

Section 1

Glossary

Chapter 1

Definitions

A

Accepting unit/controller

Air Traffic Control unit/Air Traffic Controller next to take control of an aircraft.

Note: See transferring unit/controller.

Accident

An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

- a) A person is fatally or seriously injured as a result of:
 - Being in the aircraft, or
 - Direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
 - Direct exposure to jet blast.
- b) The aircraft sustains damage or structural failure which:
 - Adversely affects the structural strength, performance or flight characteristics of the aircraft, and
 - Would normally require major repair or replacement of the affected component.
- c) The aircraft is missing or is completely inaccessible.

Note: An aircraft is considered missing when the official search has been terminated and the wreckage has not been located.

ADS agreement

ADS reporting plan which establishes the conditions of ADS data reporting (i.e. data required by the air traffic services unit and frequency of ADS reports which have to be agreed prior to the provision of ADS services)

Note: The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.

ADS contract

A means by which the terms of an ADS agreement will be exchanged between the ground system and the aircraft, specifying under what conditions ADS reports would be initiated, and what data would contained in the report

ADS-C agreement	<p>A reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of the air traffic services).</p> <p>Note: The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.</p>
Automatic dependent surveillance — contract (ADS-C).	<p>A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.</p> <p>Note: The abbreviated term “ADS contract is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.</p>
Advisory airspace	Airspace of defined dimensions, or designated route, within which air traffic advisory service is available.
Advisory route	A designated route along which air traffic advisory service is available.
Aerodrome	A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.
Aerodrome control service	Air Traffic Control service for aerodrome traffic.
Aerodrome control tower	A unit established to provide air traffic control service to aerodrome traffic.
Aerodrome elevation	The elevation of the highest point of the landing area.
Aerodrome traffic	<p>All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.</p> <p><i>Note: In this sense an aircraft is considered to be in the vicinity of an aerodrome when it is entering or leaving an aerodrome traffic circuit (5NM's)</i></p>
Aerodrome traffic circuit	The specified path to be flown by aircraft operating in the vicinity of an aerodrome.
Aerodrome flight information service (AFIS)	A service provided by a radio operator on behalf of the ATS.
Aerodrome reference Point	The designated geographical location of the Aerodrome.

Aerodrome traffic zone	Controlled airspace at an aerodrome where aerodrome control, established for the protection of aerodrome traffic, is in operation as published in an AIP, AIC or NOTAM and designated as an aerodrome traffic zone.
Aeronautical fixed service (AFS)	A telecommunication service between specified points (AFS) provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.
Aeronautical fixed station	A station in the aeronautical fixed service.
Aeronautical ground light	Any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.
Aeronautical information publication (AIP)	A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.
Airborne collision avoidance system (ACAS)	An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are quick with SSR transponders.
Aircraft	Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against earth's surface.
Aircraft identification	A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in the air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.
Aircraft observation	The evaluation of one or more meteorological elements made from an aircraft in flight.
Air-ground communications	Two-way Communications between aircraft and station or locations on the surface of the earth
Air report (AIREP)	A report from an aircraft in flight prepared in conformity with requirements for position and operational and/or meteorological reporting.
Air-taxiing	A movement of a helicopter / VTOL above the service of an aerodrome, normally in ground effect and at a ground speed normally less than 20 kts. <i>Note: The factual height may vary, and some helicopters may require air-taxiing above 25ft AGL to reduce ground effects turbulence or provide clearance for cargo sling loads.</i>

Air traffic	All aircraft in flight or operating on the manoeuvring area of an aerodrome.
Air traffic advisory service	Service provided within advisory airspace to ensure separation, in so far as practical between aircraft which are operating on IFR flight plans.
Air traffic control clearance	Authorisation for an aircraft to proceed under conditions specified by an Air Traffic Control Unit.
Air traffic control instruction	Directives issued by air traffic for the purpose of requiring a pilot to take a specified action.
Air traffic control service	A service provided for the purpose of: <ul style="list-style-type: none"> a) Preventing collisions: <ul style="list-style-type: none"> i) Between aircraft, and ii) On the manoeuvring area between aircraft and obstructions; and b) Expediting and maintaining an orderly flow of air traffic.
Air traffic control unit	A generic term meaning variously, area control centre, approach control unit or aerodrome control tower.
Air traffic flow management (ATFM)	The service established with the objective of contributing to a safe, orderly and expeditious flow of Air Traffic by ensuring that ATC capacity is utilised to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.
Air traffic management (ATM)	The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) – safely, economically and efficiently – through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.
Air traffic management system	A system that provides ATM through collaborative integration of humans, information, technology, facilities and services, supported by air and ground- and/or space-based CNS.
Air traffic service (ATS)	A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).
ATS surveillance service	Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system	<p>A generic term meaning variously, ADS-B,PSR, SSR or any comparable ground-based system that enables the identification of aircraft.</p> <p><i>Note:</i> A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.</p>
Air traffic services reporting office	<p>A unit established for the office purpose of receiving reports concerning air traffic services and flight plans submitted before departure.</p> <p><i>Note:</i> <i>An air traffic service reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information service.</i></p>
Air traffic services unit (ATSU)	<p>A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.</p>
Air traffic services airspaces	<p>Airspaces of defined dimensions, alphabetically designed, within which specific types of flights any operate and for which air traffic services and rules of operation are specified.</p> <p><i>Note:</i> <i>ATS airspaces are classified from A to G.</i></p>
Airway	<p>A control area or portion thereof established in the form of a corridor.</p>
Alerting service	<p>A service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.</p>
Alphanumeric characters	<p>A collective term for letters (Alphanumerics) and figures (digits).</p>
Area control service	<p>A service for controlled flights in control areas.</p>
Approach control service	<p>A service for arriving and departing controlled flights.</p>
Area control centre (ACC)	<p>A unit established to provide ATC Service to controlled flights in controlled airspace and advice and information to other flights under its jurisdiction.</p>
Area navigation (RNAV)	<p><i>Means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space based navigation aids or within the limits of the capability of self contained aids, or a combination of these.</i></p> <p><i>Note. - Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.</i></p>

Area navigation route	An ATS route established for the use of aircraft capable of employing area navigation.
Approach control unit	A unit established to provide ATC Service to controlled flights arriving at, or departing from, one or more aerodromes.
Aerodrome control unit	A unit established to provide air traffic control service to aerodrome traffic.
Alternate aerodrome	<p>An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or land at the aerodrome of intended landing. Alternate aerodromes include the following:</p> <ul style="list-style-type: none"> i) <u>Take-off alternate</u> - An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure. ii) <u>En-route alternate</u> - An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en-route. iii) <u>Destination alternate</u> - An alternate aerodrome to which an aircraft may proceed should it become impossible or inadvisable to land at the aerodrome of intended landing. <p style="text-align: center;"><i>Note: The aerodrome from which a flight departs may also be en-route or a destination alternate aerodrome for that flight.</i></p>
Altitude	The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.
Approach sequence	The order in which two or more aircraft are cleared to approach to land at the aerodrome.
Appropriate ATS authority	<p>The relevant authority designated by the State responsible for providing air traffic service in the airspace concerned.</p> <p><i>Note: In this context the appropriate ATS authority will be the SACAA</i></p>
Appropriate authority	<ul style="list-style-type: none"> a) Regarding flight over the high seas: the relevant authority of the State of Registry. b) Regarding flight other than over the high seas: the relevant authority of the State having sovereignty over the territory being over flown.
Apron	A defined area, on a land aerodrome intended to accommodate aircraft for the purpose of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.
ATS route	A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.

Note: The term “ATS route” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

ATS surveillance service

Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system

A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note: A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology to have a level of safety and performance equal to or better than monopulse SSRs.

Automatic terminal information services (ATIS)

The provision of current, routine information to arriving and departing and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion thereof.

B

Base turn

A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. (The tracks are not reciprocal).

Note: Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Blind transmission

A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

Broadcast

A transmission of information relating to air navigation that is not addressed to a specific station or stations. **Broadcast by pilots in terms of VHF radio communication shall mean to talk on the appropriate frequency and listen out at all times.**

C

Ceiling and visibility okay (CAVOK)

When the visibility is 10km or more and there is no cloud below 5000 feet (1 500m) or below the highest minimum sector altitude, whichever is the greater and where there has been no weather of significance reported.

Note: Weather of significance is precipitation (drizzle, rain, snow, hail etc), obscurations (fog, mist, smoke, haze, dust etc), thunderstorms and showers.

Ceiling	The height above the ground or water of the base of the lowest layer of cloud below 20,000 feet covering more than half the sky.
Clearance limit	The point to which an aircraft is granted an Air Traffic Control Clearance.
Change-over point	The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.
Code (SSR code)	The number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C.
Common point	A point on the surface of the earth common to the paths of two aircraft used as a basis for describing longitudinal separation minima (e.g. significant points, waypoints, navigation aid, fix). <i>Note: Common point is not used for operational purposes or in pilot/controller communications.</i>
Control area	A controlled airspace extending upwards from a specified limit above the earth.
Controlled aerodrome	An aerodrome at which air traffic control service is provided to aerodrome traffic. <i>Note: The term "controlled aerodrome" indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.</i>
Controlled airspace	An airspace of defined dimensions within which air traffic controlled services are provided in accordance with the airspace classification.
Controlled flight	Any flight that is subject to an air traffic control clearance.
Controller-pilot data link communications (CPDLC)	A means of communication between controller and pilot, using data link for ATC communications.
Control zone	A controlled airspace extending upwards from the surface of the earth to a specified upper limit.
Cruise climb	An aeroplane climbing technique resulting in a net increase in altitude as the aeroplane mass decreases.
Cruising level	A level maintained during a significant portion of a flight.
Current flight plan (CPL)	The flight plan, including changes, if any, brought about by subsequent clearances.

Current data authority The designated ground system through which a CPDLC dialogue between a pilot and a controller currently responsible for the flight is permitted to take place.

D

Data processing A systematic sequence of operations performed on data.

Note: Examples of operations are the merging, sorting, computing or any other transformation or rearrangement with the object of extracting or revising information, or of alerting the representation of information.

Day The period of time from fifteen minutes before sunrise to fifteen minutes after sunset.

Decision altitude (DA)/ height (DH) A specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established

Note 1: Decision altitude (DA) is referenced to mean sea level (MSL), and decision height (DH) is referenced to the threshold elevation.

Note 2: The required visual reference means that section of the visual aid or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

Declared capacity A measure of the ability of the ATC system or any of its sub-systems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors which may affect the workload of the controller responsible for the airspace.

Dependent parallel approaches Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are prescribed.

Discrete code A for-digit SSR Code with the last two digits don being “00”

Downstream data authority A designated ground system, different from the current data authority through which the pilot can contact an appropriate ATC unit for the purposes of receiving a downstream clearance.

E

Elevation	The vertical distance of a point or a level, on or affixed to the surface of earth, measured from mean sea level.
Error	An action or inaction by an operational person that leads to deviations from organisational or operational person intentions or expectations.
Error management	The process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors, and mitigate the probability of further errors or undesired states.
Estimated elapsed time	The estimated time required to proceed from one significant point to another.
Estimated off-block time (EOBT)	The estimated time at which the aircraft will commence movement associated with departure.
Estimated time of arrival (ETA)	For IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated that the aircraft will arrive over the aerodrome
Expected approach time (EAT)	<p>The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete its approach for a landing.</p> <p><i>Note: The actual time of leaving the holding point will depend upon the approach clearance.</i></p>
Emergency Phase	A generic term meaning, as a case maybe, uncertainty, alter phase or distress phase

F

Filed flight plan (FPL)	<p>The flight plan as filed with an ATS unit by the pilot or his designated representative, without any subsequent changes.</p> <p><i>Note: When the word "message" is used as a suffix to this term, it denotes the content and format of the filed flight plan data as transmitted.</i></p>
Final approach	<p>That part of the instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified:</p> <ol style="list-style-type: none">At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; orAt the point of interception of the last track in the approach procedure;

	and ends at a point in the vicinity of an aerodrome from which : i) a landing can be made; or ii) a missed approach procedure is initiated.
Flight information centre	A unit established to provide flight information service and alerting service.
Flight information region	An airspace of defined dimensions within which flight information service and alerting service is provided.
Flight information service	A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.
Flight level	Surfaces of constant atmospheric pressure, which is related to a specific pressure datum 1013.2 Hectopascal (hPa) and is separated from other such surfaces by specific pressure intervals
<i>Flight path monitoring</i>	<i>The use of ATS surveillance systems for the purpose of providing aircraft with information and advice relative to significant deviations from the nominal flight path, including deviations from the terms of the air traffic control clearances.</i>
Flight plan	Specified information provided to Air Traffic Service units relative to the intended flight or portion of a flight of an aircraft.
Flight visibility	The visibility forward from the cockpit of an aircraft in flight.
Flow control	Measures designated to adjust the flow of traffic into a given airspace, along a given route, or around for a given aerodrome, so as to ensure the most effective utilisation of the airspace.
Forecast	A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

G

Glide path	A descent profile defined for vertical guidance during a final approach.
Ground effect	A condition of improved performance (lift) due to the interference of the surface with the airflow pattern of the rotor system when a helicopter or other VTOL aircraft is operating near the ground. <i>Note: Rotor efficiency is increased by ground effect to a height of about one rotor diameter for most helicopters.</i>
Ground visibility	The visibility at an aerodrome, as reported by an accredited observer or by automatic systems.

H

Heading	The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).
Height	The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.
Holding fix	A geochemical location that services as a reference for a holding procedure.
Holding procedure	A pre-determined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.
Hot spot	A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

/

Identification	The situation which exists when the position indication of a particular aircraft is seen on a situation display and positively identified.
IFR flight	A flight conducted in accordance with the instrument flight rules.
Incident (Safety Event)	An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
Independent parallel approaches	Simultaneous approaches to parallel or near parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.
Independent parallel departures	Simultaneous departures from parallel or near-parallel instrument runways.
Initial approach segment	That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix, or where applicable, the final approach fix or point.
Instrument approach procedures (IAP)	A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route, to a point from which a landing can be completed and, thereafter, if a landing is not completed, to a position at which holding or en-route obstacle criteria apply.
Instrument meteorological conditions (IMC)	Meteorological conditions expressed in terms of visibility, distance from cloud and ceiling, less than the minima specified for visual meteorological conditions.
International NOTAM office	An office designated by a State for the exchange of NOTAM internationally.
Intermediate approach segment	That segment of an instrument approach between either the intermediate approach fix and the final approach fix or point, or between the end of reversal, race track or dead reckoning track procedures and the final approach fix or point, as appropriate.

K

Known traffic Traffic, the current flight details and intentions of which are known to the controller concerned through direct communication or co-ordination.

L

Landing area That part of the movement area intended for the landing or take-off of aircraft.

Level A generic term relating to the vertical position of an aircraft in flight and meaning variously height, altitude or flight level.

Location indicator A four letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

Local Flight. ***A flight that originates and terminates at the same aerodrome without a full stop landing during any portion of the flight, or that remains within the associated airspace of such an aerodrome, or within the associated General Flying training areas (as per the SA AIP Part 3) of such aerodromes.***

M

Manoeuvring area That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Meteorological information Meteorological report, analysis, forecast and any other statement relating to existing or expected meteorological conditions.

Meteorological office An office designated to provide meteorological service for international air navigation.

Meteorological report A statement of observed meteorological conditions related to a specified time and location.

Minimum descent altitude/ height A specified altitude/height in a non-precision approach or circling approach below which descent may not be made without visual reference.

Minimum sector altitude The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 1000ft (300m) above all obstacles located in an area contained within a sector of a circle of 25NM (46km) radius centered on a radio aid to navigation.

Minimum Fuel. ***The term is used to describe a situation in which an aircraft's fuel supply has reached a state where little or no delay can be accepted. Note.— This is not an emergency situation but merely indicates that an emergency situation is possible, should any delay occur.***

Note, - This state shall mean that the aircraft is still able to attempt the approach and missed approach at the intended destination and if required divert to an alternative destination and land as required per SA CAR121.07.9.

Missed approach procedure	The procedure to be followed if the approach cannot be continued.
Mode (SSR Mode)	The conventional identifier related to specific functions of the interrogational signals transmitted by an SSR interrogator. There are four modes specified in Annex 10: A, B, C, S and intermode.
Movement area	That part of the aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

N

Navigation specification *Means a set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:*

Near-parallel runways	Non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.
Next data authority	The ground system so designated by the current data authority through which an onward transfer of communications and control can take place.
Night	Night means the period from fifteen minutes after sunset to fifteen minutes before sunrise
NOTAM	A notice distributed by means of telecommunications containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

O

Obstacle clearance altitude/ height (OCA/H)	The lowest altitude (OCA), or alternatively, the lowest height above the elevation of the relevant runway threshold, or above the aerodrome elevation, as applicable (OCH), used in establishing compliance with the appropriate obstacle clearance criteria.
Onward clearance time (OCT)	The time at which it is expected that an aircraft which has been instructed to hold during the en-route phase of flight will be cleared to resume its flight.
Operational control	The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of safety of the aircraft and the regularity and efficiency of the flight.
Operator	A person, organisation or enterprise engaged in or offering to engage in an aircraft operation.

P

Performance-based navigation (PBN)

Means area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note. – Performance requirements are expressed in navigation specifications (RNAV specifications, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Position indication	The visual indication, in non-symbolic and/ or symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object.
Position symbol	The visual indication in symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object obtained after automatic processing of positional data, derived from any source.
Precision approach radar (PAR)	Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown. <i>Note: Precision approach radars are designated to enable pilots of aircrafts to be given guidance by radio communication during the final stages of the approach to land.</i>
Pressure altitude	An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere.
Primary radar	A radar system which uses reflected radio signals.
Primary surveillance radar (PSR)	A surveillance radar system which uses reflected radio signals
Procedural control	Term used to indicate that information derived from an ATS surveillance system is not required for the provision of air traffic control service.
Procedural separation	The separation used when providing procedural control.
Procedure turn	A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction, to permit the aircraft to intercept and proceed along the reciprocal of the designated track. <i>Note 1: Procedure turns are designated “left” or “right” according to the direction of the initial turn.</i> <i>Note 2: Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.</i>
Profile	The orthogonal projection of a flight path or portion thereof on the vertical surface containing the nominal track.

PSR blip The visual indication, in non-symbolic form, on a situation display of the position of an aircraft obtained by primary radar.

R

Radar A radio detection device which provides information on range, azimuth and/or elevation of objects.

Radar approach An approach in which the final approach phase is executed under the direction of a controller using radar.

Radar clutter The visual indication on a situation display of unwanted signals.

Radar contact The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a situation display.

Radar control Term used to indicate that radar-derived information is employed directly in the provision of air traffic control service.

Radar handover Transfer of responsibility for the control of an aircraft between two controllers using radar, following identification of the aircraft by both controllers.

Radio navigation service *Means a service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigational aids.*

Note: Some applications may require a specific technology e.g. radar, to support the function of flight path monitoring.

Radar separation The separation used when aircraft position information is derived from radar sources.

Radar vectoring area A defined area in the vicinity of an aerodrome, in which the minimum safe levels allocated by a radar controller vectoring IFR flights have been pre-determined.

Note: Refer to the SA-AIP ENR 1.6 for the radar terrain charts.

Radial A magnetic bearing extending from a VOR/VORTAC/TACAN.

Radiotelephony network A form of radio communication primarily intended for the exchange of information in the form of speech.

Receiving unit/controller Air Traffic Services unit/air traffic controller to which a message is sent.

Release points The position, time or level at which arriving aircraft will come under the jurisdiction of approach radar control, in accordance with published

procedures

Repetitive flight plan (RPL) A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units.

Reporting point A specified geographical location in relation to which the position of an aircraft can be reported.

RNAV specification

Means a navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note. – The performance-based Navigation Manual (Doc 9613), Volume II contains detailed guidance on navigation specifications.

RNP specification

Means a navigation specification based on area navigation that includes the requirements for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Required navigation performance (RNP) A statement of the navigation performance necessary for operation within a defined airspace.

Runway A defined rectangular area, on a land aerodrome prepared for the landing and take-off of aircraft.

Runway visual range (RVR) The range over which the pilot of an aircraft on the centre line of a runway can see the runways surface marking or the lights delineating the runway or identify it's centre line.

Runway-holding position A designated position intended to protect a runway, an obstacle limitation surface, or an ILS critical/ sensitive area at which taxiing aircraft and vehicle shall stop and hold, unless otherwise authorised by the control tower.

Note: In radiotelephony phraseologies, the expression "holding point" is used to designate the runway-holding position.

Runway incursion Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft.

S

Safety management system (SMS)	A systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures.
Secondary radar	A radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.
Secondary surveillance radar (SSR)	A surveillance radar system which uses transmitters/ receivers (interrogators) and transponders.
SSR response	The visual indication, in non-symbolic form, on a situation display, of a response from an SSR transponder in reply to an interrogation.
Segregated parallel operations	Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.
Shore line	A line following the general contour of the shore, except that in cases of inlets or bays, less than 30 nautical miles in width, the line shall pass directly across the inlet or bay to intersect the general contour on the opposite side.
SIGMET information	Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.
Significant point	A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes. Note. — There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.
Special VFR flight	A VFR flight cleared by air traffic control to operate within a control zone under meteorological conditions below the VMC.
Standard instrument arrival (STAR)	A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.
Standard instrument departure (SID)	A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the on-route phase of a flight commences.
Surveillance radar	Radar equipment used to determine the position of an aircraft in range and azimuth.

T

Terminal arrival altitude (TAA)	<p>The lowest altitude that will provide a minimum clearance of 300m (1000 feet) above all objects located in an arc of a circle defined by a 46km (25NM) radius centred on the initial approach fix (IAF), or where there is no IAF on the intermediate fix (IF), delimited by straight lines joining the extremity of the arc to the IF. The combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF.</p> <p><i>Note: The purpose of the TAA is to provide a transition from the en-route structure to an RNAV approach procedure.</i></p>
Taxiing	<p>Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.</p>
Taxiway	<p>A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:</p> <ol style="list-style-type: none"><u>Aircraft stand taxi lane</u> A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only.<u>Apron taxiway</u> A portion of a taxiway system location an apron and intended to provide a through taxi route across the apron.<u>Rapid exit taxiway</u> A taxiway connected to a runway at an acute angle and designated to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways and thereby minimising runway occupancy times.
Terminal control area (TMA)	<p>A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.</p>
Threat	<p>Events or errors that occur beyond the influence of an operational person, increase operational complexity and which must be managed to maintain the margin of safety.</p>
Threat management	<p>The process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats, and mitigate the probability of errors or undesired states.</p>
Threshold	<p>The beginning of that portion of the runway useable for landing.</p>
Total estimated elapsed time	<p>For IFR flights, the estimated time required from take-off to arrival over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.</p>

Touchdown point	The point where the nominal glide path intercepts the runway.
Track	The projection on the earth's surface of the path of an aircraft, direction of which the path at any point is usually expressed in degrees from North (true, magnetic or grid).
Traffic avoidance advice	Advice provided by an Air Traffic Services unit specifying manoeuvres to assist a pilot to avoid a collision.
Traffic information	Information issued by an Air Traffic Services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.
Transfer of control point	A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next
Transferring unit/controller	Air Traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.
Transition altitude	The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
Transition layer	The airspace between Transition Altitude and Transition Level
Transition level	The lowest flight level available for use above the Transition Altitude.
Transponder	A receiver/transmitter which will generate a reply signal upon proper interrogation (the interrogation and reply being on different frequencies).

U

Unmanned free balloon	A non-power-driven, unmanned lighter-than-air aircraft in free flight.
-----------------------	--

V

Vectoring	Provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.
VFR flight	A flight conducted in accordance with the visual flight rules.
Visibility	<p>Visibility for aeronautical purposes is the greater of :-</p> <ol style="list-style-type: none"> a) The greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognised when observed against a bright background; b) The greatest distance at which lights in the vicinity of 1000 candelas can be seen and identified against an unlit background.

Visual approach An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to terrain.

Visual meteorological conditions (VMC) Meteorological conditions expressed in terms of visibility, horizontal and vertical distance from cloud ceiling, equal to or better than the specified minima.

W

Way-point A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation, either:

- a) Fly-by waypoint – A way point which requires turn anticipation to allow tangential interception of the next segment from a route or procedure, or
- b) Flyover way point - A way point which a turn is initiated in order to joint the next segment of a route or procedure.

Chapter 2

Abbreviations

A

ACC	-	Area control centre.	ACAS	-	Airborne collision avoidance system.
ADR	-	Advisory route.	ADS	-	Automatic dependent surveillance.
AFIS	-	Aeronautical flight information service.	AFISU*	-	AFIS Unit.
AFS	-	Aeronautical Fixed Service.	AFTN	-	Aeronautical fixed telecommunications network.
agl	-	Above ground level.	A/G	-	Air-to-ground.
AIS	-	Aeronautical information service.	amsl	-	Above mean sea level.
AP	-	Airport.	APP	-	Approach control centre.
ATA	-	Actual time of arrival.	ASDA	-	Accelerated stopping distance available.
ATC	-	Air traffic control.	ATCU	-	Air traffic control unit.
ATD	-	Actual time of departure.	ATFM	-	Air traffic flow management.
ATIS	-	Automatic terminal information service.	ATS	-	Air Traffic Services.
ATM	-	Aerodrome traffic monitor	ATSU	-	Air traffic service unit.
ATZ	-	Aerodrome Traffic Zone.	AWY	-	Airway.

C

CAA	-	Civil Aviation Authority.	CAR*	-	Civil Aviation Regulations
CATS*	-	Civil Aviation Technical Standards	c/s	-	Callsign
CPDLC	-	Controller Pilot Data Link Communications	CTA	-	Control Area
CTR	-	Control Zone			

D

DA/H - Decision Altitude / Height
D/F - Direction finding
DME - Distance measuring equipment

DEP - Depart, Departure or Departed
DLA - Delay or Delayed

E

EAT - Expected Approach Time.
ETD - Expected Time of Departure

ETA - Expected Time of Arrival

F

FAF - Final Approach Fix
FIR - Flight Information Region
FPL - Flight Plan

FAP - Final Approach Point
-
FL - Flight Level
ft - Feet

G

GP - Glide Path

GMC - Ground Movement Control

H

HF - High Frequency

HPa - Hectopascals

I

IAF - Initial Approach Fix
IFR - Instrument Flight Rules
IMC - Instrument MET Conditions

IF - Intermediate Approach Fix
ILS - Instrument Landing System

K

km - Kilometre(s)

kts - Knots

L

LAT - Latitude
LLZ - Localizer
LVO - Low Visibility Operations

LDA - Landing Distance Available
LONG - Longitude
LVP - Low Visibility Procedure (South Africa)

M

MAPt - Missed Approach Point
MET - Meteorological
MSA - Minimum Sector Altitude

MDA/H - Minimum Descent Altitude / Height
MHz - Megahertz
MSL - Mean Sea Level

N

NDB - Non-Directional Radio Beacon

NM - Nautical Mile

O

OCA/H - Obstacle Clearance Altitude/
Height
OHD - Overhead

OCT - Onward Clearance Time
OUBD - Outbound

P

PAPI - Precision Approach Path Indicator

PIB - Preflight Information Bulletin

Q

QDM - Magnetic heading.
QFE - Atmospheric pressure at airfield
elevation (on runway threshold).

QDR - Magnetic bearing.
QNH - Altimeter subscale setting to obtain
elevation when on the ground.

R

RCF - Radio Communication Failure.
RT* - Radiotelephony.
RVR - Runway Visual Range.

RPL - Repetitive Flight Plan.
RTF - Radiotelephone.

S

SAR	-	Search and Rescue	SID	-	Standard Instrument Departure
SMR	-	Surface Movement Radar	SRA	-	Surveillance Radar Approach
SSR	-	Secondary Surveillance Radar	STAR	-	Standard Instrument Arrival

T

THR	-	Threshold.	TMA	-	Terminal Control Area.
TODA	-	Take-off Distance Available.	TORA	-	Take-off Run Available.
TWR	-	Aerodrome Control Tower.			

U

UHF	-	Ultra High Frequency	u/s	-	Unserviceable
UTC	-	Universal Time Constant (Co-ordinated Universal Time Constant)			

V

VDF	-	VHF Direction Finding	VFR	-	Visual Flight Rules
VHF	-	Very High Frequency	VMC	-	Visual MET Conditions
VOR	-	VHF Omni-Range	VORTAC	-	VOR/ tactical air navigation

W

WEF		With Effect From	WDI		Wind Direction Indicator
WIE		With Immediate Effect	WIP		Work in Progress
Wx		Weather			

Z

Z		In Time Groups Indicates UTC (Zulu)
---	--	-------------------------------------

Chapter 3 Conversion Tables

3.1 Units of Measurement

The units of measurements to be used by controllers in communication with aircraft are listed in the table below:-

Measurement of	Units used
Distances used in navigation, generally in excess of 2 or 3 nautical miles.	Nautical miles, spoken as "miles"
Relatively short distance such as those relating to an aerodrome. (e.g. runway lengths, distances of obstructions from runway or of facilities from aerodrome).	Meters
Radar-position reporting and ranges from touch down.	Nautical miles and/or fractions thereof, spoken as "miles".
Altitudes, elevations and height.	Feet
Depths of standing water, snow and slush.	Millimetres
Horizontal speed including wind speed.	Knots
Vertical speed.	Feet per minute
Wind direction for landing and taking off.	Degrees magnetic
Visibility	Kilometres or meters
Runway Visual Range	Meters
Altimeter setting	Hectopascals
Temperature	Degrees Celsius
Weight	Metric tons or kilograms
Time	Hours and minutes, the day of 24 hours beginning at midnight UTC

3.2a **Table for Converting Hectopascals to Inches of Mercury**
975.0 - 999.9 HPa

Tenths HPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
HPa	Inches Hg									
975	28.79	28.79	28.79	28.80	28.80	28.80	28.80	28.81	28.81	28.81
976	28.82	28.82	28.82	28.83	28.83	28.83	28.83	28.84	28.84	28.84
977	28.85	28.85	28.85	28.85	28.86	28.86	28.86	28.87	28.87	28.87
978	28.88	28.88	28.88	28.88	28.89	28.89	28.89	28.90	28.90	28.90
979	28.90	28.91	28.91	28.91	28.92	28.92	28.92	28.93	28.93	28.93
980	28.93	28.94	28.94	28.94	28.95	28.95	28.95	28.96	28.96	28.96
981	28.96	28.97	28.97	28.97	28.98	28.98	28.98	28.98	28.99	28.99
982	28.99	29.00	29.00	29.00	29.01	29.01	29.01	29.01	29.02	29.02
983	29.02	29.03	29.03	29.03	29.03	29.04	29.04	29.04	29.05	29.05
984	29.05	29.06	29.06	29.06	29.06	29.07	29.07	29.07	29.08	29.08
985	29.08	29.09	29.09	29.09	29.09	29.10	29.10	29.10	29.11	29.11
986	29.11	29.11	29.12	29.12	29.12	29.13	29.13	29.13	29.14	29.14
987	29.14	29.14	29.15	29.15	29.15	29.16	29.16	29.16	29.16	29.17
988	29.17	29.17	29.18	29.18	29.18	29.19	29.19	29.19	29.19	29.20
989	29.20	29.20	29.21	29.21	29.21	29.21	29.22	29.22	29.22	29.23
990	29.23	29.23	29.24	29.24	29.24	29.24	29.25	29.25	29.25	29.26
991	29.26	29.26	29.27	29.27	29.27	29.27	29.28	29.28	29.28	29.29
992	29.29	29.29	29.29	29.30	29.30	29.30	29.31	29.31	29.31	29.32
993	29.32	29.32	29.32	29.33	29.33	29.33	29.34	29.34	29.34	29.34
994	29.35	29.35	29.35	29.36	29.36	29.36	29.37	29.37	29.37	29.37
995	29.38	29.38	29.38	29.39	29.39	29.39	29.40	29.40	29.40	29.40
996	29.41	29.41	29.41	29.42	29.42	29.42	29.42	29.43	29.43	29.43
997	29.44	29.44	29.44	29.45	29.45	29.45	29.45	29.46	29.46	29.46
998	29.47	29.47	29.47	29.47	29.48	29.48	29.48	29.49	29.49	29.49
999	29.50	29.50	29.50	29.50	29.51	29.51	29.51	29.52	29.52	29.52

3.2b Table for Converting Hectopascals to Inches of Mercury
1000.0 - 1024.9 HPa

Tenths HPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
HPa	Inches Hg									
1000	29.53	29.53	29.53	29.53	29.54	29.54	29.54	29.55	29.55	29.55
1001	29.55	29.56	29.56	29.56	29.57	29.57	29.57	29.58	29.58	29.58
1002	29.58	29.59	29.59	29.59	29.60	29.60	29.60	29.60	29.61	29.61
1003	29.61	29.62	29.62	29.62	29.63	29.63	29.63	29.63	29.64	29.64
1004	29.64	29.65	29.65	29.65	29.65	29.66	29.66	29.66	29.67	29.67
1005	29.67	29.68	29.68	29.68	29.68	29.69	29.69	29.69	29.70	29.70
1006	29.70	29.71	29.71	29.71	29.71	29.72	29.72	29.72	29.73	29.73
1007	29.73	29.73	29.74	29.74	29.74	29.75	29.75	29.75	29.76	29.76
1008	29.76	29.76	29.77	29.77	29.77	29.78	29.78	29.78	29.78	29.79
1009	29.79	29.79	29.80	29.80	29.80	29.81	29.81	29.81	29.81	29.82
1010	29.82	29.82	29.83	29.83	29.83	29.84	29.84	29.84	29.84	29.85
1011	29.85	29.85	29.86	29.86	29.86	29.86	29.87	29.87	29.87	29.88
1012	29.88	29.88	29.89	29.89	29.89	29.89	29.90	29.90	29.90	29.91
1013	29.91	29.91	29.91	29.92	29.92	29.92	29.93	29.93	29.93	29.94
1014	29.94	29.94	29.94	29.95	29.95	29.95	29.96	29.96	29.96	29.96
1015	29.97	29.97	29.97	29.98	29.98	29.98	29.99	29.99	29.99	29.99
1016	30.00	30.00	30.00	30.01	30.01	30.01	30.02	30.02	30.02	30.02
1017	30.03	30.03	30.03	30.04	30.04	30.04	30.04	30.05	30.05	30.05
1018	30.06	30.06	30.06	30.07	30.07	30.07	30.07	30.08	30.08	30.08
1019	30.09	30.09	30.09	30.09	30.10	30.10	30.10	30.11	30.11	30.11
1020	30.12	30.12	30.12	30.12	30.13	30.13	30.13	30.14	30.14	30.14
1021	30.15	30.15	30.15	30.15	30.16	30.16	30.16	30.17	30.17	30.17
1022	30.17	30.18	30.18	30.18	30.19	30.19	30.19	30.20	30.20	30.20
1023	30.20	30.21	30.21	30.21	30.22	30.22	30.22	30.22	30.23	30.23
1024	30.23	30.24	30.24	30.24	30.25	30.25	30.25	30.25	30.26	30.26

3.2c **Table for Converting Hectopascals to Inches of Mercury**
1025.0 - 1049.9 HPa

Tenths HPa	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
HPa	Inches Hg									
1025	30.26	30.27	30.27	30.27	30.28	30.28	30.28	30.28	30.29	30.29
1026	30.29	30.30	30.30	30.30	30.30	30.31	30.31	30.31	30.32	30.32
1027	30.32	30.33	30.33	30.33	30.33	30.34	30.34	30.34	30.35	30.35
1028	30.35	30.35	30.36	30.36	30.36	30.37	30.37	30.37	30.38	30.38
1029	30.38	30.38	30.39	30.39	30.39	30.40	30.40	30.40	30.40	30.41
1030	30.41	30.41	30.42	30.42	30.42	30.43	30.43	30.43	30.43	30.44
1031	30.44	30.44	30.45	30.45	30.45	30.46	30.46	30.46	30.46	30.47
1032	30.47	30.47	30.48	30.48	30.48	30.48	30.49	30.49	30.49	30.50
1033	30.50	30.50	30.51	30.51	30.51	30.51	30.52	30.52	30.52	30.53
1034	30.53	30.53	30.53	30.54	30.54	30.54	30.55	30.55	30.55	30.56
1035	30.56	30.56	30.56	30.57	30.57	30.57	30.58	30.58	30.58	30.59
1036	30.59	30.59	30.59	30.60	30.60	30.60	30.61	30.61	30.61	30.61
1037	30.62	30.62	30.62	30.63	30.63	30.63	30.64	30.64	30.64	30.64
1038	30.65	30.65	30.65	30.66	30.66	30.66	30.66	30.67	30.67	30.67
1039	30.68	30.68	30.68	30.69	30.69	30.69	30.69	30.70	30.70	30.70
1040	30.71	30.71	30.71	30.72	30.72	30.72	30.72	30.73	30.73	30.73
1041	30.74	30.74	30.74	30.74	30.75	30.75	30.75	30.76	30.76	30.76
1042	30.77	30.77	30.77	30.77	30.78	30.78	30.78	30.79	30.79	30.79
1043	30.79	30.80	30.80	30.80	30.81	30.81	30.81	30.82	30.82	30.82
1044	30.82	30.83	30.83	30.83	30.84	30.84	30.84	30.84	30.85	30.85
1045	30.85	30.86	30.86	30.86	30.87	30.87	30.87	30.87	30.88	30.88
1046	30.88	30.89	30.89	30.89	30.90	30.90	30.90	30.90	30.91	30.91
1047	30.91	30.92	30.92	30.92	30.92	30.93	30.93	30.93	30.94	30.94
1048	30.94	30.95	30.95	30.95	30.95	30.96	30.96	30.96	30.97	30.97
1049	30.97	30.97	30.98	30.98	30.98	30.99	30.99	30.99	31.00	31.00

3.3 Conversion Tables

Tables for converting values from one unit to another appear below.

Meters/ Feet/Meters		
Meters	Feet/ Meters	Feet
0.305	1	3.281
0.61	2	6.562
0.914	3	9.842
1.219	4	13.123
1.524	5	16.404
1.829	6	19.685
2.134	7	22.966
2.438	8	26.247
2.743	9	29.528
3.048	10	32.809
6.096	20	65.617
9.144	30	98.426
12.192	40	131.234
15.24	50	164.043
18.29	60	196.852
21.34	70	229.66
24.38	80	262.469
27.43	90	295.278
30.48	100	328.087
60.96	200	656.1
91.44	300	984.3
121.92	400	1,312.3
152.4	500	1,640.4
304.8	1,000	3,280.9
609.6	2,000	6,561.7
914.4	3,000	9,842.6
1,219.2	4,000	13,123.5
1,524.0	5,000	16,404.3

Lb/ Kg/ Lb		
Kg	Lb/ Kg	Lb
0.454	1	2.205
0.907	2	4.409
1.361	3	6.614
1.814	4	8.818
2.268	5	11.023
2.722	6	13.228
3.175	7	15.432
3.629	8	17.637
4.082	9	19.842
4.536	10	22.046
9.072	20	44.092
13.608	30	66.139
18.144	40	88.185
22.680	50	110.231
1 000kg = 1 metric ton		

Nautical Miles/ Kilometers/ Statute Miles		
NM	Km	SM
0.54	1	0.62
1.08	2	1.24
1.62	3	1.86
2.16	4	2.49
2.70	5	3.11
3.24	6	3.73
3.78	7	4.35
4.32	8	4.99
4.86	9	5.59
5.40	10	6.21

Nautical Miles/ Statute Miles/ Kilometers		
NM	SM	Km
0.87	1	1.61
1.74	2	3.22
2.61	3	4.83
3.47	4	6.44
4.34	5	8.05
5.21	6	9.66
6.08	7	11.27
6.95	8	12.88
7.82	9	14.49
8.68	10	16.09

Statute Miles/ Nautical Miles/ Kilometers		
SM	NM	Km
1.15	1	1.85
2.30	2	3.70
3.45	3	5.56
4.61	4	7.41
5.76	5	9.26
6.91	6	11.11
8.06	7	12.96
9.21	8	14.82
10.36	9	16.67
11.52	10	18.52

Chapter 4 Cross-Wind Component Table

4.1 Cross-wind component

The angle between the runway and the crosswind is listed in the “Angle between Wind & Runway” column on the left of the table. The wind speed is indicated in the top row of the table. To determine the crosswind component find the value on the table at the intersection of the row (horizontal) containing the angle between wind and runway and column (vertical) containing the wind speed.

Example: Runway 24; Surface wind 170°/25 Kts. The angle between the runway and the wind is 70 degrees. The crosswind component is 24.

Angle between wind & runway	Wind Speed in Knots										
	10	15	20	25	30	35	40	45	50	55	60
10	2	3	3	4	5	6	7	8	9	9	10
20	3	5	7	9	10	12	14	16	17	19	20
30	5	8	10	13	15	18	20	23	25	28	30
40	6	10	13	16	19	23	26	29	32	36	39
50	8	12	15	19	23	27	31	35	38	42	46
60	9	13	17	22	26	31	35	39	43	48	52
70	9	14	19	24	28	33	37	42	47	52	56
80	10	15	20	25	30	35	39	44	49	54	59
90	10	15	20	25	30	35	40	45	50	55	60

Note: Under gusty conditions the cross-wind component for the average wind speed and the cross-wind component for the strongest gusts must be calculated and passed to the aircraft.

Example: Wind is 40 degrees off runway heading with an average wind speed of 15 knots gusting 35 knots.

Aircraft will be informed that the average cross-wind component calculates at 10 knots gusting 23 knots.

Angle between wind & runway	Wind Speed in Knots													
	5	10	15	20	25	30	35	40	45	50	55	60	65	70
10	-5	-10	-15	-20	-25	-29	-34	-39	-44	-49	-54	-59	-64	-69
20	-5	-9	-14	-19	-23	-28	-33	-38	-42	-47	-52	-56	-61	-66
30	-4	-9	-13	-17	-22	-26	-30	-35	-39	-43	-48	-52	-56	-61
40	-4	-8	-11	-15	-19	-23	-27	-31	-34	-38	-42	-46	-50	-54
50	-3	-8	-10	-13	-15	-19	-22	-26	-29	-32	-35	-39	-42	-45
60	-3	-5	-8	-10	-13	-15	-18	-20	-23	-25	-28	-30	-33	-35
70	-2	-3	-5	-7	-9	-10	-12	-14	-15	-17	-19	-21	-22	-24
80	-1	-2	-3	-3	-4	-5	-6	-7	-8	-9	-9	-10	-11	-12
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	+1	+2	+3	+3	+4	+5	+6	+7	+8	+9	+9	+10	+11	+12
110	+2	+3	+5	+7	+9	+10	+12	+14	+15	+17	+19	+21	+22	+24
120	+3	+5	+8	+10	+13	+15	+18	+20	+23	+25	+28	+30	+33	+35
130	+3	+8	+10	+13	+15	+19	+22	+26	+29	+32	+35	+39	+42	+45
140	+4	+8	+11	+15	+19	+23	+27	+31	+34	+38	+42	+46	+50	+54
150	+4	+9	+13	+17	+22	+26	+30	+35	+39	+43	+48	+52	+56	+61
160	+5	+9	+14	+19	+23	+28	+33	+38	+42	+47	+52	+56	+61	+66
170	+5	+10	+15	+20	+25	+29	+34	+39	+44	+49	+54	+59	+64	+69