side ○ There is a film of oil between the piston and cylinder wall.

warm front /wɔrn fɔnt/ noun an advancing mass of warm air moving over a mass of cooler air

warn /wɔrn/ verb to give notice of possible danger ○ A light illuminates to warn the crew.

‘…ultrasonic technology which automatically warns pilots of ice build-up on aircraft may soon be approved for general use by carriers’ [Flight International 16–22 July 1997]

warning /ˈwɔrnɪŋ/ noun notice of possible danger ○ adjective giving notice of possible danger ○ The main power plant fire detection system should contain an audible warning device to supplement the visual indication.

warning indicator /ˈwɔrnɪŋ ,ɪndikeɪtə/ noun an indicator which gives notice of a possible problem which may require some action. ○ VASI

warning light /ˈwɔrnɪŋ lət/ noun a small light, often red, which informs of a possible danger by lighting up ○ At 5 knots above stalling speed, a warning light on the instrument panel will flash.

washroom /ˈwɔʃruːm/ noun same as toilet 2
waste /weɪst/ noun something which can no longer be used ○ A smouldering fire in a toilet waste container or waste disposal bin could become very active due to pressure changes during descent.

water-tight /ˈwɔtə tɔt/ adjective that does not leak water or other fluid
watt /wɔt/ noun the SI unit of measurement of electrical power ○ The work done by an electrical circuit or the power consumed is measured in watts.

wave /weɪv/ noun 1. the motion by which heat, light, sound or electric current is spread ○ The speed of propagation of radio waves is faster over sea than over land. 2. a mass of water moving across the surface of a lake or the sea, rising higher than the surrounding water as it moves ○ Wind speeds increase with height, the speed of the wind at the crest of a wave being the greatest.

waveform /ˈweɪvfoʊrm/ noun the shape of a repetitive wave ○ A cycle is one complete sequence of the waveform, from any point, to the same value 360° later.

wavelength /ˈweɪvlɛŋθ/ noun the distance from the highest point of one wave to the highest point of the next ○ Short wavelength permits sharper beams for direction finding and more efficient reflections.

waveoff /ˈweɪvəf/ noun a signal or instruction to an aircraft that it should not land.
waypoint /ˈweɪpɔɪnt/ noun a pre-determined position on a route, used for monitoring flight progress or for navigating around controlled airspace. Abbreviation WP

weak /wɛk/ adjective 1. not strong ○ a weak radio signal 2. overdiluted with water or air ○ weak mixture a fuel/air mixture in which there is more air than usual ○ Excessive cylinder head temperatures could be caused by prolonged use of a weak mixture, especially at high altitude ○ weak solution a mixture of water and some other substance in which the amount of water is more than usual

weaken /ˈwɛkn/ verb to make weak ○ Inflation of the de-icer boot weakens the bond between the ice and de-icer boot surfaces.

wear /wer/ noun damage or loss of quality by use ○ Mishandling of aeroplanes during operation can cause considerable damage and wear which can shorten the life of the engine. ○ verb 1. to become damaged or to lose quality because of use ○ The more the brakes are used, the more they wear. 2. to have on the body ○ The nature of modern jet transport does not require the pilot to wear an oxygen mask.

weather /ˈweðə/ noun the conditions of atmospheric temperature, pressure, wind, moisture, cloudiness, precipitation and visibility ○ Generally speaking, weather conditions can be described as light, moderate or severe depending on the intensity of the conditions ○ forecast weather predicted weather, not actual weather

weathercock /ˈweθərkok/ verb to tend to turn in the direction of the wind

weather report /ˈweðər rɪˈpɔːrt/ noun an official account of weather conditions

web /welb/ noun the main vertical member of a beam ○ The web connecting the upper and lower flanges of the beams must be rigid enough to withstand direct compressive loads without buckling.

weigh /wer/ verb to measure how heavy something is ○ A given quantity of lead weighs more than the same quantity of aluminium.

weight /wer/ noun the force with which a body is drawn towards the centre of the Earth ○ Carry-on baggage is limited by regulations as to size and weight and items in excess of this should be stowed in the hold.

west /west/ noun 1. a compass point on the mariner’s compass 270° clockwise from due north and directly opposite east ○ In Europe, snow occurs more frequently in the east than in the west. 2. the direction of the setting sun ○ adjective 1. referring to areas or regions lying in the west ○ West Africa ○ adverb towards the west ○ The aircraft was flying west.

westbound /ˈwestbaʊnd/ adjective travelling towards the west ○ a west-bound flight

westerly /ˈwestəli/ adjective 1. situated towards the west ○ A westerly wind is blowing. 3. moving to the west or towards the west ○ He should fly in a westerly direction. ○ noun a wind which blows or comes from the west ○ Temperate westerlies occur on the side of the sub-tropical anti-cyclonic belts which is remote from the equator.

western /ˈwestən/ adjective situated in the west ○ Western Europe

westward /ˈwestwərd/ adjective going towards the west ○ verb US same as westwards

westwards /ˈwestwərdz/ adverb towards the west ○ Flying eastwards or westwards for long periods of time affects sleep patterns.

west wind /ˈwest ˈwind/ noun a wind blowing from or coming from the west (NOTE: A wind is named after the direction it comes from.)

wheel /wiːl/ noun a circular, rotating, load-carrying part between the tyre and axle, or the whole wheel and tyre assembly on which a vehicle rolls

wheel bay /ˈwiːl beɪ/ noun a space in the fuselage or wing structure in which the wheel is housed after retraction ○ To avoid damage to the wheel bay, the nose
wheel must be aligned in a fore and aft direction during retraction.

wheel bearing /ˈwɪəl ˈbɛərɪŋ/ noun a device which allows the wheel to rotate freely around the axle.

wheel fairing /ˈwɪəl ˈfɛərɪŋ/ noun same as spat.

wheels up /ˈwɪəlz ʌp/ adjective airborne after having taken off from a runway.

whereas /ˈweərəz/ conjunction but in contrast, on the other hand. In the piston engine, the cycle is intermittent, whereas in the gas turbine, each process is continuous.

whereby /ˈweərə bɛə/ adverb according to which. Compression heating relies on the principle whereby the air temperature is increased by compression.

In ram air supply systems, the cooling method is of the simplest type, whereby the cold air can be directly admitted to the cabin via adjustable louvres.

whereupon /ˈweərə prən/ adverb at that point, or after which. Pitch changes are achieved using the throttle lever, which is usually taken up and back through a gate in the quadrant whereupon fuel is added to increase power.

wherever /ˈweərə ˈɛvə/ adverb in places where it is possible. Wherever possible, thunderstorms should be avoided by a wide margin.

The polar front jet

wind /wɪnd/ noun a general term for aviation turbine fuels made up of a wider variety of petroleum products than kerosene-type fuels.

Kerosene has a low vapour pressure and boils only at very high altitudes or high temperatures, whereas a wide-cut fuel will boil at a much lower altitude.

width /wɪdθ/ noun a lot of different information.

Wide Area Augmentation System noun full form of WAAS.

wide-bodied /ˈwɜd ˈbɒdɪd/ adjective US same as wide-body.

widebody /ˈwɜd bɒdbi/ noun a jet aircraft with a body wide enough to accommodate three rows of seats across the width of the plane, with spaces on each side of the middle set.

wide-body /ˈwɜd ˈbɒdbi/ adjective referring to a jet aircraft with a body wide enough to have three sets of passenger seats in a row across the width of the plane, with spaces on each side of the middle set.

wide-cut fuel /ˈwɜd kʌt ˈfjuːzl/ noun a general term for aviation turbine fuels made up of a wider variety of petroleum products than kerosene-type fuels.

Kerosene has a low vapour pressure and boils only at very high altitudes or high temperatures, whereas a wide-cut fuel will boil at a much lower altitude.

widespread /ˈwɜdspred/ adjective found or distributed across a large area.

The storm caused widespread damage.

widespread precipitation rainfall or snowfall covering a large area.

width /wɪdθ/ noun the distance of something measured from side to side, compared to length.

The polar front jet
wind /wɪnd/ noun horizontal movement of air in relation to the Earth's surface.

wind1 /wɪnd/ verb to move in a curving or twisting manner. If a wire is wound as a coil, the field will be like that of a bar magnet. (NOTE: winding – wound)

windblast /ˈwɪndblæst/ noun the harmful effect of air flow on a pilot who has ejected from an aircraft travelling at high speed.

wind cone /ˈwɪnd kən/ noun same as windscoop.

wind currents /ˈwɪnd kərəntz/ plural noun the movement of air in a particular direction through a mass of air which is not moving so much.

wind direction /ˈwɪnd dərekʃən/ noun a description of where the wind is blowing from, given as north, south, east, west, etc., or a number of degrees, e.g. a wind coming from the west would be a wind direction of 270°.

Wind direction and speed only affect the movement of the aircraft over the ground.

wind gradient /ˈwɪnd ɡrɛdɪənt/ noun the rate of increase of wind strength with unit increase in height above ground level. After take-off, as the aircraft gains altitude, the ground speed may be affected by the wind gradient.

winding /ˈwɪndɪŋ/ noun a series of 360° turns of wire.

windmill /ˈwɪndmɪl/ verb to turn round by wind force only without engine power.

windscreen /ˈwɪndskriːn/ noun the front window of an aircraft through which the pilot has forward vision. The windscreen is a glass laminated construction with an electrical element, made of gold film, sandwiched between the layers.

wiper

windshear /ˈwɪndʃər/ noun a change in wind direction and speed between slightly different altitudes. Windshear, if strong enough, can produce clear air turbulence.

windshield /ˈwɪndʃiːld/ noun US same as windscreen.

windsock /ˈwɪndskɒk/ noun a pole at the top of which is a fabric tube through which the wind blows, showing the wind direction.

windspeed /ˈwɪndspɪd/ noun the speed of the wind which, if combined with a direction, is called velocity. It is usually measured in knots. Wind direction is given in degrees true rounded to the nearest 10°, followed by the mean windspeed.

wind tunnel /ˈwɪnd tʌn(ə)l/ noun a tunnel-shaped chamber through which air can be passed at a known speed in order to test the aerodynamic properties of an object such as an aircraft placed inside it.

wind velocity /ˈwɪnd vəˈlɒsɪtɪ/ noun wind speed and direction.

windward /ˈwɪndwɜrd/ adjective, adverb facing the direction from which the wind blows. Opposite lee.

windward /ˈwɪndwɜrd/ noun a range of hills upwind of the range of hills. If precipitation occurs, water will have been removed from the atmosphere thus causing the air on the lee side to be drier than that on the windward side.

wing /wɪŋ/ noun the main horizontal aerofoil or mainplane. The wing supports the weight of the aircraft in flight.

winglet /ˈwɪŋlɛt/ noun an upturned wing tip or small additional vertical aerofoil on a wing tip. The attachment of winglets improved the handling characteristics of the aeroplane.

wing loading /ˈwɪŋ ləʊdɪŋ/ noun the weight of an aircraft per unit wing area.

wingman /ˈwɪŋmən/ noun a pilot who flies in a position behind and to the side of the leader of a group of flying aircraft.

wingover /ˈwɪŋərəʊ/ noun a manoeuvre to turn a flying aircraft in which the pilot puts the aircraft into a
steep turning climb until it almost stalls and then allows the nose to fall.

**wing panel** /ˈwɪŋ ,ˌpen(ə)/ noun a rectangular aluminium section of the aircraft skin of a wing. Wing panels of light aircraft are normally riveted together.

**wing root** /ˈwɪŋ rʌt/ noun the part of the wing where it meets with the fuselage.

**wingspan** /ˈwɪŋspæn/ noun a measurement from the tip of one wing to the tip of the other wing. The wingspan of the aircraft is 7 metres.

**wing tip** /ˈwɪŋ tɪp/ noun the outermost part of the wing. As an aircraft takes off, the forces on the wing tip and wing surfaces start reversing direction and instead of being only downward forces of weight, they become upward forces of lift.

**wipe** /waɪp/ verb to clean or to dry by using a cloth. In the event of hydraulic fluid spillage on paintwork, the affected area should be wiped clean immediately.

**wiper** /ˈwaɪpə/ noun a device with a rubber blade which clears rain, snow, etc., from a windscreen. In some circumstances, such as heavy rainstorms, the windscreen wipers may not be able to cope and pilot’s visibility is impaired.

**wire** /ˈwaɪr/ noun metal drawn out into the form of a thread or string. While the shunt coil is made of fine wire which gives a high resistance and small current flow, the series coil is made of thick wire, which gives a low resistance and large current flow.

**wire mesh** /ˈwaɪr meʃ/ noun metal sheeting made of criss-crossed wiring.

**withdraw** /ˈwɪdər/ verb to pull back. To draw back. Instructions are given to the cabin crew to arm the escape devices immediately the boarding steps or airbridges are withdrawn.

( NOTE: withdrew – withdrawn )

**within** /ˈwɪðən/ preposition in or inside. Great care must be taken to ensure that the aircraft operates within regulated or permissible weight limits. Within two hours in about two hours or less, but not more.

**withdraw** /ˈwɪdər/ verb to resist or bear. The wings must be capable of withstanding the aircraft weight, but also the stresses and strains which are imposed during flight.

**WMO** abbreviation World Meteorological Organization.

**work** /wɜːk/ noun 1. The operation of a force to produce movement or some other physical change. 1 horsepower is defined as 33,000 foot-pounds of work accomplished in one minute (a foot-pound being the ability to lift a one pound weight a distance of one foot). 2. something which has to be done, e.g. maintenance. 3. something done to earn a living. She enjoys her work as an airport security officer. 3. something done to earn a living. She works for a large airline. 4. to work out. To calculate, to solve a mathematical problem. 5. to work on. The computer doesn’t work as it should do because there is something wrong with it.

**working conditions** /ˈwɜːkɪŋ kənˈdiʃənz/ plural noun those aspects of working lives which affect the way people feel about their work.

**work load** /ˈwɜːk loʊd/ noun the share of work done by a person, system or device.

**WP** abbreviation waypoint.
X-ray /ˈeks reɪ/ noun 1. a ray with a very short wavelength, which is invisible, but can go through soft tissue or material and register as a photograph on a film 2. a photograph taken using X-rays • verb to take an X-ray photograph of luggage

yard /jɑːrd/ noun a unit of length in the US and British Imperial Systems equal to 3 ft or 0.9144 m. Abbreviation yd

yaw /jɔː/ noun rotation of the aircraft around its vertical axis • Three-axis control of roll, pitch and yaw is effected by ailerons, elevators and rudder • verb to rotate around the vertical axis • Single-engine, propeller-driven aircraft tend to yaw on take-off.

yoke /jəʊk/ noun 1. a type of aircraft control column by which the pilot controls ailerons by rotating a device on top of the column to the left or right • Rotate the yoke to the left to roll the aircraft to the left. 2. a supporting structure like the forked metal mounting for the nosewheel • The yoke was damaged in the incident. 3. abbreviation Zulu time

zero /ˈzɪərəʊ/ noun nought or the figure 0 • If the atmospheric pressure at an airfield is 1,000 millibars (mb) and this pressure is set on the sub-scale of an aircraft altimeter, then when that aircraft touches down at the airfield, the altimeter will read zero.

zero-zero /ˈzɪərəʊ ˈzɪərəʊ/ adjective referring to flying conditions of thick, low cloud when a pilot can see nothing ahead and nothing above or below the aircraft

zonal /ˈzoʊn(əl)/ adjective referring to one of the five parts into which the Earth’s surface is divided by imaginary lines parallel to the equator • The circulation of air around the Earth is zonal in character.

zone /ˈzoʊn/ noun 1. an area with particular features or purpose 2. an administrative area of airspace • control zone • aerodrome traffic zone (ATZ) 3. one of five divisions into which the Earth’s surface is divided by imaginary lines parallel to the equator • temperate zone • climatic zone

zoom /zuːm/ verb to make an aircraft climb rapidly at a very steep angle, or move upwards in this way

Zulu time /ˈzuːluː tɛim/ noun • Greenwich Mean Time
SUPPLEMENTS

The Phonetic Alphabet
Standard words and phrases used in pilot communications
Aircraft registration codes
Airline codes
Airport codes
Local times around the world
International dialling codes
Standard symbols and abbreviations
Weights and measures
Conversion factors
The Phonetic Alphabet

Certain letters of the alphabet sound very similar, especially when a person is talking on the telephone or radio. The phonetic alphabet is designed to prevent confusion, by using a distinctive word to represent each letter.

<table>
<thead>
<tr>
<th>Letter</th>
<th>Word</th>
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<tbody>
<tr>
<td>Aa</td>
<td>Alpha*</td>
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<td>Bb</td>
<td>Bravo</td>
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<td>Cc</td>
<td>Charlie</td>
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<td>Delta</td>
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* Alfa in US English
** Whiskey in US English
# Standard words and phrases

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<tr>
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<th>Meaning</th>
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<tr>
<td>Acknowledge</td>
<td>Let me know that you have received and understood this message.</td>
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<tr>
<td>Affirm</td>
<td>Yes</td>
</tr>
<tr>
<td>Approved</td>
<td>I give you permission for what you asked.</td>
</tr>
<tr>
<td>Cancel</td>
<td>Cancel the last clearance I gave to you.</td>
</tr>
<tr>
<td>Check</td>
<td>Examine a system or procedure.</td>
</tr>
<tr>
<td>Cleared</td>
<td>I give permission for you to continue, bearing in mind the conditions already given.</td>
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<tr>
<td>Confirm</td>
<td>Have I correctly received the following …? or Did you correctly receive this message?</td>
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<tr>
<td>Contact</td>
<td>Contact by radio …</td>
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<tr>
<td>Correct</td>
<td>That is correct.</td>
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<tr>
<td>Correction</td>
<td>An error was made in the last transmission. What follows is correct.</td>
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<tr>
<td>Disregard</td>
<td>Assume that the last transmission was not sent.</td>
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<tr>
<td>How do you read?</td>
<td>Tell me how good this transmission is on a 1 to 5 scale where 1 = unreadable (cannot understand) to 5 = excellent reception (no difficulty in understanding).</td>
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<tr>
<td>I say again</td>
<td>I am repeating in order to make my meaning very clear.</td>
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<tr>
<td>Over</td>
<td>My transmission is finished and I want a response from you.</td>
</tr>
<tr>
<td>Out</td>
<td>This exchange of transmissions is finished. I do not want a response from you.</td>
</tr>
<tr>
<td>Pass your message</td>
<td>Proceed with your message.</td>
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<tr>
<td>Read back</td>
<td>Repeat all, or the specified part of this message back to me exactly as received.</td>
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<tr>
<td>Request</td>
<td>I want to know or I want to have.</td>
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<tr>
<td>Roger</td>
<td>I have received all of your last transmission.</td>
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<tr>
<td>Say again</td>
<td>Repeat all, or the following part of your last transmission.</td>
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<tr>
<td>Speak slower</td>
<td>Speak more slowly.</td>
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<tr>
<td>Standby</td>
<td>Wait and I will call you.</td>
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<tr>
<td>Verify</td>
<td>Check and confirm with me.</td>
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<tr>
<td>Wilco</td>
<td>I understand your message and will comply with it.</td>
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<tr>
<td>Words Twice</td>
<td><em>(as a request)</em> Communication is difficult. Please send every word or group of words twice.</td>
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<tr>
<td></td>
<td><em>(as information)</em> Because communication is difficult, every word or group of words in this message will be sent twice.</td>
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**Aircraft registration codes**

These codes are painted on all aircraft, showing their country of registration.

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<tr>
<td>1 centimetre (cm)</td>
<td>= 10 mm</td>
</tr>
<tr>
<td>1 decimetre (dm)</td>
<td>= 3.937 in</td>
</tr>
<tr>
<td>1 metre (m)</td>
<td>= 100 cm</td>
</tr>
<tr>
<td>1 kilometre (km)</td>
<td>= 1.0936 yds</td>
</tr>
</tbody>
</table>

Area

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent in Other Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 square milimetre (mm$^2$)</td>
<td>= 0.0016 sq. in</td>
</tr>
<tr>
<td>1 square centimetre (cm$^2$)</td>
<td>= 0.155 sq. in</td>
</tr>
<tr>
<td>1 square metre (m$^2$)</td>
<td>= 1.196 sq. yds</td>
</tr>
<tr>
<td>1 are (a)</td>
<td>= 119.6 sq. yds</td>
</tr>
<tr>
<td>1 hectare (ha)</td>
<td>= 2.4711 acres</td>
</tr>
<tr>
<td>1 square kilometre (km$^2$)</td>
<td>= 0.3861 sq. mile</td>
</tr>
</tbody>
</table>

Weight

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent in Other Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 milligram (mg)</td>
<td>= 0.0154 grain</td>
</tr>
<tr>
<td>1 gram (g)</td>
<td>= 0.0353 oz</td>
</tr>
<tr>
<td>1 kilogram (kg)</td>
<td>= 2.2046 lb</td>
</tr>
<tr>
<td>1 tonne (t)</td>
<td>= 0.9842 ton</td>
</tr>
</tbody>
</table>

Volume

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent in Other Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cubic centimetre (cm$^3$)</td>
<td>= 0.061 cu. in</td>
</tr>
<tr>
<td>1 cubic decimetre (dm$^3$)</td>
<td>= 0.0351 cu. ft</td>
</tr>
<tr>
<td>1 cubic metre (m$^3$)</td>
<td>= 1.308 cu. yds</td>
</tr>
</tbody>
</table>

Liquid Volume

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent in Other Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 litre (l)</td>
<td>= 1 dm$^3$</td>
</tr>
<tr>
<td>1 hecilitre (hl)</td>
<td>= 1.76 pt</td>
</tr>
<tr>
<td></td>
<td>= 22 gal</td>
</tr>
</tbody>
</table>
# Weights and Measures: Imperial Measures

## Length

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 inch (in)</td>
<td>= 2.54 cm</td>
<td>= 2.54 cm</td>
</tr>
<tr>
<td>1 foot (ft)</td>
<td>= 12 in</td>
<td>= 0.3048 m</td>
</tr>
<tr>
<td>1 yard (yd)</td>
<td>= 3 ft</td>
<td>= 0.9144 m</td>
</tr>
<tr>
<td>1 rod (rd)</td>
<td>= 5.5 yds</td>
<td>= 4.0292 m</td>
</tr>
<tr>
<td>1 chain</td>
<td>= 4 rds</td>
<td>= 20.117 m</td>
</tr>
<tr>
<td>1 furlong</td>
<td>= 10 chains</td>
<td>= 201.17 m</td>
</tr>
<tr>
<td>1 mile</td>
<td>= 8 furlongs</td>
<td>= 1.6093 km</td>
</tr>
<tr>
<td>1 nautical mile</td>
<td>= 2025.4 yds</td>
<td>= 1.852 km</td>
</tr>
</tbody>
</table>

## Area

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 square inch</td>
<td>= 6.4516 cm²</td>
<td>= 6.4516 cm²</td>
</tr>
<tr>
<td>1 square foot</td>
<td>= 144 sq. ins</td>
<td>= 0.0929 m²</td>
</tr>
<tr>
<td>1 square yard</td>
<td>= 9 sq. ft</td>
<td>= 0.8361 m²</td>
</tr>
<tr>
<td>1 acre</td>
<td>= 4840 sq. yds</td>
<td>= 4046.9 m²</td>
</tr>
<tr>
<td>1 square mile</td>
<td>= 640 acres</td>
<td>= 259 hectares</td>
</tr>
</tbody>
</table>

## Weight

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ounce (oz)</td>
<td>= 437.6 grains</td>
<td>= 28.350 g</td>
</tr>
<tr>
<td>1 pound (lb)</td>
<td>= 16 oz</td>
<td>= 0.4536 kg</td>
</tr>
<tr>
<td>1 stone</td>
<td>= 14 lb</td>
<td>= 6.3503 kg</td>
</tr>
<tr>
<td>1 hundredweight (cwt)</td>
<td>= 112 lb</td>
<td>= 50.802 kg</td>
</tr>
<tr>
<td>1 long ton</td>
<td>= 20 cwt</td>
<td>= 1.0161 t</td>
</tr>
</tbody>
</table>

## Volume

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cubic inch</td>
<td>= 16.387 cm³</td>
<td></td>
</tr>
<tr>
<td>1 cubic foot</td>
<td>= 1728 cu. ins</td>
<td>= 0.0283 m³</td>
</tr>
<tr>
<td>1 cubic yard</td>
<td>= 27 cu. ft</td>
<td>= 0.7646 m³</td>
</tr>
</tbody>
</table>

## Liquid Volume

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 fluid ounce (fl. oz)</td>
<td>= 8 fl. drachms</td>
<td>= 28.413 cm³</td>
</tr>
<tr>
<td>1 pint (pt)</td>
<td>= 20 fl. oz</td>
<td>= 568.26 cm³</td>
</tr>
<tr>
<td>1 pint</td>
<td>= 4 gills</td>
<td>= 0.5683 l</td>
</tr>
<tr>
<td>1 quart (qt)</td>
<td>= 2 pt</td>
<td>= 1.1365 l</td>
</tr>
<tr>
<td>1 gallon (gal)</td>
<td>= 8 pt</td>
<td>= 4.5461 l</td>
</tr>
<tr>
<td>1 bushel (bu)</td>
<td>= 8 gal</td>
<td>= 36.369 l</td>
</tr>
</tbody>
</table>

## Liquid Volume (US)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Equivalent</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 fluid ounce (US)</td>
<td>= 29.574 ml</td>
<td></td>
</tr>
<tr>
<td>1 pint (US)</td>
<td>= 16 fl. oz (US)</td>
<td>= 0.4723 l</td>
</tr>
<tr>
<td>1 gallon (US)</td>
<td>= 8 pt (US)</td>
<td>= 3.7854 l</td>
</tr>
</tbody>
</table>
### Conversion factors: Imperial to Metric

<table>
<thead>
<tr>
<th>Length</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>millimetres</td>
</tr>
<tr>
<td>inches</td>
<td>centimetres</td>
</tr>
<tr>
<td>feet</td>
<td>metres</td>
</tr>
<tr>
<td>yards</td>
<td>metres</td>
</tr>
<tr>
<td>statute miles</td>
<td>kilometres</td>
</tr>
<tr>
<td>nautical miles</td>
<td>kilometres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>square inches</td>
<td>square centimetres</td>
</tr>
<tr>
<td>square feet</td>
<td>square metres</td>
</tr>
<tr>
<td>square yards</td>
<td>square metres</td>
</tr>
<tr>
<td>acres</td>
<td>hectares</td>
</tr>
<tr>
<td>square miles</td>
<td>square kilometres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>cubic inches</td>
<td>cubic centimetres</td>
</tr>
<tr>
<td>cubic feet</td>
<td>cubic metres</td>
</tr>
<tr>
<td>cubic yards</td>
<td>cubic metres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquid Volume</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>fluid ounces (UK)</td>
<td>litres</td>
</tr>
<tr>
<td>fluid ounces (US)</td>
<td>litres</td>
</tr>
<tr>
<td>pints (UK)</td>
<td>litres</td>
</tr>
<tr>
<td>pints (US)</td>
<td>litres</td>
</tr>
<tr>
<td>gallons (UK)</td>
<td>litres</td>
</tr>
<tr>
<td>gallons (US)</td>
<td>litres</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>ounces (avoirdupois)</td>
<td>grams</td>
</tr>
<tr>
<td>ounces (troy)</td>
<td>grams</td>
</tr>
<tr>
<td>pounds</td>
<td>kilograms</td>
</tr>
<tr>
<td>tons (long)</td>
<td>tonnes</td>
</tr>
</tbody>
</table>
### Conversion factors: Metric to Imperial

#### Length

<table>
<thead>
<tr>
<th>Metric</th>
<th>Imperial</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>millimetres</td>
<td>inches</td>
<td>0.0394</td>
</tr>
<tr>
<td>centimetres</td>
<td>inches</td>
<td>0.3937</td>
</tr>
<tr>
<td>metres</td>
<td>feet</td>
<td>3.2806</td>
</tr>
<tr>
<td>metres</td>
<td>yards</td>
<td>1.9036</td>
</tr>
<tr>
<td>kilometres</td>
<td>statute miles</td>
<td>0.6214</td>
</tr>
<tr>
<td>kilometres</td>
<td>nautical miles</td>
<td>0.54</td>
</tr>
</tbody>
</table>

#### Area

<table>
<thead>
<tr>
<th>Metric</th>
<th>Area</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>square centimetres</td>
<td>square inches</td>
<td>0.155</td>
</tr>
<tr>
<td>square metres</td>
<td>square feet</td>
<td>10.764</td>
</tr>
<tr>
<td>square metres</td>
<td>square yards</td>
<td>1.196</td>
</tr>
<tr>
<td>hectares</td>
<td>acres</td>
<td>2.471</td>
</tr>
<tr>
<td>square kilometres</td>
<td>square miles</td>
<td>0.386</td>
</tr>
</tbody>
</table>

#### Volume

<table>
<thead>
<tr>
<th>Metric</th>
<th>Volume</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>cubic centimetres</td>
<td>cubic inches</td>
<td>0.061</td>
</tr>
<tr>
<td>cubic metres</td>
<td>cubic feet</td>
<td>35.315</td>
</tr>
<tr>
<td>cubic metres</td>
<td>cubic yards</td>
<td>1.308</td>
</tr>
</tbody>
</table>

#### Liquid Volume

<table>
<thead>
<tr>
<th>Metric</th>
<th>Liquid Volume</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>litres</td>
<td>fluid ounces (UK)</td>
<td>35.1961</td>
</tr>
<tr>
<td>litres</td>
<td>fluid ounces (US)</td>
<td>33.8150</td>
</tr>
<tr>
<td>litres</td>
<td>pints (UK)</td>
<td>1.7598</td>
</tr>
<tr>
<td>litres</td>
<td>pints (US)</td>
<td>2.1134</td>
</tr>
<tr>
<td>litres</td>
<td>gallons (UK)</td>
<td>0.2199</td>
</tr>
<tr>
<td>litres</td>
<td>gallons (US)</td>
<td>0.2642</td>
</tr>
</tbody>
</table>

#### Weight

<table>
<thead>
<tr>
<th>Metric</th>
<th>Weight</th>
<th>Multiply by</th>
</tr>
</thead>
<tbody>
<tr>
<td>grams</td>
<td>ounces (avoirdupois)</td>
<td>0.0353</td>
</tr>
<tr>
<td>grams</td>
<td>ounces (troy)</td>
<td>0.0322</td>
</tr>
<tr>
<td>kilograms</td>
<td>pounds</td>
<td>2.2046</td>
</tr>
<tr>
<td>tonnes</td>
<td>tons (long)</td>
<td>0.9842</td>
</tr>
</tbody>
</table>

#### Temperature

<table>
<thead>
<tr>
<th>Metric</th>
<th>Temperature</th>
<th>Operation (in sequence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celsius</td>
<td>Fahrenheit</td>
<td>x 9, ÷ 5, + 32</td>
</tr>
<tr>
<td>Fahrenheit</td>
<td>Celsius</td>
<td>- 32, x 5, ÷ 9</td>
</tr>
</tbody>
</table>