Manual of Air Traffic Services

Electronic Edition Version 53.1

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Next issue effective 2011041600

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What’s Changed

This release incorporates changes from the following Change Requests, which have already been approved by the Change Implementation Group:

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<tr>
<td>Class E airspace</td>
<td>Removes generic airspace description in favour of referral to Integrated AIP sources.</td>
<td>42008</td>
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<td>TCAS RA and Wind Shear Escape</td>
<td>Clarification of ATC response and requirements in relation to a TCAS RA or wind shear escape manoeuvre. Removal of superfluous text. Responsibility for separation moved to chapter 10.1</td>
<td>42033</td>
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<td>Defence Callsigns</td>
<td>Change of Aircraft Type for 2OCU (F18 replaced with F35)</td>
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<td>Additional Callsigns for 2OCU</td>
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<td>Move of 38SQN Callsign DNGO to 32SQN</td>
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<td>Deletion of 38SQN formation Callsign</td>
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<td>Military Airspace Activation</td>
<td>Editorial change to remove incorrect information and future proof the paragraph.</td>
<td>42156</td>
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<td>NOTAM '+' symbol</td>
<td>Remove prohibition on use of '+' symbol in NOTAM text</td>
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<td>Traffic Information in Class G airspace</td>
<td>Simplification of traffic information provisions for IFR aircraft in Class G airspace.</td>
<td>42196</td>
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<td>Separation with Base of CTA</td>
<td>Clarification of requirements for separation with the base of CTA when this is not an IFR or VFR level.</td>
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<td>GNSS in lieu of DME</td>
<td>Align Standard D4e with D5 and D6 by the removal of the requirement for the aerodrome to have a DME</td>
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<td>Lateral separation using visual observation</td>
<td>Editorial correction: replace 'other' with 'departing'. No change to intent.</td>
<td>42133</td>
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<tr>
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<td>Dependent Approaches - Established on RNP-AR</td>
<td>For dependent parallel approaches, the requirement for being established on the RNP-AR approach is changed to mirror that of independent parallel approaches.</td>
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<td>VSA at night</td>
<td>Clarification of the procedure for issuing a visual approach at night by referencing aircraft that have been 'taken off track', rather than only specifying a ruleset for aircraft under vectors.</td>
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<td>Climb Gradient After Cancel SID</td>
<td>Clarification that the climb gradient for obstacle clearance is the relevant factor when cancelling a SID. Section affected: 11.2.1</td>
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<td>Arrestor System Position Advice</td>
<td>Amendment of the requirement to advise the state of the arrestor system with take-off and landing clearances. Sections affected: 12.3.2, 12.5.3</td>
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<td>Stop Bars in Low Visibility</td>
<td>Amendments to requirements for operations in visibility below 550m to align with regulatory changes. Section affected: 12.8.1</td>
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<td>Removal of Qantas B789 LAHSO Exemption Refer IMA_V53_01</td>
<td>CASA Instrument EX97/17 permits Qantas Boeing 787-9 aircraft to actively and passively participate in LAHSO. This exemption is currently listed in MATS clause 10.9.5.5 a). CASA have advised that the Instrument will not be renewed by its expiry date (31 July 2020) while they await a revised risk assessment. To address this issue, MATS clause 10.9.5.5 is amended to remove Qantas Boeing 787-9 from participation in LAHSO.</td>
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# 1 Definitions

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1.1 Glossary - terms

1.1.1 Terms and definitions

1.1.1.1 Introduction

The terms and definitions published follow those defined within ICAO documents where possible.

1.1.1.2 'Service' and 'unit'

Throughout the manual, the term 'service' is used to designate functions or service rendered and the term 'unit' is used to designate a collective body performing a service.

1.1.1.3 A

<table>
<thead>
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<tr>
<td>Accelerate Stop Distance Available (ASDA)</td>
<td>The take-off run available plus the length of stopway available (if stopway is provided).</td>
</tr>
<tr>
<td>Acceptance of Control</td>
<td>The act of accepting responsibility for the control of an aircraft.</td>
</tr>
<tr>
<td>Accepting Unit/Controller</td>
<td>Air traffic control unit/Controller next to take control of an aircraft.</td>
</tr>
<tr>
<td>Accident (for ATS reporting)</td>
<td>An occurrence that affects or could affect air safety associated with the operation of an aircraft or the ATS system in which it is known or believed that either physical damage has been caused to a person or property or an aircraft is missing and believed to be lost.</td>
</tr>
<tr>
<td>Active Bay</td>
<td>A bay or portion in which strips are held while they are actively in use for air traffic services purposes.</td>
</tr>
<tr>
<td>Addressee Originator Indicator</td>
<td>The location indicator followed by a three-letter designator and a filler character to indicate an organisation at the particular location. Example 'YSSYQFAX' is 'Qantas at Sydney' the filler character used to represent a department or division to facilitate internal distribution. 'YSSYQFAO' represents 'Qantas Operations at Sydney'.</td>
</tr>
<tr>
<td>ADS-B Equipped Aircraft</td>
<td>Aircraft capable of transmitting Automatic Dependent Surveillance Broadcast (ADS-B) data.</td>
</tr>
<tr>
<td>ADS-B Ground Station</td>
<td>A ground-based system that receives aircraft position, altitude, speed and other parameters and presents it to air traffic control facilities.</td>
</tr>
<tr>
<td>ADS-B Position Symbol - Class 1</td>
<td>The Class 1 ADS-B position symbol reflects required position accuracy and integrity, and a reliability that meets the requirements for the application of surveillance separation standards.</td>
</tr>
<tr>
<td>ADS-B Position Symbol - Class 2</td>
<td>The Class 2 ADS-B position symbol reflects required position accuracy and integrity, and a reliability that meets the requirements for use in the application of procedural separation standards.</td>
</tr>
<tr>
<td>ADS-C Agreement</td>
<td>A reporting plan which establishes the conditions of Automatic Dependent Surveillance - Contract (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 the provision of air traffic services).</td>
</tr>
<tr>
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<tr>
<td>ADS-C Report Symbol</td>
<td>The position symbol displayed when an ADS-C report is received by the ground system.</td>
</tr>
<tr>
<td>Advanced Surface Movement Guidance and Control System (A-SMGCS)</td>
<td>A system providing routing, guidance and surveillance for the ground control of aircraft and vehicles.</td>
</tr>
<tr>
<td>Aerodrome</td>
<td>A defined area of land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and movement of aircraft.</td>
</tr>
<tr>
<td>Aerodrome Beacon</td>
<td>An aeronautical beacon used to indicate the location of an aerodrome from the air.</td>
</tr>
<tr>
<td>Aerodrome Control Service</td>
<td>Air traffic control service for aerodrome traffic.</td>
</tr>
<tr>
<td>Aerodrome Control Tower</td>
<td>A unit established to provide air traffic control service to aerodrome traffic.</td>
</tr>
<tr>
<td>Aerodrome Elevation</td>
<td>The elevation of the highest point of the landing area.</td>
</tr>
<tr>
<td>Aerodrome Ground Surveillance System</td>
<td>Surveillance that provides positional information on aircraft and vehicles on the movement areas and via a display system. This term includes systems such as A-SMGCS and SMR.</td>
</tr>
<tr>
<td>Aerodrome Meteorological Minima (ceiling and visibility minima)</td>
<td>The minimum heights of cloud base (ceiling) and minimum values of visibility prescribed for the purpose of determining the usability of an aerodrome either for take-off or landing.</td>
</tr>
<tr>
<td>Aerodrome Proprietor</td>
<td>Any owner, licensee, authority, corporation, or any other body which has a legal responsibility for a particular aerodrome.</td>
</tr>
<tr>
<td>Aerodrome Reference Point (ARP)</td>
<td>The designated geographical location of an aerodrome.</td>
</tr>
<tr>
<td>Aerodrome Traffic</td>
<td>All traffic on the manoeuvring area of an aerodrome and all aircraft flying in, entering or leaving the traffic circuit.</td>
</tr>
<tr>
<td>Aerodrome Traffic Circuit</td>
<td>The specified path to be flown by aircraft operating in, entering or leaving the traffic circuit.</td>
</tr>
<tr>
<td>Note:</td>
<td><strong>At a controlled aerodrome an aircraft is in the traffic circuit when it is within the CTR and established on a leg of the circuit.</strong></td>
</tr>
<tr>
<td>Aerodrome Traffic Zone (ATZ)</td>
<td>An airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.</td>
</tr>
<tr>
<td>Aerodrome Weather Information Broadcast (AWIB)</td>
<td>Broadcasts of actual weather conditions may be made on nav aids from AWS and advanced aviation AWS sites. Information provided in Aerodrome Weather Information Broadcasts is in similar format to that of an ATIS.</td>
</tr>
<tr>
<td>Aeronautical Beacon</td>
<td>An aeronautical ground light visible at all azimuths, either continuously or intermittently, to designate a particular point on the surface of the earth.</td>
</tr>
<tr>
<td>Aeronautical Fixed Service (APS)</td>
<td>A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.</td>
</tr>
<tr>
<td>Aeronautical Fixed Station</td>
<td>A station in the aeronautical fixed service.</td>
</tr>
<tr>
<td>Aeronautical Fixed Telecommunications Network (AFTN)</td>
<td>A world-wide system of aeronautical fixed circuits provided for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.</td>
</tr>
<tr>
<td>Term</td>
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</tr>
<tr>
<td>Aeronautical Ground Light</td>
<td>Any light specially provided as an aid-to-air navigation, other than a light displayed on an aircraft.</td>
</tr>
<tr>
<td>Aeronautical Information Circular (AIC)</td>
<td>A notice containing information that does not qualify for the origination of a NOTAM, or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.</td>
</tr>
<tr>
<td>Aeronautical Information Publication (AIP)</td>
<td>A publication issued by or with the authority of a State and containing aeronautical information or instructions of a lasting character essential to air navigation.</td>
</tr>
<tr>
<td>Aeroplane</td>
<td>A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces, which remain fixed under given conditions of flight.</td>
</tr>
<tr>
<td>AFTN Communications Centre</td>
<td>An AFTN station whose primary function is the relay or retransmission of AFTN traffic.</td>
</tr>
<tr>
<td>AIP Supplement</td>
<td>Temporary changes to information contained in the AIP which are published by means of special pages.</td>
</tr>
<tr>
<td>Air Report (AIREP)</td>
<td>A report prepared by the pilot during the course of a flight in conformity with the requirements for position, operational or meteorological reporting specified in the AIREP form.</td>
</tr>
<tr>
<td>Airservices</td>
<td>Airservices Australia</td>
</tr>
<tr>
<td>Air-to-air Refuelling (AAR)</td>
<td>Transfer of fuel between aircraft whilst airborne.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Anchor Pattern</td>
<td>A prescribed area published in DAH for the purpose of AAR.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Anchor Point</td>
<td>A defined reference point upon which an anchor refuelling pattern is orientated.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Control Point (ARCP)</td>
<td>The planned point on an air-to-air refuelling track that the receiver will be in position to commence AAR.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Exit Point</td>
<td>A point on an air-to-air refuelling track where air-to-air refuelling terminates.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Tanker Orbit Pattern</td>
<td>A standard manoeuvring area based on the ARCP for a tanker to establish the formation prior to track refuelling.</td>
</tr>
<tr>
<td>Air-to-air Refuelling Track</td>
<td>A prescribed route designated for air-to-air refuelling.</td>
</tr>
<tr>
<td>Air Traffic</td>
<td>All aircraft in flight or operating on the manoeuvring area of an aerodrome.</td>
</tr>
<tr>
<td>Air Traffic Control Clearance</td>
<td>Authorisation for aircraft to proceed under conditions specified by an Air Traffic Control unit.</td>
</tr>
</tbody>
</table>

**Note 1:** For convenience, the term 'air traffic control clearance' is frequently abbreviated to 'clearance' when used in appropriate context.

**Note 2:** The abbreviated term 'clearance' may be prefixed by 'taxi', 'take-off', 'departure', 'airways', 'en route', 'approach' or 'landing' to indicate the particular portion of the flight to which the air traffic control clearance relates.

<table>
<thead>
<tr>
<th>Term</th>
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<tbody>
<tr>
<td>Air Traffic Control Instructions</td>
<td>Directives issued by Air Traffic Control for the purpose of requiring a pilot to take a specific action.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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</tr>
<tr>
<td>Air Traffic Control Service</td>
<td>A service provided for the purpose of:</td>
</tr>
<tr>
<td></td>
<td>a) preventing collisions:</td>
</tr>
<tr>
<td></td>
<td>i) between aircraft; and</td>
</tr>
<tr>
<td></td>
<td>ii) on the manoeuvring area between aircraft and obstructions; and</td>
</tr>
<tr>
<td></td>
<td>b) expediting and maintaining an orderly flow of air traffic.</td>
</tr>
<tr>
<td>Air Traffic Service (ATS)</td>
<td>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).</td>
</tr>
<tr>
<td>Air Traffic Services Airspaces</td>
<td>Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.</td>
</tr>
<tr>
<td>Air Traffic Services Unit</td>
<td>A generic term meaning (variously) air traffic control unit, flight information centre, or air traffic services reporting office.</td>
</tr>
<tr>
<td>Air Transit</td>
<td>The airborne movement of a helicopter that is:</td>
</tr>
<tr>
<td></td>
<td>a) for the expeditious transit from one place within the aerodrome to another place within the aerodrome;</td>
</tr>
<tr>
<td></td>
<td>b) at or below 100 FT above the surface; and</td>
</tr>
<tr>
<td></td>
<td>c) at speeds greater than those used in air-taxiing.</td>
</tr>
<tr>
<td>Air Transport Operation</td>
<td>A regular public transport operation or a charter operation.</td>
</tr>
<tr>
<td>Airborne</td>
<td>An aircraft is considered airborne when all parts of the aircraft are off the ground.</td>
</tr>
<tr>
<td>Airborne Collision Avoidance System (ACAS)</td>
<td>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 equipped with SSR transponders.</td>
</tr>
<tr>
<td>Aircraft Address (24 bit code)</td>
<td>See 'ICAO 24 bit Aircraft Address' in these definitions.</td>
</tr>
<tr>
<td>Aircraft Identification (ACID)</td>
<td>A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft callsign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communication.</td>
</tr>
<tr>
<td>Aircraft Weight Categories</td>
<td>The weight categories in which aircraft are divided to determine the impact of wake turbulence on other aircraft operations.</td>
</tr>
<tr>
<td>Air-Ground Communication</td>
<td>Two-way communications between aircraft and stations on the surface of the earth.</td>
</tr>
<tr>
<td>AIRMET Information</td>
<td>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 low-level (below A100) aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or the sub-area thereof.</td>
</tr>
<tr>
<td>Airspace Release</td>
<td>A defined volume of airspace normally under the jurisdiction of one controlling authority that is temporarily released, by common agreement, for exclusive use of another.</td>
</tr>
<tr>
<td>Airspace Reservation</td>
<td>A defined volume of airspace normally under the jurisdiction of one aviation authority and temporarily reserved, by common agreement, for exclusive use of another.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Airspace speed limitation</td>
<td>A speed limit specified for a particular class of airspace.</td>
</tr>
<tr>
<td>Air-Taxiing</td>
<td>Movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a speed normally less than 20 kt.</td>
</tr>
<tr>
<td>Air-to-Ground Communication</td>
<td>One-way communication from aircraft to stations or locations on the surface of the earth.</td>
</tr>
<tr>
<td>Airways Clearance</td>
<td>A clearance issued by ATC to operate in controlled airspace along a designated track or route at a specified level to a specified point or flight-planned destination.</td>
</tr>
<tr>
<td>ALERFA</td>
<td>The code word used to designate an alert phase. See Alert Phase.</td>
</tr>
<tr>
<td>Alert Phase (ALERFA)</td>
<td>A situation wherein apprehension exists as to the safety of an aircraft and its occupants.</td>
</tr>
<tr>
<td>Alerted See-and-Avoid</td>
<td>A procedure where the pilot, having been alerted to the existence and approximate location of other traffic in their immediate vicinity, seeks to sight known aircraft to avoid a collision.</td>
</tr>
<tr>
<td>Alerting Post</td>
<td>An agency designated to serve as an intermediary between a person reporting an aircraft in distress and a rescue coordination centre.</td>
</tr>
<tr>
<td>Alerting Service</td>
<td>A service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.</td>
</tr>
<tr>
<td>Alternate Aerodrome</td>
<td>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 where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use.</td>
</tr>
<tr>
<td>Altimeter Setting</td>
<td>A pressure datum which, when set on the sub-scale of a sensitive altimeter, causes the altimeter to indicate vertical displacement from that datum. A pressure-type altimeter calibrated in accordance with Standard Atmosphere may be used to indicate altitude, height or flight levels as follows: a) when set to QNH or Area QNH it will indicate altitude; b) when set to QFE it will indicate height above the QFE datum; and c) when set to Standard Pressure (1013.2 HPA) it may be used to indicate flight levels.</td>
</tr>
<tr>
<td>Altimeter Setting Region</td>
<td>Airspace 10 000 FT and below where the sub-scale of a pressure sensitive altimeter is set to QNH or Area QNH.</td>
</tr>
<tr>
<td>Altitude</td>
<td>The vertical distance of a level, a point, or an object considered as a point measured from mean sea level.</td>
</tr>
<tr>
<td></td>
<td>Note 1: The letter 'A' followed by three figures denotes specific altitude e.g. 'A060' for 6000 FT AMSL.</td>
</tr>
<tr>
<td></td>
<td>Note 2: For ATS use, aircraft below 10 000 FT are considered to be flying at an 'altitude'. Above 10 000 FT aircraft are considered to be flying at 'flight levels'.</td>
</tr>
<tr>
<td>Approach Control Service</td>
<td>Air traffic control service for arriving or departing controlled flights.</td>
</tr>
<tr>
<td>Approach procedure with vertical guidance (APV)</td>
<td>See 'Instrument Approach Procedure (IAP)'</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Approach Sequence</td>
<td>The order in which two or more aircraft are cleared to approach to land at the aerodrome.</td>
</tr>
<tr>
<td>Appropriate ATS Authority</td>
<td>The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.</td>
</tr>
<tr>
<td>Approved Self Contained Navigation System</td>
<td>Aircraft equipped with INS, IRS or GNSS and indicating one of the following approvals:</td>
</tr>
<tr>
<td></td>
<td>a) RNAV5;</td>
</tr>
<tr>
<td></td>
<td>b) RNAV10 (RNP10);</td>
</tr>
<tr>
<td></td>
<td>c) RNP2 (in CTA only); or</td>
</tr>
<tr>
<td></td>
<td>d) RNP4.</td>
</tr>
<tr>
<td>Apron</td>
<td>A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.</td>
</tr>
<tr>
<td>Apron Taxiway</td>
<td>A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron. An Apron Taxiway does not form part of the manoeuvring area.</td>
</tr>
<tr>
<td>Area Control Service</td>
<td>Air Traffic Control service for controlled flights in control areas.</td>
</tr>
<tr>
<td>Area Navigation</td>
<td>A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space-based nav aids or within the limits of the capability of self-contained aids, or a combination of these.</td>
</tr>
<tr>
<td>Area Navigation Routes</td>
<td>An ATS route established for the use of aircraft capable of employing area navigation.</td>
</tr>
<tr>
<td>Area of Conflict</td>
<td>The area in which the navigation tolerances of selected tracks overlap.</td>
</tr>
<tr>
<td>Area QNH</td>
<td>A forecast altimeter setting which is representative of the QNH of any location within a particular area.</td>
</tr>
<tr>
<td>Arrival Routes</td>
<td>Routes identified in an instrument approach procedure by which aircraft may proceed from the en route phase of flight to an initial approach fix.</td>
</tr>
<tr>
<td>ATC speed restriction</td>
<td>An ATC traffic management speed or an ATC-issued speed control instruction.</td>
</tr>
<tr>
<td>ATS Route</td>
<td>A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.</td>
</tr>
<tr>
<td>ATS Surveillance Service</td>
<td>A term used to indicate an air traffic service provided directly by means of an ATS surveillance system.</td>
</tr>
<tr>
<td>ATS Surveillance System</td>
<td>A generic term meaning (variously) ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> 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 secondary surveillance radar (MSSR).</td>
</tr>
<tr>
<td>Australian-Administered Airspace</td>
<td>The airspace over Australian territory — and airspace that has been allocated to Australia by ICAO under the Chicago Convention and for which Australia has accepted responsibility — and airspace administered by Australia at the request of another country. (Air Services Act 1995 - SECT 3 Interpretation).</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Australian Eastern Oceanic Controlled Airspace</td>
<td>Controlled Oceanic airspace contained within the YBBB FIR east of the mainland as well as the ANAU and AGGG FIRs.</td>
</tr>
<tr>
<td>Auto Release</td>
<td>A procedure whereby voice coordination between Tower and Departures is minimised to facilitate departures.</td>
</tr>
<tr>
<td>Automatic Dependent Surveillance - Broadcast (ADS-B)</td>
<td>A means by which aircraft, aerodrome vehicles and other objects can automatically transmit or receive data such as identification, position and additional data as appropriate in a broadcast mode via a data link.</td>
</tr>
</tbody>
</table>
| Automatic Dependent Surveillance - Contract (ADS-C) | 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.  

*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.|
| Automatic En Route Information Service (AERIS)    | The provision of operational information en route by means of continuous and repetitive broadcasts.                                                                                                       |
| Automatic Relay Installation                      | A teletypewriter installation where automatic equipment is used to transfer messages from incoming to outgoing circuits.                                                                                  |
| Automatic Terminal Information Service (ATIS)      | The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts.                                                                    |
| Automatic Weather Station (AWS)                   | An AWS provides the basic elements of an aerodrome weather report.                                                                                                                                     |
| Aviation Activities                               | Those activities involving the use of an airborne platform.                                                                                                                                           |
### 1.1.1.4 B

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Turn</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.</td>
</tr>
<tr>
<td>Basic Lateral Separation Point (BLSP)</td>
<td>The point at which the navigation tolerances of both aircraft are no closer than 1 NM.</td>
</tr>
<tr>
<td>Bay</td>
<td>A division on a flight progress board on which strip holders are arranged.</td>
</tr>
<tr>
<td>Bay Divider</td>
<td>A fixed or moveable divider used on a flight progress board to separate bays as required.</td>
</tr>
<tr>
<td>Blanket Clearance</td>
<td>A pre-arranged clearance originated for specific activities or events and specified in a letter of agreement or MATS Supplementary Procedures.</td>
</tr>
<tr>
<td>Blind Transmission</td>
<td>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.</td>
</tr>
<tr>
<td>Block Level</td>
<td>A section of airspace with specified upper and lower limits on a specific track, in which a cleared aircraft is permitted to manoeuvre.</td>
</tr>
<tr>
<td>Box</td>
<td>A division within a flight progress strip used to record information of a particular significance.</td>
</tr>
<tr>
<td>Break-out Procedure(s)</td>
<td>Immediate evasive manoeuvres, which are performed on instruction by air traffic control.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>In the context of simultaneous parallel operations, break-out procedures are used to direct a threatened aircraft and a deviating aircraft away from each other.</td>
</tr>
<tr>
<td>Broadcast</td>
<td>A transmission of information relating to air navigation that is not addressed to a specific station or stations.</td>
</tr>
</tbody>
</table>

### 1.1.1.5 C

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>The height above the ground or water of the base of the lowest layer of cloud below 20 000 FT covering more than half the sky.</td>
</tr>
<tr>
<td>CENSAR</td>
<td>An automated Centralised SARTIME database software package used by ATS to manage SARTIMEs.</td>
</tr>
<tr>
<td>Centre</td>
<td>A generic callsign used in the en route environment which can include Air Traffic Control (Procedural or ATS Surveillance System), Advisory, Flight Information, and Alerting Services depending on the classification of airspace in which the service is provided.</td>
</tr>
<tr>
<td>Channel</td>
<td>A single means of direct fixed communication between two points.</td>
</tr>
<tr>
<td>Circling Approach</td>
<td>An extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Clean Hand-off</td>
<td>A hand-off that permits level or track changes within 45 degrees of the nominal forward track without the need for back coordination between transferring and receiving controllers. A clean hand-off does not constitute a clearance to enter controlled airspace.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Approach/Departures are considered to be one controller for the purposes of clean hand-offs.</td>
</tr>
<tr>
<td></td>
<td>See MATS 1.1.1.10 Hand-off</td>
</tr>
<tr>
<td>Clearance</td>
<td>See 'Air Traffic Control Clearance'.</td>
</tr>
<tr>
<td>Clearance Expiry Time</td>
<td>A time specified by an Air Traffic Control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply forthwith.</td>
</tr>
<tr>
<td>Clearance Limit</td>
<td>The point to which an aircraft is granted an air traffic control clearance.</td>
</tr>
<tr>
<td>Clearway</td>
<td>A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aircraft may make a portion of its initial climb to a specified height.</td>
</tr>
<tr>
<td>Common Traffic Advisory Frequency (CTAF)</td>
<td>A designated frequency on which pilots make positional broadcasts when operating in the vicinity of a non-controlled aerodrome.</td>
</tr>
<tr>
<td>Communications Centre</td>
<td>An aeronautical fixed station which relays or retransmits telecommunication traffic from (or to) a number of other AFS directly connected to it.</td>
</tr>
<tr>
<td>Company Operations Representative</td>
<td>The representative of an operating agency who is authorised to act in the capacity of liaison officer between ATC and the operating agency in respect of the control of an aircraft of that agency.</td>
</tr>
<tr>
<td>Conflict</td>
<td>A situation in which, in the opinion of Air Traffic Services personnel, the distance between aircraft, as well as their relative positions and speed, may compromise the safety of the aircraft.</td>
</tr>
<tr>
<td>Conflict Resolution</td>
<td>The determination of alternative flight paths which would be free from conflicts and the selection of one of these flight paths for use.</td>
</tr>
<tr>
<td>Control Area (CTA)</td>
<td>A controlled airspace extending upwards from a specified limit above the earth, excluding OCA.</td>
</tr>
<tr>
<td>Control Zone (CTR)</td>
<td>A controlled airspace extending upwards from the surface of the earth to a specified upper limit.</td>
</tr>
<tr>
<td>Controlled Aerodrome</td>
<td>An aerodrome at which air traffic control service is provided to aerodrome traffic.</td>
</tr>
<tr>
<td>Controlled Airspace</td>
<td>An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E.</td>
</tr>
<tr>
<td>Controlled Flight</td>
<td>Any flight which is subject to an air traffic control clearance.</td>
</tr>
<tr>
<td>Controller</td>
<td>An Air Traffic Controller, qualified in accordance with CASR Part 65, or the relevant Defence Instructions, and holding rating(s) and endorsement(s) appropriate to the assigned functions.</td>
</tr>
<tr>
<td>Controller Pilot Data Link Communications (CPDLC)</td>
<td>A means of communications between controller and pilot using data link for ATC communications.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Controlling Authority</td>
<td>With respect to airspace classifications, this is the Air Traffic Service provider for that area. With respect to PRD, this is the agency nominated to exercise the conditions of entry specified for the area.</td>
</tr>
<tr>
<td>Coordination</td>
<td>The process of obtaining agreement on clearances, transfer of control, advice or information to be issued to aircraft, by means of information exchanged.</td>
</tr>
<tr>
<td>Co-sited (Navigation) Aids</td>
<td>Waypoints or nav aids that are within 600 m of each other.</td>
</tr>
<tr>
<td>Crisis Coordination Centre (CCC)</td>
<td>The Australian Government Crisis Coordination Centre is the division of the Department of Home Affairs, Emergency Management Australia responsible for notifying Australian Government and state/territory stakeholders of aviation security incidents.</td>
</tr>
<tr>
<td>Crossing Tracks</td>
<td>A term used in the application of separation indicating tracks that intersect at or between 45 degrees and 135 degrees.</td>
</tr>
<tr>
<td>Cruise Climb</td>
<td>An aeroplane cruising technique resulting in a net increase in altitude as aeroplane mass decreases.</td>
</tr>
<tr>
<td>Cruising Level</td>
<td>A level maintained during a significant portion of a flight.</td>
</tr>
<tr>
<td>Current Flight Plan</td>
<td>The flight plan including changes, if any, brought about by subsequent clearances.</td>
</tr>
<tr>
<td>Customs</td>
<td>Australian Border Force.</td>
</tr>
</tbody>
</table>

### 1.1.1.6 D

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger Area</td>
<td>An airspace of defined dimensions, above the land areas or territorial waters of a State, within which activities of potential danger to aircraft may exist.</td>
</tr>
<tr>
<td>Day</td>
<td>The hours from the beginning of morning civil twilight to the end of evening civil twilight.</td>
</tr>
<tr>
<td>Decision Altitude/Height (DA/H)</td>
<td>A specified altitude or height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 1:</strong> 'Decision Altitude (DA)' is referenced to mean sea level (MSL) and 'Decision Height (DH)' is referenced to the threshold elevation.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 2:</strong> The 'required visual reference' means that section of the visual aids 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.</td>
</tr>
<tr>
<td>Defence</td>
<td>Department of Defence</td>
</tr>
<tr>
<td>Department of Home Affairs Incident Control Directions</td>
<td>Directions initiated by the Secretary (or delegate) of the Department of Home Affairs, as authorised by the Aviation Transport Security Act, to be relayed to specified aircraft suspected or known to be involved in an aviation security incident.</td>
</tr>
<tr>
<td>Dependent Parallel Approaches</td>
<td>Simultaneous instrument approaches to parallel or near-parallel instrument runways where ATS surveillance system separation minima between aircraft on adjacent extended runway centre lines are prescribed.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>Designator Strip</td>
<td>A bay divider which is labelled to indicate the situation to which a particular division of a bay applies.</td>
</tr>
<tr>
<td>DETRESFA</td>
<td>The code word used to designate a distress phase. See 'Distress Phase (DETRESFA)'.</td>
</tr>
<tr>
<td>Direct Controller-Pilot Communications (DCPC)</td>
<td>Two-way controller pilot communications by VHF/UHF voice or CPDLC.</td>
</tr>
<tr>
<td>Discrete Code</td>
<td>A four-digit SSR Code assigned to only one aircraft at a time.</td>
</tr>
<tr>
<td>Distance Measuring Equipment (DME)</td>
<td>Equipment which measures, in nautical miles, the slant range of an aircraft from the selected DME ground station.</td>
</tr>
<tr>
<td>DME Distance</td>
<td>The slant range from the source of a DME signal to the receiving antenna.</td>
</tr>
<tr>
<td>DME or GNSS Arrival Procedure</td>
<td>Procedures specified in DAP as being able to be carried out using either GNSS or DME.</td>
</tr>
<tr>
<td>Distress (Emergency State)</td>
<td>A state of being threatened by serious and/or imminent danger and requiring immediate assistance.</td>
</tr>
<tr>
<td>Distress Phase (DETRESFA)</td>
<td>A situation where there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger, or require immediate assistance.</td>
</tr>
<tr>
<td>Duplex</td>
<td>A method in which telecommunications between two stations can take place in both directions simultaneously.</td>
</tr>
<tr>
<td>Dynamic Airborne Route Planning System (DARPS)</td>
<td>A procedure that allows long haul, CPDLC equipped aircraft to re-plan in-flight to take advantage of the most efficient operational route segments based on the latest updated weather forecast. A DARPS route transitions from and terminates at waypoints on the original Flex Track.</td>
</tr>
</tbody>
</table>

### 1.1.1.7 E

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevation</td>
<td>The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.</td>
</tr>
<tr>
<td>Emergency Fuel</td>
<td>The term used to describe a situation when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned fixed fuel reserve. <strong>Note:</strong> This is a distress condition.</td>
</tr>
<tr>
<td>Emergency Phase</td>
<td>A generic term encompassing the uncertainty phase, alert phase or distress phase.</td>
</tr>
<tr>
<td>Essential Aerodrome Information</td>
<td>That information relating to the aerodrome and its facilities which a pilot requires in order to operate in safety.</td>
</tr>
<tr>
<td>Essential Radio Navigation Service</td>
<td>A radio navigation service whose disruption has a significant impact on operations in the affected airspace or aerodrome.</td>
</tr>
<tr>
<td>Estimate</td>
<td>The time at which an aircraft is estimated to be over a position or over the destination.</td>
</tr>
<tr>
<td>Estimated Elapsed Time (EET)</td>
<td>The estimated time required to proceed from one significant point to another.</td>
</tr>
<tr>
<td>Estimated Off-block Time</td>
<td>The estimated time at which the aircraft will commence movement associated with departure.</td>
</tr>
</tbody>
</table>
**Definitions**

### 1.1.1.8

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Time of Arrival (ETA)</td>
<td>For IFR flights, the time at which it is estimated that the aircraft will arrive over the designated point, defined by reference to nav aids, from which it is intended that an instrument approach procedure will be commenced or, if no navaid 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.</td>
</tr>
<tr>
<td>Event (for ATS reporting purposes)</td>
<td>An occurrence which does not come within the definition of an accident or incident, yet the reporting of the information may be useful by enabling the service provider to anticipate errors and failures, thereby assisting in controlling risk.</td>
</tr>
<tr>
<td>Expected Approach Time (EAT)</td>
<td>The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing. <strong>Note:</strong> The holding fix referred to in the EAT is that shown on the instrument approach chart from which the instrument approach is prescribed to commence.</td>
</tr>
</tbody>
</table>

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**1.1.1.8 F**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fighter Scrambles Take-off</td>
<td>A procedure in which aircraft involved in fighter scrambles may be permitted to use the most convenient take-off direction, irrespective of wind direction, but subject to the disposition of other terminal area traffic. Fighter scrambles aircraft will normally be parked on Operational Readiness Platforms (ORPs).</td>
</tr>
<tr>
<td>Filed Flight Plan</td>
<td>The flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.</td>
</tr>
<tr>
<td>Final Approach</td>
<td>That part of an instrument approach procedure which:</td>
</tr>
<tr>
<td></td>
<td>a) commences at the specified final approach fix or point, or where such a fix or point is not specified:</td>
</tr>
<tr>
<td></td>
<td>i) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or</td>
</tr>
<tr>
<td></td>
<td>ii) at the point of interception of the last track specified in the approach procedure; and</td>
</tr>
<tr>
<td></td>
<td>b) ends at a point in the vicinity of an aerodrome from which:</td>
</tr>
<tr>
<td></td>
<td>i) a landing can be made; or</td>
</tr>
<tr>
<td></td>
<td>ii) a missed approach is initiated.</td>
</tr>
<tr>
<td>Final Approach Altitude</td>
<td>The specified altitude at which final approach is commenced.</td>
</tr>
<tr>
<td>Final Approach Fix (FAF)</td>
<td>A specified point on a non-precision approach procedure which identifies the commencement of the final segment.</td>
</tr>
<tr>
<td>Final Approach Point (FAP)</td>
<td>A specified point on the glide path of a precision approach procedure which identifies the commencement of the final segment. <strong>Note:</strong> The FAP is coincident with the FAF of a localiser-based non-precision approach procedure.</td>
</tr>
<tr>
<td>Final Approach Segment</td>
<td>That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.</td>
</tr>
<tr>
<td>Fix</td>
<td>A geographical position of an aircraft at a specific time determined by visual reference to the surface, or by navigational aids.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fix (flight progress strip)</td>
<td>A shortened term for a point of departure, point of arrival, reporting point, or other geographical position significant to the recording and control of aircraft movements.</td>
</tr>
<tr>
<td>Flex Track</td>
<td>A non-fixed ATS route calculated on a daily basis to provide the most efficient operational flight conditions between specific city pairs.</td>
</tr>
<tr>
<td>Flight Crew Member</td>
<td>A licenced crew member charged with duties essential to the operation of an aircraft during a flight duty period.</td>
</tr>
<tr>
<td>Flight Data</td>
<td>Data regarding the actual or intended movement of an aircraft, normally presented in coded or abbreviated form.</td>
</tr>
<tr>
<td>Flight Data Region (FDRG)</td>
<td>An area associated with a Flight Information Region in which flight information is processed by a Flight Data Processor.</td>
</tr>
<tr>
<td>Flight Following</td>
<td>The provision of an ongoing Surveillance Information Service (SIS).</td>
</tr>
<tr>
<td>Flight Identification (FLTID)</td>
<td>An identification of up to seven alphanumeric characters entered by the pilot via a cockpit interface. Where possible, the flight identification must match the aircraft identification entered into Item 7 of the flight notification.</td>
</tr>
<tr>
<td>Flight Information Area (FIA)</td>
<td>An airspace of defined dimensions, excluding controlled airspace, within which flight information and alerting services are provided by an ATS unit.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> FIAs may be sub-divided to permit the specified ATS unit to provide its services on a discrete frequency or family of frequencies within particular areas.</td>
</tr>
<tr>
<td>Flight Information Centre (FIC)</td>
<td>A unit established to provide flight information and alerting service.</td>
</tr>
<tr>
<td>Flight Information Region (FIR)</td>
<td>An airspace of defined dimensions within which flight information and alerting services are provided.</td>
</tr>
<tr>
<td>Flight Information Service (FIS)</td>
<td>A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.</td>
</tr>
<tr>
<td>Flight Level (FL)</td>
<td>A surface of constant atmospheric pressure which is related to a pressure datum of 1013.2 hPa and is separated from other flight level surfaces by specific pressure intervals.</td>
</tr>
<tr>
<td>Flight Path Monitoring</td>
<td>The use of ATS surveillance systems for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path, including deviations from the terms of their air traffic control clearances.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Some applications may require a specific technology e.g. radar, to support the function of flight plan monitoring.</td>
</tr>
<tr>
<td>Flight Plan</td>
<td>Specified information provided to ATS units, relative to the intended flight or portion of flight of an aircraft.</td>
</tr>
<tr>
<td>Flight Plan Data</td>
<td>Data selected from the flight plan for purposes of processing, display or transfer.</td>
</tr>
<tr>
<td>Flight Visibility</td>
<td>The visibility forward from the cockpit of an aircraft in flight.</td>
</tr>
<tr>
<td>Flow Control</td>
<td>Measures designed to adjust the flow of traffic into given airspace, along a given route, or bound for a given aerodrome, so as to ensure the most efficient utilisation of the airspace or aerodrome.</td>
</tr>
<tr>
<td>Forecast</td>
<td>A statement of expected meteorological conditions for a specified period, and for a specified area or portion of airspace.</td>
</tr>
</tbody>
</table>
### Formation
Two or more aircraft flown in close proximity to each other and operating as a single aircraft with regard to navigation, position reporting and control. Types of aircraft formations include:

- **close formation**: aircraft within the formation are considered to be one aircraft;
- **in-trail formation**: individual aircraft use aircraft radar to maintain contact and spacing with the aircraft ahead;
- **block formation**: a non-standard formation type that operates within a prearranged airspace block; and
- **standard formation**: aircraft may manoeuvre up to 1 NM either side of, co-altitude with, and up to 1 NM behind the lead aircraft.

### Formation Take-off
A procedure in which the aircraft will take-off in groups of two or more, with other elements following at prearranged intervals.

### Freezing Fog
Any fog consisting predominantly of water droplets at temperatures below 0°C must be reported as freezing fog (FZFG) whether it is depositing rime ice or not.

### Full Emergency (in the context of aerodrome emergency plans)
A situation in which the response of all agencies involved in the Aerodrome Emergency Plan will be activated.

### 1.1.1.9 G

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glide Path</td>
<td>A descent profile determined for vertical guidance during a final approach.</td>
</tr>
<tr>
<td>Global Navigation Satellite System (GNSS)</td>
<td>A satellite-based radio navigation system that uses signals from orbiting satellites to determine precise position and time.</td>
</tr>
<tr>
<td>Global Positioning System (GPS)</td>
<td>A GNSS constellation operated by the United States Government.</td>
</tr>
<tr>
<td>Go-around</td>
<td>A procedure in which the pilot discontinues the approach immediately and rejoins for another circuit, or proceeds as directed by ATC.</td>
</tr>
<tr>
<td>Ground Effect</td>
<td>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.</td>
</tr>
<tr>
<td>Ground-based augmentation system (GBAS)</td>
<td>An augmentation system in which the user receives augmentation information directly from a ground-based transmitter.</td>
</tr>
<tr>
<td>Ground-taxiing</td>
<td>The movement of a helicopter under its own power and on its undercarriage wheels.</td>
</tr>
<tr>
<td>Ground Visibility</td>
<td>The visibility at an aerodrome, as reported by an accredited observer or by automated systems.</td>
</tr>
</tbody>
</table>
### Glossary - terms Definitions

#### 1.1.1.10 H

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-off</td>
<td>The relay of identification and the transfer of control for an aircraft between Controllers while maintaining continuous surveillance.</td>
</tr>
<tr>
<td>Hazard Alert</td>
<td>A prefix to transmissions alerting pilots to sudden changes to components of FIS that would have an immediate and/or prolonged detrimental effect on the safety of aircraft.</td>
</tr>
<tr>
<td>Head of State</td>
<td>Heads of State or of Government, or other selected dignitaries on official visits to Australia (as provided by Department of Prime Minister and Cabinet Ceremonial and Hospitality Branch), or the personal transport of the Governor-General or the Prime Minister.</td>
</tr>
<tr>
<td>Heading</td>
<td>The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from north. (True/Magnetic/Compass or Grid).</td>
</tr>
<tr>
<td>Height</td>
<td>The vertical distance of a level, a point, or an object considered as a point measured from a specified datum.</td>
</tr>
<tr>
<td>Helicopter</td>
<td>A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more normally power-driven rotors on substantially vertical axes.</td>
</tr>
<tr>
<td>Helicopter Access Corridor</td>
<td>A corridor wholly within controlled airspace designed for the exclusive use of helicopters in VMC. The extent and alignment of the corridor are to be related to and delineated by prominent geographical/topographical features.</td>
</tr>
<tr>
<td>Helicopter Landing Site (HLS)</td>
<td>A place that is used as an aerodrome for the purposes of the landing and taking-off of helicopters. Includes heliports and helidecks.</td>
</tr>
<tr>
<td>Helicopter Lane</td>
<td>A lane outside controlled airspace, designed for use by helicopters to facilitate traffic flow.</td>
</tr>
<tr>
<td>Helicopter Movement Area</td>
<td>That part of an aerodrome that can safely be used for the hovering, taxiing, take-off and landing of helicopters. The helicopter movement area consists of the manoeuvring area and aprons, but excludes those areas reserved for unrestricted use by the general public.</td>
</tr>
<tr>
<td>Helideck</td>
<td>A heliport located on a floating or fixed offshore structure.</td>
</tr>
<tr>
<td>Heliport</td>
<td>An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.</td>
</tr>
<tr>
<td>Heliport Reference Point (HRP)</td>
<td>The designated location of a heliport or a landing location.</td>
</tr>
<tr>
<td>Highest Useable Level</td>
<td>The highest level available to an aircraft within a defined airspace that will provide safe vertical separation from the activity in that area.</td>
</tr>
<tr>
<td>Hold Short Line</td>
<td>A line marked across a runway, in accordance with the requirements of AIP-AD, at which landing aircraft must stop when required during Land and Hold Short Operations (LAHSO).</td>
</tr>
<tr>
<td>Holding Bay</td>
<td>A defined area where aircraft can be held or bypassed to facilitate efficient surface movement of aircraft.</td>
</tr>
<tr>
<td>Holding Fix</td>
<td>A geographic location that serves as a reference for a holding procedure.</td>
</tr>
<tr>
<td>Holding Procedure</td>
<td>A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.</td>
</tr>
<tr>
<td>Hospital Aircraft</td>
<td>(Refer 'Medical Flight').</td>
</tr>
</tbody>
</table>
### Definitions Glossary - terms

#### 1.1.1.11 I

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAO 24 bit Aircraft Address (24 bit code)</td>
<td>A unique identification code which is programmed into each specific aircraft's transponder or ADS-B transmitter during installation. This code, expressed as six alphanumeric characters, provides a digital identification of the aircraft and is used by the air traffic system to link information contained in a flight notification to aircraft position information received via ADS-B.</td>
</tr>
<tr>
<td>Identification</td>
<td>The situation which exists when the position symbol of a particular aircraft is seen on a situation display, and positively identified by ATC.</td>
</tr>
<tr>
<td>IFR Flight</td>
<td>A flight conducted in accordance with the Instrument Flight Rules.</td>
</tr>
<tr>
<td>IFR Pick-up</td>
<td>A pilot procedure whereby a flight operating to the IFR in Class G airspace changes to VFR upon entering Class E airspace whilst awaiting an airways clearance.</td>
</tr>
<tr>
<td>INCERFA</td>
<td>The code word used to designate an uncertainty phase. See 'Uncertainty Phase (INCERFA)'.</td>
</tr>
<tr>
<td>Incident (for ATS reporting purposes)</td>
<td>An occurrence associated with the operation of an aircraft or the ATS system other than an accident which affects or could affect aviation safety.</td>
</tr>
<tr>
<td>In-company Flights</td>
<td>A group of aircraft that occupy an airspace block and self-separate from other aircraft within the group.</td>
</tr>
<tr>
<td>Independent Parallel Approaches</td>
<td>Simultaneous instrument approaches to parallel or near-parallel instrument runways where ATS surveillance system separation minima between aircraft on adjacent extended runway centre lines are not prescribed.</td>
</tr>
<tr>
<td>Independent Parallel Departures</td>
<td>Simultaneous departures in the same direction from parallel or near-parallel instrument runways.</td>
</tr>
<tr>
<td>Independent Visual Approaches</td>
<td>Visual approach operations to parallel or near parallel instrument runways where the distance between runway centre lines and use of particular procedures allows a visual approach to one runway independently of approaches occurring on an adjacent parallel or near-parallel runway.</td>
</tr>
<tr>
<td>Indicated Airspeed (IAS)</td>
<td>The uncorrected reading on the airspeed indicator.</td>
</tr>
<tr>
<td>Inertial Navigation/Reference System (INS/IRS)</td>
<td>A self-contained navigation system that continually measures the accelerations acting upon the vehicle of which it is part. Suitably integrated, these forces provide velocity and thence position information.</td>
</tr>
<tr>
<td>Initial Approach</td>
<td>That part of an instrument approach procedure consisting of the first approach to the first navigational facility associated with the procedure, or to a predetermined fix.</td>
</tr>
<tr>
<td>Initial Approach Altitude</td>
<td>The altitude/level below which an aircraft proceeding towards an aerodrome to make an instrument approach is not to descend until the instrument procedure has been initiated. The altitude/level is measured by reference to QNH and standard pressure respectively.</td>
</tr>
<tr>
<td>Initial Approach Fix (IAF)</td>
<td>The fix at the commencement of an instrument approach.</td>
</tr>
<tr>
<td>Initial Approach Segment</td>
<td>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.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
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<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Instrument Approach Operations</td>
<td>An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:</td>
</tr>
<tr>
<td></td>
<td>a) A two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and</td>
</tr>
<tr>
<td></td>
<td>b) A three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> <strong>Lateral and vertical navigation guidance refers to the guidance provided either by:</strong></td>
</tr>
<tr>
<td></td>
<td>a) ground-based radio navigation aids; or</td>
</tr>
<tr>
<td></td>
<td>b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.</td>
</tr>
<tr>
<td>Instrument Approach Procedure (IAP)</td>
<td>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 clearance criteria apply.</td>
</tr>
<tr>
<td></td>
<td>Instrument approach procedures are classified as follows:</td>
</tr>
<tr>
<td></td>
<td>a) Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A;</td>
</tr>
<tr>
<td></td>
<td>b) Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A; or</td>
</tr>
<tr>
<td></td>
<td>c) Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations Type A or B.</td>
</tr>
<tr>
<td>Instrument Flight Rules (IFR)</td>
<td>Those rules specified in the Civil Aviation Regulations.</td>
</tr>
<tr>
<td>Instrument Landing System (ILS)</td>
<td>A precision instrument approach system which normally consists of a VHF Localiser, UHF Glide slope, and VHF Marker Beacons.</td>
</tr>
<tr>
<td>Instrument Meteorological Conditions (IMC)</td>
<td>Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.</td>
</tr>
</tbody>
</table>
### Definitions

**Instrument Runway**

One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

- **a)** *non-precision approach runway*: an instrument runway served by visual aids and a non-visual aid providing at least directional guidance adequate for a straight-in approach;
- **b)** *precision approach runway, CAT I*: an instrument runway served by ILS or GBAS and visual aids intended for operations with a decision height not lower than 200 FT and either a visibility not less than 800 m, or a RVR not less than 550 m;
- **c)** *precision approach runway, CAT II*: an instrument runway served by ILS and visual aids intended for operations with a decision height lower than 200 FT, but not lower than 100 FT and a RVR not less than 300 m; or
- **d)** *precision approach runway, CAT III*: an instrument runway served by ILS to and along the surface of the runway and:
  - **i)** for CAT IIIA - intended for operations with a decision height lower than 100 FT, or no decision height and a RVR not less than 175 m;
  - **ii)** for CAT IIIB - intended for operations with a decision height lower than 50 FT, or no decision height and a RVR less than 175 m, but not less than 50 m; and
  - **iii)** for CAT IIIC - intended for operations with no decision height and no RVR limitations.

**Intermediate Approach**

That part of an instrument approach procedure from the first arrival at the first navigational facility or predetermined fix, to the beginning of the final approach.

**Intermediate Approach Segment**

That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, racetrack or dead reckoning track procedure and the final approach fix or point, as appropriate.

### Glossary - terms

**Joint User Aerodrome**

An aerodrome used jointly on a continuing or regular basis by civil and service aircraft where a tenant Department requires special facilities on the aerodrome for the conduct of its operations.

**Known Traffic**

Aircraft whose altitude, position and intentions are known to ATC.

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<table>
<thead>
<tr>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Land and Hold Short Operations (LAHSO)</td>
<td>A procedure involving dependent operations conducted on two intersecting runways whereby aircraft land and depart on one runway while aircraft landing on the other runway hold short of the intersection.</td>
</tr>
<tr>
<td>Landing Area</td>
<td>That part of the movement area intended for the landing or take-off of aircraft.</td>
</tr>
<tr>
<td>Landing Distance Available (LDA)</td>
<td>The length of runway declared available and suitable for the ground run of an aeroplane landing.</td>
</tr>
<tr>
<td>Lateral Separation</td>
<td>Separation between the navigation tolerances of aircraft in the horizontal plane expressed in terms of distance or angular displacement between tracks.</td>
</tr>
<tr>
<td>Lateral Separation Entry/Exit Point</td>
<td>The basic lateral separation point (BLSP) of entry and exit to an area of conflict corrected for distance measuring tolerances or time buffers, as appropriate.</td>
</tr>
<tr>
<td>Latest Intercept Point (LIP)</td>
<td>An RNAV (RNP) approach procedure waypoint, other than an initial approach fix (IAF) indicating a position that an aircraft receiving a surveillance service may be cleared direct to, to commence an RNAV (RNP) approach. Note: A LIP is identified by a hash (#) symbol on an IAL chart adjacent to the relevant waypoint.</td>
</tr>
<tr>
<td>Level</td>
<td>A generic term relating to the vertical position of an aircraft in flight and meaning (variously) height, altitude or flight level.</td>
</tr>
<tr>
<td>Licensed Aerodrome</td>
<td>A place that is licensed as an aerodrome under the Civil Aviation Regulations.</td>
</tr>
<tr>
<td>Local instructions</td>
<td>A generic term identifying instructions or procedures published by an ATS service provider to direct their internal operations.</td>
</tr>
<tr>
<td>Local Standby</td>
<td>In the context of Aerodrome Emergency Plans - a situation in which activation of only the airport-based agencies involved in the Aerodrome Emergency Plan is warranted.</td>
</tr>
<tr>
<td>Localiser</td>
<td>The component of an ILS which provides azimuth guidance to a runway. It may be used as part of an ILS or independently.</td>
</tr>
<tr>
<td>Location Indicator</td>
<td>A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.</td>
</tr>
<tr>
<td>Longitudinal Separation</td>
<td>Longitudinal spacing of aircraft along the same or reciprocal tracks expressed in units of time or distance which is never less than the prescribed standard interval.</td>
</tr>
<tr>
<td>Lost Link</td>
<td>The loss of command and control link between the Remote Pilot (RP) and Remotely Piloted Aircraft (RPA).</td>
</tr>
<tr>
<td>Lowest Safe Altitude (LSALT)</td>
<td>The lowest altitude which will provide safe terrain clearance at a given place. Note: LSALT includes grid LSALT, route LSALT, MSA and MVA.</td>
</tr>
<tr>
<td>Lowest Useable Level (LUL)</td>
<td>The lowest level available to an aircraft within a defined airspace that will provide safe vertical separation from other activities or obstacles in that area.</td>
</tr>
<tr>
<td>Low Jet Route (LJR)</td>
<td>A route, or part of a route, at or below 5000 FT AGL used by MLJ aircraft for low level, high speed operations.</td>
</tr>
</tbody>
</table>
### Definitions

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<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<td><strong>1.1.1.15 M</strong></td>
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</tr>
<tr>
<td><strong>Term</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>Mach Number Technique (MNT)</td>
<td>The technique of clearing successive jet aircraft operating along the same track to maintain specified Mach numbers in order to maintain longitudinal separation.</td>
</tr>
<tr>
<td>Manoeuvring Area</td>
<td>That part of an aerodrome to be used for the take-off, landing and taxiling of aircraft, excluding aprons.</td>
</tr>
<tr>
<td>Marker</td>
<td>An object, other than a landing direction indicator, a wind director indicator or flag, used to indicate an obstacle or to convey aeronautical information by day.</td>
</tr>
<tr>
<td>Marker Beacon</td>
<td>A type of radio beacon, the emissions of which radiate in a vertical pattern.</td>
</tr>
<tr>
<td>Markings</td>
<td>Signs displayed on surfaces in order to convey aeronautical information.</td>
</tr>
<tr>
<td>Maximum Take-off Weight (MTOW)</td>
<td>The maximum take-off weight of an aircraft as specified in its Certificate of Airworthiness.</td>
</tr>
<tr>
<td>Medical Flight</td>
<td>A flight providing transport of medical patients, personnel and/or equipment, prioritised as follows:</td>
</tr>
<tr>
<td></td>
<td>a) <strong>MEDDEVAC</strong>: a life critical medical emergency evacuation e.g. an aircraft proceeding to pick-up or carrying a severely ill patient, or one for whom life support measures are being provided; or</td>
</tr>
<tr>
<td></td>
<td>b) <strong>HOSP</strong>: a medical flight declared by medical authorities e.g. an aircraft transporting or proceeding to pick-up medical personnel or equipment urgently required for the treatment of a severely ill patient or returning urgently required medical personnel and/or equipment at the termination of a MEDDEVAC flight.</td>
</tr>
<tr>
<td>Message Fields</td>
<td>An assigned area of a message containing specified elements of data.</td>
</tr>
<tr>
<td>Meteorological Information</td>
<td>Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.</td>
</tr>
<tr>
<td>Meteorological Office</td>
<td>An office designated to provide meteorological service for international air navigation.</td>
</tr>
<tr>
<td>Meteorological Report</td>
<td>A statement of observed meteorological conditions related to a specific time and location.</td>
</tr>
<tr>
<td>Meteorological Watch Office (MWO)</td>
<td>An office designated to provide information concerning the occurrence or expected occurrence of specified en route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations within its specified area of responsibility.</td>
</tr>
<tr>
<td>Military Authority Assumes Responsibility for Separation</td>
<td>A procedure which authorises the pilots of military aircraft to assume responsibility for separation between their aircraft and other nominated military aircraft (or military contract civil aircraft).</td>
</tr>
<tr>
<td>Military Aircraft (MARSAs)</td>
<td></td>
</tr>
<tr>
<td>Military Low Jet (MLJ)</td>
<td>Military aircraft operating on LJR.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Minimum Descent Altitude/Height (MDA/H)</td>
<td>A specified altitude or height in a 2D instrument approach operation or circling approach operation below which descent must not be made without the required visual reference.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 1:</strong> 'Minimum Descent Altitude (MDA)' is referenced to mean sea level (MSL) and 'Minimum Descent Height (MDH)' is referenced to the threshold elevation.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 2:</strong> The 'required visual reference' means that section of the visual aids 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.</td>
</tr>
<tr>
<td>Minimum Fuel</td>
<td>The term used to describe a situation when an aircraft's fuel supply has reached a state where having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than planned fixed fuel reserve.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The declaration of MINIMUM FUEL informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than planned fixed fuel reserve. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.</td>
</tr>
<tr>
<td>Minimum Sector Altitude (MSA)</td>
<td>The lowest altitude which may be used which will provide a minimum clearance of 1000 FT above all objects located in an area contained within a sector of a circle of 25 NM or 10 NM radius centred on a significant point, the ARP, or the HRP.</td>
</tr>
<tr>
<td>Minimum Vector Altitude (MVA)</td>
<td>The lowest altitude a controller may assign to a pilot in accordance with a radar terrain clearance chart.</td>
</tr>
<tr>
<td>Missed Approach Point (MAPT)</td>
<td>That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.</td>
</tr>
<tr>
<td>Missed Approach Procedure</td>
<td>The procedure to be followed if the approach cannot be continued.</td>
</tr>
<tr>
<td>MODE (SSR)</td>
<td>The conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator.</td>
</tr>
<tr>
<td>Movement Area</td>
<td>That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).</td>
</tr>
<tr>
<td>MULTICOM</td>
<td>The frequency (126.7MHz) used for broadcasts while operating to or from a non-controlled aerodrome that does not have a discrete CTAF assigned.</td>
</tr>
</tbody>
</table>
### 1.1.1.16 N

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation Specification</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>a)  <em>Required Navigation Performance (RNP)</em> specification: a navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP e.g. RNP 4, RNP APCH; and</td>
</tr>
<tr>
<td></td>
<td>b)  <em>Area Navigation (RNAV)</em> specification: 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.</td>
</tr>
<tr>
<td>Navigation Tolerance</td>
<td>A procedural or surveillance tolerance applied to contain the possible position of an aircraft operation in the horizontal dimension allowing for tracking and equipment errors.</td>
</tr>
<tr>
<td></td>
<td><em>Dependent tolerance:</em> A lateral separation tolerance applied to an aircraft pair that includes the communication, navigation and surveillance components required for separation.</td>
</tr>
<tr>
<td></td>
<td><em>Independent tolerance:</em> A navigation tolerance applied to an individual aircraft.</td>
</tr>
<tr>
<td></td>
<td><em>Cross track tolerance:</em> An independent tolerance that only accounts for cross track (lateral) navigation errors.</td>
</tr>
<tr>
<td></td>
<td><em>Circular Error of Position (CEP):</em> An independent tolerance that takes into account both along track (longitudinal) and cross track (lateral) errors.</td>
</tr>
<tr>
<td>Near-parallel Runways</td>
<td>Non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.</td>
</tr>
<tr>
<td>Night</td>
<td>The hours between the end of evening civil twilight to the beginning of morning civil twilight.</td>
</tr>
<tr>
<td>No Transgression Zone (NTZ)</td>
<td>A corridor of airspace of defined dimensions located centrally between the two extended runway centre lines, where a penetration by an aircraft requires a controller intervention to manoeuvre any threatened aircraft on the adjacent approach.</td>
</tr>
<tr>
<td>NOCOM Cancellation Time</td>
<td>The time at which a military NOCOM aircraft will resume normal radio procedures and reporting.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> This time is considered to be a scheduled report time for SAR purposes, not a SARTIME.</td>
</tr>
<tr>
<td>NOCOM Period</td>
<td>The period(s) described in Item 18 of the flight plan during which communications will be non-continuous.</td>
</tr>
<tr>
<td>Non-aviation Activities</td>
<td>Those activities not involving the use of an airborne platform.</td>
</tr>
<tr>
<td>Non-Continuous Communication (NOCOM)</td>
<td>A procedure that may be used by military aircraft for operation in military restricted airspace or Class G airspace where, due to the nature of the operation, communication will be non-continuous for a specified time.</td>
</tr>
</tbody>
</table>
### Term Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-directional Beacon (NDB)</td>
<td>A special radio station, the emissions of which are intended to enable a mobile station to determine its radio bearing or direction with reference to that special radio station.</td>
</tr>
<tr>
<td>Non-precision Approach (NPA)</td>
<td>See ‘<a href="https://example.com">Instrument Approach Procedure (IAP)</a>'</td>
</tr>
<tr>
<td>Non-precision Approach and Landing Operations</td>
<td>An instrument approach and landing which does not utilise electronic glide path guidance.</td>
</tr>
<tr>
<td>Normal Operating Zone (NOZ)</td>
<td>Airspace of defined dimensions extending to either side of a published instrument approach procedure final approach course or track. Only that half of the normal operating zone adjacent to a no transgression zone (NTZ) is taken into account in independent parallel approaches.</td>
</tr>
<tr>
<td>Notice to Airmen (NOTAM)</td>
<td>A notice distributed by means of telecommunication 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.</td>
</tr>
</tbody>
</table>

### 1.1.1.17  O

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstacle</td>
<td>All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that are located on an area intended for the surface movement of aircraft or that extend above a defined surface intended to protect aircraft in flight.</td>
</tr>
<tr>
<td>Obstruction Lights/Markers</td>
<td>Lights or markers located on or adjacent to obstructions of potential hazard to aircraft moving on the ground or in the navigable airspace, which indicate, by day or night, the obstructions or hazards.</td>
</tr>
<tr>
<td>Occurrence Report</td>
<td>A report submitted for the purpose of meeting statutory obligations to ATSB and CASA. An Occurrence Report may include an Airservices ATS Occurrence Report or Defence Aviation Safety Occurrence Report as appropriate.</td>
</tr>
<tr>
<td>Oceanic Control Area (OCA)</td>
<td>Controlled oceanic airspace extending upwards from a specified limit above the earth within Australian-administered airspace.</td>
</tr>
<tr>
<td>One-way Route</td>
<td>A route with limitations on use in one direction; depicted on ERC-H, ERC-L and/or TAC charts by an arrow in the direction that can be used without limitation. Refer to ERSA for additional details.</td>
</tr>
<tr>
<td>Operational Control</td>
<td>The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.</td>
</tr>
<tr>
<td>Operator</td>
<td>A person, organisation or enterprise engaged in or offering to engage in aircraft operation.</td>
</tr>
<tr>
<td>Overshoot Shear</td>
<td>A wind shear occurrence which produces an initial effect of overshooting the desired approach path and/or increasing airspeed.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Parking Area</td>
<td>A specially prepared or selected part of an aerodrome within which aircraft may be parked.</td>
</tr>
<tr>
<td>Pavement Classification Number (PCN)</td>
<td>A number expressing the bearing strength of a pavement for unrestricted operations.</td>
</tr>
<tr>
<td>Performance-based Communication (PBC)</td>
<td>Communication based on performance specifications applied to the provision of air traffic services.</td>
</tr>
<tr>
<td>Performance-based Navigation (PBN)</td>
<td>Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.</td>
</tr>
<tr>
<td>Performance-based Surveillance (PBS)</td>
<td>Surveillance based on performance specifications applied to the provision of air traffic services.</td>
</tr>
<tr>
<td>Permissible All-up Weight</td>
<td>The weight to which an aircraft is limited by virtue of the physical characteristics of an aerodrome.</td>
</tr>
<tr>
<td>Pilot</td>
<td>Either of a Pilot-in-Command or other Flight Crew Member.</td>
</tr>
<tr>
<td>Pilot-in-Command</td>
<td>The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.</td>
</tr>
<tr>
<td>Point of No Return (PNR)</td>
<td>The point farthest removed from base to which an aircraft can fly and return to base with statutory reserves of fuel remaining.</td>
</tr>
<tr>
<td>Position Symbol</td>
<td>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.</td>
</tr>
<tr>
<td>Positive Radio Fix (PRF) Point</td>
<td>An NDB (when propagation is normal), a VOR, TACAN site or marker beacon.</td>
</tr>
<tr>
<td>Possible Position</td>
<td>An area of probability defined by the nominal track or position of an aircraft and its navigation tolerances.</td>
</tr>
<tr>
<td>Precision Approach (PA)</td>
<td>See 'Instrument Approach Procedure (IAP)'</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
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</tr>
<tr>
<td>Precision Approach Procedure</td>
<td>An instrument approach procedure utilising azimuth and glide path information provided by ILS or PAR.</td>
</tr>
<tr>
<td>Precision or Electronic Approach Aid</td>
<td>Any air or ground interpreted navigation facility which accurately fixes the position of an aircraft in azimuth, elevation, and in some cases range, with respect to the ground point of intercept.</td>
</tr>
<tr>
<td>Precision Runway Monitor (PRM)</td>
<td>A surveillance radar system with a minimum azimuth accuracy of 0.06 degrees, an update period of 2.5 seconds or less and a high resolution display providing position prediction and deviation alert, used in providing ILS course monitoring during independent approaches to runways separated by less than 1525 m.</td>
</tr>
<tr>
<td>Pre-departure Clearance (PDC)</td>
<td>A means of delivering an unsolicited, text-based airways clearance to eligible aircraft via an ATC data link.</td>
</tr>
<tr>
<td>Preferred Runway</td>
<td>A runway nominated by ATC or listed in the AIP as the most suitable for the prevailing wind, surface conditions and noise sensitive areas in the proximity of the aerodrome.</td>
</tr>
<tr>
<td>Primary Radar</td>
<td>A radar system which uses reflected signals.</td>
</tr>
<tr>
<td>Primary Surveillance Radar (PSR)</td>
<td>A surveillance radar system which uses reflected radio signals.</td>
</tr>
<tr>
<td>Procedural Control</td>
<td>Term used to indicate that information derived from an ATS surveillance system is not required for the provision of air traffic control services.</td>
</tr>
<tr>
<td>Procedural Separation</td>
<td>The separation used when providing procedural control.</td>
</tr>
<tr>
<td>Procedure Turn</td>
<td>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.</td>
</tr>
<tr>
<td>Profile</td>
<td>The orthogonal projection of a flight path or portion thereof on the vertical surface containing the nominal track.</td>
</tr>
<tr>
<td>Prohibited Area</td>
<td>An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited. Designation is appropriate only for reasons of military necessity.</td>
</tr>
<tr>
<td>Published speed restriction</td>
<td>A speed restriction shown on a Standard Instrument Departure (SID), Standard Instrument Arrival (STAR), or other instrument flight procedure.</td>
</tr>
</tbody>
</table>

### 1.1.1.19 Q

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>QFE Altimeter Setting</td>
<td>See 'Altimeter Setting'.</td>
</tr>
<tr>
<td>QNH Altimeter Setting</td>
<td>See 'Altimeter Setting'.</td>
</tr>
</tbody>
</table>
### 1.1.1.20  R

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radar</td>
<td>A radio detection device which provides information on range, azimuth and/or elevation of objects.</td>
</tr>
<tr>
<td>Radar Approach</td>
<td>An approach in which the final approach phase is executed under the direction of a Controller using radar.</td>
</tr>
<tr>
<td>Radar Cloud Break</td>
<td>A procedure whereby an aircraft is vectored to a suitable position below cloud in the vicinity of the aerodrome from which a visual approach and landing can be made.</td>
</tr>
<tr>
<td>Radar Clutter</td>
<td>The visual indication on a situation display of unwanted signals.</td>
</tr>
<tr>
<td>Radar Control</td>
<td>The provision of air traffic control service using radar-derived information.</td>
</tr>
<tr>
<td>Radar Display</td>
<td>An electronic display of radar-derived information depicting the position and movement of aircraft.</td>
</tr>
<tr>
<td>Radar Map</td>
<td>Information superimposed on a radar display to provide ready indication of selected features.</td>
</tr>
<tr>
<td>Radar Position Symbol (RPS)</td>
<td>The visual indication, in symbolic form, on a radar display of the position of an aircraft obtained after automatic processing of positional data derived from primary and/or secondary surveillance radar.</td>
</tr>
<tr>
<td>Radar Separation</td>
<td>The separation used when aircraft position information is derived from radar sources.</td>
</tr>
<tr>
<td>Radar Service</td>
<td>A service provided directly by the means of radar.</td>
</tr>
<tr>
<td>Radio Navigation Service</td>
<td>A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navaisds.</td>
</tr>
<tr>
<td>Radius to Fix (RF)</td>
<td>A segment of an instrument approach procedure used to provide a specific curved path radius and is defined by radius, arc length and fix.</td>
</tr>
<tr>
<td>RAPIC</td>
<td>A meteorological radar picture of weather data processed by a computer.</td>
</tr>
<tr>
<td>Rapid-exit Taxiway</td>
<td>A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at relatively high speeds.</td>
</tr>
<tr>
<td>Receiver Autonomous Integrity Monitoring (RAIM)</td>
<td>A system whereby an airborne GPS receiver/processor autonomously monitors the integrity of the navigation signals from GPS satellites.</td>
</tr>
</tbody>
</table>
| Reciprocal Runway Operation (RRO)         | A situation where an arriving or departing aircraft wishes to operate to the same runway surface, but in the opposite direction to another arriving aircraft.  
**Note:** Two aircraft are considered to be engaged in RRO, from the point at which they leave the normal traffic pattern to land on a reciprocal runway or, for departures, from the time they notify intent to operate from a reciprocal departure runway until the operation has rejoined the standard operating traffic pattern and is part of the routine flow of traffic. |
<p>| Reciprocal Tracks                         | A term used in the application of separation indicating tracks where the angle between the track and the reciprocal of the other track is less than 45 degrees. |
| Reduced Vertical Separation Minimum (RVSM)| The vertical separation minimum of 300 m (1000 FT) between FL290 and FL410 inclusive. |</p>
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive Flight Plan (RPL)</td>
<td>A flight plan referring 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.</td>
</tr>
<tr>
<td>Reporting Point</td>
<td>A specified geographical location in relation to which the position of an aircraft can be reported.</td>
</tr>
<tr>
<td>Required Communication Performance (RCP) Specification</td>
<td>A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.</td>
</tr>
<tr>
<td>Required Navigation Performance (RNP)</td>
<td>A statement of the navigation performance necessary for operation within a defined airspace.</td>
</tr>
<tr>
<td>Required Surveillance Performance (RSP) Specification</td>
<td>A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.</td>
</tr>
<tr>
<td>Rescue Coordination Centre (RCC)</td>
<td>A unit established for promoting efficient organisation of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.</td>
</tr>
<tr>
<td>Resolution Advisory (RA)</td>
<td>An indication given to the flight crew recommending a manoeuvre or a manoeuvre restriction to avoid collision.</td>
</tr>
<tr>
<td>Restricted Area</td>
<td>An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.</td>
</tr>
<tr>
<td>Restricted Area Conditional Status</td>
<td>Restricted Areas are assigned a conditional status to indicate the level of accessibility to the Restricted Area:</td>
</tr>
<tr>
<td></td>
<td>a) RA1 - pilots may flight plan through the Restricted Area and under normal circumstances expect a clearance from ATC;</td>
</tr>
<tr>
<td></td>
<td>b) RA2 - pilots must not flight plan through the Restricted Area unless on a route specified in ERSA GEN FPR or under agreement with Defence, however a clearance from ATC is not assured. Other tracking may be offered through the Restricted Area on a tactical basis; and</td>
</tr>
<tr>
<td></td>
<td>c) RA3 - pilots must not plan through the Restricted Area and clearances will not be available.</td>
</tr>
<tr>
<td>Reversal Procedure</td>
<td>A procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure. The sequence may include procedure turns or base turns.</td>
</tr>
<tr>
<td>RNP Type</td>
<td>A containment value expressed as a distance in nautical miles from the intended position within which flights would be for at least 95 per cent of the total flying time.</td>
</tr>
<tr>
<td>Route</td>
<td>The sum total of one or more consecutive route segments to be flown from departure to destination.</td>
</tr>
<tr>
<td>Route Segment</td>
<td>A description of track and distance between two specific points.</td>
</tr>
<tr>
<td>Runway (RWY)</td>
<td>A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------------------------</td>
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</tr>
</tbody>
</table>
| Runway-holding Position     | A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles must stop and hold, unless otherwise authorised by the aerodrome control tower.  
**Note:** In radiotelephony phraseologies, the expression 'holding point' is used to designate the runway-holding position. |
| Runway in Use               | A runway under the control of the Aerodrome Controller.                                                                                                                                                   |
| Runway Number               | The runway identification, (including the discrete letter L, C or R if nominated) associated with the runway direction end.                                                                               |
| Runway Strip                | A defined area, including the runway (and stopway, if provided), intended:  
a) to reduce the risk of damage to aircraft running off a runway; and  
b) to protect aircraft flying over it during take-off or landing operations.                                                        |
| Runway Visibility (RV)      | The distance along a runway over which a person can see and recognise a visibility marker or runway lights.  
**Note:** The term 'Runway Visibility' is used by ATC or ground personnel to report visibility along a runway as determined by a ground observer. |
| Runway Visual Range (RVR)   | The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line. (ICAO)  
**Note:** Within Australia, the term 'Runway Visual Range' or 'RVR' will be used by ATC or ground personnel exclusively to report RVR determined by electronic means. |

### 1.1.1.21 S

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Safety Alert</td>
<td>The provision of advice to an aircraft when an ATS Officer becomes aware that an aircraft is in a position which is considered to place it in unsafe proximity to terrain, obstructions, active restricted or prohibited areas, or another aircraft.</td>
</tr>
<tr>
<td>Same Track</td>
<td>A term used in the application of separation indicating an identical track or a track that converges or diverges by less than 45 degrees.</td>
</tr>
<tr>
<td>SARTIME</td>
<td>The time nominated by a pilot for the initiation of SAR action if a report has not been received by the nominated unit.</td>
</tr>
<tr>
<td>SARWATCH</td>
<td>A generic term covering SAR alerting based either on full position reporting procedures, scheduled reporting times (SKED) or SARTIME.</td>
</tr>
<tr>
<td>Search and Rescue (SAR)</td>
<td>The act of finding and returning to safety, aircraft and persons involved in an emergency phase.</td>
</tr>
<tr>
<td>Search Area</td>
<td>The area in which an aircraft is believed to have crashed or forced-landed.</td>
</tr>
<tr>
<td>Search and Rescue Region (SRR)</td>
<td>The specified area within which search and rescue is coordinated by a particular Rescue Coordination Centre.</td>
</tr>
<tr>
<td>Secondary Surveillance Radar (SSR)</td>
<td>A radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Segregated Parallel Operations</td>
<td>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.</td>
</tr>
<tr>
<td>Segregation</td>
<td>Segregation ensures that two or more aircraft do not come into such close proximity that a threat to the safety of those aircraft exists.</td>
</tr>
<tr>
<td>Self Contained Navigation System</td>
<td>Navigation systems based on INS, IRS or GNSS. See also Approved Self Contained Navigation System.</td>
</tr>
<tr>
<td>Separation</td>
<td>Separation is the concept of ensuring aircraft maintain a prescribed minimum from another aircraft or object, whilst meeting the associated condition(s), and requirements of the standard, as specified in MATS.</td>
</tr>
<tr>
<td>Separation Standard</td>
<td>A prescribed means to ensure separation between aircraft using longitudinal, lateral, vertical and visual standards.</td>
</tr>
<tr>
<td>SIGMET Information</td>
<td>Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en route weather and other phenomena in the atmosphere which may affect the safety of aircraft operations.</td>
</tr>
<tr>
<td>Significant Point</td>
<td>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 navaid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navaids.</td>
</tr>
<tr>
<td>Significant Weather</td>
<td>Any weather phenomenon which might affect flight visibility or present a hazard to an aircraft. Note: Significant weather phenomena are listed in AIP GEN 3.5 WEATHER CODE AND TRANSLATION.</td>
</tr>
<tr>
<td>Simplex</td>
<td>The method in which telecommunication between two stations takes place in one direction at a time.</td>
</tr>
<tr>
<td>Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)</td>
<td>A condition whereby arriving aircraft will approach and land on one runway concurrent with aircraft departures from the parallel runway using the opposite direction to that being used for approach and landing.</td>
</tr>
<tr>
<td>Situational Awareness (ATS)</td>
<td>The perception and integration of external data inputs, the comprehension of their impact on the air situation, and the consideration of their effect on the provision of an effective air traffic management service.</td>
</tr>
<tr>
<td>Situation Display</td>
<td>An electronic display depicting the position and movement of aircraft and other information as required.</td>
</tr>
<tr>
<td>Special VFR Flight</td>
<td>A VFR flight cleared by air traffic control to operate within a control zone in the specified meteorological conditions below VMC. Note: Special VFR is permitted within CTA next to a CTR for the purpose of entering or leaving the CTR.</td>
</tr>
<tr>
<td>SSR Code</td>
<td>The number assigned to a particular multiple-pulse reply signal transmitted by a transponder in Mode A or Mode C.</td>
</tr>
<tr>
<td>Standard Instrument Arrival (STAR)</td>
<td>A designated 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.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Standard Instrument Departure (SID)</td>
<td>A designated 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 en route phase of a flight commences.</td>
</tr>
<tr>
<td>Standard Instrument Departure (Radar)</td>
<td>A radar-based SID comprising standard climb gradient data to minimum safe altitude while being radar vectored by ATC.</td>
</tr>
<tr>
<td>Standard Pressure Region</td>
<td>Airspace above 10 000 FT where the sub-scale of a pressure sensitive altimeter is set to 1013.2 HPA.</td>
</tr>
<tr>
<td>Standard Pressure Setting</td>
<td>The pressure of 1013.2 HPA which, if set upon the pressure sub-scale of a sensitive altimeter, will cause the latter to read zero when at mean sea level in a standard atmosphere.</td>
</tr>
<tr>
<td>Standard Rate</td>
<td>A specification for a rate of climb or descent of not less than 500 FT per minute, provided that the last 1000 FT of level change to an assigned level must be made at 500 FT per minute.</td>
</tr>
<tr>
<td>State Aircraft</td>
<td>An aircraft of any part of the Defence Force (including any aircraft that is commanded by a member of that force in the course of his/her duties as such a member) and aircraft used in the military, Customs, or Police services of a foreign country.</td>
</tr>
<tr>
<td>Step Climb/Descent</td>
<td>A procedure used to simultaneously climb or descend aircraft to vertically-separated levels.</td>
</tr>
<tr>
<td>Stop and Go Landing</td>
<td>A procedure whereby an aircraft lands, comes to a complete stop on the runway and then commences take-off from that point.</td>
</tr>
<tr>
<td>Stopway</td>
<td>A defined rectangular area on the ground at the end of the take-off run available, prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.</td>
</tr>
<tr>
<td>Strayed Aircraft</td>
<td>An aircraft which has deviated significantly from its intended track or which reports that it is lost.</td>
</tr>
<tr>
<td>Stream Take-off</td>
<td>A procedure in which formation aircraft take-off in quick succession at pre-arranged intervals.</td>
</tr>
<tr>
<td>Strip Holders</td>
<td>A holder which carries a flight progress strip.</td>
</tr>
<tr>
<td>Surveillance Information Service (SIS)</td>
<td>An on request service provided to assist pilots of VFR flights, within ATS surveillance system coverage in Class E and G airspace, to avoid other aircraft or to assist in navigation.</td>
</tr>
<tr>
<td>Surveillance Radar</td>
<td>Radar equipment used to determine the position of an aircraft in range and azimuth.</td>
</tr>
<tr>
<td>Suspense Bay</td>
<td>Bays used to display prepared strips prior to their being required for air traffic services purposes.</td>
</tr>
</tbody>
</table>
### Glossary - terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tactical Air Navigation (TACAN)</td>
<td>An ultra-high frequency navaid which provides continuous indication of bearing and distance, in nautical miles, to the selected station.</td>
</tr>
<tr>
<td>Take-off Distance Available (TODA)</td>
<td>The length of the take-off run available plus the length of the clearway available.</td>
</tr>
<tr>
<td>Take-off Run Available (TORA)</td>
<td>The length of runway declared by the State to be available and suitable for the ground run of an aeroplane taking-off. This, in most cases, corresponds to the physical length of the runway pavement.</td>
</tr>
<tr>
<td>Taxiing</td>
<td>Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.</td>
</tr>
<tr>
<td>Taxilane</td>
<td>A portion of an apron that is not a taxiway and that is provided only for aircraft to access aircraft parking positions.</td>
</tr>
<tr>
<td>Taxiway (TWY)</td>
<td>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.</td>
</tr>
<tr>
<td>Telecommunication</td>
<td>Any transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, visual or other electromagnetic systems.</td>
</tr>
<tr>
<td>Terminal Area Surveillance Radar (TAR)</td>
<td>A high definition radar which is used for air traffic control purposes in the terminal area.</td>
</tr>
<tr>
<td>Terminal Control Area (TMA)</td>
<td>A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes in which air traffic services are provided by Approach and Departures Control.</td>
</tr>
<tr>
<td>Terminal Control Unit (TCU)</td>
<td>A unit providing air traffic services generally within a terminal control area.</td>
</tr>
<tr>
<td>Terrain Clearance</td>
<td>The vertical displacement of an aircraft’s flight path from the terrain.</td>
</tr>
<tr>
<td>Terrain/Obstruction Alerts</td>
<td>The provision of advice to an aircraft when an ATS officer becomes aware that an aircraft is in a position which is considered to place it in unsafe proximity to terrain or obstructions.</td>
</tr>
<tr>
<td>Threshold</td>
<td>The beginning of that portion of the runway useable for landing.</td>
</tr>
<tr>
<td>Threshold Lights</td>
<td>Lights placed across the ends of a runway or landing strip to indicate the useable limits thereof.</td>
</tr>
<tr>
<td>Thrust Stream Turbulence</td>
<td>Localised wind velocities (caused by the jet blast of a turbine engine, slip stream from a propeller driven aircraft, or rotor wash from a helicopter) of sufficient strength to cause damage to other aircraft, vehicles or property, or injury to personnel operating within the affected area.</td>
</tr>
<tr>
<td>Total Estimated Elapsed Time</td>
<td>For IFR flights: the estimated time required from take-off to arrive over that designated point, defined by reference to navails, from which it is intended that an instrument approach procedure will be commenced, or if no navail 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.</td>
</tr>
<tr>
<td>Touch-and-go Landing</td>
<td>A procedure whereby an aircraft lands and takes-off without coming to a stop.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Touchdown Zone</td>
<td>The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.</td>
</tr>
<tr>
<td>Touchdown Zone Elevation</td>
<td>The highest runway centre line elevation in the touchdown zone.</td>
</tr>
<tr>
<td>Track</td>
<td>The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees</td>
</tr>
<tr>
<td></td>
<td>from North (true, magnetic or grid).</td>
</tr>
<tr>
<td>Track Symbol</td>
<td>A computer generated symbol representing the derived or predicted position of a specific aircraft on a controller's situation display.</td>
</tr>
<tr>
<td>Traffic Advisory (TA) (aircraft)</td>
<td>An indication given to the flight crew that a certain intruder is a potential threat.</td>
</tr>
<tr>
<td>Traffic Alert and Collision Avoidance</td>
<td>Refer 'Airborne Collision Avoidance System (ACAS)'.</td>
</tr>
<tr>
<td>System (TCAS)</td>
<td>A basic airborne collision avoidance system designed primarily for general aviation use, providing relative information on other transponding</td>
</tr>
<tr>
<td></td>
<td>aircraft that are responding to a ground SSR radar facility or ACAS.</td>
</tr>
<tr>
<td>Traffic Avoidance Advice</td>
<td>Advice specifying manoeuvres to help a pilot avoid a collision.</td>
</tr>
<tr>
<td>Traffic Information</td>
<td>Information issued by an ATS unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or</td>
</tr>
<tr>
<td></td>
<td>intended route of flight and to help the pilot avoid a collision.</td>
</tr>
<tr>
<td>Traffic Information Broadcasts by Aircraft</td>
<td>A procedure that permits the transmission of reports and relevant supplementary information by pilots to provide information to other aircraft</td>
</tr>
<tr>
<td>(TIBA)</td>
<td>in the vicinity when no air traffic services are available in a given airspace.</td>
</tr>
<tr>
<td>Traffic Pattern</td>
<td>The path described by the normal flow of aircraft in the vicinity of an aerodrome as necessitated by the terrain, layout, direction of</td>
</tr>
<tr>
<td></td>
<td>landing and take-off, and proximity to other aerodromes.</td>
</tr>
<tr>
<td>Transfer of Control</td>
<td>The act of handing over responsibility for the control of an aircraft to another controller/unit.</td>
</tr>
<tr>
<td>Transfer of Control Point</td>
<td>A defined point, located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the</td>
</tr>
<tr>
<td></td>
<td>aircraft is transferred from one controller/unit to another.</td>
</tr>
<tr>
<td>Transition Altitude</td>
<td>The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.</td>
</tr>
<tr>
<td>Transition Layer</td>
<td>The airspace between the transition altitude and the transition level.</td>
</tr>
<tr>
<td>Transition Level</td>
<td>The lowest flight level available for use above the transition level.</td>
</tr>
<tr>
<td>Transitional Surface</td>
<td>An inclined plane associated with the runway strip and the approach surfaces.</td>
</tr>
<tr>
<td>Transponder</td>
<td>A receiver/transmitter which will generate a reply signal upon proper interrogation; the interrogation and reply being on different</td>
</tr>
<tr>
<td></td>
<td>frequencies.</td>
</tr>
<tr>
<td>True Airspeed (TAS)</td>
<td>The speed of an aircraft relative to undisturbed air.</td>
</tr>
</tbody>
</table>
1.1.1.23  U

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unalerted See-and-Avoid</td>
<td>A procedure where flight crew, who have no specific knowledge of other aircraft in their vicinity, rely solely on their ability to physically sight and avoid colliding with aircraft that may be in their vicinity.</td>
</tr>
<tr>
<td>Uncertainty Phase (INCERFA)</td>
<td>A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.</td>
</tr>
<tr>
<td>Undershoot Shear</td>
<td>A wind shear occurrence which produces an initial effect of undershooting the desired approach path and/or decreasing air speed.</td>
</tr>
<tr>
<td>Unidentified Aircraft</td>
<td>An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.</td>
</tr>
<tr>
<td>Unmanned Free Balloon</td>
<td>A non-power-driven unmanned lighter-than-air aircraft in free flight. Note: Unmanned free balloons are classified as Small, Light, Medium and Heavy in accordance with CASR Part 101.</td>
</tr>
<tr>
<td>Unserviceable Area</td>
<td>A portion of the movement area not available for use by aircraft because of the physical condition of the surface, or because of any obstruction on the area.</td>
</tr>
<tr>
<td>Urgency (Emergency State)</td>
<td>A state covering the safety of an aircraft or other vehicle or of some person on board or within sight but not requiring immediate assistance.</td>
</tr>
</tbody>
</table>

1.1.1.24  V

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vectoring</td>
<td>Provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.</td>
</tr>
<tr>
<td>Vertical Separation</td>
<td>The vertical spacing of aircraft.</td>
</tr>
<tr>
<td>VFR Climb/Descent</td>
<td>ATC clearance for an IFR flight in VMC in Classes D and E airspace, to conduct a visual climb or descent.</td>
</tr>
<tr>
<td>VFR Flight</td>
<td>A flight conducted in accordance with the visual flight rules.</td>
</tr>
<tr>
<td>VFR-on-top</td>
<td>ATC clearance for an IFR flight to operate in VMC in Class E airspace, at any appropriate VFR altitude or flight level.</td>
</tr>
<tr>
<td>VHF Omni-directional Radio Range (VOR)</td>
<td>A VHF radio navigational aid which provides a continuous indication of bearing from the selected VOR ground station.</td>
</tr>
<tr>
<td>Visibility</td>
<td>The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.</td>
</tr>
<tr>
<td>Visual (ATC)</td>
<td>Used by ATC to instruct a pilot to see and avoid obstacles while conducting flight below the applicable LSALT.</td>
</tr>
<tr>
<td>Visual (pilot)</td>
<td>Used by a pilot to indicate acceptance of responsibility to see and avoid obstacles while operating below the applicable LSALT.</td>
</tr>
<tr>
<td>Visual Approach Slope Indicator System (VASIS)</td>
<td>A system of lights so arranged as to provide visual information to pilots on approach of their position in relation to the optimum approach slope for a particular runway.</td>
</tr>
<tr>
<td></td>
<td>Note: This generic description includes the T-Visual Approach Slope Indicator System (T-VASIS) and the Precision Approach Path Indicator (PAPI) facilities used in Australia.</td>
</tr>
</tbody>
</table>

Note: This generic description includes the T-Visual Approach Slope Indicator System (T-VASIS) and the Precision Approach Path Indicator (PAPI) facilities used in Australia.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Manoeuvring (circling) Area</td>
<td>The area in which obstacle clearance should be taken into consideration for aircraft carrying out a circling approach.</td>
</tr>
<tr>
<td>Visual Meteorological Conditions (VMC)</td>
<td>Meteorological conditions expressed in terms of visibility, ceiling and distance from cloud, equal to or better than specified minima.</td>
</tr>
<tr>
<td>Visual Separation</td>
<td>A means of spacing aircraft through the use of visual observation by a tower controller or by a pilot when assigned separation responsibility.</td>
</tr>
<tr>
<td>Voice Switch</td>
<td>The interface used to select various forms of air-ground and ground-ground communication. It may also provide control and/or monitoring of communication, navigation and other equipment. This term includes systems such as VCCS (Voice Communication Control System), VCS (Voice Communication System), VSCS (Voice Switching and Control System) and ATCSS (Air Traffic Control Switching System).</td>
</tr>
</tbody>
</table>

**Wake turbulence envelope**
A volume of airspace behind, below and to either side of the generating aircraft which extends:

a) up to 760 m to either side of the nominal track of the aircraft;
b) up to but not including 1000 FT below the aircraft; and
c) for a distance or time behind the aircraft as per the applicable wake turbulence standard.

**Waypoint**
A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

a) **fly-by waypoint**: a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure; or
b) **fly-over waypoint**: a waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

**Wind Shear Escape Manoeuvre**
An emergency manoeuvre conducted by an aircraft that involves a full power climb straight ahead. The procedure may be conducted at any time the aircraft enters, or the onboard warning system advises of, wind shear.
# 1.2 Glossary - contractions

## 1.2.1 Abbreviations and acronyms

### 1.2.1.1 Legend
Abbreviations shown as singular are also applicable in plural. Abbreviations or acronyms with:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>@</td>
<td>Cannot be used in the text of NOTAM or meteorological messages.</td>
</tr>
<tr>
<td>*</td>
<td>Cannot be used in internationally addressed messages.</td>
</tr>
<tr>
<td>+</td>
<td>May be used as spoken words on radiotelephony channels.</td>
</tr>
<tr>
<td>#</td>
<td>May be spoken using constituent letters e.g. QNH, ILS.</td>
</tr>
</tbody>
</table>

### 1.2.1.2 Numerics

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D</td>
<td>Two-dimensional</td>
<td>#</td>
</tr>
<tr>
<td>3D</td>
<td>Three-dimensional</td>
<td>#</td>
</tr>
</tbody>
</table>

### 1.2.1.3 A

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAIS</td>
<td>Automatic Aerodrome Information Service</td>
<td>*#</td>
</tr>
<tr>
<td>AAL</td>
<td>Above Aerodrome Level</td>
<td></td>
</tr>
<tr>
<td>AAMS</td>
<td>Australian Aeronautical Message System</td>
<td>@*</td>
</tr>
<tr>
<td>AAR</td>
<td>Air-to-air Refuelling</td>
<td></td>
</tr>
<tr>
<td>ABT</td>
<td>About</td>
<td></td>
</tr>
<tr>
<td>ACAS</td>
<td>Airborne Collision Avoidance System (pronounced 'AY-CAS')</td>
<td>+</td>
</tr>
<tr>
<td>ACCID</td>
<td>Initial notification of an aircraft accident (message type designator)</td>
<td></td>
</tr>
<tr>
<td>ACD</td>
<td>Airways Clearance Delivery</td>
<td>@*</td>
</tr>
<tr>
<td>ACFT</td>
<td>Aircraft</td>
<td></td>
</tr>
<tr>
<td>ACID</td>
<td>Aircraft Identification</td>
<td>@*</td>
</tr>
<tr>
<td>ACP</td>
<td>Acceptance (message type designator)</td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>Active, activate, activity</td>
<td></td>
</tr>
<tr>
<td>AD</td>
<td>Aerodrome</td>
<td></td>
</tr>
<tr>
<td>ADC</td>
<td>Aerodrome Controller</td>
<td>@*</td>
</tr>
<tr>
<td>ADEP</td>
<td>Aerodrome of Departure</td>
<td>@*</td>
</tr>
<tr>
<td>ADES</td>
<td>Aerodrome of Destination</td>
<td>@*</td>
</tr>
<tr>
<td>Contraction</td>
<td>Expansion</td>
<td>Use</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>-----</td>
</tr>
<tr>
<td>ADF</td>
<td>Australian Defence Force</td>
<td>@*</td>
</tr>
<tr>
<td>ADF</td>
<td>Automatic Direction Finding Equipment</td>
<td>#</td>
</tr>
<tr>
<td>ADS-B</td>
<td>Automatic Dependent Surveillance - Broadcast (1090 MHz Extended Squitter)</td>
<td>#</td>
</tr>
<tr>
<td>ADS-C</td>
<td>Automatic Dependent Surveillance - Contract</td>
<td>#</td>
</tr>
<tr>
<td>AEP</td>
<td>Aerodrome Emergency Plan</td>
<td>*</td>
</tr>
<tr>
<td>AEWC</td>
<td>Airborne Early Warning and Control</td>
<td>@*</td>
</tr>
<tr>
<td>AFRU</td>
<td>Aerodrome Frequency Response Unit</td>
<td>*+</td>
</tr>
<tr>
<td>AFS</td>
<td>Aeronautical Fixed Service</td>
<td></td>
</tr>
<tr>
<td>AFTN</td>
<td>Aeronautical Fixed Telecommunications Network</td>
<td>#</td>
</tr>
<tr>
<td>AGA</td>
<td>Aerodromes, Air Routes and Ground Aids</td>
<td></td>
</tr>
<tr>
<td>AGL</td>
<td>Above Ground Level</td>
<td>#</td>
</tr>
<tr>
<td>AGSS</td>
<td>Aerodrome Ground Surveillance System</td>
<td>@*</td>
</tr>
<tr>
<td>AIDC</td>
<td>ATS Inter-facility Data Communication</td>
<td></td>
</tr>
<tr>
<td>AH</td>
<td>After Hours</td>
<td>*</td>
</tr>
<tr>
<td>AIC</td>
<td>Aeronautical Information Circular</td>
<td>#</td>
</tr>
<tr>
<td>AIM</td>
<td>Aeronautical Information Management (Airservices AIS)</td>
<td>#</td>
</tr>
<tr>
<td>AIP</td>
<td>Aeronautical Information Publication</td>
<td>#</td>
</tr>
<tr>
<td>AIRAC</td>
<td>Aeronautical Information Regulation and Control</td>
<td>+</td>
</tr>
<tr>
<td>AIREP</td>
<td>Air Report</td>
<td>+</td>
</tr>
<tr>
<td>AIRMET</td>
<td>Information concerning en route weather significant to aircraft operations at or below A100 not contained in a valid GAF</td>
<td>+</td>
</tr>
<tr>
<td>AIS</td>
<td>Aeronautical Information Service</td>
<td>#</td>
</tr>
<tr>
<td>AIS-AF</td>
<td>Aeronautical Information Service - Air Force</td>
<td>@*</td>
</tr>
<tr>
<td>ALERFA</td>
<td>Alert Phase</td>
<td>+</td>
</tr>
<tr>
<td>ALR</td>
<td>Alerting (message type designator)</td>
<td></td>
</tr>
<tr>
<td>ALT</td>
<td>Altitude</td>
<td></td>
</tr>
<tr>
<td>ALTN</td>
<td>Alternate (Aerodrome)</td>
<td></td>
</tr>
<tr>
<td>AMI</td>
<td>Aeronautical Message Interface</td>
<td>@*</td>
</tr>
<tr>
<td>AMSL</td>
<td>Above Mean Sea Level</td>
<td>#</td>
</tr>
<tr>
<td>AMSA</td>
<td>Australian Maritime Safety Authority</td>
<td>*</td>
</tr>
<tr>
<td>AOJ</td>
<td>Airways Operations Journal or ATC Watchlog</td>
<td>@*</td>
</tr>
<tr>
<td>APCH</td>
<td>Approach</td>
<td></td>
</tr>
<tr>
<td>APP</td>
<td>Approach Control, Approach Control Office or Approach Control Service</td>
<td></td>
</tr>
<tr>
<td>APU</td>
<td>Auxiliary Power Unit</td>
<td>#</td>
</tr>
<tr>
<td>APV</td>
<td>Approach Procedure with Vertical Guidance</td>
<td></td>
</tr>
<tr>
<td>AR</td>
<td>Amended Route</td>
<td>@*</td>
</tr>
</tbody>
</table>
### Glossary - contractions

#### Definitions

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCP</td>
<td>Air-to-air Refuelling Control Point</td>
<td>@*</td>
</tr>
<tr>
<td>ARFF</td>
<td>Aerodrome Rescue and Fire Fighting Service</td>
<td>@*</td>
</tr>
<tr>
<td>ARP</td>
<td>Aerodrome Reference Point</td>
<td></td>
</tr>
<tr>
<td>ARP</td>
<td>Air Report (message type designator)</td>
<td></td>
</tr>
<tr>
<td>ARR</td>
<td>Arrive or Arrival (message type designator)</td>
<td></td>
</tr>
<tr>
<td>ARS</td>
<td>Special Air Report (message type designator)</td>
<td></td>
</tr>
<tr>
<td>A-SMGCS</td>
<td>Advanced Surface Movement Guidance and Control System</td>
<td>@*</td>
</tr>
<tr>
<td>ATC</td>
<td>Air Traffic Control (in general)</td>
<td></td>
</tr>
<tr>
<td>ATD</td>
<td>Actual Time of Departure</td>
<td>#</td>
</tr>
<tr>
<td>ATFM</td>
<td>Air Traffic Flow Management</td>
<td></td>
</tr>
<tr>
<td>ATFMX</td>
<td>Air Traffic Flow Management Exempt</td>
<td>@#</td>
</tr>
<tr>
<td>ATIS</td>
<td>Automatic Terminal Information Service</td>
<td>+</td>
</tr>
<tr>
<td>ATM</td>
<td>Air Traffic Management</td>
<td>#</td>
</tr>
<tr>
<td>ATS</td>
<td>Air Traffic Services</td>
<td></td>
</tr>
<tr>
<td>ATSB</td>
<td>Air Transport Safety Bureau</td>
<td>@*</td>
</tr>
<tr>
<td>ATSO</td>
<td>Air Traffic Services Officer</td>
<td>@*</td>
</tr>
<tr>
<td>AUTH</td>
<td>Authorised or Authorisation</td>
<td></td>
</tr>
<tr>
<td>AUTO</td>
<td>Automatic</td>
<td></td>
</tr>
<tr>
<td>AVBL</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td>AVFAX</td>
<td>Meteorological and NOTAM Facsimile Service</td>
<td>*+</td>
</tr>
<tr>
<td>AWIS</td>
<td>Aerodrome Weather Information Service</td>
<td>*+</td>
</tr>
<tr>
<td>AWK</td>
<td>Aerial Work - General Aviation</td>
<td>*</td>
</tr>
<tr>
<td>AWS</td>
<td>Automatic Weather Station</td>
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#### 1.2.1.4

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<tbody>
<tr>
<td>BARO-VNAV</td>
<td>Barometric Vertical Navigation (pronounced 'BAA-RO-VEENAV')</td>
<td>+</td>
</tr>
<tr>
<td>BASE</td>
<td>Cloud Base</td>
<td>+</td>
</tr>
<tr>
<td>BLSP</td>
<td>Basic Lateral Separation Point</td>
<td>@*</td>
</tr>
<tr>
<td>BLW</td>
<td>Below</td>
<td></td>
</tr>
<tr>
<td>BOF</td>
<td>Briefing Office (Civil)</td>
<td>@*</td>
</tr>
<tr>
<td>BoM</td>
<td>Bureau of Meteorology</td>
<td>@*</td>
</tr>
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### 1.2.1.5 Contraction

<table>
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<tbody>
<tr>
<td>CADAS</td>
<td>Comsoft Aeronautical Data Access System</td>
<td>@*</td>
</tr>
<tr>
<td>CAR</td>
<td>Civil Aviation Regulation</td>
<td>*</td>
</tr>
<tr>
<td>CASA</td>
<td>Civil Aviation Safety Authority</td>
<td>+*</td>
</tr>
<tr>
<td>CAT</td>
<td>Category</td>
<td></td>
</tr>
<tr>
<td>CATC</td>
<td>Chief Air Traffic Controller</td>
<td>@*#</td>
</tr>
<tr>
<td>CATIS</td>
<td>Computerised Automatic Terminal Information Service</td>
<td>@*</td>
</tr>
<tr>
<td>CAVOK</td>
<td>Visibility, cloud and present weather better than prescribed values or conditions (pronounced ‘KAV-OH-KAY’)</td>
<td>+</td>
</tr>
<tr>
<td>CB</td>
<td>Cumulonimbus</td>
<td>#</td>
</tr>
<tr>
<td>CD</td>
<td>Clearance Delivery</td>
<td>@*</td>
</tr>
<tr>
<td>CDN</td>
<td>Coordination (message type designator)</td>
<td></td>
</tr>
<tr>
<td>CEN</td>
<td>En route and Area ATC Unit</td>
<td>*</td>
</tr>
<tr>
<td>CENSAR</td>
<td>Centralised SARTIME Database</td>
<td>*+</td>
</tr>
<tr>
<td>CEP</td>
<td>Circular Error of Position</td>
<td>@*#</td>
</tr>
<tr>
<td>CET</td>
<td>Clearance Expiry Time</td>
<td>@*</td>
</tr>
<tr>
<td>CFL</td>
<td>Cleared Flight Level including Block Levels</td>
<td>@*</td>
</tr>
<tr>
<td>CFM</td>
<td>Confirm(ing) or I Confirm</td>
<td></td>
</tr>
<tr>
<td>CHG</td>
<td>Modification (message type designator)</td>
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<tr>
<td>CIRA</td>
<td>Circuit Area</td>
<td>@*</td>
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<tr>
<td>CIV</td>
<td>Civil</td>
<td></td>
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<td>CK</td>
<td>Check</td>
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<td>CL</td>
<td>Centre Line</td>
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<td>CLD</td>
<td>Cloud</td>
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<tr>
<td>CLIAS</td>
<td>Climbing Indicated Airspeed</td>
<td>*</td>
</tr>
<tr>
<td>CMPL</td>
<td>Completion, Completed, Complete</td>
<td></td>
</tr>
<tr>
<td>CMSD</td>
<td>Commissioned</td>
<td>*</td>
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<tr>
<td>CNL</td>
<td>Cancel, Cancelled, Flight Plan Cancellation (message type designator)</td>
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<tr>
<td>COBT</td>
<td>Calculated Off Blocks Time</td>
<td>*#</td>
</tr>
<tr>
<td>COM</td>
<td>Communications</td>
<td></td>
</tr>
<tr>
<td>COMC</td>
<td>AFTN Communications Centre</td>
<td>@*</td>
</tr>
<tr>
<td>CPDLC</td>
<td>Controller Pilot Data Link Communications</td>
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<tr>
<td>CPL</td>
<td>Current Flight Plan (message type designator)</td>
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</tr>
<tr>
<td>CRU</td>
<td>Control and Reporting Unit (RAAF)</td>
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<tr>
<td>CSN</td>
<td>Channel Sequence Number</td>
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<td>CTA</td>
<td>Control Area</td>
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### Contraction Definitions

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<tr>
<td><strong>CTAF</strong></td>
<td>Common Traffic Advisory Frequency (pronounced 'SEE-TAF')</td>
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<td><strong>CTL</strong></td>
<td>Control</td>
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<tr>
<td><strong>CTOT</strong></td>
<td>Calculated Take-off Time</td>
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<td><strong>CTR</strong></td>
<td>Control Zone</td>
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### D

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<tr>
<td><strong>DA</strong></td>
<td>Decision Altitude</td>
<td></td>
</tr>
<tr>
<td><strong>DAH</strong></td>
<td>Designated Airspace Handbook</td>
<td>*</td>
</tr>
<tr>
<td><strong>DAP</strong></td>
<td>Departure and Approach Procedures</td>
<td>*</td>
</tr>
<tr>
<td><strong>DASR</strong></td>
<td>Defence Aviation Safety Regulation</td>
<td>@*</td>
</tr>
<tr>
<td><strong>DATIS</strong></td>
<td>Digital Automatic Terminal Information Service</td>
<td>@*</td>
</tr>
<tr>
<td><strong>DCMSD</strong></td>
<td>Decommissioned</td>
<td>*</td>
</tr>
<tr>
<td><strong>DCPC</strong></td>
<td>Direct Controller-Pilot Communications</td>
<td>#</td>
</tr>
<tr>
<td><strong>DCT</strong></td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td><strong>DEG</strong></td>
<td>Degrees</td>
<td></td>
</tr>
<tr>
<td><strong>DEP</strong></td>
<td>Depart or Departure (message type designator)</td>
<td></td>
</tr>
<tr>
<td><strong>DER</strong></td>
<td>Departure End of Runway</td>
<td></td>
</tr>
<tr>
<td><strong>DES</strong></td>
<td>Descend to, Descending to</td>
<td></td>
</tr>
<tr>
<td><strong>DEST</strong></td>
<td>Destination</td>
<td></td>
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<tr>
<td><strong>DETRESFA</strong></td>
<td>Distress Phase</td>
<td>+</td>
</tr>
<tr>
<td><strong>DF</strong></td>
<td>Direction Finder, Direction Finding</td>
<td>#</td>
</tr>
<tr>
<td><strong>DH</strong></td>
<td>Decision Height</td>
<td></td>
</tr>
<tr>
<td><strong>DLA</strong></td>
<td>Delay or Delayed or Delay (message type designator)</td>
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<tr>
<td><strong>DLE</strong></td>
<td>Delay En route</td>
<td>@*</td>
</tr>
<tr>
<td><strong>DME</strong></td>
<td>Distance Measuring Equipment</td>
<td>#</td>
</tr>
<tr>
<td><strong>DOC</strong></td>
<td>Documents</td>
<td>*</td>
</tr>
<tr>
<td><strong>DOF</strong></td>
<td>Date of Flight</td>
<td>+</td>
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<tr>
<td><strong>DR</strong></td>
<td>Dead Reckoning</td>
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<tr>
<td><strong>DRA</strong></td>
<td>Direct Radar Access (ADATS)</td>
<td>@*</td>
</tr>
<tr>
<td><strong>DTG</strong></td>
<td>Date Time Group</td>
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### 1.2.1.7 E

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<tbody>
<tr>
<td>E</td>
<td>East or East Longitude</td>
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</tr>
<tr>
<td>EAT</td>
<td>Expected Approach Time</td>
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</tr>
<tr>
<td>EET</td>
<td>Estimated Elapsed Time</td>
<td>#</td>
</tr>
<tr>
<td>ELT</td>
<td>Emergency Locator Transmitter</td>
<td></td>
</tr>
<tr>
<td>EMERG</td>
<td>Emergency</td>
<td></td>
</tr>
<tr>
<td>EMG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>END</td>
<td>Stop-End (related to RVR)</td>
<td>@</td>
</tr>
<tr>
<td>ENDCE</td>
<td>Endurance</td>
<td>@*</td>
</tr>
<tr>
<td>ENR</td>
<td>En route</td>
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<td>EOBT</td>
<td>Estimated Off-Block Time</td>
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<tr>
<td>ERC</td>
<td>En route Chart</td>
<td>*</td>
</tr>
<tr>
<td>ERSA</td>
<td>En route Supplement Australia</td>
<td>+*</td>
</tr>
<tr>
<td>EST</td>
<td>Estimate or Estimated or Estimation (as message type designator)</td>
<td></td>
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<tr>
<td>ETA</td>
<td>Estimated/Estimating Time of Arrival</td>
<td>#</td>
</tr>
<tr>
<td>ETL</td>
<td>Estimated Time of Landing</td>
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### 1.2.1.8 F

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<tbody>
<tr>
<td>FAC</td>
<td>Facility, Facilities</td>
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<td>FAF</td>
<td>Final Approach Fix</td>
<td></td>
</tr>
<tr>
<td>FANS</td>
<td>Future Air Navigation System</td>
<td>@*</td>
</tr>
<tr>
<td>FAP</td>
<td>Final Approach Point</td>
<td></td>
</tr>
<tr>
<td>FAWP</td>
<td>Final Approach Waypoint</td>
<td>*</td>
</tr>
<tr>
<td>FAX</td>
<td>Facsimile transmission</td>
<td>+</td>
</tr>
<tr>
<td>FEW</td>
<td>Few (cloud descriptor)</td>
<td></td>
</tr>
<tr>
<td>FFR</td>
<td>Flood or Fire Relief; Fire Fighting</td>
<td>@*</td>
</tr>
<tr>
<td>FIA</td>
<td>Flight Information Area</td>
<td>#*</td>
</tr>
<tr>
<td>FIC</td>
<td>Flight Information Centre</td>
<td>#</td>
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<tr>
<td>FIO</td>
<td>Flight Information Officer</td>
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<td>FIR</td>
<td>Flight Information Region</td>
<td>#</td>
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<td>FIS</td>
<td>Flight Information Service</td>
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<td>FL</td>
<td>Flight Level</td>
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<td>FLT</td>
<td>Flight</td>
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<td>FLTCDR</td>
<td>Flight Commander - RAAF</td>
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</tr>
<tr>
<td>FLTID</td>
<td>Flight Identification</td>
<td>@*</td>
</tr>
<tr>
<td>FLW</td>
<td>Follow, Follows, Following</td>
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### Glossary - contractions

#### 1.2.1.9

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<tr>
<td>FNA</td>
<td>Final Approach</td>
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<tr>
<td>FNC</td>
<td>Flight Number Callsign</td>
<td>@*</td>
</tr>
<tr>
<td>FOM</td>
<td>Figure of Merit</td>
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</tr>
<tr>
<td>FPL</td>
<td>Filed Flight Plan (message type designator)</td>
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<tr>
<td>FPM</td>
<td>Feet Per Minute</td>
<td></td>
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<td>FPR</td>
<td>Flight Plan Route</td>
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<tr>
<td>FREQ</td>
<td>Frequency</td>
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<td>FRI</td>
<td>Friday</td>
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</tr>
<tr>
<td>FT</td>
<td>Feet</td>
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<tr>
<td>FZFG</td>
<td>Freezing Fog</td>
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#### 1.2.1.9 G

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<tbody>
<tr>
<td>GAF</td>
<td>Graphical Area Forecast</td>
<td>+</td>
</tr>
<tr>
<td>GBAS</td>
<td>Ground Based Augmentation System (pronounced 'GEE-BAS')</td>
<td>+</td>
</tr>
<tr>
<td>GDP</td>
<td>Ground Delay Program</td>
<td>*#</td>
</tr>
<tr>
<td>GEN</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>GFY</td>
<td>Glider Flying</td>
<td>*</td>
</tr>
<tr>
<td>GLS</td>
<td>GBAS Landing System</td>
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</tr>
<tr>
<td>GNSS</td>
<td>Global Navigation Satellite System</td>
<td>#</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>GS</td>
<td>Groundspeed</td>
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### 1.2.1.10 H

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<tr>
<td>H+...</td>
<td>...min past the hour</td>
<td>@*</td>
</tr>
<tr>
<td>H24</td>
<td>Continuous day and night service</td>
<td>#</td>
</tr>
<tr>
<td>HDG</td>
<td>Heading</td>
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</tr>
<tr>
<td>HDS</td>
<td>Hours of Daylight Saving</td>
<td>*</td>
</tr>
<tr>
<td>HEAD</td>
<td>Head of State</td>
<td>*</td>
</tr>
<tr>
<td>HF</td>
<td>High Frequency (3 000 to 30 000 kHz)</td>
<td>#</td>
</tr>
<tr>
<td>HIAL</td>
<td>High Intensity Approach Lighting</td>
<td>+*</td>
</tr>
<tr>
<td>HIRL</td>
<td>High Intensity Runway Lighting</td>
<td>*</td>
</tr>
<tr>
<td>HJ</td>
<td>Sunrise to Sunset</td>
<td>#</td>
</tr>
<tr>
<td>HLS</td>
<td>Helicopter Landing Site</td>
<td></td>
</tr>
<tr>
<td>HN</td>
<td>Sunset to Sunrise</td>
<td>#</td>
</tr>
<tr>
<td>HOSP</td>
<td>Hospital aircraft</td>
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<td>HPA</td>
<td>Hectopascal</td>
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<tr>
<td>HQOC-AOC</td>
<td>Headquarters Joint Operations Command - Air Operations Centre</td>
<td>@*</td>
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<tr>
<td>HR</td>
<td>Hour, hours</td>
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<tr>
<td>HRP</td>
<td>The designated location of a heliport or a landing location</td>
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### 1.2.1.11 I

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<tr>
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<tr>
<td>IAF</td>
<td>Initial Approach Fix</td>
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<td>Instrument Approach and Landing charts</td>
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<td>IAP</td>
<td>Instrument Approach Procedure</td>
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<td>IAS</td>
<td>Indicated Air Speed</td>
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</tr>
<tr>
<td>IAW</td>
<td>In Accordance With</td>
<td>@*</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
<td>+</td>
</tr>
<tr>
<td>ID</td>
<td>Identifier or Identify</td>
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<td>IDENT</td>
<td>Identification</td>
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<tr>
<td>IF</td>
<td>Intermediate Approach Fix</td>
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<td>IFR</td>
<td>Instrument Flight Rules</td>
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<td>ILS</td>
<td>Instrument Landing System</td>
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<td>IMC</td>
<td>Instrument Meteorological Conditions</td>
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<td>INCERFA</td>
<td>Uncertainty Phase</td>
<td>+</td>
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<td>INFO</td>
<td>Information</td>
<td>+</td>
</tr>
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<td>INS</td>
<td>Inertial Navigation System</td>
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<td>INTAS</td>
<td>Integrated Tower Automation Suite</td>
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</tr>
<tr>
<td>ISA</td>
<td>International Standard Atmosphere</td>
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</tr>
<tr>
<td>IWP</td>
<td>Intermediate Waypoint</td>
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### Glossary - contractions

#### Definitions

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<tr>
<td>JACC</td>
<td>Joint Airspace Control Cell (Defence)</td>
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</tr>
<tr>
<td>JO</td>
<td>Monday to Friday except Public Holidays</td>
<td>*</td>
</tr>
<tr>
<td>JRCC (Australia)</td>
<td>Joint Rescue Coordination Centre</td>
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<table>
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<td>kg</td>
<td>Kilogram</td>
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</tr>
<tr>
<td>KHz</td>
<td>Kilohertz</td>
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</tr>
<tr>
<td>KIAS</td>
<td>Knots Indicated Airspeed</td>
<td></td>
</tr>
<tr>
<td>KM</td>
<td>Kilometres</td>
<td></td>
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<td>kt</td>
<td>Knots</td>
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<th>Expansion</th>
<th>Use</th>
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</thead>
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<td>L</td>
<td>Left (runway identification)</td>
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<tr>
<td>LAHSO</td>
<td>Land and Hold Short Operations</td>
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<td>LAM</td>
<td>Logical Acknowledgement (message type designator)</td>
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<tr>
<td>LAT</td>
<td>Latitude</td>
<td>+</td>
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<td>LDA</td>
<td>Landing Distance Available</td>
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<td>LDR</td>
<td>Landing Distance Required</td>
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<td>LIP</td>
<td>Latest Intercept Point - RNAV (RNP) approach</td>
<td>@#</td>
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<tr>
<td>LJR</td>
<td>Low Jet Route</td>
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<tr>
<td>LOC</td>
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<td>LONG</td>
<td>Longitude</td>
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<td>LR</td>
<td>Last Received Message</td>
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<td>LSALT</td>
<td>Lowest Safe Altitude</td>
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<td>LTD</td>
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<td>... m</td>
<td>Metres (preceded by figures)</td>
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<td>Mach Number (followed by figures)</td>
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<td>Magnetic</td>
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<tr>
<td>MAP</td>
<td>Aeronautical Maps and Charts</td>
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<td>MAPT</td>
<td>Missed Approach Point</td>
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</tr>
<tr>
<td>MARSA</td>
<td>Military Authority Assumes Responsibility for Separation of Military Aircraft</td>
<td>@*+</td>
</tr>
<tr>
<td>MATS</td>
<td>Australian Manual of Air Traffic Services</td>
<td>@*</td>
</tr>
<tr>
<td>MAX</td>
<td>Maximum</td>
<td>+</td>
</tr>
<tr>
<td>MDA</td>
<td>Minimum Descent Altitude</td>
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<td>MDH</td>
<td>Minimum Descent Height</td>
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<tr>
<td>MEDEVAC</td>
<td>Medical Evacuation Flight</td>
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</tr>
<tr>
<td>MET</td>
<td>Meteorology, Meteorological</td>
<td>+</td>
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<tr>
<td>METAR</td>
<td>Aviation routine weather report (in aeronautical meteorological code)</td>
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<td>MHZ</td>
<td>Megahertz</td>
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<td>MID</td>
<td>Mid-point (related to RVR)</td>
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<td>Military</td>
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<td>MIL</td>
<td>Military Flight Plan</td>
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<td>Military Special Requirements Flight</td>
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<tr>
<td>min</td>
<td>Minutes</td>
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<td>Military Low Jet</td>
<td>*</td>
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<tr>
<td>MLS</td>
<td>Microwave Landing System</td>
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<tr>
<td>MNM</td>
<td>Minimum</td>
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<tr>
<td>MNPS</td>
<td>Minimum Navigation Performance Specifications</td>
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<td>MON</td>
<td>Monday</td>
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<tr>
<td>MOWP</td>
<td>Method Of Working Plan</td>
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<td>MSA</td>
<td>Minimum Sector Altitude</td>
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<tr>
<td>MSL</td>
<td>Mean Sea Level</td>
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<tr>
<td>MSSR</td>
<td>Monopulse Secondary Surveillance Radar</td>
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<tr>
<td>MTOW</td>
<td>Maximum Take-off Weight</td>
<td>*</td>
</tr>
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<td>MWO</td>
<td>Meteorological Watch Office</td>
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<td>Contraction</td>
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<td>-------------</td>
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<tr>
<td>N</td>
<td>North or North Latitude</td>
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<td>NAIPS</td>
<td>National Aeronautical Information Processing System</td>
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<td>NAP</td>
<td>Noise Abatement Procedures</td>
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<td>Navigation</td>
<td></td>
</tr>
<tr>
<td>NAVAID</td>
<td>Navigation Aid</td>
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</tr>
<tr>
<td>NAVEX</td>
<td>Navigation Exercise</td>
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<tr>
<td>NCC</td>
<td>Network Coordination Centre</td>
<td>**</td>
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<tr>
<td>NCSS</td>
<td>National Check and Standardisation Supervisor</td>
<td>@*</td>
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<tr>
<td>NDB</td>
<td>Non-Directional Radio Beacon</td>
<td>#</td>
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<tr>
<td>NE</td>
<td>North-East</td>
<td></td>
</tr>
<tr>
<td>NIL</td>
<td>None or Nothing</td>
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</tr>
<tr>
<td>NM</td>
<td>Nautical Mile</td>
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<tr>
<td>NOCOM</td>
<td>Non-Continuous Communication</td>
<td>*+#</td>
</tr>
<tr>
<td>NOF</td>
<td>International NOTAM Office</td>
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<tr>
<td>NOSIG</td>
<td>No Significant Change (used in trend-type landing forecast)</td>
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<tr>
<td>NOTAM</td>
<td>Notice to Airmen</td>
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<td>NOTAMC</td>
<td>Cancelling NOTAM</td>
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<td>New NOTAM</td>
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<td>NOTAMR</td>
<td>Replacing NOTAM</td>
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<td>NOZ</td>
<td>Normal Operating Zone</td>
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<tr>
<td>NPA</td>
<td>Non-Precision Approach</td>
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<tr>
<td>NTZ</td>
<td>No Transgression Zone</td>
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<tr>
<td>NVG</td>
<td>Night Vision Goggles</td>
<td>*#</td>
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<tr>
<td>NW</td>
<td>North-West</td>
<td></td>
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</tbody>
</table>
### Contraction | Expansion | Use
--- | --- | ---
OAR | Office of Airspace Regulation (CASA) | @*
OCA | Oceanic Control Area | #
OCTA | Outside Control Area | *#
OK | We agree or It is correct | 
OM | Outer Marker | 
OPR | Operate, Operator, Operative, Operating, Operational | 
OPS | Operations, or Base Operations Room/Centre (Military) | 
O/R | On Request | 
ORM | Operations Room Manager | @*
OSM | Operational Standards Manager | @*#
OT | Other Times | *

### Contraction | Expansion | Use
--- | --- | ---
PA | Precision Approach | 
PAL | Pilot Activated Lighting | *+ 
PANS | Procedures for Air Navigation Services | 
PAPI | Precision Approach Path Indicator | +
PAR | Precision Approach Radar | #
PBC | Performance-based Communication | 
PBN | Performance-based Navigation | 
PBS | Performance-based Surveillance | 
PCN | Pavement Classification Number | 
PDAI | Pre-Determined Addressee Indicator | @*
PERM | Permanent | 
PILS | Practice ILS | *
PJE | Parachute Jumping Exercise | 
PVR | Point of No Return | #
POB | Persons On Board | #
PRD | Prohibited, Restricted and Danger Areas | *
PRF | Positive Radio Fix | 
PRI | Primary | 
PRM | Precision Runway Monitoring | *
PROC | Procedure | 
PSN | Position | 
PSR | Primary Surveillance Radar |
**1.2.1.19 Q**

<table>
<thead>
<tr>
<th>Contraction</th>
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<tbody>
<tr>
<td>QFE</td>
<td>Atmospheric pressure at aerodrome elevation (or at runway threshold)</td>
<td>+ #</td>
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<tr>
<td>QNH</td>
<td>Altimeter sub-scale setting to obtain elevation or altitude</td>
<td>#</td>
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**1.2.1.20 R**

<table>
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<td>Right</td>
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<tr>
<td>R</td>
<td>Acknowledgement of Receipt</td>
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<tr>
<td>R...</td>
<td>Restricted Area (followed by identification)</td>
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<tr>
<td>R...</td>
<td>Radial from VOR (followed by three figures)</td>
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</tr>
<tr>
<td>RA (number)</td>
<td>Restricted Area Conditional Status</td>
<td>* #</td>
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<tr>
<td>RAAF</td>
<td>Royal Australian Air Force</td>
<td>@*</td>
</tr>
<tr>
<td>RAIM</td>
<td>Receiver Autonomous Integrity Monitoring</td>
<td></td>
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<tr>
<td>RAPIC</td>
<td>Meteorological Radar Picture</td>
<td>*</td>
</tr>
<tr>
<td>RCC</td>
<td>Rescue Coordination Centre</td>
<td>#</td>
</tr>
<tr>
<td>RCF</td>
<td>Radio Communication Failure</td>
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</tr>
<tr>
<td>RCP</td>
<td>Required Communication Performance</td>
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<tr>
<td>RDP</td>
<td>Radar Data Processor</td>
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<td>REC</td>
<td>Receive, Receiver, Received</td>
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</tr>
<tr>
<td>REQ</td>
<td>Request, Requested</td>
<td></td>
</tr>
<tr>
<td>RF</td>
<td>Constant Radius Arc to Fix</td>
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<td>RFF</td>
<td>Rescue and Fire-fighting Facility</td>
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<td>RFL</td>
<td>Requested Flight Level</td>
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<td>Remark</td>
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<td>RNAV</td>
<td>Area Navigation (pronounced 'AR-NAV')</td>
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<tr>
<td>RNP</td>
<td>Required Navigation Performance</td>
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<tr>
<td>RP</td>
<td>Remote Pilot</td>
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<tr>
<td>RPA</td>
<td>Remotely Piloted Aircraft</td>
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<tr>
<td>RPAS</td>
<td>Remotely Piloted Aircraft System (pronounced 'AR-PAZ')</td>
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<td>RPT</td>
<td>Regular Public Transport</td>
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<tr>
<td>RQP</td>
<td>Request Flight Plan (message type designator)</td>
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<td>RQS</td>
<td>Request Supplementary Flight Plan (message type designator)</td>
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<tr>
<td>RSP</td>
<td>Required Surveillance Performance</td>
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<td>RTCC</td>
<td>Radar Terrain Clearance Chart</td>
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### Definitions Glossary - contractions

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<td>Runway Visibility</td>
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<td>RVR</td>
<td>Runway Visual Range</td>
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<tr>
<td>RVSM</td>
<td>Reduced Vertical Separation Minimum</td>
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#### 1.2.1.21 S

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<td>SAR</td>
<td>Search And Rescue</td>
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</tr>
<tr>
<td>SARTIME</td>
<td>Time Search Action Required</td>
<td>+*</td>
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<td>SATCOM</td>
<td>Satellite Communication (used only when referring generally to both voice and data satellite communication or only data satellite communication)</td>
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<tr>
<td>SATVOICE</td>
<td>Satellite Voice Communication</td>
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</tr>
<tr>
<td>SBAS</td>
<td>Satellite-Based Augmentation System (pronounced ‘ESS-BAS’)</td>
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</tr>
<tr>
<td>SCNS</td>
<td>Self Contained Navigation System</td>
<td>@*</td>
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<td>SE</td>
<td>South-East</td>
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<tr>
<td>SELCAL</td>
<td>Selective Calling System</td>
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<tr>
<td>SER</td>
<td>Service, Servicing, Served</td>
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</tr>
<tr>
<td>SFC</td>
<td>Surface</td>
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</tr>
<tr>
<td>SID</td>
<td>Standard Instrument Departure</td>
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<tr>
<td>SIGMET</td>
<td>Information concerning en route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations</td>
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<td>SIS</td>
<td>Surveillance Information Service</td>
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<tr>
<td>SKED</td>
<td>Schedule, Scheduled</td>
<td>+</td>
</tr>
<tr>
<td>SMC</td>
<td>Surface Movement Control</td>
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<td>SPA</td>
<td>Sport Aviation</td>
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<td>SPECI</td>
<td>Aviation Special Weather Report (in aeronautical meteorological code)</td>
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<td>SPI</td>
<td>Special Position Identification</td>
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<td>Supplementary Flight Plan (message type designator)</td>
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<td>SQN</td>
<td>Squadron</td>
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<td>SRR</td>
<td>Search and Rescue Region</td>
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<td>SSR</td>
<td>Secondary Surveillance Radar</td>
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<tr>
<td>STAR</td>
<td>Standard Instrument Arrival</td>
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<td>SUBJ</td>
<td>Subject to</td>
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<td>SUP</td>
<td>Supplement (AIP Supplement)</td>
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<td>Regional Supplementary Procedures</td>
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### Definitions

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<tr>
<td>SURVEREP</td>
<td>Surveillance report</td>
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<td>SVC</td>
<td>Service (message type only)</td>
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<td>SW</td>
<td>South-West</td>
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#### 1.2.1.22 T

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<tr>
<td>... T</td>
<td>Bearing True</td>
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<td>TACAN</td>
<td>UHF Tactical Air Navigation Aid</td>
<td>+</td>
</tr>
<tr>
<td>TAF</td>
<td>Aerodrome Forecast (message type designator)</td>
<td>+</td>
</tr>
<tr>
<td>TAR</td>
<td>Terminal Area Surveillance Radar</td>
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<tr>
<td>TAS</td>
<td>True Air Speed</td>
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<tr>
<td>TCAS RA</td>
<td>Traffic Alert and Collision Avoidance System Resolution Advisory (pronounced &quot;TEE-CAS-AR-AY&quot;)</td>
<td>+</td>
</tr>
<tr>
<td>TCI</td>
<td>Technical Customer Interface</td>
<td>@*</td>
</tr>
<tr>
<td>TCU</td>
<td>Terminal Control Unit</td>
<td>@*</td>
</tr>
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<td>TDZ</td>
<td>Touchdown Zone</td>
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<td>TEL</td>
<td>Telephone</td>
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<tr>
<td>TFR</td>
<td>Transfer</td>
<td>@*</td>
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<tr>
<td>TIBA</td>
<td>Traffic Information Broadcast by Aircraft</td>
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<tr>
<td>TMA</td>
<td>Terminal Control Area</td>
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<tr>
<td>TODA</td>
<td>Take-off Distance Available</td>
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<td>TORA</td>
<td>Take-off Run Available</td>
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</tr>
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<td>TR</td>
<td>Track</td>
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<td>TRA</td>
<td>Temporary Reserved Airspace</td>
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<td>Temporary Restricted Area</td>
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<td>Trend Type Forecast</td>
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<tr>
<td>TW</td>
<td>Tailwind</td>
<td>*</td>
</tr>
<tr>
<td>TWR</td>
<td>Aerodrome Control or Aerodrome Control Tower</td>
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<td>Taxiway</td>
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#### 1.2.1.23 U

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<tr>
<td>UFB</td>
<td>Ultimate Fallback Display (Eurocat)</td>
<td>@*</td>
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<tr>
<td>UHF</td>
<td>Ultra High Frequency (300 - 3000 MHz)</td>
<td>#</td>
</tr>
<tr>
<td>UNL</td>
<td>Unlimited</td>
<td>#</td>
</tr>
<tr>
<td>UTC</td>
<td>Coordinated Universal Time</td>
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### 1.2.1.24 V

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<tr>
<td>VASIS</td>
<td>Visual Approach Slope Indicator System</td>
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<td>Visual Flight Rules</td>
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<td>VHF</td>
<td>Very High Frequency (30 - 300 MHz)</td>
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<td>VIA</td>
<td>By Way Of ...</td>
<td>*</td>
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<td>VIS</td>
<td>Visibility</td>
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<td>VMC</td>
<td>Visual Meteorological Conditions</td>
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<td>VNAV</td>
<td>Vertical Navigation (pronounced 'VEE-NAV')</td>
<td>+</td>
</tr>
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<td>VOR</td>
<td>VHF Omni-direction Radio Range</td>
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</tr>
<tr>
<td>VSA</td>
<td>Visual Approach</td>
<td>@*</td>
</tr>
<tr>
<td>VSCS</td>
<td>Voice Switching and Control System</td>
<td>@*</td>
</tr>
<tr>
<td>VTOL</td>
<td>Vertical Take-off and Landing</td>
<td></td>
</tr>
</tbody>
</table>

### 1.2.1.25 W

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATIR</td>
<td>Weather and Terminal Information Reciter</td>
<td>*</td>
</tr>
<tr>
<td>WEF</td>
<td>With Effect From, or Effective From</td>
<td></td>
</tr>
<tr>
<td>WG</td>
<td>Wing (Military - normally preceded by a number)</td>
<td>@*</td>
</tr>
<tr>
<td>WPT</td>
<td>Waypoint</td>
<td></td>
</tr>
<tr>
<td>WT</td>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>WX</td>
<td>Weather</td>
<td></td>
</tr>
</tbody>
</table>

### 1.2.1.26 X

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>XO</td>
<td>Executive Officer (military)</td>
<td>@*</td>
</tr>
<tr>
<td>XW</td>
<td>Crosswind</td>
<td>*</td>
</tr>
</tbody>
</table>

### 1.2.1.27 Z

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Expansion</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>Coordinated Universal Time (in meteorological messages)</td>
<td></td>
</tr>
</tbody>
</table>
1.3 Glossary - metrics

1.3.1 Units of measurement and time

1.3.1.1 Introduction

This chapter presents units of measurement and time used in airways operations and air-ground communications.

1.3.1.2 Units of measurement

<table>
<thead>
<tr>
<th>Description - Measurement of</th>
<th>Measurement</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altimeter setting</td>
<td>hectopascals</td>
<td>HPA</td>
</tr>
<tr>
<td>Altitudes, elevations and heights</td>
<td>feet</td>
<td>FT</td>
</tr>
<tr>
<td>Distance: aerodromes data (e.g. runway lengths)</td>
<td>metres</td>
<td>m</td>
</tr>
<tr>
<td>Distance used in navigation position reporting - generally in excess of 2 NM</td>
<td>nautical miles and tenths</td>
<td>NM</td>
</tr>
<tr>
<td>Speed: horizontal, including wind speed</td>
<td>knots</td>
<td>kt</td>
</tr>
<tr>
<td>Speed: vertical</td>
<td>feet per minute</td>
<td>FPM</td>
</tr>
<tr>
<td>Temperature</td>
<td>degrees celsius</td>
<td>C</td>
</tr>
<tr>
<td>Time</td>
<td>hours and minutes (UTC)</td>
<td>hr and min</td>
</tr>
<tr>
<td>Visibility</td>
<td>kilometres above 5000 m, or metres when equal to or less than 5000 m</td>
<td>KM or m</td>
</tr>
<tr>
<td>Weight (mass) metric</td>
<td>tonnes or kilograms</td>
<td>Tonnes or kg</td>
</tr>
<tr>
<td>Wind direction in observations for landing and take-off</td>
<td>degrees magnetic</td>
<td>MAG</td>
</tr>
<tr>
<td>Wind direction, except for landing and take-off</td>
<td>degrees true</td>
<td>T</td>
</tr>
</tbody>
</table>
## 1.3.1.3 Time system

<table>
<thead>
<tr>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTC</td>
<td>Use Coordinated Universal Time (UTC) for all ATS operational times in accordance with 24-hour clock system.</td>
</tr>
<tr>
<td>Hours</td>
<td>Use the 24-hour clock system. The end of the day (UTC) is represented by '2359'. Midnight is represented by '0000' for the beginning of the day. The time of midnight may be prefixed by the date. Example: '0611280000' denotes 'midnight on 28 November 2006'.</td>
</tr>
<tr>
<td>Whole minutes</td>
<td>Where times are recorded by the whole minute, from the 30th second to the 29th second of the next minute, record the time as that minute shown when the second hand passes zero. Example: 4 minutes and 35 seconds is recorded as '05 minutes'; 7 minutes and 19 seconds is recorded as '07 minutes'.</td>
</tr>
<tr>
<td>Half minutes</td>
<td>Where times are recorded by the whole and half minute: From the 45th second of the first minute to the 14th second of the next minute, record the time as that whole minute shown when the second hand passes zero. Example: 2 minutes 47 seconds records as '03 minutes'. From the 15th to 44th second of a minute, record the time as a half minute and attach to that minute when the second hand last passed zero. Example: 2 minutes 15 seconds records as '02½ minutes'; and 2 minutes 40 seconds also records as '02½ minutes'.</td>
</tr>
<tr>
<td>Date time groups</td>
<td>A date time group can be composed using 6, 8 or 10 figures in the following formats. Generally, the six-figure group is used. However, this should be extended to eight or ten if necessary to eliminate any opportunity for misinterpretation. <strong>Six-figure group:</strong> A date time group composed of 6 figures: the first two denoting the date; and the last four denoting the hour and minutes. <strong>Eight-figure group:</strong> A date time group composed of 8 figures: the first two denoting the month; the second two denoting the date; and the last four denoting the hour and minutes. <strong>Ten-figure group:</strong> A date time group composed of 10 figures: the first two denoting the year; the second two denoting the month; the third two denoting the date; and the last four denoting the hour and minutes. Example: '0612021548' denotes '15:48 on 2 December 2006'.</td>
</tr>
</tbody>
</table>
1.4 Flight data records

1.4.1 Information to be recorded

1.4.1.1 Information

Where applicable, record the following information:

a) the STAR to be issued;
b) ACIDs of opposite direction aircraft, and a four-figure time of passing;
c) the time of entering or leaving lateral conflict with another aircraft or route;
d) pilot-requested levels;
e) level restrictions;
f) restrictions from another unit;
g) sighting and passing annotations;
h) a reported cruising level subject to a further check;
i) in-flight weather conditions;
j) any requests from the aircraft that need to be passed on to the next sector, or flow controller (e.g. PILS, VSA, DME Arrival etc);
k) step climb/descent annotation, including the ACIDs of the aircraft involved;
l) clearance limits;
m) traffic information;
n) latest divert times;
o) VFR-on-top annotation;
p) IFR pick-up annotation;
q) SIS annotation; and
r) any other data that is considered critical for effective traffic management.

1.4.1.2 Local instructions

Refer to local instructions for any additional recording requirements or methods of recording specific information.
2 Operational context

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2.1 MATS administration

2.1.1 Operational concept

2.1.1.1 Joint document

MATS is a joint document of Defence and Airservices and is based on the rules published in (CASA) CASR Part 172 – Manual of Standards (MOS) and ICAO standards and recommended practices, combined with rules specified by Airservices and Defence. The requirements and obligations detailed in MATS are in accordance with provisions and regulations of the Air Navigation Act, Air Services Act, and Defence Instructions.

2.1.1.1.1 Document hierarchy

Where a difference exists between operational documents, apply the following hierarchy: AIP Australia and Defence AIP take precedence over MATS, and for military aircraft Defence AIP has precedence over AIP Australia.

2.1.1.2 Printed and electronic editions

MATS is available as either a print edition or as an electronic edition. For the purposes of referencing, both editions contain identical rule sets. The difference between the two is how Interim MATS Amendments are processed and presented.

See MATS 2.1.7 Interim MATS amendments (IMA)

2.1.1.3 Defence authority for use

MATS is a Defence Order, Instruction or Publication (OIP) which is authorised for use in accordance with Defence Aviation Safety Regulation - ATM (DASR-ATM).

2.1.1.4 Additions to MATS

Additions to the instructions contained in MATS may be published by the affected Business Units/44WG SQN or FLT by using MATS Supps. Airservices may also make additions to MATS at field level by local instructions. 44WG HQ, SQN and FLT may also make additions to MATS in accordance with the provisions of DASR-ATM.05.

2.1.1.5 Content

As a general principle, technique, training, system specific and explanatory material, other than material that is necessary to provide context to the rules, is contained in supporting documentation in the ATS documentation suite.

2.1.1.6 Duplication

MATS excludes duplications of source material except as required to provide context to the rule.
2.1.7 Defence MATS document sponsor

The OIP sponsor is appointed in accordance with DASR to ensure all OIP are applicable and authorised. The MATS sponsor and approval authority for changes is Executive Officer No. 44 Wing (XO 44WG).

2.1.2 MATS structure

2.1.2.1 Content

MATS is a single manual containing:

a) thirteen consecutively-numbered parts, containing chapters;

b) a Table of Contents listing all Parts and Chapter titles;

c) an Index; and

d) the 'What's Changed' section that identifies the description and rationale for each change incorporated into that version.

2.1.2.2 Hierarchy

The method of reference within MATS is:

a) Part;

b) Chapter;

c) Section, which separates discrete topic areas within the Chapter;

d) Clause, details rules and procedures within the Section; and

e) Sub-clause, details rules and procedures associated with a Clause.

2.1.2.3 Numbering

Parts, chapters, sections, clauses and sub-clauses consist of up to five digits, each separated by a period:

a) The first digit is the part number;

b) The second digit is the chapter number;

c) The third digit is the section number;

d) The fourth digit is the clause number; and

e) The fifth digit is the sub-clause number.

2.1.2.3.1 Example clause numbering

For example, Clause '2.1.1.1 Joint document' is part 2, chapter 1, section 1, and clause 1. The clause title is 'Joint document'. This clause appears under the section heading at '2.1.1 Operational concept'.

For another example, see MATS 2.1.5 Illustration of structure
2.1.2.3.2 Clause sets
Where a set of clauses are related to each other and must be applied in conjunction, the related sub-clauses will contain the four numbers of the parent clause plus an additional number. The sub-clause is related to all other clauses containing the same first four numbers. The sub-clause text is also indented. In this chapter for example, clause '2.1.2.3 Numbering' is a clause and '2.1.2.3.1 Example clause numbering' and '2.1.2.3.2 Clause sets' (this clause) are sub-clauses. Together they form a clause set.

For another example, see MATS 2.1.2.5 Illustration of structure.

2.1.2.4 Amendments
MATS is amended by replacement.

2.1.2.4.1 Change bars
Change bars will appear on the changed clauses in each new version to alert users that there has been a change to the clause since the last version.

2.1.2.5 Illustration of structure
2.1.3 Clause content

2.1.3.1 Terminology
Instructions are indicated by the use of an active verb e.g. 'instruct', 'provide'. These instructions are mandatory and equate to the verbs 'must' or 'shall'. Where 'may' is used, the instruction is optional.

2.1.3.2 Singular and plural
Unless specifically stated, terms used in singular also provide for the plural and vice versa.

2.1.3.3 List content
List clauses are written using a lead-in sentence that shows the relationship between the list points including, if required, an indication that list points must be carried out in a specific order.

2.1.3.3.1 List numbering
Lists are numbered using the following styles:
   a) Level 1 listed as a) b) c) where a specific order is not required;
   b) Level 1 listed as 1) 2) 3) where a specific order is required; and
   c) Level 2 listed as i) ii) iii) under any Level 1 numbered list.
2.1.3.3.2 List point relationships

The relationship between list points is as follows:

a) The relationship may be 'and' or 'or';

b) 'And' and 'or' relationships are not used within the same list; and

c) The list point relationship is shown only on the second last list point.

Note: A clause may include a level 1 list with a level 2 list embedded. The list point relationship may not be the same in each of the lists e.g. Clause 4.2.3.4 (shown below) has points a) to c) where the list point relationship is 'or'. List point c) also has a level 2 list embedded with points i) to iv) where the list point relationship is 'and'.

Illustration of list point relationships

4.2.3.4 Communication checks

Where the pilot fails to:

- report by a SARTEME;
- submit a report at the prescribed time;
- acknowledge a call initiated by the ground station:
  i) attempt to contact the pilot directly by calling on the normal and alternative frequencies, repeating the calls with discretion;
  ii) attempt to contact the aircraft through another pilot in VHF or HF range;
  iii) ascertain whether the report has been received by another unit; and
  iv) arrange for other ground units to call the pilot on normal and alternative frequencies. A unit instructed to call a pilot notifies the originating unit if contact is not established within a period of five minutes.

Points a), b) and c) have the relationship 'or'

Points i) to iv) have the relationship 'and'

2.1.4 Review cycle

2.1.4.1 Requirement

It is the responsibility of the OSM and XO 44WG to review MATS at intervals not exceeding two years.

2.1.4.2 Review considerations

In particular, reviews consider:

a) changes in the legislative environment;

b) changes in other related documents;

c) incidents or reviews;

d) if the document is still fit for purpose; and

e) if the document still meets the needs of the business.
2.1.5 Change process

2.1.5.1 Frequency of amendments
MATS may be published up to four times a year, in accordance with the AIRAC cycle.

2.1.5.2 Book version numbers
Each time MATS is amended, the book is completely replaced.

2.1.5.3 Not for urgent changes
Do not use this process for urgent changes. If you consider a change must be made in less time, contact the supervisor immediately.

2.1.5.4 Process
A summary of the MATS change process is:

<table>
<thead>
<tr>
<th>Responsible person</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Proponent</td>
<td>Submit a Request for Change Form to:</td>
</tr>
<tr>
<td></td>
<td>a) Operational Standards - NCSS; or</td>
</tr>
<tr>
<td></td>
<td>b) 44WG Standardisation Team.</td>
</tr>
<tr>
<td>NCSS or 44WG</td>
<td>Assess the proposal and:</td>
</tr>
<tr>
<td>Standardisation Team</td>
<td>a) if not supported, conduct an internal peer review; or</td>
</tr>
<tr>
<td></td>
<td>b) if supported:</td>
</tr>
<tr>
<td></td>
<td>i) 44WG retain the change; or</td>
</tr>
<tr>
<td></td>
<td>ii) NCSS forward the change to ATS Integrity.</td>
</tr>
<tr>
<td>ATS Integrity or 44WG Standardisation Team</td>
<td>Complete the following, as applicable:</td>
</tr>
<tr>
<td></td>
<td>a) Consult with ATC procedures specialists;</td>
</tr>
<tr>
<td></td>
<td>b) Review for national applicability and congruence with existing procedures;</td>
</tr>
<tr>
<td></td>
<td>c) Review for legislative and ICAO compatibility; and</td>
</tr>
<tr>
<td></td>
<td>d) Develop/Refine the change, in consultation with affected parties as required.</td>
</tr>
<tr>
<td>CIG</td>
<td>Review the change and approve or reject progress</td>
</tr>
<tr>
<td>ATS Integrity</td>
<td>Process the approved change for the next available update of MATS or, if urgent, an Interim MATS Amendment</td>
</tr>
</tbody>
</table>

Note: Operational Standards may also be a Proponent.

See MATS 2.1.6.3.1 Initiating changes
See MATS 13.3.1.1 Request for Change Form
2.1.5.4.1 Flowchart showing change process

The change process is summarised in the flowchart below showing the actions/tasks required by each role involved in the change process.

2.1.6 Responsibilities

2.1.6.1 Proponents

A proponent may be any user of MATS.

2.1.6.1.1 To suggest a change

To suggest a change, complete a Request for Change Form and send via email to Operational Standards - NCSS or 44WG Standardisation Team, as appropriate.

2.1.6.1.2 Replacement text is not required

Replacement text may be suggested at this stage of the process. Alternatively this will be done by ATS Integrity or 44WG Standardisation Team.

2.1.6.2 NCSS or 44WG Standardisation Team review

The NCSS or 44WG Standardisation Team review:

a) evaluates each change request and determines whether the request should be progressed; and
b) provides proponents with information concerning the outcome of their request - rejection, refinement requirements or progression.

2.1.6.3 **ATS Integrity or 44WG Standardisation Team change development**

ATS Integrity or 44WG Standardisation Team:

a) research and scope the implications of the change;
b) check the regulations and other legislative requirements and:
   i) evaluate conformance with ICAO and Australian regulations;
   ii) discuss the proposal with Defence/Airservices/CASA, as appropriate; and
   iii) identify other documents, such as AIP, that need to be changed as a result of the proposal;
c) examines and consults the national applicability of a change; and
d) develops and presents the change request for consideration by the CIG.

2.1.6.3.1 **Initiating changes**

ATS Integrity is responsible for initiating changes originating from CASA, ICAO and other matters that substantially affect safety or the management of the MATS document.

2.1.6.3.2 **Fast track**

ATS Integrity may fast track changes of an editorial nature, without the requirement to follow the normal change process.

2.1.6.4 **Change Implementation Group (CIG)**

The CIG review change requests for approval. ATS Integrity is responsible to manage the CIG and status of proposed changes including implementing approved change requests by the agreed date.

2.1.6.4.1 **CIG group members**

Core members of the CIG are nominees from:

a) Operational Standards - NCSS;
b) Operational Standards - ATS Integrity;
c) Directorate of Aviation Coordination and Operations - AFHQ;
d) 44WG Standardisation Team; and
e) Stakeholders representing other organisations or business units may be co-opted as required.
2.1.7 Interim MATS amendments (IMA)

2.1.7.1 Interim changes

Urgent change that requires action prior to the next scheduled amendment date will be published as an IMA.

2.1.7.2 Change specific

Each IMA relates to one change or set of changes. Each subsequent IMA contains a new change.

2.1.7.3 Power of IMA

IMA have the same status as MATS.

2.1.7.4 Initiating IMA

In normal circumstances any of the following may initiate IMA:

a) Chief Air Traffic Controller (CATC);

b) Operational Standards Manager (OSM); or

c) Executive Officer No. 44 Wing (XO 44WG).

2.1.7.5 Raising IMA

Where possible, only issue IMA to address critical safety requirements. The OSM or XO 44WG may determine that certain non-critical safety matters should be addressed through an IMA.

2.1.7.6 Issuing IMA

Where possible issue IMA with at least seven days notice. Where safety requirements dictate issue an IMA for immediate effect.

2.1.7.7 IMA distribution - print edition

IMA are distributed electronically and printed locally. Physically store each IMA with the print edition of MATS (attach to front inside cover).

2.1.7.7.1 Check-off table

A check-off table is located on the inside of the front cover of the print edition of MATS. Each IMA also shows a list of all current IMA at the time of publishing.

2.1.7.7.2 Complete replacement

Usually, all changes within the IMA will be incorporated into the print edition at the next update. When the print edition is replaced by a later version, destroy any IMA with the old edition. A new IMA will be issued for the new print edition if required.
2.1.7.8 **IMA distribution - electronic edition**

All IMA will result in the publication of a new electronic edition of MATS. Each new electronic edition will incorporate one or more IMA and be numbered to reflect the IMA number. For example, IMA V30_01 would result in the release of MATS Electronic Edition V30.1, IMA V30_02 would result in MATS Electronic Edition V30.2 etc. Where two or more IMA are incorporated into an edition, for example IMA V30_03 and IMA V30_04, MATS Electronic Edition V30.4 would be published.

2.1.7.8.1 **IMA incorporation into the electronic edition**

IMA will be reflected in the electronic edition as follows:

a) The numbers for all IMA incorporated in the electronic edition will be displayed in blue on the first page;

b) Clauses deleted by an IMA will display the IMA number at the location of the deleted clause(s);

c) Clauses amended by an IMA will display the IMA number in red next to the clause heading and the clause text in green;

d) Change bars will appear next to the amended portion of the clause;

e) References to clauses amended by an IMA will contain a reference to the IMA number e.g. See MATS 8.1.3.1.1 Check and correct - Refer IMA V28_04; and

f) Where clauses are either deleted or inserted by an IMA, subsequent clauses will be re-numbered.

*Note 1:* Changes to clause references will not be reflected by a change bar or change in colour.

*Note 2:* Changes to clause numbers will not be reflected by a change bar or change in colour.

2.1.8 **National Information Circulars**

2.1.8.1 **National Information Circular (NIC)**

Operational information may be published by National Information Circular provided the information:

a) pertains to operational matters;

b) affects operations on a widespread or national level; and

c) contributes to the safety or efficiency of operations.

2.1.8.1.1 **Content**

A NIC may only contain information. Do not publish instructions by NIC.
2.1.8.2 Authorisation

NIC will be authorised by the OSM and/or XO 44WG as pertinent to distribution.

2.1.8.2.1 Distribution

A NIC may be distributed to:

a) Airservices only;

b) Defence only; or

c) Airservices and Defence.

2.1.8.3 Validity

NIC are normally valid for three months and then cancelled. Variations to validity may be made subject to operational requirements.
2.2  Air Traffic Services

2.2.1  Objectives and divisions

2.2.1.1  ATS objectives

The objectives of Air Traffic Services are to:

a)  prevent collisions between aircraft;

b)  prevent collisions between aircraft on the manoeuvring area and obstructions on that area;

c)  expedite and maintain an orderly flow of air traffic;

d)  provide advice and information useful for the safe and efficient conduct of flights; and

e)  notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

2.2.1.2  Services provided

The air traffic services comprise three services:

a)  The air traffic control service, to accomplish objectives a), b) and c) of Clause 2.2.1.1. This service is divided into three parts:

i)  Area control service: the provision of air traffic control service for controlled flights, except for those parts of such flights described in Clause 2.2.1.2 a) ii) and iii), in order to accomplish objectives a) and c) of Clause 2.2.1.1;

ii)  Approach control service: the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish objectives a) and c) of Clause 2.2.1.1; and

iii)  Aerodrome control service: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in Clause 2.2.1.2 a) ii), in order to accomplish objectives a), b) and c) of Clause 2.2.1.1.

b)  The flight information service, to accomplish objective d) of Clause 2.2.1.1; and

c)  The alerting service, to accomplish objective e) of Clause 2.2.1.1.

See MATS 2.2.1.1 ATS objectives

2.2.1.3  Tower approach

A control tower may provide approach services when a separate approach control service is not provided.
2.2.1.4 Division of responsibility
Local instructions specify the division of responsibility between aerodrome control and approach.

2.2.1.5 Duty priority
Give first priority to separating aircraft, issuing safety alerts and providing directed traffic information as required by this Manual. Perform first that action which is most critical from a safety standpoint.

2.2.1.5.1 Additional services
Provide additional services, such as the provision of traffic information to IFR flights and aircraft using IFR Pick-up about VFR flights in Class E, or the provision of SIS, contingent only upon higher priority duties and other factors including equipment limitations, volume of traffic, frequency congestion and workload.

2.2.1.6 Best judgement
Do not allow anything in these instructions to preclude you from exercising your best judgement and initiative when:

a) the safety of an aircraft may be considered to be in doubt; or

b) a situation is not covered specifically by these instructions.

2.2.1.6.1 Rule deviation
Specify any rule deviation in the occurrence report.
2.3  Traffic priorities

2.3.1  General priorities

2.3.1.1  Safety
Do not compromise safety in order to meet traffic priorities.

2.3.1.2  Overall priority
See AIP ENR 1.4, 10. REGULATION OF FLIGHT - ASSESSMENT OF PRIORITIES.

2.3.1.2.1  Head of State
Consult the NCC if confirmation of Head of State status is required.

2.3.1.2.2  Exceptions
The following are exceptions to priorities as reflected in AIP:
   a) Military operational requirement where other priorities have been agreed; and
   b) Navaid checks where prior arrangement has been made for aircraft engaged in navaid checks.
2.3.2 Priorities during Degraded Modes

2.3.2.1 Priorities to conflicting operational demands

Apply the following priorities in order, to conflicting operational demands during periods of Degraded Mode operations:

1) International scheduled commercial air transport operations;
2) Domestic jet scheduled commercial air transport operations;
3) Military aircraft except training flights;
4) Pressurised propeller aircraft scheduled commercial air transport operations;
5) With equal status:
   i) Aircraft engaged in the personal transport of State Governors or Administrator of the NT;
   ii) State Premiers or the Chief Ministers of the NT or the ACT; and
   iii) Medical Aircraft (HOSP) operations;
6) Remaining scheduled commercial transport operations; and
7) Other operations.

2.3.2.2 Lower priority flights

Lower priority flights may be processed concurrently with flights of higher priority when:

a) traffic conditions permit; and
b) the lower priority flight will depart or enter controlled airspace at low levels within the Terminal area.

*Note:* The Degraded Modes Traffic Management Plan illustrates the process to enable an orderly reduction of traffic levels to those which can be maintained during periods of reduced system availability.
2.3.3 Air Traffic Flow Management (ATFM)

2.3.3.1 Ground Delay Program (GDP)

Apply GDP procedures, during the relevant GDP hours of operation, to departing flights:

a) from Perth; or
b) that will arrive at Brisbane, Sydney, Melbourne or Perth.

See AIP ENR 1.9
See ERSA

2.3.3.1.1 GDP priority

At Perth, apply the GDP for departures before the GDP for other locations.

2.3.3.1.2 GDP exceptions

Do not apply GDP procedures to the following flights:

a) Emergency;
b) MEDEVAC;
c) HOSP;
d) HEAD; or
e) ATFMX.

2.3.3.1.3 Compliance waiver

In extenuating circumstances and on pilot request, the NCC may provide an ATFM waiver. Instruct flights issued with an ATFM waiver to flight plan STS/ATFMX in item 18.

2.3.3.1.4 Unable to apply GDP

Advise the NCC when factors such as workload prevent the application of GDP procedures, with the reason and duration.

2.3.3.2 COBT requests

Advise flights requesting a new/amended COBT or that have an ATFM query to contact:

a) their company for scheduled flights; or
b) the NCC for itinerant flights.
2.3.3.3  **Ground procedures - controlled aerodromes**

Only approve push-back or taxi for an aircraft subject to a GDP if:

a) the aircraft is compliant or late non-compliant;
b) there is an operational requirement e.g. gate availability; or
c) there is a reasonable expectation that the CTOT will be achieved.

2.3.3.3.1  **COBT compliance window**

Consider an aircraft to be compliant when the push-back or taxi time is within the compliance window:

<table>
<thead>
<tr>
<th>GDP</th>
<th>COBT compliance window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals (Sydney, Brisbane, Melbourne, Perth)</td>
<td>-5 min to +15 min</td>
</tr>
<tr>
<td>Departures (Perth)</td>
<td>-5 min to +10 min</td>
</tr>
</tbody>
</table>

2.3.3.3.2  **Early non-compliant**

When the flight is early non-compliant, advise the pilot 'PUSH-BACK (or TAXI) CLEARANCE NOT AVAILABLE DUE FLOW MANAGEMENT. EXPECT CLEARANCE AT TIME (COBT -5 min)'.

2.3.3.3.3  **Achieving CTOT**

When early push-back or taxi is operationally required, delay the flight by other means to achieve the CTOT.

2.3.3.3.4  **No ATFM system COBT**

When an aircraft does not have a COBT or is not known to the ATFM system, consider the flight to be operating outside the hours of a GDP.

*Note:* The NCC monitors participation in and compliance with the ground delay program and will take action as appropriate.

2.3.3.4  **Non-compliant - tower and flow**

When a flight is non-compliant, advise the pilot as soon as possible 'YOU ARE NON-COMPLIANT WITH FLOW MANAGEMENT, EXPECT AIRBORNE DELAY'.

Arrivals (Sydney, Brisbane, Melbourne, Perth) -5 min to +15 min
Departures (Perth) -5 min to +10 min
2.3.3.5 GDP revision

Apply GDP revision in accordance with the following levels:

<table>
<thead>
<tr>
<th>GDP revision</th>
<th>Compliance requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Consider all flights departing for the affected aerodrome within the next 30 min as compliant regardless of the indicated COBT</td>
</tr>
<tr>
<td>Level 2</td>
<td>Consider flights that have already manoeuvred to depart as compliant. All other flights should immediately comply with the revised COBT</td>
</tr>
<tr>
<td>Level 3</td>
<td>Immediate compliance with the revised COBT should occur for all flights, except by ORM approval</td>
</tr>
</tbody>
</table>

2.3.3.5.1 Exception - long domestic flights

Do not apply Level 2 and 3 GDP revision procedures to flights departing Perth, Darwin, Karratha, Port Hedland or Broome for Brisbane, Sydney or Melbourne.

2.3.3.5.2 Notification of compliance

The NCC will specify what level of compliance is required following a GDP revision.

2.3.3.5.3 Pilot advice to obtain new COBT

When a Level 2 or 3 GDP revision occurs, advise pilots subject to immediate compliance 'GDP REVISION WITH IMMEDIATE COMPLIANCE AT (airport), OBTAIN NEW COBT FROM YOUR COMPANY (or THE NCC)'. Cease advice after 30 min.

See MATS 2.3.3.2 COBT requests
## 2.4 Airspace administration

### 2.4.1 Airspace classes, services provided and flight requirements

#### 2.4.1.1 Airspace classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Type of flight</th>
<th>Separation provided</th>
<th>Service provided</th>
<th>Airspace speed limitation</th>
<th>Radio requirements</th>
<th>Subject to an ATC clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>IFR</td>
<td>All aircraft</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>All aircraft</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>VFR not permitted</td>
<td>All aircraft</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>IFR</td>
<td>IFR from IFR</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>IFR</td>
<td>IFR from VFR</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>IFR</td>
<td>IFR from Special VFR</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td>VFR</td>
<td>VFR from IFR</td>
<td>VFR from IFR</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>VFR from Special VFR</td>
<td>Air traffic control service</td>
<td>Not applicable</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td>Special VFR</td>
<td>Special VFR from Special VFR, when VIS does not meet VMC</td>
<td>Air traffic control service</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Continuous two-way</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>IFR</td>
<td>IFR from IFR</td>
<td>Air traffic control service, traffic information about VFR flights</td>
<td>200 kt IAS at or below 2500 FT AAL within 4 NM of the primary Class D aerodrome</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>Nil</td>
<td>Air traffic control service, traffic information on all other flights</td>
<td>250 kt IAS - in the remaining Class D airspace</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Special VFR</td>
<td>Special VFR from Special VFR, when VIS does not meet VMC</td>
<td>Air traffic control service</td>
<td>Continuous two-way</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
## Airspace administration

### Operational context

**2.4.1.1.1**

### Class D speed limit

In Class D airspace, you may approve a pilot’s request to exceed the 200 kt speed limit to a maximum limit of 250 kt. You may approve a higher minimum speed if the pilot informs ATC it is required.

### Class E speed limit

Do not clear civil aircraft in Class E airspace to operate at speeds greater than those indicated other than for safety reasons.

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### Note 1:

*Speed limitations do not apply to military aircraft, except as specified in ERSA.*

### Note 2:

*The exclusion of VFR flight from Class A airspace does not apply to military aircraft or approved military contract aircraft in military Restricted Areas or military controlled airspace.*

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<table>
<thead>
<tr>
<th>Class</th>
<th>Type of flight</th>
<th>Separation provided</th>
<th>Service provided</th>
<th>Airspace speed limitation</th>
<th>Radio requirements</th>
<th>Subject to an ATC clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>IFR</td>
<td>IFR from IFR</td>
<td>Air traffic control service and traffic information on VFR flights as far as is practicable</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Continuous two-way</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>Nil</td>
<td>Flight information service. SIS - flight following O/R, (ATC workload permitting)</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Continuous two-way</td>
<td>No</td>
</tr>
<tr>
<td>G</td>
<td>IFR</td>
<td>Nil</td>
<td>Flight information service</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Continuous two-way</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>Nil</td>
<td>Flight information service. SIS - flight following O/R, (ATC workload permitting)</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>VHF radio required for operations above 5000 FT AMSL and at aerodromes where carriage and use of radio is required</td>
<td>No</td>
</tr>
<tr>
<td>G</td>
<td>IFR</td>
<td>Nil</td>
<td>Flight information service O/R</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Continuous two-way</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>VFR</td>
<td>Nil</td>
<td>Flight information service O/R</td>
<td>250 kt IAS below 10 000 FT AMSL</td>
<td>Nil</td>
<td>No</td>
</tr>
</tbody>
</table>

See MATS 9.5.1.2 Published speeds
2.4.1.2 Alerting service

Provide the alerting service:

a) for all aircraft provided with air traffic control service;
b) to any aircraft known or believed to be the subject of unlawful interference; and
c) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to air traffic services.

2.4.1.3 Airspace with shared vertical or lateral boundaries

Where airspaces adjoin vertically or laterally apply the services provided in the airspace of lower alphabetical categorisation (where A is the highest and G is the lowest) at the common boundary.

2.4.1.4 VFR AWK aircraft

You may exempt VFR AWK aircraft operating below 300 FT AGL in Class C and D airspace from the requirement to maintain continuous two-way radio communication.

2.4.2 Airspace establishment

2.4.2.1 Classes of airspace

Refer to DAH and AIP/MAP for details of airspace architecture.

Note 1: The OAR is the authority to regulate airspace architecture, PRD and air routes. Approved modifications are issued in ERSA, NOTAM and AIP Supplements. OAR approval is required for changes to established airspace classes, PRD and air routes.

Note 2: When airspace architecture is coincident with an active Prohibited or Restricted Area, the characteristics and requirements of the Prohibited or Restricted Area replace that of the underlying architecture. When a Danger Area is active, the airspace classification underlying it remains. The services provided within a Danger Area may only be modified with OAR approval.

See MATS 2.4.1.1 Airspace classes

2.4.2.2 ATS within military Restricted Areas

Civil aircraft operating in military Restricted Areas or airspace in which a military ATC service is provided will receive a service equivalent to that of Class C airspace unless specified otherwise in ERSA FAC.
2.4.2.3 Military airspace changes

All Defence administered airspace and PRD change proposals are centrally managed through the JACC. The Controlling Authority, as per the Designated Airspace Handbook (e.g. FLTCDR 452SQN Darwin Flight), is responsible for coordinating any changes to airspace for which they are responsible with the JACC.

2.4.2.3.1 Establishing temporary Defence PRD

Direct requests to establish temporary Defence PRD to the JACC via email adf.airspace@defence.gov.au.

2.4.2.4 Civil airspace changes

Refer all requests for civil airspace changes (Temporary, Restricted or Danger Areas or reclassification of airspace) to the OAR via telephone: 02 6217 1177 (all hours) or via email address: oar@casa.gov.au (business hours).

2.4.2.4.1 Variation to published hours

Variation to ATC tower hours at non-continuous Military, Class C and Class D towers do not require OAR notification.

2.4.3 Prohibited, Restricted and Danger Areas and airspace reservations

2.4.3.1 Flight within Restricted Areas

Obtain approval/clearance from the controlling authority when flight within a Restricted Area is required.

2.4.3.1.1 Restricted Area conditional status

Manage access to Restricted Areas in accordance with the published conditional status or agreements published in local instructions. Where a conditional status cannot be ascertained, the default status is RA3.

Note: Notwithstanding the clearance requirements within CTA/CTR, flight within a Danger Area does not require specific approval.

2.4.3.2 Operations at vertical limits

Aircraft operating at the vertical limits of Prohibited Areas, Restricted Areas and airspace reservations are separated from activities within those airspaces.

2.4.3.2.1 Exception

Where separate Prohibited Areas, Restricted Areas, or airspace reservations vertically adjoin, the level between airspaces is not useable for transiting aircraft.
2.4.3.3 Lateral separation with adjacent airspace

Separate flying operations in adjacent Restricted Areas or airspace reservations, or in adjacent portions of the same Restricted Area or airspace reservation, by ensuring that the possible positions of the aircraft are separated by a minimum of 1 NM in the horizontal plane.

2.4.3.4 Non-participating aircraft

Separate non-participating aircraft from Prohibited Areas, Restricted Areas or airspace reservations by application of an ATS surveillance system or procedural separation standard.

2.4.3.4.1 Exception PJE

You may assign a PJE pilot responsibility for not entering a Restricted Area in accordance with Clause 5.2.2.3.

See MATS 5.2.2.3 PJE aircraft not entering a Restricted Area

2.4.3.4.2 Exception non-flying

Where the Prohibited or Restricted Area is classified as non-flying a procedural separation standard only requires the application of appropriate aircraft navigation tolerances. The 1 NM buffer for lateral separation is not required.

2.4.3.4.3 Special circumstances

Where special procedures or equipment so permit, segregation of flying operations may be agreed on the basis that the aircraft subject to special procedures or the special equipment are guaranteed by the controlling authority not to fly beyond the designated horizontal boundary.

2.4.3.4.4 Military flying/non-flying classification

Regard a Restricted Area classified as 'military flying/non-flying' as 'military flying' for separation when the associated airspace description:

a) does not specify the activity type; or

b) specifies both flying and non-flying activities may occur.
2.4.4 Restricted or Danger Area and Class C CTR deactivation

2.4.4.1 Activate by NOTAM

Except as listed in DAH or as specified below, notify or amend the activation and deactivation times for Restricted or Danger Areas by NOTAM.

See MATS 8.1.3.3 Notification times

2.4.4.2 Early deactivation

The published cessation time of a Restricted or Danger Area or Class C CTR may be amended by voice:

a) without the issue of a NOTAM provided the new cessation time is less than one hour prior to the original published cessation time; or

b) with subsequent issue of a NOTAM when the deactivation is one hour or more prior to the original published cessation time.

*Note:* Class C CTR must be activated by NOTAM to be eligible for early deactivation by voice.

2.4.4.2.1 Notification

When less than 30 min notice is provided, any early deactivation of a Restricted Area or Class C CTR must be agreed to by the accepting authority. Variations to this requirement may be specified in local instructions.

2.4.5 Releasing airspace

2.4.5.1 Airspace release

Arrange the release of airspace by voice and with mutual agreement of the respective controlling authorities.

*Note:* Only appropriately licensed controllers may accept an airspace release.

2.4.5.1.1 Releasing authority

The releasing authority:

a) does not provide for the separation of aircraft within the airspace release; and

b) where applicable, ensures that activity under its control is kept clear of the released airspace.
2.4.5.2 Control zones and control areas

Civil or military control zones and Class A or C airspace may be released wholly or in part to another controlling authority.

2.4.5.2.1 Air traffic control services within released CTR/CTA

Provide air traffic control services within released CTR, Class A and Class C airspace in accordance with the current classification as depicted in AIP.

See MATS 2.4.2 Airspace establishment

2.4.5.3 Restricted Areas

Defence administered Restricted Areas may be released wholly or in part to a civil ATC authority during the NOTAM hours of activation.

2.4.5.3.1 Air traffic control services within released Restricted Areas

Provide air traffic control services within released Restricted Areas in accordance with the underlying established airspace classification as depicted in AIP.

*Note:* A released Restricted Area remains active and pilots require approval or clearance to operate within the airspace.

See MATS 2.4.2 Airspace establishment

2.4.5.4 Approval to operate in released Restricted Areas

Provide pilots with an approval to operate or a clearance according to the established airspace classification, until the airspace is resumed by the Defence authority.

2.4.5.4.1 Clearance exception

Where an aircraft is subject to a clearance and that clearance will cause the aircraft to enter a released Restricted Area, reiteration of the clearance is not required.

2.4.5.5 Service advice

Inform pilots of the level of service that will apply within the released Restricted Area and, as appropriate, the extent of the approval.

2.4.5.5.1 Service advice exception

Where an aircraft is operating in Class A or C airspace and enters a released Restricted Area where the level of service is Class A or C, reiteration of the level of service is not required.
2.4.6 Reserving airspace

2.4.6.1 Airspace reservation

Authorities may mutually agree to an airspace reservation to allow:

a) flights of military significance requiring use of controlled airspace, which would otherwise be subject to restrictions if required to avoid that airspace or to conform with the terms of a clearance; and

b) civil flights through a military airspace when circumstances make flight on the normal route inadvisable, and use of alternative routing is impossible or would impose economic penalties. This is not intended to preclude civil diversions where military traffic conditions require.

2.4.6.1.1 Types of airspace reservation

The types of airspace reservations available are those:

a) relating to fixed defined areas; or

b) that are 'mobile', because they cover activities such as aerial refuelling, en route formation flights, etc.

2.4.6.2 Reservation applications

Applications for airspace reservation must be in writing and submitted to the controlling authority at least 48 hours prior to the planned reservation. Consider the operational and economic aspects of all flights when granting or refusing the application. Forward written confirmation of the arrangement to the accepting authority.

Note: Military flights requiring the use of controlled airspace are coordinated between the local civil and military authorities during the planning stages of the military operations. Large scale military exercises will be planned to avoid civil traffic peaks where possible.
2.4.6.3 Relinquishing reserved airspace

When operations have ceased or there is a significant lull in activity, the authority reserving the airspace should, subject to safety considerations, relinquish the airspace.

2.4.6.3.1 Cessation of operation

Notify the releasing authority immediately after cessation of the operation for which the airspace was reserved.

2.4.7 Air Defence operations in military airspace

2.4.7.1 Defence ATC

Defence ATC accommodates Air Defence air operations within military controlled airspace. Defence ATC will accommodate Air Defence activity through use of the airspace reservation system, the establishment of Temporary Restricted Areas, or through the confining of the activity within promulgated permanent military controlled airspace.

2.4.7.2 Defence ATC responsibilities

Defence ATC is responsible for the provision of separation for any transiting civil or military aircraft through areas (or portions of areas) reserved or restricted for Air Defence operations.

2.4.7.3 Separation from Air Defence activities

Defence ATC provides separation between transit traffic and Air Defence activity. ATS surveillance system separation may be applied by a controller situated within the relevant Air Defence/ATC unit.

2.4.7.3.1 Airspace safety tolerances

Where ATS surveillance system separation is used, a safety tolerance area defined as a block of airspace which moves with the transiting aircraft and from which Air Defence activity is to be excluded, is applied as follows:

a) 2000 FT above and below the transiting aircraft; and
b) 10 NM radius horizontally, by an ATS surveillance system, centred on the transiting aircraft.

2.4.7.3.2 Communication requirements for ATS surveillance system separation

When ATS surveillance system separation is applied between transit traffic and Air Defence activity, ensure direct, continuous and static free, two-way communications is available between all aircraft involved and the Air Defence/ATC unit.
2.4.7.3.3 **Procedural separation**
Where procedural separation is employed, or where a controller is not located within the CRU, Defence ATC is responsible for devising procedural clearances to ensure separation between transiting aircraft and the Air Defence activity.

2.4.7.3.4 **Procedural control**
Where procedural control is employed, separation is achieved through the segregation of airspace, either vertically or laterally. Minimum vertical separation is 2000 FT. Air Defence Units are responsible for containing their operations within the limits imposed by Defence ATC.

2.4.7.3.5 **Transit traffic**
Establish communication with transit traffic prior to entry into airspace reserved or restricted for Air Defence activity. In addition, ensure the controller has direct contact with the Air Defence Controller controlling that Air Defence activity, either through HOTLINE communication or co-location.

2.4.8 **PRD and airspace reservation design**

2.4.8.1 **Method of determining airspace dimensions**
Use the methodology of this section to determine vertical and lateral dimensions for PRD and airspace reservations.

2.4.8.1.1 **Exception - ground-based activities that may affect airspace users**
Refer proponents/operators of ground-based activities that are hazardous to aviation, such as commercial blasting or ordnance demolition, to the OAR.

*Note:* The OAR will assess the impact of these activities.

2.4.8.1.2 **Use Restricted Area method**
When calculating the limits for a Prohibited Area or Airspace Reservation use the methodology specified for Restricted Areas.

2.4.8.2 **OAR approval for PRD establishment**
Submit the proposed airspace dimensions to the OAR for approval. Ensure that all necessary coordination has been carried out between the relevant authorities and that appropriate buffers have been added prior to submission.

2.4.8.2.1 **NOTAM instructions**
After the OAR has granted approval, provide the airspace information to the NOF for promulgation in a NOTAM.
2.4.8.3 **Determining vertical dimensions and limits**

When determining the dimensions for PRD or airspace reservations, the airspace proponent determines the vertical limit for which an activity takes place. This vertical limit is known as:

a) Planned Height when promulgated with reference to height above ground level;

b) Planned Altitude when promulgated with reference to height above mean sea level; or

c) Planned Level when promulgated with reference to height within the standard pressure region.

2.4.8.3.1 **Planned Height - non-flying activities**

The Planned Height is the maximum height specified for the type of ordnance being used. This figure includes buffers for burst safety distances, ricochet, air danger height and trajectory.

2.4.8.3.2 **Planned Altitude/Level - flying activities**

The Planned Altitude/Level refers to the altitudes or levels at which the planned activity will occur.

2.4.8.3.3 **Ordnance delivery**

For ordnance delivery where the weapon’s safety template will exceed the level of the delivery aircraft, use the weapon’s safety template height to determine the planned Altitude/Level.

2.4.8.3.4 **Final level**

Do not use planned height or planned altitude/level as the final level in the calculation of airspace upper limits.

2.4.8.4 **Flying and non-flying activities**

Classify activities as ‘flying’, ‘non-flying’ or ‘flying/non-flying’:

a) Flying activities are those involving the use of an airborne platform;

b) Non-flying activities encompass all other activities not involving the use of an airborne platform; or

c) Flying/non-flying encompasses both types of activity.

2.4.8.4.1 **Multiple activities**

Where flying and non-flying activities will take place in the same airspace, determine the dimensions to encompass both activities.

2.4.8.4.2 **Vertical limit AGL**

Where flying activity is planned as a height AGL, convert it to AMSL prior to calculating the airspace upper and lower limits.
**2.4.8.5 Calculating Restricted Area Upper Limit - non-flying activity**

To calculate the Restricted Area Upper Limit (RAUL) for non-flying activities:

1) add the elevation of the highest point in the area to the Planned Height to determine the Activity Altitude/Level;

2) in the standard pressure region, add a Pressure Variation Buffer of 1000 FT to compensate for variations to atmospheric pressure below 1013.2 HPA; and

3) add an Instrument/Pilot Tolerance (I/PT) buffer of 500 FT below FL290 or 1000 FT at or above FL290.

**2.4.8.6 Calculating Restricted Area Upper Limit - flying activity**

To calculate the Restricted Area Upper Limit (RAUL) for flying activities:

1) add a Standard Flying Activity Buffer (SFAB) of 500 FT below FL290 or 1000 FT at or above FL290 to the Planned Altitude/Level; and

2) add an Instrument/Pilot Tolerance (I/PT) buffer of 500 FT below FL290 or 1000 FT at or above FL290.

**2.4.8.7 Calculating Restricted Area Lower Limit - flying activity**

To calculate the Restricted Area Lower Limit (RALL) for flying activities:

1) subtract a Standard Flying Activity Buffer (SFAB) of 500 FT below FL290 or 1000 FT at or above FL290 from the Planned Altitude/Level; and

2) subtract an Instrument/Pilot Tolerance (I/PT) buffer of 500 FT below FL290 or 1000 FT at or above FL290.

**2.4.8.8 Calculating Lowest and Highest Useable Levels**

To calculate useable levels:

1) round the RAUL up to the nearest 500/1000 FT for the Lowest Useable Level (LUL); and

2) round the RALL down to the nearest 500/1000 FT for the Highest Useable Level (HUL).

**2.4.8.9 Vertically adjoined airspace**

When designated airspaces vertically adjoin treat all airspaces as one for the purpose of aircraft avoiding the areas. The vertical limits are the:

a) lower limit of the lower airspace; and

b) upper limit of the highest airspace.
2.4.8.10 Vertical separation with vertically adjoined airspace
Separate flying operations in vertically adjoined Restricted Areas or airspace reservations, or in vertically adjoined portions of the same Restricted Area or airspace reservation, by ensuring that the vertical spacing of the aircraft conforms to the air traffic control vertical minimum appropriate to the levels involved.

2.4.8.10.1 Retain useable levels
Establish the highest and lowest useable levels within each airspace to ensure a level is not lost at the adjoining boundary.

2.4.8.11 Published vertical limits
The promulgated vertical limits of Prohibited and Restricted Areas shown in AIP, FLIP and NOTAM contain the required buffers.

2.4.8.11.1 Local instructions
Incorporate coordination of promulgated responsibilities in local instructions as appropriate.

2.4.8.12 Danger Area vertical limits
The vertical limits of Danger Areas are the upper and lower limits of the activities within the airspace.
2.4.8.13 Determining Prohibited/Restricted Area and airspace reservation Activity Height and useable levels

Method of determining Activity Height and Useable Levels

**Non Aviation Activity**

<table>
<thead>
<tr>
<th>PH</th>
<th>Planned Height</th>
<th>RAUL</th>
<th>Restricted Area Upper Limit</th>
<th>IPT</th>
<th>Instrument/Pilot Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>Planned Altitude</td>
<td>RALL</td>
<td>Restricted Area Lower Limit</td>
<td>PVB</td>
<td>Pressure Variation Buffer</td>
</tr>
<tr>
<td>PL</td>
<td>Planned Level</td>
<td>LUL</td>
<td>Lowest Useable Level</td>
<td>SFAB</td>
<td>Standard Flying Activity Buffer</td>
</tr>
<tr>
<td>AA</td>
<td>Activity Altitude</td>
<td>HUL</td>
<td>Highest Useable Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AL</td>
<td>Activity Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Aviation Activity**

P 112 Effective: 13 August 2020 to 4 November 2020 MATS Version 53.1
2.4.8.14 Lateral limits

When determining the dimensions for Prohibited or Restricted Areas and airspace reservations, the airspace proponent determines the lateral limits:

a) for non-flying activities, to include safety buffers inside the lateral limit; and
b) for flying activities, to encompass the extent to which activities may occur.

2.4.8.14.1 Adjacent control areas

When establishing Prohibited Areas, Restricted Areas, or airspace reservations, consider the requirements of adjacent controlled airspace to ensure existing operations will remain effective.

2.4.8.15 Lateral limit of Danger Areas

When determining the dimensions for Danger Areas the airspace proponent determines the lateral limits to encompass the extent to which activities may occur.

2.4.8.16 Weapons training areas

Defence ATC advises aircraft when a weapons range is active within their area of responsibility.

2.4.8.16.1 Range Standing Orders

Designate a control hand over point in Range Standing Orders when aircraft are to operate on a weapons range under the control of a Range Safety Officer (RSO).

2.4.8.16.2 Active weapons range

Permit only those aircraft specifically authorised to carry out weapons training to enter promulgated range airspace when the weapons range is active.
2.5 Records management

2.5.1 Requirements for record keeping

2.5.1.1 Accurate records
Maintain accurate records of ATS activities and communications to ensure the efficient exchange of information, and for investigation purposes.

2.5.1.2 Legible entries
Write all entries legibly in indelible ink.

2.5.1.3 Errors
Replace non-active forms or strips on which an error or errors are noted.

2.5.1.4 Corrections
Correct errors on active forms or strips, fault reports and journals by:
   a) drawing a line through the incorrect data and writing the correct data adjacent thereto; or
   b) cancelling and rewriting the record, retaining both the old and new for later reference.

2.5.1.5 Prohibited
Do not:
   a) complete records in anticipation of the recorded action being completed;
   b) make deletions from communication records;
   c) duplicate information – except when forms such as Fault Reports or Incident Reports must also be completed; or
   d) insert a working record or a journal entry between earlier entries. Make the entry out of sequence, immediately following the last entry. You may include an explanatory statement.

2.5.1.6 Recording verbal information
Make records of verbal information using one or more of the following methods:
   a) voice recording equipment;
   b) writing on a flight progress strip;
   c) typing on authorised forms;
   d) writing in accordance with local requirements;
   e) writing on appropriate forms; or
   f) entering directly into computer-based equipment.
2.5.1.7 **Primary record**

The recorded tape is the primary record – where automatic voice recording facilities are available – supplemented by appropriate flight progress strips and/or journal entries.

2.5.1.8 **Filing and retaining messages**

The addressee unit is responsible for filing, and retaining for 30 days, written messages (hand or type) – including flight files and associated change requests – after actioning.

2.5.2 **Maintaining operations journals**

2.5.2.1 **Responsibilities**

Each ATS unit maintains an AOJ.

2.5.2.2 **Person responsible**

The ATSO holding Operational Command Authority/Military Supervisor is responsible for the correct maintenance of the AOJ.

2.5.2.3 **Unit supervisor**

The unit supervisor inspects the unit’s journal on a regular basis to ensure that any requisite actions and/or notifications are carried out.

2.5.2.4 **Record significant occurrences**

Use the AOJ to record all significant occurrences and actions relating to operations, facilities, equipment and staff at an ATS unit.
### 2.5.2.5 Journal entries

Record all journal entries against the time of the occurrence, or time of the journal entry as follows:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Minimum information to be recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At the commencement of each day’s operation:</strong></td>
<td>a) UTC date and time; and b) identification of the unit and/or the operating position, where required – these may be incorporated into the date stamp.</td>
</tr>
<tr>
<td><strong>On assuming responsibility for a (non-continuous) position:</strong></td>
<td>a) the UTC date and time of commencement and the signature of the officer commencing duty; b) results of equipment checks; and c) result of time check.</td>
</tr>
<tr>
<td><strong>During operation of the unit:</strong></td>
<td>a) air safety incidents, including accidents and breaches of the Regulations such as non-compliance with ATC instructions (in addition to the completion of incident reporting actions); b) actions taken in relation to any SAR activity including distress communications; c) general notes concerning essential aerodrome information, such as the results of aerodrome inspections, closure of sections of the manoeuvring area caused by works or natural phenomena; d) times of aerodrome closure and reopening, with reasons for the closure; e) changes in status of facilities, service or procedure including communication difficulties and tests; f) short-term changes in staffing or hours of coverage, including variations to required staffing levels; g) any dispensation given against the Regulations; h) permission granted to fireworks operators; and i) changes in status of navigation aids.</td>
</tr>
<tr>
<td><strong>Handover/takeover (where a separate form is not provided):</strong></td>
<td>a) a summary of outstanding actions and unusual operations which are current or anticipated, relating to the traffic display and/or SAR activity; b) the status of communications and equipment; and c) the time of handover/takeover against the signatures of the officers involved.</td>
</tr>
<tr>
<td><strong>Closure of unit and/or position:</strong></td>
<td>a) the time of closure, and conditions and actions relating to the closure, followed by changes to equipment status, and any outstanding action; and b) the time of intended reopening, and the signature of the officer closing the unit/position.</td>
</tr>
</tbody>
</table>
2.5.3 Recording voice and data

2.5.3.1 Orally record entries
Where appropriate voice recording facilities are available, orally record handover/takeover and journal entries concerning opening and closing watch.

2.5.3.2 Automatic recording failure
When an automatic voice recording facility fails, maintain a manual record of communications where possible.

2.5.3.3 Recording telephone conversations
Each recorded telephone line should have a warning tone superimposed on conversations every 15 seconds. When the tone is absent, advise the other party that the conversation is being recorded and take fault reporting action.

2.5.3.4 Isolate recordings
Isolate recordings at the request of the following for air safety accident, incident investigation or SAR action:
   a) ATSB;
   b) CASA;
   c) JRCC Australia;
   d) Safety & Assurance; or
   e) the Unit Manager/FLTCDR.

2.5.4 Use of ATS recorded information

2.5.4.1 Playback
ATSB/Directorate of Defence Aviation and Airforce Safety (DDAAFS) has primary responsibility for investigation of incidents and accidents.

2.5.4.1.1 Playback circumstances
Only play back, duplicate or transcribe recordings containing incident and accident records in the following circumstances:
   a) when required for urgent SAR purposes - advise ATSB of action taken as soon as practicable;
   b) at unit management/FLTCDR direction, to facilitate preliminary investigation;
   c) to provide the ATS Officer(s) concerned the opportunity to hear or view the recording; or
   d) to provide post incident counselling.
2.5.4.2 Information for SAR purposes

For SAR purposes, provide an approved AMSA officer with all information relevant to a state of emergency of an aircraft, including copies of journals, flight plans, audio records, recorded ATS surveillance system data plots and all other relevant documentation, as soon as practicable.

*Note:* The General Manager, JRCC Australia; Manager Operations, JRCC Australia or the SSAROs have the authority to approve requests for information made on behalf of AMSA.

2.5.5 Retention of records

2.5.5.1 Records retention

Retain records for the period shown in the table below, unless required for investigation:

<table>
<thead>
<tr>
<th>Record</th>
<th>Period of retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originals or page copy of first transmission (originals in the case of flight notifications)</td>
<td>30 days</td>
</tr>
<tr>
<td>Hand or typewritten record</td>
<td>30 days</td>
</tr>
<tr>
<td>Voice recordings</td>
<td>30 days</td>
</tr>
<tr>
<td>CPDLC</td>
<td>30 days</td>
</tr>
<tr>
<td>Inward and outward message check sheets</td>
<td>24 hours</td>
</tr>
<tr>
<td>Message tapes monitoring outward traffic</td>
<td>3 hours</td>
</tr>
<tr>
<td>ATS surveillance system recordings</td>
<td>30 days</td>
</tr>
<tr>
<td>Eurocat/ADATS DATA Recordings</td>
<td>30 days</td>
</tr>
<tr>
<td>INTAS WARP Recordings</td>
<td>30 days</td>
</tr>
<tr>
<td>NOTAM (NOF only)</td>
<td>30 days</td>
</tr>
<tr>
<td>Airways Operations Journal (AOJ)</td>
<td>Permanently</td>
</tr>
</tbody>
</table>
2.6 Handover/takeover and Unit opening/closing

2.6.1 Responsibilities and procedures for handover/takeover of positions

2.6.1.1 Handover/takeover requirement
Complete a handover/takeover prior to transferring responsibility for any ATC position.

2.6.1.1.1 Airspace release
Prior to transferring responsibility for an airspace release conduct a handover/takeover between releasing and accepting authorities.

2.6.1.2 Opening/closing non-continuous units
Specify procedures for opening and closing non-continuous units in LI.

2.6.1.3 Checklists
Specify in checklists all items to be considered in the transfer of responsibility for any ATC position or the opening and closing of a non-continuous ATS unit.
2.7 Equipment testing and monitoring

2.7.1 Routine testing and inspections

2.7.1.1 Crash alarms
Test aerodrome crash alarms and common call intercom lines (or their equivalent) at the intervals specified in Local/Standing Instructions.

2.7.1.2 Test telephone lines
Test telephone lines that would be used to contact '000' in the event of an emergency if not in regular use – but not by calling '000'.

2.7.1.3 Airfield surface and obstruction lighting
Refer to local instructions for:
   a) the designated officer responsible for the inspection of runway lighting; and
   b) a description of a suitable observation point in or near the control tower from which inspections can be made.

2.7.2 Testing communication links

2.7.2.1 Test communication links
Test all communication links for serviceability prior to:
   a) commencing the day’s operations; and
   b) major traffic peaks if the facility has not been in use for two hours.

2.7.3 Conducting test transmission

2.7.3.1 Precautions
Before commencing a test transmission, take all possible precautions to avoid harmful interference. Such precautions include the choice of frequency with time of day and the reduction or suppression of radiation.

2.7.3.2 Select signals
Choose signals for testing and adjusting that will not lead to any confusion, such as a signal, abbreviation, etc. having a special meaning.
2.7.3.3 **Content of tests**

Do not transmit signals without identification. Radiotelephony test signals normally consist of spoken numerals, followed by the identification of the sending unit.

*Note:* When hot lines are used, identification is not required.

2.7.4 **Testing of air-ground facilities**

2.7.4.1 **Transmission format**

Format test transmissions as follows:

a) identification of the station being called;
b) identification of the calling station;
c) words 'RADIO CHECK'; and
d) frequency if more than one frequency in use.

2.7.4.2 **Response format**

Respond to a test transmission with:

a) identification of the station making the initial test transmission;
b) identification of the responding station; and
c) assessment of the readability of the test transmission.

2.7.5 **Monitoring navaids**

2.7.5.1 **Monitor aids continuously**

Monitor aids required for holding, instrument approaches and departures continuously from the control tower and approach control units while on duty.

2.7.5.1.1 **Navaid status change**

The designated tower controller must advise the TMA of any change in the status of navaids monitored by the Tower on a timely basis consistent with the use of the service(s) involved.

*Note:* The intent of ATC monitoring of ILS serviceability is to validate separation standards based on ILS tolerances. ILS status communication to an ATC position is not an integral requirement for continued pilot use of an ILS.
2.7.5.2 **Navaid unserviceable**

Consider a navaid unserviceable when it:

a) is not commissioned;
b) has failed; or
c) is radiating with a test transmission e.g. without ident or with ident XP.

2.7.5.2.1 **NOTAM**

Promulgate the unserviceability of instrument approach aids by NOTAM as soon as possible, including:

a) navaid type;
b) navaid identifier code;
c) navaid frequency; and
d) when radiating, the warning DO NOT USE; FALSE INDICATIONS POSSIBLE.

See MATS 8.1.8.2 Facility or part facility

2.7.5.3 **Pilot advice**

Notify pilots by direct transmission or by ATIS broadcast when an aid, associated with an instrument approach to the runway in use for arrivals at controlled aerodromes, is unserviceable. Use the phrases:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aid is unserviceable</td>
<td><em>(identification of aid)</em> NOT AVAILABLE</td>
</tr>
<tr>
<td>Aid is radiating</td>
<td><em>(identification of aid)</em> NOT AVAILABLE. DO NOT USE. FALSE INDICATIONS POSSIBLE</td>
</tr>
</tbody>
</table>

2.7.5.4 **Display to Tower**

Prominently display advice that an aid for an instrument approach is not available to tower controllers.
3 Meteorology

3.1 Meteorological information to/from pilots
3.1.1 ATIS
3.1.2 Revision of ATIS
3.1.3 Wind shear advice - controlled aerodromes
3.1.4 Wind shear advice - uncontrolled aerodromes
3.1.5 Transmission of MET data

3.2 Information to BoM
3.2.1 Notification
3.1 Meteorological information to/from pilots

3.1.1 ATIS

3.1.1.1 Pace of recording
Make recordings at a speed that facilitates transcription.

3.1.1.2 Short messages
Record the information twice when a message is less than 20 seconds in duration.

3.1.1.3 Actual QNH not available
Provide the aerodrome forecast (TAF) QNH when the actual aerodrome QNH is not available.

3.1.1.4 Advice on the ATIS
Include information in the ATIS broadcast that the actual QNH is not available and that the aerodrome forecast QNH is provided.
### 3.1.1.5 Order of ATIS information

<table>
<thead>
<tr>
<th>Content and Order</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Location</td>
<td>(Aerodrome)</td>
</tr>
<tr>
<td>2) Code</td>
<td>TERMINAL INFORMATION <em>(code letter ALFA, BRAVO, in sequence, as assigned to each separately prepared transmission. Do not use ZULU.)</em></td>
</tr>
<tr>
<td>3) Time of observation, if appropriate</td>
<td>TIME OF OBSERVATION [hhmm UTC]</td>
</tr>
</tbody>
</table>
| 4) Type of approach expected              | EXPECT *(type of approach)*  
When more than one instrument approach is in general use, EXPECT INSTRUMENT APPROACH may be recorded.  
At civil locations, only record EXPECT VISUAL APPROACH when it is associated with a specific procedure (e.g. INDEPENDENT VISUAL APPROACH). |
| 5) Runways                                | When one runway is in use: RUNWAY *(number)*  
When more than one runway is in use:  
RUNWAY[S] *(number) [AND (number)] FOR ARRIVALS  
RUNWAY[S] *(number) [AND (number)] FOR DEPARTURES  
When two runways are being used for both arrivals and departures:  
RUNWAYS *(number) AND (number) [FOR ARRIVALS AND DEPARTURES].* |
| 6) Significant runway surface conditions and, if appropriate, braking action | [DAMP] [WET] [WATER PATCHES] [FLOODED] (if applicable) |
| 7) Holding delay, if appropriate          |                                                                                                                                                                                                                |
| 8) Transition level, if appropriate       |                                                                                                                                                                                                                |
| 9) Other essential operational information | LAND AND HOLD SHORT OPERATIONS IN PROGRESS  
LOW VISIBILITY PROCEDURES IN FORCE  
RVR/RUNWAY VISIBILITY NOT AVAILABLE  
RWY 21 DISPLACED THRESHOLD SOUTH OF RWY 24 INTERSECTION  
[ILS] [LOCALISER] [GLIDE PATH] (as appropriate), PILOT MONITORED  
*(type of operations, if applicable) START APPROVAL REQUIRED etc.  
CURFEW RUNWAY NOMINATION (when runway(s) nominated due to noise abatement legislation and the crosswind and/or tailwind component is in excess of that specified in Clause 12.2.1.3).  
Unserviceability of any ground-based approach aid applicable to the runway(s) in use for arrivals, regardless of any applicable NOTAM.* |
### Meteorological information to/from pilots

#### 3.1.1.5

<table>
<thead>
<tr>
<th>Content and Order</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>10a) Surface wind direction and speed, including significant variations or, see 10b) below</td>
<td>WIND [DIRECTION]/[SPEED]</td>
</tr>
<tr>
<td></td>
<td>Quote WIND DIRECTION as:</td>
</tr>
<tr>
<td></td>
<td>a) SINGLE MEAN DIRECTION;</td>
</tr>
<tr>
<td></td>
<td>b) TWO VALUES representing variation in wind direction, whenever:</td>
</tr>
<tr>
<td></td>
<td>i) the extremes in wind direction vary by 60 degrees or more; or</td>
</tr>
<tr>
<td></td>
<td>ii) the variation is operationally significant (e.g. the variation is less than 60 degrees, but the variation from the mean results in either a tailwind, and/or significant crosswind component on a nominated runway) (e.g. WIND VARYING BETWEEN [DIRECTION] AND [DIRECTION]); or</td>
</tr>
<tr>
<td></td>
<td>c) VARIABLE, where it is not possible to report a mean wind direction, such as:</td>
</tr>
<tr>
<td></td>
<td>i) in light wind conditions (3 kt or less); or</td>
</tr>
<tr>
<td></td>
<td>ii) the wind is veering or backing by 180 degrees or more (e.g. passage of thunderstorm, or localised wind effect).</td>
</tr>
<tr>
<td></td>
<td>Quote WIND SPEED as:</td>
</tr>
<tr>
<td></td>
<td>a) CALM (less than 1 kt e.g. WIND CALM);</td>
</tr>
<tr>
<td></td>
<td>b) SINGLE MEAN VALUE whenever the extremes between minimum and maximum are 10 kt or less (e.g. WIND [DIRECTION]/[SPEED]); or</td>
</tr>
<tr>
<td></td>
<td>c) TWO VALUES REPRESENTING MINIMUM AND MAXIMUM VALUES whenever the extremes in wind speed vary by more than 10 kt (e.g. WIND [DIRECTION] MINIMUM [SPEED] MAXIMUM [SPEED]).</td>
</tr>
<tr>
<td></td>
<td>Quote significant crosswind and any tailwind as:</td>
</tr>
<tr>
<td></td>
<td>a) MAXIMUM CROSSWIND (speed) KNOTS [RUNWAY (number), if applicable]; and</td>
</tr>
<tr>
<td></td>
<td>b) MAXIMUM TAILWIND (speed) KNOTS [RUNWAY (number), if applicable].</td>
</tr>
<tr>
<td>See Clause 9.1.3.7.1</td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** When quoting a wind with variations in direction and speed it may be necessary to vary the above criteria in order to indicate the true crosswind and/or tailwind.

**Note 2:** Where threshold wind analysers are installed, and the wind at the threshold of a duty runway varies from that of the central wind analyser or the threshold wind on the other duty runway by the criteria specified for the revision of ATIS, threshold winds may be broadcast on the ATIS.

| 10b) Threshold wind of duty runway | THRESHOLD WIND RUNWAY (number), [DIRECTION]/[SPEED], RUNWAY (number), [DIRECTION]/[SPEED] |
### Content and Order | ATC phraseology
--- | ---
11) Visibility and, when appropriate, RVR or Runway Visibility (not quoted in CAVOK conditions): | a) VISIBILITY ... followed by:  
   i) GREATER THAN ONE ZERO KILOMETRES;  
   ii) ... KILOMETRES; or  
   iii) ... METRES; or  

   b) When the visibility is less than 1500 m | b) (RVR/RUNWAY VISIBILITY) (distance) ... METRES. See also Clause 12.8.2.

12) Present weather | PRESENT WEATHER ... (e.g. showers in area); or CAVOK

13) Cloud below 5000 FT or below MSA, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available | CLOUD [FEW] [SCATTERED] [BROKEN] [OVERCAST] (as appropriate) (base) (type, if appropriate)  
   **Note:** Only identify cloud types for cumulonimbus and towering cumulus. When an individual layer or mass of cloud is composed of cumulonimbus and towering cumulus clouds with a common base, report the type of cloud as cumulonimbus only.

14) Air temperature | TEMPERATURE....

15) Altimeter setting(s) | QNH...
   **Note:** If aerodrome forecast QNH is used, leave this field blank.

16) Any available information on significant meteorological phenomena in the approach, take-off and climb-out | ACTUAL QNH NOT AVAILABLE AERODROME FORECAST QNH .... (when the QNH broadcast on the ATIS is obtained from the aerodrome forecast (TAF) due to unavailability of actual QNH). May include FREEZING FOG where the temperature is less than 0°C and fog is present.

17) Contact information | ON FIRST CONTACT WITH.... (e.g. GROUND, TOWER or APPROACH) NOTIFY RECEIPT OF ... (code abbreviation of the ATIS broadcast). If necessary, omit this contact information from the pre-recorded broadcasts if there is insufficient recording space.

**Note:** Due to system constraints Defence aerodromes are unable to use tailwind on the ATIS.

See MATS 3.1.1.5.1 Exception - Defence ATIS  
See MATS 9.1.3.7.1 Significant crosswind  
See MATS 12.2.1.3 Crosswind/tailwind limitations  
See MATS 12.8.2 Runway Visual Range and Runway Visibility

### 3.1.1.5.1 Exception - Defence ATIS

At Defence aerodromes use DOWNWIND for ATIS and 'TAILWIND' for air ground transmissions.
# 3.1.1.6 Runways, supplementary information

<table>
<thead>
<tr>
<th>Content</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>During runway work resulting in reduced runway lengths, include this information in the other essential operational information/OPR INFO field:</td>
<td>REDUCED RUNWAY LENGTH(S) IN OPERATION</td>
</tr>
<tr>
<td></td>
<td>ATIS may include:</td>
</tr>
<tr>
<td></td>
<td>RUNWAY (number), TORA (or LANDING DISTANCE AVAILABLE) (number) METRES</td>
</tr>
<tr>
<td>For Class C aerodromes only, when independent visual approaches and independent parallel approaches are in progress, notify pilots of such advice and expectation of the type of approach or departure on the ATIS:</td>
<td>EXPECT INDEPENDENT VISUAL APPROACH. DO NOT PASS THROUGH ASSIGNED RUNWAY CENTRELINE</td>
</tr>
<tr>
<td></td>
<td>Or:</td>
</tr>
<tr>
<td></td>
<td>EXPECT INSTRUMENT APPROACH</td>
</tr>
<tr>
<td></td>
<td>Include in ATIS:</td>
</tr>
<tr>
<td></td>
<td>FINALS MONITORING (or PRM OPERATIONS) IN PROGRESS</td>
</tr>
<tr>
<td></td>
<td>INDEPENDENT PARALLEL APPROACHES AND DEPARTURES IN PROGRESS</td>
</tr>
<tr>
<td>Broadcast the use of SODPROPS on the ATIS including the runway configuration being used for the procedure:</td>
<td>RUNWAY (number) FOR ARRIVALS, RUNWAY (number) AVAILABLE FOR DEPARTURES IF OPERATIONALLY REQUIRED OR AS DIRECTED BY ATC. RUNWAY (number) FOR ALL OTHER DEPARTURES</td>
</tr>
<tr>
<td></td>
<td>Include in ATIS:</td>
</tr>
<tr>
<td></td>
<td>SIMULTANEOUS OPPOSITE DIRECTION PARALLEL RUNWAY OPERATIONS IN PROGRESS</td>
</tr>
<tr>
<td>Include general advice on workers using hand tools adjacent (specific location optional) to the runway in use in the other essential operational information/OPR INFO field:</td>
<td>MEN AND HAND TOOLS OPERATING TO THE EDGE OF RUNWAY (number)</td>
</tr>
<tr>
<td>Include unauthorised laser illumination event(s) information in the other essential operational information/OPR INFO field:</td>
<td>UNAUTHORISED LASER ILLUMINATION EVENT(S) REPORTED (general position information including location and altitude)</td>
</tr>
<tr>
<td>Include RPAS activity information in the other essential operational information/OPR INFO field:</td>
<td>UNAUTHORISED RPAS ACTIVITY [REPORTED] (general position information including location and altitude)</td>
</tr>
</tbody>
</table>

**Note:** Due to system constraints Defence aerodromes are unable to use TORA or RPAS on the ATIS.

## 3.1.1.6.1 Exception - Defence ATIS

At Defence aerodromes use TAKE-OFF RUN AVAILABLE or UNAUTHORISED UNMANNED AERIAL VEHICLE for ATIS, and 'TORA' or 'RPAS' for air ground transmissions.
3.1.1.7 Provide threshold wind

At locations where runway threshold wind analysers are installed, provide:

a) to departing aircraft, the wind at the upwind end of the runway if the wind at the upwind end varies by the criteria specified for the revision of ATIS from that broadcast on the ATIS;

b) to arriving aircraft, the wind at the arrival end of the runway if the wind at the arrival end varies by the criteria specified for the revision of ATIS from that broadcast on the ATIS; and

c) the wind at the arrival end of the runway, as part of the landing clearance for arriving jet aircraft.

3.1.1.8 ATIS ZULU

Retain the ATIS ZULU code exclusively in all locations for use only with ATIS broadcasts relating to out of hours operations or when a military control zone or the Restricted Area for a military aerodrome is released or de-activated.

3.1.1.8.1 Information included

ATIS ZULU:

a) must include operational information, of an unchanging nature, that is considered to provide immediately useful information to pilots, such as:
   i) the expected reopening time of the tower;
   ii) CTAF frequency;
   iii) PAL frequency, if a discrete frequency is provided;
   iv) preferred runway or circuit direction;
   v) noise abatement procedures; and
   vi) works in progress; and

b) may include:
   i) airspace classification outside tower hours or airspace configuration during release;
   ii) availability of AFRU + PAL (where available); and
   iii) AWIS frequency (where available).
### Format

Use the following format for ATIS ZULU broadcasts:

<table>
<thead>
<tr>
<th>Content and order</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Location</td>
<td></td>
</tr>
<tr>
<td>2) Code</td>
<td>TERMINAL INFORMATION ZULU</td>
</tr>
<tr>
<td>3) a) Activation Hours (Civil)</td>
<td>TOWER CLOSED UNTIL <em>(time)</em> <em>(deactivated airspace description)</em> REVERTS TO CLASS <em>(as applicable)</em></td>
</tr>
<tr>
<td>b) Activation Hours (Military)</td>
<td>TOWER CLOSED UNTIL <em>(time)</em> <em>(airspace description)</em> CTR/RESTRICTED AREA(S) <em>(as applicable)</em> DE-ACTIVATED/ACTIVE/RELEASED TO <em>(civil unit)</em></td>
</tr>
<tr>
<td>4) Frequency Instructions</td>
<td>CTAF <em>(or if applicable)</em> BROADCAST INTENTIONS ON...</td>
</tr>
<tr>
<td>5) Runway (if applicable)</td>
<td>REFER ERSA FOR PREFERRED RUNWAY/CIRCUIT DIRECTION <em>(or PREFERRED RUNWAY (runway number) [(circuit direction)])</em></td>
</tr>
<tr>
<td>6) Other relevant information (if applicable, during CTAF hours)</td>
<td>PAL <em>(frequency)</em> AFRU + PAL <em>(if provided on CTAF)</em> REFER AIP FOR NOISE ABATEMENT PROCEDURES <em>(or noise abatement procedures)</em> WORKS IN PROGRESS AS PER NOTAM <em>(number)</em> AWIS <em>(frequency)</em> WATIR <em>(data)</em></td>
</tr>
<tr>
<td>7) Location</td>
<td><em>(location)</em> TERMINAL INFORMATION ZULU</td>
</tr>
</tbody>
</table>
3.1.2 Revision of ATIS

3.1.2.1 When to revise ATIS
Revise ATIS information and assign a new code letter when:

a) the requirement for, or type of, instrument approach is changed;
b) changes occur to a traffic management initiative e.g. LAHSO;
c) the take-off or landing runway is changed;
d) changes occur in the operational status of the aerodrome or its facilities;
e) changes occur to wind shear status; or
f) current values of meteorological information vary by, or exceed, the values in the table below and are expected to remain that way for at least 15 minutes.

3.1.2.1.1 MET information variation

<table>
<thead>
<tr>
<th>MET information</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>Direction 10°</td>
</tr>
<tr>
<td></td>
<td>Speed 5 kt</td>
</tr>
<tr>
<td>QNH</td>
<td>1 HPA</td>
</tr>
<tr>
<td>Temperature</td>
<td>1°</td>
</tr>
<tr>
<td>Cloud (below 5000 FT AGL)</td>
<td>Base 200 FT</td>
</tr>
<tr>
<td></td>
<td>Amount changes from one descriptor to another</td>
</tr>
<tr>
<td>Visibility</td>
<td>Between 1500 m and 10 KM – 1000 m (1 KM)</td>
</tr>
<tr>
<td></td>
<td>Less than 1500 m – as required</td>
</tr>
</tbody>
</table>

3.1.3 Wind shear advice - controlled aerodromes

3.1.3.1 ATIS requirement
Include moderate, strong or severe wind shear on the ATIS when:

a) reported on the approach or take-off paths; or
b) forecasted.

<table>
<thead>
<tr>
<th>Type</th>
<th>Example ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic report</td>
<td>WIND SHEAR WARNING, BOEING 737 (MEDIUM CATEGORY AIRCRAFT if military CATIS) REPORTED MODERATE UNDERSHOOT WIND SHEAR AT 200 FEET ON FINAL RUNWAY 34 AT TIME 0640</td>
</tr>
<tr>
<td>Amplified report</td>
<td>WIND SHEAR WARNING, BOEING 737 (MEDIUM CATEGORY AIRCRAFT if military CATIS) REPORTED STRONG WIND SHEAR GAINED 20 KNOTS AIRSPEED BETWEEN 300 FEET AND 600 FEET ON DEPARTURE RUNWAY 34 AT TIME 0640</td>
</tr>
<tr>
<td>Forecast</td>
<td>PROBABLE VERTICAL WIND SHEAR FROM 0510 TO 0530, FORECAST WIND AT 400 FEET ABOVE GROUND LEVEL 120 DEGREES 50 KNOTS</td>
</tr>
</tbody>
</table>
3.1.3.2 **Low level wind shear - dissemination to MET**

When a pilot reports moderate, strong or severe wind shear, advise the MET unit responsible for the origination of special aerodrome weather reports for the aerodrome. Include the aircraft type, the unchanged pilot report and subsequent changes in intensity or cessation.

3.1.3.3 **Low level wind shear - dissemination to pilots**

Upon receipt of a pilot report and/or a forecast of moderate, strong or severe wind shear, alert all arriving and departing aircraft by ATIS broadcast, and directed transmission where the aircraft is not in receipt of the ATIS information.

3.1.3.3.1 **Directed transmissions**

Continue directed transmission to other pilots until either two successive aircraft have failed to report shear conditions or the expiry of the forecast period, whichever is the later.

See MATS 9.1 Provision of FIS

3.1.3.4 **More favourable runway**

When aware of the presence of significant wind shear, nominate a more favourable runway, if available, and provide the appropriate flight information.

3.1.4 **Wind shear advice - uncontrolled aerodromes**

3.1.4.1 **Advising pilots**

Advise pilots likely to be affected by moderate, strong or severe wind shear on approach or take-off paths at non-controlled aerodromes e.g. 'WIND SHEAR WARNING CASINO S340 REPORTED MODERATE WIND SHEAR ON APPROACH TO RUNWAY 34 AT 300 FEET AT TIME 0415'.

3.1.4.2 **Report validity**

In the absence of further advice, pilot reports of wind shear greater than intensity Light will remain valid for a period of one hour.

3.1.4.3 **Report dissemination**

Send the following pilot reports by AIREP Special message:

a) moderate, strong or severe wind shear;

b) changes in intensity; or

c) cessation.
3.1.5 Transmission of MET data

3.1.5.1 Use plain language

Use plain language when passing forecasts to pilots.

3.1.5.1.1 Transmitting abbreviations and codes

Transmit abbreviations and codes, other than those approved for transmission as spoken words, in plain language.

3.1.5.1.2 Cloud types

Omit cloud types, except for cumulonimbus, when transmitting METAR/SPECI by voice to aircraft.

Example printed message | ATC phraseology
--- | ---
TTF METAR YSSY 0800 34010KT 9999 SCT020 BKN030CB 24/22 Q1008 NOSIG | TTF MET REPORT SYDNEY ZERO EIGHT ZERO ZERO WIND THREE FOUR ZERO DEGREES ONE ZERO KNOTS VISIBILITY ONE ZERO KILOMETRES CLOUD SCATTERED TWO THOUSAND FEET BROKEN CUMULONIMBUS THREE THOUSAND FEET TEMPERATURE TWO FOUR QNH ONE ZERO ZERO EIGHT NOSIG.

3.1.5.2 Weather observations

Make weather observations of significant weather and, when required or on request, transmit reports to aircraft so that pilots may determine if the prevailing weather is suitable for VFR flight. Make:

a) general observations over the whole of the visual horizon; and
b) sector observations restricted to the area enclosing the probable flight path of the aircraft.

3.1.5.3 Sector observations

Make sector observations to assist another ATS unit or to assist pilots to determine the suitability of a:

a) particular instrument approach;
b) visual approach;
c) visual departure; or
d) VFR or Special VFR flight.
### 3.1.5.4 Take-off or landing report items

You may include the following items in a take-off or landing report:

<table>
<thead>
<tr>
<th>Low cloud:</th>
<th>Amount and height of the base of the main ceiling - the amount may be omitted from a report to an aircraft making a standard instrument approach.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visibility:</td>
<td></td>
</tr>
<tr>
<td>CAVOK:</td>
<td>When the following conditions are observed to occur simultaneously:</td>
</tr>
<tr>
<td>a)</td>
<td>visibility of 10 KM or more;</td>
</tr>
<tr>
<td>b)</td>
<td>nil significant cloud i.e. no cloud below 5000 FT or below the highest 25 NM minimum sector altitude, whichever is greater, and no cumulonimbus or towering cumulus at any height; and</td>
</tr>
<tr>
<td>c)</td>
<td>nil significant weather.</td>
</tr>
<tr>
<td>Wind velocity:</td>
<td>Only report on request or when giving landing or take-off information.</td>
</tr>
<tr>
<td>Additional items:</td>
<td>Extent of cloud below the main ceiling, disposition and intensity of rain, reported or known wind shear, turbulence, etc.</td>
</tr>
</tbody>
</table>

#### 3.1.5.4.1 Use of CAVOK

Do not advise the cloud and visibility elements if the term 'CAVOK' is used.

#### 3.1.5.5 Authorised MET systems

For the purpose of airborne weather avoidance, the following systems are authorised:

a) RAPIC; and

b) Weatherwatch.

#### 3.1.5.5.1 Use of authorised MET systems

Do not use information derived solely from authorised MET systems as a basis for ATC procedures for avoidance of adverse weather conditions. For this purpose, use authorised MET systems in conjunction with information on weather conditions derived from airborne and other observations.

#### 3.1.5.6 When within 75 NM of weather radar sites

Only use authorised MET systems information within 75 NM of weather radar sites:

a) for weather avoidance;

b) in conjunction with information on weather conditions derived from airborne and other observations;

c) at pilot request; or

d) to supplement hazard alert information.
3.1.5.7 **Authorised MET systems prefix**

When providing authorised MET systems information to pilots, either on request or as required, use the prefix: ‘MET RADAR DISPLAY INDICATES...etc’.

3.1.5.8 **In-flight reports**

You may request an in-flight weather report when:

a) there is reason to believe that en route or terminal meteorological conditions are significantly different to those forecast; or

b) a request is received for actual weather conditions in a particular area.

*Note:* In-flight weather reports may also be initiated by the pilot.

See MATS 7.1.7.2 AIREP distribution - general

See MATS 7.1.7.3 AIREP section 3 distribution - AIREP Special
3.2 Information to BoM

3.2.1 Notification

3.2.1.1 Unforecast conditions
Notify BoM of ATC observed weather that may warrant forecast amendment.

3.2.1.2 AIRMET phenomena
Notify BoM of observed AIRMET phenomena.

3.2.1.3 Notification to BoM
Use fixed communication lines between ATS units and BoM if available, or telephone where the lines are not available. Contact details should be specified in local instructions.
4 Abnormal operations

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**4.1 Notified operational deviations**

### 4.1.1 Responding to deviation advisories

#### 4.1.1.1 TCAS resolution advisory

Do not issue tracking or level instructions to an aircraft that has reported responding to a 'TCAS RA'.

See MATS [10.1.1.3 Responding to deviation advisories](#).

#### 4.1.1.2 Wind shear escape

Do not issue tracking or level instructions to an aircraft that has advised 'WIND SHEAR ESCAPE'. Where possible issue instructions to conflicting traffic to re-establish or maintain a separation standard.

See MATS [10.1.1.3 Responding to deviation advisories](#).

##### 4.1.1.2.1 Provide traffic

When a pilot reports 'WIND SHEAR ESCAPE' and a separation standard with other aircraft may be infringed, provide traffic information or a safety alert as appropriate to all affected aircraft.

#### 4.1.1.3 Re-establish separation

Following pilot advice of 'CLEAR OF CONFLICT' or 'CLEAR OF WIND SHEAR', issue instructions as necessary to re-establish separation. Resume responsibility for separation after the aircraft has complied with any tracking and level instructions and a separation standard has been established.
4.2 Aircraft emergencies

4.2.1 Emergency phases

4.2.1.1 Phases
The three emergency phases used to classify emergencies and indicate the scope of SAR actions required are:

a) INCERFA;
b) ALERFA; and
c) DETRESFA.

4.2.1.2 Responsibility for declaring emergency phase
The ATS Officer first becoming aware of an aircraft operating in other than normal circumstances, and there is uncertainty concerning the aircraft's safety, is responsible for declaration of the phase appropriate to the emergency situation.

See MATS 4.2.3.1 Emergency phases and time sequence

4.2.1.3 SAR notification
Notify JRCC Australia for civil aircraft or HQJOC-AOC for military aircraft if there is any likelihood that a SAR action is required.
4.2.2 Declaration of emergency phases

4.2.2.1 Uncertainty phase (INCERFA)

Declare an INCERFA when:

a) uncertainty exists as to the safety of an aircraft and its occupants;

b) a pilot fails to report:
   i) DEPARTURE, after a call notifying readiness to taxi or to take-off;
   ii) POSITION, by the EST at the next reporting point or by the next scheduled time, including NOCOM cancellation time or OPS NORMAL time, having made a previous in-flight report;
   iii) by the EST at the next landing point, having made a previous in-flight report;
   iv) ARRIVAL, TAXIING or DEPARTURE, by the SARTIME notified by the pilot, and communications checks required fail to reveal any news of the aircraft; and
   v) after an ATS directed frequency change where the aircraft is required to maintain continuous communications with ATS

c) an aircraft is known or believed to be subject to irregular operation, namely, when:
   i) it is not on its proper track or at its proper level;
   ii) the pilot is not in normal communication;
   iii) the pilot is unable to use appropriate navaids; or
   iv) the pilot is experiencing navigational difficulties or is lost

d) a pilot is about to make or has made a landing other than a forced landing:
   i) where the position is in doubt;
   ii) on an unprepared surface; or
   iii) at an aerodrome (in the case of helicopters, a landing area) which is considered by the pilot as being operationally unsuitable

e) information is received that an aircraft, for which flight notification has not been lodged, is missing; or

f) an ADS-C emergency indication is received without an accompanying voice confirmation or CPDLC emergency message.

Note: A declared mercy flight is not subject to an emergency phase unless other circumstances indicate the aircraft may require assistance.
4.2.2.2 Alert phase (ALERFA)

Declare an ALERFA when:

a) apprehension exists as to the safety of an aircraft and its occupants;
b) a pilot who has been given approach or landing instructions, or information by an ATC unit established at a civil or military control zone, fails to land within five minutes of the estimated landing time and communication with the pilot cannot be re-established before the expiration of this 5 minute period;
c) following an Uncertainty Phase declared because of failure to report, subsequent communications checks or inquiries to other relevant sources fail to reveal any news of the aircraft;
d) information has been received which indicates that the operating efficiency of an aircraft has been impaired to the extent that the safety of the aircraft may be affected;
e) a flight restricted to VMC is operating in IMC;
f) a flight restricted to daylight operations is operating at night;
g) pending the evaluation of a bomb warning by the aircraft operator or pilot, except when the aircraft is on the ground at an aerodrome where ATC are on duty;
h) a PAN call is received unless the circumstances indicate a DISTRESS phase is more appropriate (PAN medical emergency excepted); or
i) an aircraft deviates from its cleared route or track into active Restricted Area without a clearance.

See MATS 4.2.15 Medical emergencies
See MATS 4.2.21 Deviation into active Restricted Areas
4.2.2.3 Distress phase (DETRESFA)

Declare a DETRESFA when:

a) there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger and require immediate assistance;

b) information has been received which indicates that an aircraft is known or believed to be the subject of hijack;

c) following the Alert Phase declared because of failure to report, the absence of news from widespread communications checks and unsuccessful inquiries point to the probability that an aircraft is in distress;

d) the fuel on board is considered to be exhausted or to be insufficient to enable an aircraft to reach safety, unless a SARTIME has been notified;

e) information is received which indicates that a pilot is about to make, or has made, a forced landing or has ditched or crashed, unless - in the case of a crashed aircraft - the advice is simply in the form of official notification and the safety of the occupants is assured;

f) a report is received that a radio distress beacon has been activated or other visual distress signals have been observed;

g) information is received which indicates that the operating efficiency of an aircraft has been impaired to the extent that a forced landing is likely;

h) the operator or pilot evaluates a bomb warning as 'genuine' and requires the aircraft to be searched, except when the aircraft is on the ground at an aerodrome where ATC are on duty;

i) a MAYDAY call, or a MAYDAY CPDLC message is received;

j) an ADS-C emergency indication is received and confirmed by voice or CPDLC emergency message;

k) a surveillance emergency indication is received; or

l) immediately following any indications of fire in-flight.
## 4.2.3 Emergency phases in time sequence

### 4.2.3.1 Emergency phases and time sequence

<table>
<thead>
<tr>
<th>Emergency Condition</th>
<th>Commence communication checks</th>
<th>Declare Uncertainty phase</th>
<th>Declare Alert phase</th>
<th>Declare Distress phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty exists of aircraft’s safety</td>
<td>At appropriate time</td>
<td>At appropriate time</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Apprehension exists of aircraft’s safety</td>
<td>At appropriate time</td>
<td>-</td>
<td>At appropriate time</td>
<td>-</td>
</tr>
<tr>
<td>Reasonable Certainty that the aircraft is in danger</td>
<td>At appropriate time</td>
<td>-</td>
<td>-</td>
<td>At appropriate time</td>
</tr>
</tbody>
</table>

**Note:** 'Appropriate time' may be related to Failure To Report or to reported or suspected irregular operation.

### Failure To Report:

<table>
<thead>
<tr>
<th>Event</th>
<th>Commence communication checks</th>
<th>Declare Uncertainty phase</th>
<th>Declare Alert phase</th>
<th>Declare Distress phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departure after a call notifying readiness to taxi or take-off</td>
<td>10 min after taxiing call</td>
<td>15 min after taxiing call</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Departure after an airborne call</td>
<td>5 min after airborne call</td>
<td>10 min after airborne call</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Position or scheduled report, including NOCOM cancellation time or OPS NORMAL time</td>
<td>3 min after report due</td>
<td>15 min after report due</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>After a frequency change</td>
<td>3 min after call due</td>
<td>15 min after call due</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>In reply to a call by a ground station, when listening watch is required</td>
<td>3 min after call</td>
<td>15 min after call</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Arrival at a non-controlled aerodrome</td>
<td>10 min after estimate</td>
<td>15 min after estimate</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Arrival or departure having nominated SARTIME</td>
<td>At SARTIME</td>
<td>30 min after SARTIME</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>After subsequent communication checks and enquiries to other relevant sources fail to reveal news of the aircraft</td>
<td>-</td>
<td>-</td>
<td>Immediately condition is recognised</td>
<td>-</td>
</tr>
<tr>
<td>After widespread communication checks and unsuccessful enquiries indicate probability that the aircraft is in distress</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Immediately condition is recognised</td>
</tr>
</tbody>
</table>
### 4.2.3.2 Emergency phases and time sequence, *continued*

<table>
<thead>
<tr>
<th>Emergency Condition</th>
<th>Latest time action should be taken</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Commence communication checks</td>
</tr>
<tr>
<td><strong>Failure to Land:</strong></td>
<td></td>
</tr>
<tr>
<td>The pilot of a radio-equipped aircraft at a controlled aerodrome after having been given approach or landing instructions or information by ATC at its landing place</td>
<td>At estimated landing time</td>
</tr>
<tr>
<td><strong>Irregular Operation:</strong></td>
<td></td>
</tr>
<tr>
<td>Impaired operating efficiency having difficulty in maintaining height, or may have difficulty in making a normal approach and landing</td>
<td>-</td>
</tr>
<tr>
<td>Major impaired operating efficiency - forced landing likely</td>
<td>-</td>
</tr>
<tr>
<td>VMC flights operating in IMC, or daylight flights operating at night</td>
<td>-</td>
</tr>
<tr>
<td>Not on proper track or at proper level</td>
<td>-</td>
</tr>
<tr>
<td>Unable to use appropriate navaids</td>
<td>-</td>
</tr>
<tr>
<td>Experiencing navigational difficulties or is lost</td>
<td>-</td>
</tr>
<tr>
<td>Fuel is exhausted (unless SARTIME notified)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Bomb Warning</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.2.3.3 Emergency phases and time sequence, continued

<table>
<thead>
<tr>
<th>Emergency Condition</th>
<th>Commence communication checks</th>
<th>Declare Uncertainty phase</th>
<th>Declare Alert phase</th>
<th>Declare Distress phase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Received:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>That an aircraft for which flight notification has not been lodged is missing</td>
<td>-</td>
<td>Immediately</td>
<td>When communications checks lead to apprehension</td>
<td>When continued absence of news indicates possibility that the aircraft is in distress</td>
</tr>
<tr>
<td>That a pilot is about to, or has, force landed, ditched or crashed</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Immediately</td>
</tr>
<tr>
<td>That a pilot is about to, or has, made a landing other than a forced landing:</td>
<td>-</td>
<td>Immediately</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>a) where the position is in doubt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) on an unprepared surface; or</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>c) at an aerodrome (in the case of helicopters, a landing area) which is considered by the pilot as being operationally unsuitable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>That a radio survival beacon has been activated for a period greater than 10 seconds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Immediately</td>
</tr>
<tr>
<td>That an aircraft is known or believed to be the subject of unlawful interference (hijack)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Immediately</td>
</tr>
</tbody>
</table>

#### 4.2.3.4 Communication checks

Where the pilot fails to:

a) report by a SARTIME;
b) submit a report at the prescribed time; or
c) acknowledge a call initiated by the ground station:

i) attempt to contact the pilot direct by calling on the normal and alternative frequencies, repeating the calls with discretion;

ii) attempt to contact the aircraft through another pilot in VHF or HF range;

iii) ascertain whether the report has been received by another unit; and

iv) arrange for other ground units to call the pilot on normal and alternative frequencies. A unit instructed to call a pilot notifies the originating unit if contact is not established within a period of five minutes.
4.2.3.4.1 Contact pilot by phone
In conjunction with other communication checks, you may arrange for pilots to be contacted by phone on a number nominated in the flight plan.

4.2.3.4.2 Checks completed
Consider communication checks to be completed once it has been determined that the pilot cannot be contacted on ATS frequencies.

Note: JRCC Australia or HQJOC-AOC are the agencies who may contact an aerodrome operator to ascertain if a missing aircraft arrives safely.

4.2.4 Phase amendments and cancellations

4.2.4.1 Upgrading phases
You may upgrade a phase on an aircraft when made aware of additional factors that warrant greater apprehension.

Note: When notified of a phase declaration the IFER manager, JRCC Australia or HQJOC-AOC assesses the situation and amends the phase if appropriate.

4.2.4.2 Downgrading phases
If the emergency situation of an aircraft subject to an Alert or Distress Phase has been relieved, but not to the extent that normal operations have been resumed, the unit responsible for the phase action may downgrade the Alert or Distress Phase to whichever lesser phase is considered appropriate.

4.2.4.3 Cancellation of phases
If an aircraft subject to an emergency phase has resumed normal operations or is known to have landed safely, the unit responsible for the phase action cancels the phase and advises other relevant units and agencies involved.

4.2.4.3.1 Unspecified aircraft
If an Alert or Distress Phase was declared because an unspecified aircraft was reported to be in a state of emergency, or it was thought, but not witnessed, that an aircraft may have crashed and, after subsequent investigation there is reasonable certainty that the phase is no longer necessary because of failure to locate any aircraft, the phase may be cancelled by JRCC Australia or HQJOC-AOC.

4.2.4.3.2 After extensive search
If an aircraft cannot be located after extensive search efforts, JRCC Australia or HQJOC-AOC in the case of military aircraft, may suspend the search and cancel the phase.
4.2.5  Responding to in-flight emergencies

4.2.5.1  Irregular operation

When a pilot advises a condition of irregular operation, or the total failure or intentional shut down of an engine, ask the pilot if emergency conditions exist that indicate the inability to maintain a safe cruising altitude or the need to make an emergency landing.

4.2.5.1.1  ATS notification

Notify all subsequent ATS units of the aircraft’s condition.

4.2.5.1.2  ARFF notification by tower

Notify ARFF of any situation described in Clause 4.2.5.1 including those situations that do not result in an AEP.

See MATS 4.2.5.1 Irregular operation

4.2.5.2  Acknowledge emergency communication

Acknowledge an emergency communication by:

a) callsign;
b) station identification; and
c) ROGER MAYDAY (or PAN).

4.2.5.2.1  Acknowledgement on transfer

On first establishment of communication with an aircraft that has declared an emergency to a previous agency, indicate knowledge of the emergency by use of the appropriate phrase ‘MAYDAY (or PAN) [(type of emergency)] ACKNOWLEDGED’.

4.2.5.2.2  Initial message to an aircraft

You may include in the initial message to an aircraft subject to an emergency:

a) reassurance that positive action for assistance is underway;
b) indication of the lowest safe altitude; and
c) a request for the pilot to notify any change to the situation or intentions.

4.2.5.2.3  Pass information

On first communication to the pilot, pass appropriate information but do not overload the pilot.
4.2.5.2.4 Ascertain basic information

In all situations, ascertain basic information to indicate any time constraints on response, including:

a) total fuel endurance remaining;
b) remaining duration of daylight at the scene of the incident and at any aerodrome being considered for a diversion;
c) flight conditions;
d) pilot’s rating and if the aircraft is equipped for instrument or night flight;
e) structural integrity of the aircraft; and
f) whether the aircraft is over land, water or cloud.

See MATS 4.2.3.1 Emergency phases and time sequence

4.2.5.3 IFE procedures

 Procedures for general In-Flight Emergencies (IFEs) are:
a) On notification of an IFE, initiate the Critical Initial Actions Checklist;
b) Ascertain the extent of the pilot’s requirements for assistance, and direct assistance to satisfy these requirements;
c) Direct provision of assistance to an IFER manager as soon as possible after declaration of the IFE;
d) Alert JRCC Australia or HQJOC-AOC (if IFE involves a military aircraft) of a situation likely to require search and rescue action;
e) Seek a balance in acquiring necessary information while keeping communications to a minimum;
f) Consider obtaining additional information from sources other than the distressed aircraft e.g. company, another pilot, JRCC Australia databases or military squadron or wing headquarters;
g) Do not assume that relevant information is common knowledge to all parties involved;
h) Consider retaining the distressed aircraft on a discrete frequency;
i) As far as practicable, establish regular radio contact with unidentified aircraft subject to an emergency, either by obtaining responses to transmissions, or by agreed SKEDs (generally by 5 minute schedule reporting intervals);
j) Subject to cloud cover and aircraft performance, an increase in aircraft altitude may assist in identification, improving VHF/UHF radio communication, clearing hazards and assisting visual and radio navigation;
k) Responses to IFEs vary with each emergency, therefore consider alternative actions and resist a predetermined approach;
l) Seek ORM/Military Supervisor approval before directing aircraft to assist in an emergency. If an ORM/Military Supervisor is not immediately available, request, but not instruct, an airborne aircraft to divert for the purpose of providing assistance. Refer any such action taken to an ORM/Military Supervisor at the earliest opportunity;
m) Continually review checklist items to ensure all actions have been taken; and
n) Keep it simple.

See In-Flight Emergency Response Checklists
4.2.5.4 **Handover of IFER management**

Management of an IFER may need to be handed over to another ATS unit. To ensure a comprehensive briefing to the agency accepting responsibility, you may use the 'Urgent SAR Message'.

See MATS 13.1.1 Urgent SAR message

4.2.5.5 **Transferring responsibility**

When an aircraft declares an emergency and responsibility for the aircraft is in the process of being transferred to another ATS position, provide initial response and assistance from the ATS position where the emergency was declared.

See MATS 4.2.19.3 CPDLC connection and 4.2.19.4 Transfer of CPDLC connection

4.2.5.6 **Pilots not visual**

Provide information on the lowest safe altitude or highest terrain to pilots who may not be able to remain visual.

4.2.5.7 **Assistance available**

Make available to an aircraft in an emergency situation any of the following assistance:

a) Advice on alternate aerodromes;
b) Position fixes for lost aircraft;
c) Advice on known weather conditions;
d) Interception of aircraft in distress or in need of navigation assistance;
e) Airspace and air traffic priorities;
f) Provision of alerting services;
g) Ditching forecasts; and
h) Advice on terrain clearance (LSALT).
4.2.5.8 **Initial action during distress state**

Initiate the following actions upon acknowledgement of an aircraft in distress:

a) Immediately acknowledge the distress message and declare a Distress Phase;
b) Take control of the communications, or specifically and clearly transfer that responsibility, advising the aircraft of the transfer;
c) If necessary, impose radio silence;
d) Take immediate action to ensure that all necessary information is made available to the ATS units concerned;
e) Warn other units, as appropriate, to prevent the transfer of traffic to the frequency of the distress communication;
f) Follow local instructions for alerting:
   i) SAR authorities;
   ii) aircraft operating agency concerned; and
   iii) ARFF;
g) Continue to listen on the frequency on which the distress call or message was transmitted and other frequencies, if appropriate;
h) Clear the instrument approach path, if necessary;
i) Make available navaids and lighting facilities; and
j) Issue instructions or pass information necessary to assist a safe recovery and landing, to the extent of suspending traffic that could conflict.

4.2.5.9 **Initial actions during urgency state**

The unit addressed by an aircraft reporting an urgency condition, or the first unit acknowledging the urgency message, initiates the following actions:

a) acknowledges the urgency message and declares the appropriate emergency phase;
b) takes action to ensure that all information is made available to:
   i) the ATS unit concerned;
   ii) the aircraft operating agency, if applicable; and
   iii) SAR authorities, if applicable; and

c) exercises control of communications as required.

4.2.5.10 **Urgency communication has priority**

Urgency communication has priority over all other communications, except distress.

4.2.5.10.1 **Do not interfere with transmission**

Do not interfere with transmissions of urgency traffic.
### 4.2.6 SSR Emergency Codes

#### 4.2.6.1 Controller actions

Act in accordance with:

a) RPAS Lost Link procedures upon observing Transponder Code 7400;

b) Unlawful Interference procedures upon receiving an alert associated with Transponder Code 7500;

c) Aircraft Radio/Communications Failure procedures upon receiving an alert associated with Transponder Code 7600; and

d) Emergency procedures upon receiving an alert associated with Transponder Code 7700.

See MATS 4.2.22.1 Lost Link

See MATS 4.2.8 Unlawful interference (hijack)

See MATS 4.2.9 Aircraft communications failure

#### 4.2.6.1.1 Code 7700

Implement the following actions on receipt of Transponder Code 7700:

a) Request confirmation of the emergency code by use of the phrase *(callsign) CONFIRM SQUAWKING ASSIGNED CODE* when not in receipt of a verbal declaration of an emergency e.g. MAYDAY or PAN calls;

b) Ascertain the nature of the emergency;

c) Regard failure to respond to these requests as positive evidence of an emergency which may also involve radio failure and/or partial electrical failure;

d) Determine the extent of the radio failure by use of the relevant procedures;

e) Declare the appropriate phase;

f) Advise the supervisor;

g) Provide the aircraft with priority in all respects;

h) Transmit all information pertinent to the conduct of the flight;

i) Record the last observed/known position, altitude, track and speed - a plot using system tools may be initiated;

j) Coordinate transfer of control as appropriate to other ATS units; and

k) Relay messages as required between aircraft and appropriate authorities.
4.2.7 Bomb warnings

4.2.7.1 Notification of a bomb warning

On receiving notification of a bomb warning directed against an aircraft:

- immediately advise the supervisor;
- declare an Alert Phase, pending evaluation of the threat by the operator or pilot, except when the aircraft is on the ground at an aerodrome where ATS are on duty;
- advise JRCC Australia if the aircraft is airborne; and
- advise the Department of Home Affairs, Australian Government Crisis Coordination Centre.

4.2.7.1.1 Supervisor actions - controlled aerodromes

Implement the requirements of AEPs and/or local instructions.

4.2.7.1.2 Supervisor actions - uncontrolled aerodromes

When notified of a bomb warning directed at an aircraft at an aerodrome where ATC are not on duty, advise the operator or agent (or pilot, in their absence).

4.2.7.2 Pilot notification, aircraft in flight

For aircraft in flight, only notify the pilot when the threat:

- has not been assessed after 30 minutes from the time of notification, in which case, the threat will be treated as ‘genuine’ until the threat is assessed as otherwise; or
- has been assessed as ‘genuine’ by the aircraft operator.

Note: When an aircraft is subject to a genuine threat, the decision to continue to destination or to divert to a more suitable aerodrome is the responsibility of the operator or the pilot (including consideration of any incident control directions from the Department of Home Affairs).

4.2.7.3 Pilot notification, aircraft on the ground

For aircraft on the ground, only notify the pilot when the warning is assessed as genuine.

4.2.7.4 Withhold take-off clearance

Do not issue a take-off clearance to an aircraft which is the subject of a bomb threat.

Note: When an aircraft is to be searched, you may assist in providing necessary information regarding suitable isolation areas.
4.2.7.5 Vague warnings

Advise the Department of Home Affairs, Australian Government Crisis Coordination Centre when in receipt of a vague or general threat.

4.2.8 Unlawful interference (hijack)

4.2.8.1 IFER Checklist

Use the IFER Checklist for actions to be carried out in the event of a hijacking.

*Note:* If there is an unlawful interference with an aircraft in flight, the pilot-in-command will attempt to set the transponder to Code 7500, in order to indicate the situation. If the circumstances so warrant, Code 7700 could be used instead.

4.2.8.2 Prudence

Apply hijack procedures prudently to avoid aggravation of any dangerous situation.

4.2.8.2.1 Avoid inflections or overtones

Avoid any detectable voice inflections or overtones in transmissions.

4.2.8.3 Make routine transmissions

When it is known or believed that an aircraft is the subject of a hijack, continue to make routine transmissions.

4.2.8.4 Do not transmit reference to the emergency

Do not transmit reference to the nature of the emergency unless it:

a) has first been referred to by the pilot of the aircraft involved; and

b) is certain that such reference will not aggravate the situation.
4.2.8.5 Communication actions

Initiate the following actions, as per the IFER Checklist, whenever a hijack of an aircraft is known or suspected:

a) If the aircraft is in ATS surveillance system coverage, request confirmation of the code by the use of the phrase ‘(callsign) CONFIRM SQUAWking ASSIGNED CODE’;

b) Regard, as possible evidence of the emergency, the absence of a reply to a request to confirm as above;

c) Declare the Distress Phase;

d) Advise the supervisor;

e) Avoid making reference to the hijack unless it has been specifically referred to by the air crew;

f) Provide the aircraft with priority;

g) Attend to all requests by the aircraft and comply if possible;

h) If necessary, and subject to contingencies, inform other aircraft in the vicinity of the nature of the emergency;

i) Transmit information for safe conduct of the flight without expecting a reply from the aircraft;

j) Monitor the progress of the flight and coordinate transfer of responsibility of control with adjacent units without required responses from the aircraft;

k) Record the last observed/known position, altitude, track and speed - a plot using system tools may be initiated;

l) Inform other units concerned with the flight including the known or assumed destination; and

m) Relay appropriate messages between the aircraft and designated authorities.

4.2.8.6 ATS action

In a hijack involving an airborne aircraft, the supervisor implements the following actions:

a) Ensure that the Distress Phase has been declared;

b) Inform the aircraft operator or their representative unless previously advised;

c) Provide assistance requested by the Chairperson of the Airport Security Incident Team (ASIST);

d) Advise JRCC Australia; and

e) Advise the Australian Government Crisis Coordination Centre.

4.2.8.6.1 Aircraft on the ground and ATS on duty

In a hijack situation involving an aircraft on the ground at an aerodrome where ATS are on duty, ATS Tower Staff coordinate the situation in accordance with AEPs.
4.2.9 Aircraft communications failure

4.2.9.1 Follow ERSA and IFER
Base control on the understanding that aircraft will follow the ERSA emergency procedure unless:

a) it is determined that the aircraft is following a different procedure;
b) the use of electronic or other aids enables the position of each aircraft to be accurately determined, when control is to be based on this position data; and
c) information is received that the aircraft has landed or has resumed normal communication.

4.2.9.2 Issuing instructions
Where appropriate, you may issue instructions or information via one or both of:

a) voice modulated nav aids; and
b) the ATIS.

4.2.9.3 Maintain en route separation
Maintain suitable en route separation in control areas on the understanding that the aircraft with radio failure proceeds to the aerodrome of intended landing in accordance with the Emergency Procedures.

4.2.9.4 Plotting aircraft in a state of emergency
If it is apparent that an identified aircraft has suffered a complete radio failure:

a) record the last observed/known position, altitude, track and speed; and
b) initiate a plot using system tools.

4.2.9.5 Apply ATS surveillance system separation
You may apply ATS surveillance system separation between other identified aircraft under control and the identified aircraft which has suffered radio failure, based on the latter’s course of action, as observed on the situation display.

4.2.9.6 Estimating time intervals
Do not base the control of aircraft with communication failure on the assumption that estimated time intervals are accurate - vary aircraft separation accordingly.
4.2.9.7  **Next intended landing point**

Keep the controlled airspace at the next intended landing point of unreported aircraft following IMC procedures vacant:

a) for a 30 minute period from the later of EAT or ETA (ETA for this purpose is defined as five minutes after the estimate over the emergency aid); and

b) when the aerodrome is closed, and communication with a holding aircraft is lost – from the time communication is lost until 15 minutes after the unreported aircraft is expected to set course for the alternate.

4.2.9.8  **Airspace en route to alternate aerodrome**

Keep controlled airspace en route to the alternate aerodrome vacant from the earliest arrival time calculated on the understanding that the aircraft will set course for the alternate aerodrome climbing or descending to the flight-planned level at any time during the period specified in Clause 4.2.9.7.

See MATS 4.2.9.7 Next intended landing point

4.2.9.8.1  **Apply separation**

Apply separation on this route based on this understanding and the unreported aircraft’s flight-planned time intervals.

4.2.9.9  **Airspace at alternate aerodrome**

Keep controlled airspace at the alternate aerodrome, which might be used by the unreported aircraft, vacant from the earliest arrival time calculated from the understanding of departure time set out in Clause 4.2.9.7, and application of flight-planned time intervals, until 30 minutes after the latest arrival time.

See MATS 4.2.9.7 Next intended landing point

4.2.9.10  **Advise aircraft and companies**

Advise other aircraft and operating companies if the aircraft is unreported at the conclusion of the periods specified in Clauses 4.2.9.7 and 4.2.9.9.

**Note:** It is the responsibility of the aircraft operators/designated representative and the pilots to determine whether they will resume normal operations or take other actions.

See MATS 4.2.9.7 Next intended landing point
See MATS 4.2.9.9 Airspace at alternate aerodrome

4.2.9.11  **Continuous listening watch**

The unit responsible for the aircraft ensures a continuous listening watch on:

a) the frequency the aircraft was last heard;

b) the frequencies likely to be used by the aircraft; and

c) available international distress frequencies.
4.2.9.12  Assistance by other aircraft

Inform other aircraft in the vicinity when they could be of assistance by:

a) maintaining a listening watch on a particular frequency;
b) calling the subject aircraft;
c) acting as a radio message relay; and
d) maintaining watch on emergency frequencies 121.5, 243.0 and/or 406.0 MHz.

4.2.9.12.1  Maintain a listening watch

If an aircraft has only one receiver and it is acceptable to the responsible communication unit, you may request the aircraft to maintain a listening watch on another frequency.

4.2.9.12.2  Operations normal report

Nominate scheduled reporting times for OPERATIONS NORMAL reports – normally at 15 minute intervals.

4.2.9.13  Speechless radar approach

On receipt of a pilot request for a speechless radar approach, reply with the following phraseology: ‘SPEECHLESS AIRCRAFT THIS IS (identification), STEER (heading) FOR (airfield)’.

4.2.9.13.1  Vectoring procedures

Vector the aircraft to the aerodrome and conduct normal controlled descent procedures.

4.2.9.13.2  Actions during approach

During approach ask for answers, in the affirmative or negative, to the following questions:

a) Is the aircraft experiencing a state of emergency? If affirmative, ask further questions to ascertain the nature of the emergency;
b) Type of aircraft (jet or piston) and callsign if it is suspected to be an aircraft about which there is prior knowledge; and
c) Any other information such as:
   i) fuel state;
   ii) altitude;
   iii) ability to carry out normal controlled descent; and
   iv) familiarity with descent procedures.
4.2.9.14 Military aircraft entering circuit

Military aircraft that have communication failure should, upon entering the circuit, fly at a height of 500 FT along the dead side of the circuit in the direction of the landing and:

a) by day – rock the aircraft laterally; or
b) by night – turn landing lights ‘on’.

4.2.9.14.1 State of landing clearance

When such a manoeuvre is observed by ATC, train the appropriate light on the aircraft indicating the state of the landing clearance.

4.2.10 Fuel shortage

4.2.10.1 Fuel shortage checklist

Use the IFER Checklist for detailed procedures regarding aircraft with fuel shortages.

4.2.10.2 Considerations

Provide assistance to enable the pilot to reach an aerodrome for a safe landing.

4.2.10.3 Minimum fuel

When an aircraft has declared 'MINIMUM FUEL':

a) coordinate this with the next ATC unit; and
b) advise the flight crew of any additional delays.

See MATS 6.4.8.1 Coordination phraseology

4.2.10.4 Mayday fuel

When an aircraft has declared 'MAYDAY FUEL', if the pilot does not specify, request what services are required.
4.2.11 Fuel dumping

4.2.11.1 Vapour zone
Airspace affected by the fuel dumped from an aircraft in flight is known as the 'vapour zone'. It is defined as that airspace 1000 FT above, 2000 FT below, 5 NM horizontally behind, and ½ NM on each side of the aircraft.

4.2.11.1.1 Reserved airspace
Treat all airspace in which dumping takes place as reserved airspace from the time dumping is expected to commence until five minutes after it has been completed.

4.2.11.2 Emergency fuel dumping
If fuel is dumped in an emergency, or fuel must be dumped without adequate warning or delay:
- make every effort to keep other aircraft clear of the vapour zone;
- record the area where the fuel was dumped;
- record the weather conditions; and
- report the incident to the appropriate authority without delay.

4.2.11.2.1 Do not use circular race track pattern
For safety reasons, do not permit fuel to be dumped in a circular or race track pattern.

4.2.11.3 Non-emergency fuel dumping
If fuel is to be dumped in other than emergency situations:
- specify the section of a nominated track that may be used for dumping of fuel; and
- recommend the aircraft maintain a minimum height of 6000 FT AGL.

4.2.11.4 Fuel dumping broadcast
Issue a Broadcast advice to aircraft specifying:
- a warning of fuel dumping; and
- the approximate location of the 'vapour zone'.

4.2.11.5 Radio silence
When approving pilot radio silence during fuel dumping, specify the frequency to be monitored and a scheduled report time.
4.2.12  Strayed or unidentified aircraft

4.2.12.1  Strayed aircraft

As soon as you become aware of a strayed aircraft, apply the following procedures.

4.2.12.1.1  Position not known

If the aircraft’s position is not known:

a) attempt to establish two-way communication with the aircraft, unless communication already exists;

b) determine its position;

c) inform other units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstance;

d) inform appropriate military units and provide flight plan and other data; and

e) request from the units at c) and d), and from other aircraft in flight, assistance in establishing a) and b).

4.2.12.1.2  Position established

Where the aircraft’s position is established:

a) advise the aircraft of its position and corrective action to be taken; and

b) provide relevant information and any advice given to the aircraft to other ATS units and appropriate military units.

Note: A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.

See MATS 4.2.8 Unlawful interference (hijack)

4.2.12.2  Unidentified aircraft

Establish the identity of the unidentified aircraft by:

a) attempting to establish two-way communication;

b) inquiring of other units within the FIR, and in adjacent FIRs, about the flight and request their assistance; and

c) attempting to obtain information from other aircraft in the area.

4.2.12.2.1  Advice to military

If necessary, inform the appropriate military unit as soon as the identity of the aircraft is known.
4.2.12.3 **Interception**

If an aircraft is being intercepted, take the following steps, as appropriate:

a) Attempt to establish two-way communication;
b) Inform the pilot of the intercepted aircraft of the interception;
c) Contact the intercept control unit and provide available information;
d) Relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
e) Ensure the safety of the intercepted aircraft, in close coordination with the intercept control unit; and
f) Inform the unit serving adjacent FIRs if it appears that the aircraft has strayed from such adjacent FIRs.

4.2.13 **In-flight emergencies - interception and escort**

4.2.13.1 **Forced landing or ditching**

Consider the use of an escort if there is a possibility of a forced landing or ditching.

4.2.13.2 **Selection of escort aircraft**

In selecting an escort aircraft, consider the following factors:

a) suitability of airborne aircraft;
b) assistance from military if suitable civil aircraft are not available;
c) aircraft and pilot have navigational capability to effect an interception either with or without the assistance of ground or airborne surveillance systems;
d) speed of escort aircraft is capable of matching distressed aircraft; and
e) aircraft has sufficient fuel endurance for the task.

4.2.13.3 **Planning interception**

When planning an interception, do not give the interceptor a prolonged tail chase.

4.2.13.3.1 **Locate the interceptor on track**

Locate the interceptor on a track ahead of the distressed aircraft to determine their relative positions.

*Note:* The interceptor, if equipped with radar or DF, will home onto the distressed aircraft.

4.2.13.3.2 **Assistance in making visual interception**

To assist in making a visual interception:

a) request activation of landing lights or other devices on both aircraft;
b) ensure that both aircraft are operating on the same communication frequency as the ground station; and
c) ensure that both aircraft are using the same altimeter setting.
4.2.13.4 **Altitude of interceptor**

Vertically position the interceptor, relative to the distressed aircraft, to make the most of the primary method of interception being employed i.e. visual or electronic.

4.2.13.4.1 **Exceptions**

Except for high altitude emergencies.

4.2.13.5 **Interception**

Visual interception is flown as follows:

<table>
<thead>
<tr>
<th>Visual interception</th>
<th>Intercepting aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td></td>
</tr>
<tr>
<td>By day</td>
<td>Is flown at 1000 FT below the distressed aircraft, to silhouette the distressed aircraft against the sky and achieve maximum sighting distance.</td>
</tr>
<tr>
<td>By night</td>
<td>On clear nights, is flown 1000 FT above the distressed aircraft to eliminate confusion between stars and lights of the distressed aircraft. When over land, where lights of cities could cause confusion, the intercepting aircraft is flown at 1000 FT below the distressed aircraft.</td>
</tr>
</tbody>
</table>

**Electronic interception**

| By day and night | An aircraft flying an electronic interception is to be flown at 1000 FT above the distressed aircraft. |

**Note:** This provides best utilisation of the radar and clears lower altitudes should the distressed aircraft be unable to hold altitude.

4.2.14 **VFR flights in IMC**

4.2.14.1 **VMC but operating IMC**

For flights confined to VMC but operating in IMC, be aware that the pilot in this situation will have difficulty with the following:

a) maintaining heading;

b) maintaining altitude; and

c) perceiving aircraft attitude.

4.2.14.2 **Reassurance and communications**

Provide reassurance to the pilot in initial communications and limit communications to prevent diversion of the pilot’s attention from flying the aircraft.
4.2.14.3 Descent through cloud

When it is unavoidable that an inexperienced pilot descends through cloud to establish visual reference with the ground, and assistance using an ATS surveillance system cannot be obtained, address the following factors:

a) Maximum and/or general terrain elevations in the area; and
b) Maintain the aircraft on a steady heading (keep wings level) and trimmed, with respect to airspeed and flap settings, to achieve a shallow but constant rate of descent.

4.2.14.4 When providing assistance

Points to remember when providing assistance to a pilot operating in IMC, are:

a) positive identification;
b) check fuel reserves;
c) check of nearest available aerodrome;
d) instil confidence in the pilot;
e) keep instructions simple; and
f) avoid transponder code changes as they can lead to disorientation.

4.2.14.5 Exercise caution

Exercise extreme caution so that turns and manoeuvres do not disorientate the aircrew.

4.2.14.6 Conditions of failing light

When failing light is a factor and doubt exists as to the ability of the pilot to continue in IMC, or in VMC by night, ask the pilot if a precautionary landing has been considered while there is sufficient light.

4.2.14.7 IFER Checklist

Use the IFER Checklist for detailed procedures for VFR flights in IMC.
4.2.15 Medical emergencies

4.2.15.1 PAN medical emergency
When a pilot declares 'PAN PAN, MEDICAL PRIORITY REQUIRED':

a) provide MEDEVAC priority;
b) advise the supervisor or coordinate as necessary to arrange requested services; and
c) submit an occurrence report.

4.2.15.1.1 Service requirements
If the pilot does not specify, request what services are required.

Note 1: Pilots are responsible for biosecurity reporting.

Note 2: Pilots may request ATC to arrange ARFF attendance or ambulance services.

4.2.15.1.2 Emergency phase
Do not declare an emergency phase unless other circumstances indicate the aircraft may require assistance.

4.2.15.2 Medical advice
On pilot request, seek medical advice from a qualified medical source e.g. the Accident and Emergency Department of a major hospital, or the Aviation Medical Section of a military unit. Detail contact arrangements in local instructions.

4.2.16 Hung bombs

4.2.16.1 IFER Checklist
Use the IFER Checklist for detailed procedures regarding aircraft with hung ordnance/unsafe weapons.

4.2.17 Emergency change of level

4.2.17.1 Likely loss of separation
Where an emergency level change involves likely loss of separation, pass traffic information on the subject aircraft to other affected aircraft.

See MATS 10.1.6.1 Reduction of vertical standard
4.2.17.2  In Class G airspace

Provide traffic information to conflicting flights when an emergency change of level occurs in Class G airspace.

4.2.18  ADS-C emergencies

4.2.18.1  Declare an INCERFA

Declare an INCERFA and verify a covert or inadvertent activation of an ADS-C emergency when an indication is received without an accompanying voice confirmation or CPDLC emergency message.

4.2.18.1.1  Additional ADS-C requirements

Update the ADS-C periodic reporting rate to five minutes. Do not send a Demand Contract Request.

4.2.18.2  Continuation of ADS-C emergency indication

Act on the basis that the aircraft is subject to unlawful interference conditions if the aircraft continues with the ADS-C emergency indication and no voice or CPDLC confirmation of the type of emergency, or that activation was in error, is received.

4.2.19  CPDLC emergencies

4.2.19.1  Acknowledge CPDLC emergencies

Close an emergency CPDLC dialogue containing a free text message with ROGER.

4.2.19.2  Acknowledge receipt of CPDLC emergency

When a CPDLC emergency message is received, acknowledge receipt of the message using the phrase 'ROGER MAYDAY' or 'ROGER PAN'.

4.2.19.2.1  Use either separate voice or CPDLC free text

Depending on the nature of the message, use the most efficient means either by voice or free text CPDLC message.

**Note 1:** Depending on the nature of the emergency the free text uplink message may or may not be closed by the pilot using ROGER response.

**Note 2:** If CPDLC is the best or only communications available between the aircraft and any unit, the unit with active connection maintains that connection until assistance can be provided by another means.
4.2.19.3 CPDLC connection

To improve the chances of the CPDLC connection being retained:

a) do not manually transfer the connection to another unit; and
b) disable any automatic transfer capability.

4.2.19.4 Transfer of CPDLC connection

If a transfer of the CPDLC connection does not occur, then the responsibility for maintaining communications with the aircraft is retained by the current unit. However, the executive control responsibility rests with the unit within whose airspace the aircraft is operating.

4.2.20 In-flight contingencies in oceanic airspace

4.2.20.1 Required deviation

Required deviations occur most frequently because of:

a) inability to maintain assigned flight level due to meteorological conditions, aircraft performance or pressurisation failure;
b) en route diversion across the prevailing traffic flow; and
c) loss of, or significant reduction in, area navigation or RVSM capability.

Note 1: With reference to a) and b) situations are applicable primarily when rapid descent and/or turn-back or diversion is required.

Note 2: Under the provisions of the rules of the air a pilot may deviate from any clearance provided the circumstances render such departure absolutely necessary in the interests of safety.

4.2.20.2 Deviation from route or track

When pilots request clearance to deviate from route or track:

a) issue a clearance if there is no conflicting traffic in the lateral dimension;
b) if there is conflicting traffic in the lateral dimension establish vertical separation and then issue a clearance; or
c) if unable to establish vertical separation, and there is conflicting traffic in the lateral dimension advise the pilot: 'UNABLE (requested deviation), TRAFFIC IS (callsign) (position) (level) (direction of flight), ADVISE INTENTIONS'.

4.2.21 Deviation into active Restricted Areas

4.2.21.1 Entering an active Restricted Area

If, by deviating from its cleared route or track, an aircraft will enter an active Restricted Area:

a) issue a Safety Alert immediately the situation is recognised; and
b) if possible, provide an alternative clearance.
### 4.2.21.1 Alternative clearance
Whenever possible, provide an alternate clearance to ensure traffic remains clear of active Restricted Areas. Alternate clearances may include:

a) deviation around, under or over active Restricted Areas;
b) a return to the aerodrome of departure; or
c) cancellation of an existing clearance and holding on the ground at the aerodrome of departure.

### 4.2.21.2 Deviation unavoidable
When deviation into active Restricted Area is unavoidable:

a) upon entry, advise the pilot that they are no longer operating under a clearance, are proceeding at their own risk and to squawk 7700;
b) terminate control services;
c) continue to provide Flight Information and Alerting services; and
d) declare an Alert Phase.

### 4.2.22 RPAS abnormal operations

#### 4.2.22.1 Lost Link
When there is a Lost Link between the RP and RPA:

a) ascertain from the RP (VHF or phone), the programmed Lost Link profile and expected landing time of the RPA;
b) request advice from the RP when the:
   i) control link is recovered; or
   ii) RPA has landed;
c) advise the supervisor; and
d) provide hazard alerting, as required.

**Note 1:** A Lost Link may be indicated verbally by the RP or when the RPA squawks 7400.

**Note 2:** In the event of a Lost Link, RPA tracking may not be consistent with either its plan or anticipated Lost Link tracking.

See MATS 9.1.3.4 Hazard alert

#### 4.2.22.2 Unauthorised RPAS
Use the IFER Checklist to the degree required by the circumstance and location.
4.3 Aerodrome emergencies

4.3.1 Aerodrome emergency classifications

4.3.1.1 Local standby
Declar a local standby when:

a) only the involvement of airport-based agencies in the AEP is warranted;

b) an approaching aircraft is known or suspected to have a defect, but is not expected to experience any serious difficulty in effecting a safe landing; or

c) a 'PAN' call is received, unless the pilot states otherwise.

See MATS 4.3.2.4 Medical priority response

4.3.1.2 Full emergency
Declar a full emergency when:

a) activation of more than just airport-based responding agencies is required;

b) an aircraft approaching the airport is known or suspected to be in such trouble that there is danger of an accident;

c) there is a crash on the airport; or

d) a 'MAYDAY' call is received, unless the pilot states otherwise.

See MATS 4.2.10.4 Mayday fuel

4.3.1.2.1 Emergency levels
Declar a full emergency at the appropriate level as follows:

<table>
<thead>
<tr>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 18 seats</td>
<td>Up to 215 seats</td>
<td>Up to 560 seats</td>
</tr>
<tr>
<td>(ATC - Light)</td>
<td>(ATC - Medium)</td>
<td>(ATC - Super or Heavy)</td>
</tr>
</tbody>
</table>

4.3.2 Activating the AEP

4.3.2.1 Activate AEP
Activate the AEP by declaring a 'LOCAL STANDBY' or 'FULL EMERGENCY, LEVEL (I, II, or III)'.

4.3.2.2 Escalate AEP
Escalate local standby to full emergency as required.
4.3.2.3 Confirm AEP required
When doubt exists, confirm the pilot's requirements e.g. 'DO YOU WANT THE AIRPORT TO BE PLACED ON LOCAL STANDBY?'.

4.3.2.4 Medical priority response
Do not activate AEP for medical priority unless requested.
See MATS 4.2.15.1 PAN medical emergency

4.3.2.5 Absence of airport fire service
At aerodromes where there is no on-airport fire service or when the airport fire service has been stood down, advise the pilot e.g. 'THERE IS NO ON-AIRPORT FIRE SERVICE AT YOUR INTENDED AERODROME. WHAT SERVICES DO YOU REQUIRE?'.

4.3.2.5.1 AEP activation
Depending upon the response from the pilot, activate the appropriate AEP.

4.3.2.6 Notification requirements
Advise pilots when they are subject to local standby or full emergency.

4.3.3 Irregular occurrences

4.3.3.1 Notify ARFF
Notify ARFF of any irregular occurrence on or inbound to the aerodrome where their attendance may be beneficial, including those situations that do not result in activation of AEP.

4.3.3.1.1 Collisions on the airport
Unless a higher level of response is required, notify ARFF of any collision that occurs between aircraft, or between an aircraft and a moving or stationary object.

4.3.3.2 Response type phraseology
Notify ARFF of occurrences not requiring activation of AEP as follows:
a) 'IRREGULAR OCCURRENCE, (details as required)' when pilot request or ATC assessment indicates ARFF attendance is warranted e.g. any collision involving an aircraft; or
b) 'FOR INFORMATION ONLY, (details as required)' for other occurrences when an ARFF response is not specifically required.

Note: ARFF will always respond to a notification of 'IRREGULAR OCCURRENCE'.
4.3.4 ARFF alerting

4.3.4.1 Use of crash alarm
Select an aerodrome crash alarm for an aircraft crash, an imminent crash or in any circumstance where an immediate response from ARFF is required. If in doubt, select the crash alarm.

4.3.4.1.1 Crash alarm details
As soon as possible following activation of the crash alarm, advise ARFF of the details of the incident by intercom or radio. As a minimum, provide the:
   a) aircraft type or building/facility affected;
   b) nature of the incident; and
   c) location of the incident.

4.3.4.2 ARFF intercom lines
Limit use of ARFF intercom lines to emergency or irregular situations and immediate operational needs.

4.3.4.3 ARFF AEP standby positions
Detail ARFF vehicle AEP standby positions in local instructions.

4.3.4.4 Civil ARFF response area
Provide the appropriate notification to ARFF for incidents on or in the vicinity of the aerodrome.

Note: Airservices ARFF have a regulatory obligation to provide a response to aviation related incidents in the 'vicinity' of the aerodrome. Priority will be given to incidents at the aerodrome and within 1000 m of the boundary.
### 4.3.5 Arrester cable/barrier engagements

#### 4.3.5.1 Raise arresting systems

<table>
<thead>
<tr>
<th>Situation</th>
<th>Pilot phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>A pilot suffering an emergency on the runway requiring the use of an arresting system will transmit the following, irrespective of any previous notification of the system's position:</td>
<td>CABLE, CABLE, CABLE (or BARRIER, BARRIER, BARRIER)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATC action</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raise the appropriate departure end arresting systems if not already activated upon receiving the above transmission and report:</td>
<td>DEPARTURE END CABLE (or BARRIER) UP</td>
</tr>
</tbody>
</table>

#### 4.3.5.2 Lower arresting system

<table>
<thead>
<tr>
<th>Situation</th>
<th>Pilot phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>A pilot requiring an arresting system to be lowered, transmits:</td>
<td>REQUEST DEPARTURE END CABLE (or BARRIER) DOWN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATC action</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower the appropriate arresting system immediately upon receiving the above transmission and report:</td>
<td>DEPARTURE END CABLE (or BARRIER) DOWN</td>
</tr>
</tbody>
</table>

#### 4.3.5.3 Suspected radio failure

<table>
<thead>
<tr>
<th>Situation</th>
<th>Pilot phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>An arriving aircraft capable of utilising aircraft arrester systems is suspected of having a radio failure.</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATC action</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) raise all arresting systems useable by that aircraft except the approach end barrier;</td>
<td>BOTH CABLES (or DEPARTURE END BARRIER) UP</td>
</tr>
<tr>
<td>b) plan for a jettison of fuel or stores by the pilot prior to landing; and</td>
<td></td>
</tr>
<tr>
<td>c) assume the pilot can hear all transmissions and transmit the following before the aircraft lands.</td>
<td></td>
</tr>
</tbody>
</table>
4.3.6 ARFF communications

4.3.6.1 Pilot initiation

Advise ARFF of a pilot request to initiate communications on 131.0 MHz.

*Note 1:* A national ARFF emergency frequency (131.0 MHz) is available, at designated aerodromes, for direct communication between the Fire Commander/Controller and pilot of an affected aircraft during an airport emergency. Primary use of the frequency is to coordinate the emergency response when an aircraft is on the ground. However in exceptional circumstances or at pilot initiation, communication may occur whilst the aircraft is airborne.

See [ERSA](#) for designated aerodromes

*Note 2:* All communications on 131.0 MHz are at pilot discretion.

*Note 3:* Pilots will communicate with ATC during an airport emergency on the normal ATC frequencies.

4.3.7 Reduction of ARFF category

4.3.7.1 Controller responsibilities

On receipt of notification of any reduction of ARFF category, using available information:

a) advise ARFF of aircraft that could be affected and confirm the level of ARFF cover that can be made available;

b) advise the pilot or operator of aircraft that are likely to be affected;

c) broadcast information on the ATIS (if appropriate); and

d) complete a journal entry for record and information.

4.3.7.2 Supervisor responsibility

The ATSO holding Operational Command Authority/Military Supervisor determines the immediate impact on traffic caused by the reduced ARFF category.
4.3.8 Landing gear observations at night

4.3.8.1 Conduct observations
Conduct landing gear observations at night using ARFF personnel and equipment.

4.3.8.1.1 Advise Fire Commander/Controller
Advise the Fire Commander/Controller of:

a) aircraft type;
b) callsign; and
c) runway to be used.

4.3.8.1.2 Position ARFF vehicle
Direct ARFF vehicle to take up position at a distance from the runway centre line that will correspond with the altitude at which the aircraft will fly through the searchlight.

4.3.8.1.3 Aircraft line up
Instruct the aircraft to line up with and fly along the runway once the ARFF vehicle is in position.

4.3.9 Airfield closure

4.3.9.1 Advise of obstruction
In the event of an obstruction causing unserviceability of the manoeuvring area to the extent that closure of the airfield is necessary, advise all affected aircraft of:

a) the nature of the unserviceability;
b) the estimated time of airfield closure; and
c) details of facilities not available for any subsequent landing.

4.3.9.2 Aircraft diversions
If airfield closure causes aircraft diversions, the ATSO holding Operational Command Authority/Military Supervisor:

a) provides details to the agencies nominated in local instructions;
b) arranges for details of the diverting aircraft to be coordinated with affected units; and
c) confirms that a NOTAM has been issued by the responsible authority where required.
4.4 SAR alerting

4.4.1 SAR responsibilities

4.4.1.1 ATS responsibilities

ATS responsibilities include:

a) SAR alerting of:
   i) overdue aircraft following the completion of communications checks;
   ii) imminent or known aircraft crashes;
   iii) missing aircraft;
   iv) distress beacon interceptions by ATS units or reported by aircraft; and
   v) all emergency phases declared by aircraft where continued safety of flight is in doubt; and

b) assistance with the provision of aeronautical communications services for aircraft engaged in SAR operations.

4.4.1.2 Maintaining SARWATCH

Maintain SARWATCH for all aircraft subject to:

a) an air traffic control service in Class A, C, D or E airspace;

b) IFR in Class G airspace;

c) VFR on request; and

d) TIBA where capability permits.

4.4.1.2.1 Methods

Maintain SARWATCH via:

a) continuous visual or surveillance monitoring; or

b) a time nominated by ATS or a pilot which may include:
   i) an estimate;
   ii) a NOCOM time; or
   iii) a time to report, such as a SKED or an operations normal time.

4.4.1.3 SARTIME

SARTIMEs for arrival or departure must be held in CENSAR.

4.4.1.3.1 Exception

When an IFR aircraft nominates a SARTIME for departure 30 minutes or less from the time of receipt, SARTIME for departure may be held locally by the executive controller.

See MATS 8.3.1 Maintaining the SARTIME database
4.4.2 SAR response agencies and reporting structures

4.4.2.1 Services provided
AMSA is responsible for civil aviation and marine SAR services within Brisbane and Melbourne FIRs. JRCC Australia provides these services within AMSA. In civil aviation operations, JRCC Australia is responsible for the conduct of SAR for missing aircraft, aircraft reported crashed, and distress beacon searches.

4.4.2.2 JRCC Australia responsibilities
JRCC Australia provides assistance to controllers managing in-flight emergencies by:

a) providing ditching forecasts, as requested;
b) advising position of ships in the area of potential ditching and providing local weather conditions;
c) providing or coordinating marine craft assistance for aircraft over water;
d) providing access to SAR database information; and
e) providing general assistance and resources.

4.4.2.3 SAR services
Within other FIRs administered by Airservices, civil aviation SAR services are defined in the LoA for the airspace.

4.4.2.4 Area of responsibility
ATS centres and units act as collecting points for information concerning an aircraft emergency within their area of responsibility.

4.4.2.5 Points of contact
Within the Brisbane and Melbourne Centres, the point of contact is the Operations Room Manager or other specifically nominated person.

4.4.2.6 Defence ATS units
Defence ATS units collate information regarding civil aircraft emergencies within their area of responsibility.

4.4.2.7 Coordination with JRCC Australia
Effect Tower/TCU coordination with JRCC Australia:

a) when there is no affect on the adjacent centre; and
b) via ATSO holding FIR Operational Command Authority when it may affect the adjacent centre or due to workload considerations.
4.4.2.8 Alerting posts

All ATS units are designated as 'Alerting Posts' and are responsible for:

a) declaring emergency phases;
b) responding to in-flight emergencies;
c) notifying appropriate authorities regarding aircraft in need of search and rescue aid; and
d) assisting such authorities as required.

4.4.2.9 Alerting service procedures

In the provision of an alerting service, notify:

a) emergency services at ATS staffed aerodromes;
b) the Police for the activation of emergency services at non-ATS staffed aerodromes (unless the Department of Home Affairs has had prior notification as part of the IFER checklist);
c) appropriate authorities of hijack and bomb warnings;
d) JRCC Australia of overdue aircraft after communications checks on ATS frequencies fail to reveal news of that aircraft;
e) JRCC Australia of information concerning imminent or known aircraft crashes, or missing aircraft; and
f) JRCC Australia of distress beacon activations heard or reported by third parties.

4.4.3 SAR messages

4.4.3.1 SAR message

Despatch the 'Urgent SAR Message' form or ALR message as an alerting message.

Note: The Urgent SAR Message form is contained in 'Urgent SAR Message'. The format for the ALR message is prescribed by ICAO Doc 4444-PANS ATM; however, a form able to be used to represent the ALR message during non-AFTN communication is contained in the 'International ALR Message Form'.

See MATS 13.1.1 Urgent SAR message
See MATS 13.1.3 International ALR Message Form

4.4.3.1.1 Use designator YSARYCYX

Address the international and/or domestic Alerting Message to JRCC Australia and ATS units which may be able to assist. JRCC Australia will be notified by using the designator YSARYCYX.

4.4.3.1.2 Other addressees

Include in the 'Other Information' section on the International Alerting Message the words ALSO ADDRESSED TO followed by the other addressees.
### 4.4.3.2 Appropriateness of message

If an Alerting Message is inappropriate, notify other ATS units and JRCC Australia by other available channels, and as the urgency of the situation dictates.

### 4.4.3.3 Initial alerting message

Anticipate the declaration of a phase and prepare an alerting message for prompt despatch.

*Note:* If the operational situation indicates, you may confine the initial alerting message to the preliminary emergency phase advice.

### 4.4.3.4 RCF messages

Only use RCF messages in the international service as described in the ICAO Doc 4444-PANS ATM.

#### 4.4.3.4.1 Complete communication checks

Do not consider a radio communication failure to exist until the communications checks have been completed. In practice, particularly on international HF networks, this action can take up to 10 minutes or more to complete.

### 4.4.3.5 RCF versus ALR messages

When it is apparent that an RCF message will shortly be followed by an ALR message, do not originate the RCF message.

### 4.4.4 Information from third parties

#### 4.4.4.1 Pilot reports of visual emergency signals

Report to the State or Territory Police, or as directed by local instructions, pilot reports of visual emergency signals, such as flares or ground signals.

#### 4.4.4.1.1 Reports from aircraft engaged in SAR operations

Report to the tasking authority e.g. JRCC Australia, HQJOC-AOC, the Police or other SAR coordinating authority, reports of visual emergency signals from aircraft engaged in SAR operations.

#### 4.4.4.2 Aircraft reported missing

Refer or transfer a caller to JRCC Australia if the information received advises that an aircraft for which flight notification has not been lodged, is missing.
4.4.4.2.1 **Obtain details to pass to JRCC Australia**

If the information is received by radio, obtain as many of the following details as practicable and promptly pass on information to JRCC Australia:

a) Name and contact details of person reporting;
b) Details of aircraft including type, colour, registration, callsign and markings;
c) Known details of aircraft movement, including pilot’s intentions and the number of persons on board;
d) Radio communications equipment, radio nav aids and survival equipment normally carried on the aircraft;
e) The pilot’s name and address;
f) Aircraft owner’s name and address;
g) Local action taken; and
h) Names and contacts of people who may have known the aircraft’s movements.

4.4.4.3 **Reports of distressed or crashed aircraft**

If information is received that an aircraft is in distress or has crashed, obtain as many of the following details as practicable:

a) Name, address and telephone number of person reporting;
b) Location and time of observation;
c) Full directions on how to reach the scene of the crash emergency;
d) Details of the incident, including type, colour, registration, markings and heading of aircraft;
e) Condition of passengers and crew;
f) Weather conditions;
g) Local action taken; and
h) Names and addresses of witnesses.

4.4.4.3.1 **Declare emergency phase**

Upon receiving the information regarding aircraft in distress or aircraft that may have crashed:

a) declare the appropriate emergency phase;
b) take any local action which may be possible; and
c) promptly notify JRCC Australia, if required.

4.4.4.4 **Reports from the public**

Reports can be received from the public regarding a particular SAR action. Record the caller’s name and contact number and direct the caller to contact JRCC Australia.
4.4.5 Providing information to relevant authorities

4.4.5.1 JRCC Australia and other units
Inform JRCC Australia and, as appropriate, other units, of action taken and results of inquiries, etc. Units take such action as may be requested by JRCC Australia including:

a) accepting amended flight details on search aircraft;

b) relaying urgent SAR briefings via air/ground communications; or

c) communications and distress frequency monitoring.

4.4.5.2 Advice to operator and pilot
Should the reason for a phase declaration concern a technical difficulty in an aircraft, inform the operating agency of the details immediately.

4.4.5.2.1 Restrict subsequent advice to pilot
Restrict any subsequent advice to the pilot relating to the difficulty to that authorised by the operating agency, and prefix the information with the phrase YOUR COMPANY ADVISES.

4.4.5.2.2 Uncertainty phase advice
It is not necessary to relay to a pilot that an aircraft is or was the subject of an uncertainty phase.

4.4.5.2.3 Note in Occurrence Report
Include in any required Occurrence Report whether or not the pilot and/or operator were advised.

4.4.5.2.4 Reports pertaining to international flights
In the case of an international flight, address the Occurrence Report to the main Australian operational base of the operator concerned.

4.4.5.2.5 Alert or Distress phase
When an Alert or Distress Phase is declared, and pilot and ATS workloads permit, the pilot should be informed. If necessary, this notification may be made via the operations branch of the operating agency.

4.4.5.2.6 Follow pilot suggestions
If the pilot considers that additional measures should be taken, the pilot’s suggestions should be followed, if practicable.
4.4.6 Distress beacon signals

4.4.6.1 Distress beacon more than 10 seconds
Declare a distress phase when a distress beacon has been heard on 121.5, 243.0 and/or 406.0 MHz for a period in excess of 10 seconds.

4.4.6.1.1 Phase reporting
Report the phase to JRCC Australia detailing:
   a) position;
   b) route;
   c) height;
   d) time signal was first received; and
   e) description of signal characteristics.

4.4.6.2 Unscreened beacon tests
Refer all requests for unscreened beacon tests to JRCC Australia who provides details of known beacon tests within the FIR.

4.4.6.3 Pass on test information
Pass information on tests to units (including military).

4.4.6.4 Distress beacon signal report form
Send a Distress Beacon Signal Report Form following initial advice to JRCC Australia. See MATS 13.1.2 Distress Beacon Signal Report Form

4.4.6.4.1 Distress beacon signals on other frequencies
Report signals, having the characteristics of distress beacon signals, heard on frequencies other than 121.5, 243.0 and/or 406.0 MHz to JRCC Australia. Do not declare a phase regarding these signals unless other information indicates that an emergency exists.
4.4.7 Handover of SAR responsibility

4.4.7.1 Handover to Joint Rescue Coordination Centre, Australia (JRCC Australia)

When responsibility for SAR action is being transferred to JRCC Australia, make formal advice of the transfer:

a) verbally by the ATSO holding FIR Operational Command Authority/Military Supervisor by stating: 'REQUEST JRCC AUSTRALIA ACCEPTS RESPONSIBILITY FOR SAR ACTION ON (callsign)';

b) as necessary, in writing:
   i) by completion of an Urgent SAR Message form (See Clause 13.1.1); or
   ii) by other means such as email or fax; and

c) by JRCC Australia confirming acceptance of responsibility for SAR action by stating: 'JRCC AUSTRALIA ACCEPTS SAR RESPONSIBILITY FOR (callsign)'.

Note: When transfer is completed by other SAR alerting agencies, JRCC Australia will advise if there are any other requirements.

See MATS 13.1.1 Urgent SAR message

4.4.7.2 Handover to HQJOC-AOC

When responsibility for SAR action on any military aircraft is being transferred to HQJOC-AOC, make formal advice of the transfer:

a) verbally using the phrase 'REQUEST HQJOC-AOC ACCEPTS RESPONSIBILITY FOR SAR ACTION ON (callsign)';

b) as necessary, in writing:
   i) by completion of an Urgent SAR Message form (See Clause 13.1.1); or
   ii) by other means such as email or fax; and

c) by HQJOC-AOC confirming acceptance of responsibility for SAR action by stating: 'HQJOC-AOC ACCEPTS SAR RESPONSIBILITY FOR (callsign)'.

See MATS 13.1.1 Urgent SAR message

4.4.7.2.1 Contact numbers

Contact HQJOC-AOC using the following:

<table>
<thead>
<tr>
<th>Details</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Phone Number (H24)</td>
<td>02 6128 4810</td>
</tr>
<tr>
<td>Secondary Phone Number (Business Hours)</td>
<td>02 6128 4849</td>
</tr>
<tr>
<td>Tertiary Phone Number (Business Hours)</td>
<td>02 6128 4850</td>
</tr>
<tr>
<td>Primary Email</td>
<td><a href="mailto:aocwatch@defence.gov.au">aocwatch@defence.gov.au</a></td>
</tr>
<tr>
<td>AFTN</td>
<td>Not available</td>
</tr>
</tbody>
</table>
4.5 Reporting

4.5.1 Report requirements

4.5.1.1 Submitting report

If you are aware that an accident, incident or event has occurred, ensure that applicable immediate notification requirements are met and an appropriate report is submitted.

See AIP ENR 1.14.

4.5.1.1.1 Report as soon after occurrence

The ATSO holding Operational Command Authority/Military Supervisor responsibility, being aware of an occurrence, ensures that it is reported as soon as possible (but no later than the end of shift).

*Note 1:* Occurrence reporting by an agent outside ATS, such as a pilot, an airline company representative or a military unit does not negate ATS responsibility to report.

*Note 2:* An awareness that an occurrence has been or will be reported by another ATS Unit does not preclude any ATS Unit from additional reporting when it is considered warranted.

4.5.2 Miscellaneous reports

4.5.2.1 Bushfires

On receiving a report of a bushfire that you believe is not known to the appropriate authority, pass the information:

a) to the authority specified in local instructions by the most expeditious method, assigning the priority indicator DD to the message; and

b) to the appropriate Meteorological Watch Office (MWO).

4.5.2.2 Marine incidents

Pass all details of a marine emergency e.g. sighting of a vessel in distress, to JRCC Australia or as directed in local instructions.

4.5.2.3 Malicious radio transmissions

Report unauthorised (malicious) radio transmissions to aircraft as detailed in local instructions.

4.5.2.4 Oil spill notification

Notify maritime oil spill reports to AMSA.
4.6 Department of Home Affairs Incident Control Directions

4.6.1 Responsibilities

4.6.1.1 Relaying controller
Relaying controllers may transmit Department of Home Affairs Incident Control Directions with less formal phraseology than specified by the Department of Home Affairs (e.g. when there are language difficulties), taking care not to alter the intent of the direction.

*Note:* ATS is not responsible for ensuring that a pilot complies with the direction.

4.6.1.2 Communication
Use fixed communication lines between ATS units, or telephone where the lines are not available.

4.6.1.3 Confirm authority
If in doubt about the identity of the duty ORM relaying the direction, call back to confirm the authority of the direction.
5 Special operations

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5.1 Special operations

5.1.1 Release of meteorological balloons near aerodromes

5.1.1.1 BoM notification

For BoM meteorological balloon releases within 3 NM of a controlled aerodrome, detail specific coordination procedures in a Letter of Agreement (LoA) between ATS and BoM.

*Note 1:* BoM staff notify the control tower to coordinate a balloon release whenever they intend to release a meteorological balloon within 3 NM of a controlled aerodrome and also if a release is delayed by more than 2 minutes from the notification time or release time nominated by ATC.

*Note 2:* The LoA may vary the time interval required for extra coordination following a delayed release to account for local circumstances.

5.1.1.2 Delay balloon release

You may delay balloon release when there is a possibility of conflict with aircraft taking off, landing or conducting a go-around.

5.1.1.3 Directed advice

Advise aircraft that may be operating in close proximity to the balloon below 2000 FT AGL.
5.1.2 Remotely Piloted Aircraft Systems (RPAS)

5.1.2.1 Separate RPAS

Separate RPAS from other aircraft using the separation standards applicable to manned aircraft when:

a) the RPAS is capable of presenting real time navigational information using approved navigation systems; and

b) continuous two-way communication is maintained between the RP and the ATC unit.

5.1.2.1.1 RPAS surveillance

When required, instruct transponder equipped RPAS to squawk:

a) 7000 (generic); or

b) a discrete code.

Note: When there is a Lost Link between the RP and RPA, the RPA may automatically select 7400.

See MATS 4.2.22.1 Lost Link

5.1.2.2 Segregate RPAS

Segregate RPAS, who do not meet the requirements of Clause 5.1.2.1, from other aircraft when the operation is:

a) above 400 FT AGL in controlled airspace;

b) over the movement area of a controlled aerodrome; or

c) over the approach or departure path of a runway of a controlled aerodrome.

See MATS 5.1.2.1 Separate RPAS

5.1.2.2.1 Segregation methods for RPAS

Segregate RPAS using methods assessed as suitable by Operational Standards (civil) or local Defence ATS Unit (military).
5.1.3 Customs surveillance flights

5.1.3.1 Pass messages
Pass messages originated by Customs to surveillance aircraft in flight.

*Note:* Messages originated by Customs and intended for surveillance aircraft in flight are addressed to the ATS unit in communication with the aircraft.

5.1.3.2 Report suspicious circumstances
Report aircraft considered to be operating in suspicious circumstances to Customs.

*Note:* The precise meaning of 'suspicious circumstances' is left to the discretion of the ATSO becoming aware of a particular occurrence.

5.1.3.2.1 Examples of suspicious circumstances
Examples of activities which should be notified include reports of:

a) aircraft signalling to the ground;

b) objects seen to be dropped from aircraft;

c) aircraft operating at night without navigation lights;

d) unusual activity at aerodromes e.g. operation of aircraft not normally seen in the area, and thefts of aviation fuel;

e) recent activity at remote airstrips e.g. fire breaks, recent grading, grass cutting, and positioning of fuel drums;

f) movements of unidentified itinerant aircraft, especially if there is a suggestion that they are travelling from or to an overseas destination;

g) unexplained activity at remote airstrips;

h) aircraft operating from sites not recognised as aerodromes e.g. beaches, roads, etc; and

i) any other matters indicating the likelihood of illegal activity gained in the course of an ATS unit’s normal functions, for example:

   i) unexplained elements in a flight plan;

   ii) aircraft making unscheduled landings or diversions from route without adequate explanation; and

   iii) marked discrepancies in flight times.
5.1.3.2.2  Other unusual or suspicious activities

Report any other unusual or suspicious activities to Customs, including:

a) illegal fishing in the 200 NM Australian Fishing Zone;

b) smuggling of drugs and other prohibited goods;

c) unauthorised landings (by sea or air) that could introduce diseases or pests;

d) illegal immigrants entering Australia without authority;

e) threats to the well-being of the Great Barrier Reef including pollution, illegal fishing and removal of species; and

f) unusual activities in remote areas (including habitation, camp-sites, new coastal airstrips, wrecks, isolated vehicles, wheel tracks and changes to permanent features).

5.1.3.3  Surveillance report (SURVEREP) procedure

Relay SURVEREP from Customs or RAAF aircraft engaged in surveillance flights to the Australian Maritime Security Operations Centre:

a) on 1800 041 800; or

b) to YSCBCUST DD priority.

5.1.3.3.1  Identifier

Insert the identifier SURVEREP in the text immediately following the aircraft identification.

5.1.3.3.2  Reports from other sources

Use the SURVEREP procedure to notify Customs of reports originated by non-Customs aircraft or ATS units.

5.1.4  Police operations

5.1.4.1  POLAIR RED

Give police aircraft priority when they are engaged in situations where life is threatened. In such cases the police will use the POLAIR RED (or FEDPOL RED) callsign.

5.1.4.2  When POLAIR RED (or FEDPOL RED) is inappropriate

Where, due to the type of operation, the use of the POLAIR RED (or FEDPOL RED) callsign is inappropriate, Police Operations Centres may negotiate special procedures with ATC. Where possible, these procedures are promulgated in local instructions.
5.1.4.3 **Callsigns**

The following table lists callsigns used by the Police and Federal Police:

<table>
<thead>
<tr>
<th>Police or Federal Police</th>
<th>Situation</th>
<th>Pilot phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police</td>
<td>Police in life threatening situations</td>
<td>POLAIR RED PRIORITY on first contact, then POLAIR RED POLAIR RED (number)</td>
</tr>
<tr>
<td>Federal Police</td>
<td>Federal Police in life threatening situations</td>
<td>FEDPOL RED PRIORITY on first contact, then FEDPOL RED FEDPOL RED (number)</td>
</tr>
</tbody>
</table>

5.1.5 **Unlit or masked external lighting on military aircraft**

5.1.5.1 **Responsibility and action**

Pilot and ATS actions for unlit or masked external lighting on military aircraft:

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>Advises the area of operations (including the operating band of levels) in the flight notification.</td>
</tr>
<tr>
<td>ATC</td>
<td>Advise aircraft in a controlled airspace environment of the unusual military activity.</td>
</tr>
<tr>
<td>ATC</td>
<td>Separate according to local procedures determined by the night vision device user and the airspace controlling authority.</td>
</tr>
<tr>
<td>NOF</td>
<td>Issue NOTAM, as directed, to advise other airspace users of unusual military activity outside controlled airspace.</td>
</tr>
</tbody>
</table>
5.1.6 Military Non-Continuous Communication (NOCOM) flights

5.1.6.1 Situation

Certain military flights may be unable to maintain continuous communications and make normal position reports.

5.1.6.2 Flight planning

Pilots are required to annotate Item 18 of the flight plan using the abbreviation NOCOM for flights intending to operate NOCOM and include:

a) the number of minutes after ATD that NOCOM will commence to the number of minutes after ATD that NOCOM will cease;

b) the agency for NOCOM cancellation; and

c) the associated frequency.

See AIP

*Note:* NOCOM aircraft normally attempt to monitor the appropriate frequency including HF.

5.1.6.3 Cancellation time

Regard the NOCOM cancellation time as a scheduled report time for SAR purposes, not a SARTIME.

5.1.6.4 SAR responsibility

The unit nominated in the NOCOM advice is responsible for SAR.

5.1.6.5 Area of operation

Military aircraft normally operate NOCOM in military Restricted Areas and Class G airspace only. ATC approval is required prior to flight planning NOCOM in controlled airspace.

See MATS 10.2.1.2 Establish direct communications

5.1.6.6 Reporting requirement

NOCOM details and requests may be passed while the aircraft is still in controlled airspace. The requirement for normal reporting remains until the aircraft is in Class G airspace (or other airspace as approved) and reports going NOCOM. Where possible, meet pilot requests for early transfer.
5.1.7 Military Maritime Surveillance flights

5.1.7.1 Flight information
Refer to Flight Information Handbook Australia.

5.1.8 Military Special Requirements flight

5.1.8.1 Applicability
Special requirements flights apply to operations of military aircraft with:

a) limited COM/NAV equipment;
b) limited fuel endurance; or
c) requirements as decided by the military authority.

*Note:* In all cases, the flight plan will indicate 'MILSPECREQ'.

5.1.8.2 Flight clearances
Issue clearances to special requirements flights that, as far as possible, permit the operation to proceed in accordance with the submitted flight notification, including:

a) planned routing or prescribed alternative routing;
b) pilot-selected cruising levels; and

c) unrestricted climb to cruising level, with no level restrictions.

5.1.8.2.1 Start approval
Start approval is required.

5.1.8.2.2 Approval for initial climb
Coordinate with all ATC units affected by the aircraft's initial unrestricted climb before approving the aircraft to start.

See MATS 6.4.3.2 All ATS units to all ATS units

5.1.8.3 Occurrence Report
Submit an Occurrence Report if, after engine start, there are any ATC initiated instructions requiring changes to the MILSPECREQ aircraft's route or cruising level.

5.1.8.4 Conflicts
When a MILSPECREQ aircraft conflicts with higher priority operations, negotiate with the pilots to determine who can accommodate an amendment or restriction. Where possible, give the other aircraft the necessary instructions to maintain separation.
5.1.8.5 Pilot advice cancelling MILSPECREQ

Provide standard priority on pilot advice that MILSPECREQ priority is no longer required.

5.1.8.6 Deviations

Avoid issuing instructions requiring an aircraft, cleared to proceed according to flight notification, to deviate from its plan unless aircraft safety may be compromised.

5.1.9 Military Authority Assumes Responsibility for Separation of Military Aircraft

5.1.9.1 Overview

Certain military operations require separation standards or procedures not generally available for routine civil and military flights (e.g. aerial refuelling and towed banner operations). MARSA is a procedure whereby military pilots undertake to self-separate where it would normally be the responsibility of ATC.

Refer to Flight Information Handbook Australia

5.1.9.2 MARSA initiation

Do not initiate MARSA.

5.1.9.3 MARSA approval

Approve initiation of MARSA procedures when ready to permit pilot self-separation and there are no conflicts with non-participating traffic.

5.1.9.4 Separation

Provide standard separation between aircraft engaged in MARSA operations and all non-participating aircraft.

5.1.9.4.1 At completion of operations

MARSA continues to apply to participating aircraft until a level separated from the MARSA limits has been assigned and reached, unless it is known that all aircraft operating within MARSA are separated by an ATC standard that can be maintained.

5.1.9.4.2 MARSA block levels

Where a required block level extends beyond the limits of controlled airspace issue a clearance to include only that portion within controlled airspace.
5.1.9.5 Rendezvous assistance

On request, you may provide advisory ATS surveillance system derived information to assist participating MARSA aircraft to rendezvous.

*Note:* The ultimate responsibility for separation remains with the pilots.

5.1.9.6 MARSA clearances

Ensure MARSA participants are aware of the operating limits when issuing clearances to commence and terminate. To achieve this, include the phrase 'MARSA (callsign)' in the clearance for any aircraft to participate in MARSA, and during termination of the procedure, as shown in the following table:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Example ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>To commence MARSA operations (each aircraft)</td>
<td>MAINTAIN BLOCK FL270 TO FL290, MARSA (callsign)</td>
</tr>
<tr>
<td>When MARSA operations are complete</td>
<td>CLIMB TO FL330, MARSA (callsign)</td>
</tr>
<tr>
<td>At conclusion of MARSA operations and when standard separation is being applied between aircraft</td>
<td>MARSA TERMINATED</td>
</tr>
</tbody>
</table>

5.1.10 Due regard operations

5.1.10.1 ATS not responsible

ATS is not responsible for:

a) ATS to due regard aircraft; and

b) separation between due regard aircraft and other aircraft.

5.1.10.2 Pass information

Notify other affected ATS units and aircraft when first becoming aware of due regard operations.

5.1.10.3 Notification

Do not expect that due regard operations will always be notified.

*Note 1:* State aircraft that are operating with due regard are not complying with Air Traffic Control rules and procedures but rather undertaking responsibility for collision avoidance with other traffic complying with Air Traffic Control rules and procedures.

*Note 2:* State aircraft of any country may operate due regard outside the territorial limit of Australia. Australian territory is defined as that area over land and sea out to 12 NM from the coast.

*Note 3:* Australian state aircraft may operate due regard and foreign state aircraft must operate in accordance with their authorisation which may include due regard operations.
5.1.11 Military Air-to-air refuelling

5.1.11.1 AAR methods

AAR may occur by two separate methods:

a) Anchor refuelling, in an area published in DAH; or
b) Track refuelling, along a route published in DAH.

*Note 1:* A standard tanker orbit pattern will be used to establish the refuelling formation prior to commencing track refuelling.

*Note 2:* AEWC aircraft may also use published anchor refuelling areas.

5.1.11.2 Use tanker approvals

When calculating lateral separation, apply tolerances to the defined areas or routes based on the navigation approvals of the tanker.

5.1.11.2.1 Standard tanker orbit pattern

A standard tanker orbit pattern is defined by the following dimensions:

![Standard Tanker Orbit Pattern Dimensions](image)

5.1.11.3 Adjusting heading or level

When AAR has commenced, obtain agreement from the tanker before adjusting the aircraft’s heading or level.

5.1.11.4 Priority once AAR is complete

For AAR involving MILSPECREQ aircraft, confirm the MILSPECREQ status with the pilot when AAR is complete.

See MATS 5.1.8.5 Pilot advice cancelling MILSPECREQ
5.1.12 Electronic interference

5.1.12.1 Suspected interference

Advising the supervisor if Defence activities are suspected of causing electronic interference to other airspace users. The supervisor is responsible to assess the situation and, if necessary, authorise the Cease Buzzer procedure.

5.1.12.1.1 Cease Buzzer - aircraft activities

When authorised by the supervisor, transmit the phrase '(callsign) CEASE BUZZER, CEASE BUZZER, CEASE BUZZER' to the suspected aircraft. Coordinate with the responsible agency where the suspected aircraft is not in direct communications.

5.1.12.1.2 Cease Buzzer - ground-based activities

For ground-based GNSS jamming activities contact the responsible Defence agency with the Cease Buzzer request.

5.1.12.1.3 Submit a report

Submit an Occurrence Report when the Cease Buzzer procedure is applied.

5.1.13 Medium and Heavy Unmanned Free Balloons

5.1.13.1 Hazard alerts

Transmit the following Hazard Alert information regarding Medium and Heavy Unmanned Free Balloon flights concluding at the expected time of impact:

a) if launching from an uncontrolled site, 10 minutes before notified expected launch time until the balloon passes FL200;

b) 10 minutes prior to cutdown; and

c) during cutdown, including:
   i) expected position and time at FL600;
   ii) track; and
   iii) location and time of expected impact.

5.1.14 Flight Inspection aircraft

5.1.14.1 Compliance and planning

**Note:** Flight Inspection aircraft may plan and operate contrary to CAOs and AIP.
5.1.15 Fireworks

5.1.15.1 Planning for firework activities

When consulted for planning of firework activities that will occur within controlled airspace, complete a risk assessment to determine the impact on ATS. Considerations may include whether:

a) the activity will affect traffic flow or traffic management; and
b) ATC permission is required.

**Note 1:** ATC permission is required for firework activity that may affect the movement area or the approach/departure path of a runway at a controlled aerodrome.

**Note 2:** CASA approval is required for firework activities above 400 FT AGL in any airspace.

5.1.15.1.1 Fireworks operator requests

If contacted directly by a fireworks operator at the planning stage, refer the operator to CASA.

5.1.15.2 Providing permission

When granting permission for firework activities to commence, ensure the following has occurred or will occur prior to commencement of the display:

a) Advice to affected pilots of pending activity; and
b) The facilitation of pilot requests to exit or avoid the area.

**Note:** ATC are not responsible to separate or segregate aircraft from firework activities.

See MATS 9.1.3 Transmission of information

5.1.15.2.1 Record permission

Record the granting of permission for firework activities in the AOJ.
5.2 Parachuting

5.2.1 Parachute Jumping Exercise

5.2.1.1 Clearance
Provide clearances authorising parachute descents through Restricted Areas or Classes A, C or D airspace.

5.2.1.1.1 Individual clearances
Unless operating under a blanket clearance specified in a letter of agreement, issue an individual clearance for each drop.

5.2.1.2 Traffic information for parachute drop
Provide traffic information for parachute descents through Class E airspace:

a) to PJE aircraft on IFR, known VFR and observed ATS surveillance system position symbols; and
b) to non-PJE IFR aircraft and aircraft using IFR pick-up about PJE aircraft.

5.2.1.3 Separation
Separate parachutists and non-PJE aircraft except in Class E or Class G airspace.

Note 1: Pilots are responsible for making sure airspace below CTA is clear before dropping parachutists.

Note 2: Pilots are required to notify ATC when all parachutists are on the ground.

5.2.1.4 Drop clearance cancellation
Check if any parachutists have left the aircraft prior to cancelling a drop clearance.
5.2.2 Separation during PJE

5.2.2.1 Drop zones in close proximity
Pass only traffic information to participating operators where:

a) two or more drop zones are located in close proximity;
b) parachute operators have agreed to self-separate; and

c) parachute operator agreements are documented in local instructions.

Note 1: Pilots of PJE aircraft at the same drop zone are responsible for separation between their aircraft and are solely responsible for separation between PJE aircraft and parachutists.

Note 2: A participating pilot may request a separation service for the PJE aircraft in accordance with the airspace class, but must continue to self-separate until ATC is satisfied that a separation standard has been achieved and can be maintained.

5.2.2.2 Separation of parachutists and non-PJE aircraft
Base separation on a requirement for parachutists to be dropped and remain within 1 NM of the centre of the drop zone.

Note 1: The drop area is the airspace through which the parachutists will descend after leaving the PJE aircraft.

Note 2: The drop zone is the intended landing area on to which the parachutists will descend.

See MATS 5.2.2.2.6 Diagram - PJE separation

5.2.2.2.1 Non-standard drop area dimensions
When a drop area of non-standard dimensions is requested by the PJE pilot and approved by ATC, define the new dimensions in a clearance and assign responsibility to the parachutists to remain within the non-standard drop area.

5.2.2.2.2 Segregation from Restricted Area
Ensure the drop area is outside of a Prohibited or Restricted Area unless approval or a clearance has been obtained from the controlling authority.

5.2.2.2.3 Drop area - Letter of Agreement
You may define the drop area in a Letter of Agreement between ATS and the PJE operator.
5.2.2.4 Drop area separation
Except as specified in Clause 5.2.2.5, separate non-PJE aircraft from the drop area until:

a) receipt of advice that all parachutists are on the ground; or
b) the PJE pilot reports that all parachutists are clear of controlled airspace.

See MATS 5.2.2.5 Parachutists below an altitude

5.2.2.5 Parachutists below an altitude
ATC may separate non-PJE aircraft from parachutists that have been established below an altitude:

a) as reported by the PJE pilot; or
b) based on the verified pressure altitude of the PJE aircraft provided that:
   i) the PJE aircraft is cleared to operate not below the highest parachutist using the phrase '(callsign) CLEAR TO DROP, DESCEND TO (level) (or LEAVE CONTROLLED AIRSPACE DESCENDING), NOT BELOW PARACHUTISTS [UNTIL OUTSIDE CLASS (letter) AIRSPACE (or UNTIL BELOW (level))]'; and
   ii) this is specified in a Letter of Agreement between ATS and the PJE operator.

5.2.2.6 Diagram - PJE separation
The following illustrates PJE separation:
5.2.2.3  **PJE aircraft not entering a Restricted Area**

You may assign a PJE pilot responsibility for not entering an adjacent active Restricted Area(s) when:

a) the Restricted Area is classified as:
   i) non-flying; or
   ii) flying, when no ATC services are provided;

b) the PJE aircraft is:
   i) a VFR flight under its own navigation;
   ii) conducting PJE operations; and
   iii) at or below FL150;

c) the PJE pilot requests clearance including the phrase 'CLEAR OF RESTRICTED AREA (number(s)), VISUAL';

d) you include the phrase 'RESTRICTED AREA (number(s)) ACTIVE, REMAIN CLEAR' with the clearance; and

e) the procedure is detailed in a Letter of Agreement between ATS and the PJE operator.

*Note:* The PJE aircraft is not required to maintain a minimum distance from the Restricted Area.

5.2.2.3.1  **Vectoring prohibited**

Unless separated from the Restricted Area, do not vector a PJE aircraft when the PJE pilot is responsible for not entering the Restricted Area.

5.2.2.3.2  **MATS Supp entries**

Detail in MATS Supps:

a) locations where Airservices may assign a PJE pilot responsibility for not entering an adjacent active Restricted Area where Defence is the controlling authority; and

b) the procedure for determining when ATC services are provided within Restricted Areas designated as military flying or military flying/non-flying.

See MATS 2.4.3.4 Non-participating aircraft

See MATS 10.2.2.1 Half the applicable standard

5.2.2.4  **Use of a line feature**

You may separate non-PJE aircraft from parachutists agreeing to use a line feature provided:

a) the target is at least 200 m away from the closest point of the line feature;

b) the drop occurs from 10 000 FT or below;

c) it is by day in VMC; and

d) the service provider agrees and the procedure is detailed in a Letter of Agreement between ATS and the PJE operator.
5.2.2.4.1 Use of geographical fix
You may assign responsibility to parachutists to remain within certain limits of and on a particular side of a geographical fix e.g. 'PARACHUTISTS REMAIN WITHIN 1 NM OF THE TARGET AND TO THE WEST OF (line feature)'.

Note: Parachutists will remain within 1 NM of the target on the same side of the line feature.

5.2.2.4.2 Briefing
Brief parachutists on the navigational tolerances to be applied:
a) prior to the exercise (preferred); or
b) through the PJE aircraft pilot.

5.2.2.4.3 Lateral separation when using a line feature
You may apply lateral separation between parachutists using a line feature and non-PJE aircraft by applying the visual tracking tolerances of the non-PJE aircraft to the drop area.

5.2.2.5 Visual separation - PJE aircraft for parachutists
Only assign the PJE aircraft responsibility for separation between the parachutists and a non-PJE aircraft. Due to wake turbulence, the non-PJE aircraft must be 7000 kg MTOW or less.

5.2.2.6 Visual separation with parachutists - Tower
Tower may provide visual separation, between parachutists and non-PJE aircraft:
a) when the non-PJE aircraft is 7000 kg MTOW or less; or
b) in the circuit area, provided ATC are satisfied that parachutists will remain clear of wake turbulence.
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6.1 Communication priorities

6.1.1 Voice and Data Link communication priorities

6.1.1.1 Preferred means

The priority, in descending order, of the preferred means of communicating with an aircraft is:

1) direct controller-pilot voice communication (VHF/UHF);
2) direct controller-pilot data link communication (CPDLC); and
3) third party HF communications.

6.1.1.1.1 Use of SATCOM voice

SATCOM voice may only be used for communications for non-routine situations where other communication means are either not available or are inappropriate for the situation.

6.1.2 AMS message priorities

6.1.2.1 Priority of AMS messages

Aeronautical Mobile Service (AMS) handles the following categories of messages in order of priority:

a) distress calls, distress messages and distress traffic;
b) urgency messages;
c) communications relating to direction finding;
d) flight safety messages;
e) meteorological messages;
f) flight regularity messages; and
g) bushfire reports.

Note: A NOTAM may qualify for any of the categories from c) to g) above depending on contents of the NOTAM and its importance to the aircraft concerned.
6.2 Callsigns

6.2.1 Aircraft

6.2.1.1 Callsign confusion
When similar callsigns may cause confusion you may take action to minimise errors including:

a) emphasising certain numbers/letters;
b) repeating the entire callsign e.g. QANTAS451 QANTAS451;
c) repeating the prefix e.g. QANTAS451 QANTAS;
d) advising pilots that there are aircraft with similar callsigns on frequency; or

e) instructing pilots to use a different callsign either temporarily or for the duration of the flight.

6.2.1.2 ICAO designators
ICAO approved designators are available in the ICAO Doc. 8585 - Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

6.2.1.3 Airservices approved designators
The following table lists two-letter and telephony designators approved by Airservices for use by aircraft operating agencies within Brisbane and Melbourne FIRs.

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### 6.2.1.4 Special task designators

Australian special task designators are detailed in AIP.

### 6.2.2 Callsigns for military aircraft

#### 6.2.2.1 Air Force callsigns

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### Callsigns

#### 6.2.2.1

**Note 1:** RAAF aircraft formations are identified by a single word callsign drawn from the list of suffixes for the operating squadron or unit. Individual aircraft within a formation are identified numerically using the formation position number prefixed with a daily task number e.g. formation callsign CANN contain individual elements CANN11, CANN12, CANN13, etc. Aircraft broken from a formation do not use the group form radio telephony e.g. CANN11 would be pronounced ‘CANNON ONE ONE’.

**Note 2:** When two or more military aircraft (single or formation) join in formation, the lead aircraft may append COMBINE to their single or formation rootword callsign to become the newly joined formation callsign e.g. ‘DRGN10 COMBINE’.

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<tr>
<th>Unit/location</th>
<th>Aircraft type</th>
<th>Single aircraft rootword</th>
<th>Abbreviation</th>
<th>Formation rootword</th>
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<td>ASY</td>
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<td>HARR</td>
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<td>Cyclops</td>
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<td>EGLE</td>
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<td>TANG</td>
<td>Lightning</td>
<td>LTNG</td>
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<td>Twister</td>
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**Museum Heritage HRTG Black BLCK**

**RAAF International**

**All Aussie ASY**

**RSAF Flight Screening Tamworth**

**CT4B Harrier HARR**

**126 SQN RSAF Oakey**

**AS32 Starling STAR**

**DIAM Opal Ruby Topaz**

**CH47 Concorde CNCD**

**Celtic Cyclops CELT CYCP**

**130 SQN RSAF Pearce**

**PC21 Eagle Tango (test flight)**

**EGLE TANG**

**Cyclone Lightning Monsoon Storm Twister**

**CYCN LTNG MONS STRM TWST**

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**Note 1:** RAAF aircraft formations are identified by a single word callsign drawn from the list of suffixes for the operating squadron or unit. Individual aircraft within a formation are identified numerically using the formation position number prefixed with a daily task number e.g. formation callsign CANN contain individual elements CANN11, CANN12, CANN13, etc. Aircraft broken from a formation do not use the group form radio telephony e.g. CANN11 would be pronounced ‘CANNON ONE ONE’.

**Note 2:** When two or more military aircraft (single or formation) join in formation, the lead aircraft may append COMBINE to their single or formation rootword callsign to become the newly joined formation callsign e.g. ‘DRGN10 COMBINE’.
### 6.2.2.2 Army callsigns

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<th>Aircraft type</th>
<th>Single aircraft or formation rootword</th>
<th>Rootword abbreviation</th>
<th>Optional suffix all units</th>
<th>Suffix abbreviation all units</th>
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<td>VIGL</td>
<td>For formations</td>
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<tr>
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<td>CDER KNGT LGON SAXN TPLR VDAL VOUS VLAN</td>
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<td>Breaker Finch Kestrel Monarch Scimitar Scout Shrike Trooper Waler</td>
<td>BRKR FNCH FRTL KSTL MRCH SCIM SCOT SHRK TRPR WALR</td>
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<td>Bushranger Griffin</td>
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<tr>
<td>HQ 6 AVN REGT/HOLSWORTHY</td>
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### 6.2.2.3 Navy callsigns

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**Applicable to All Navy Aircraft in Conjunction with the Rootword**

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6.2.2.4 Callsigns of civil aircraft involved in ADF support

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<td>Fresco</td>
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<td>- Strike Role</td>
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<td>- Target Tug</td>
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<td>- Formation</td>
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<td>Lyrebird</td>
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<td></td>
<td>Shadow</td>
<td>SHDW</td>
</tr>
<tr>
<td>- RAAF Operations</td>
<td>Crowbar</td>
<td>CRBR</td>
</tr>
<tr>
<td></td>
<td>Sledgehammer</td>
<td>SHMR</td>
</tr>
<tr>
<td>- Other Operations</td>
<td>Enigma</td>
<td>ENGA</td>
</tr>
<tr>
<td></td>
<td>Stalker</td>
<td>SLKR</td>
</tr>
<tr>
<td>- ADF Task</td>
<td>HI-Edge</td>
<td>HIDG</td>
</tr>
<tr>
<td>- DSTO Task</td>
<td>Deep-View</td>
<td>DPVU</td>
</tr>
<tr>
<td>ADF PTS</td>
<td>Nadzab</td>
<td>NDZB</td>
</tr>
<tr>
<td>Australian Helicopters Pty Ltd</td>
<td>Lody</td>
<td>LODY</td>
</tr>
<tr>
<td>Military SAR Operations CHC Helicopters</td>
<td>Chopper</td>
<td>CHOP</td>
</tr>
</tbody>
</table>

6.2.2.5 Reserved callsigns

The following callsigns are reserved for future use:

<table>
<thead>
<tr>
<th>Telephony</th>
<th>Designator</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARIBOU</td>
<td>CBOU</td>
</tr>
<tr>
<td>DAGGER</td>
<td>DAGR</td>
</tr>
<tr>
<td>MIRAGE</td>
<td>MIRG</td>
</tr>
<tr>
<td>OUTBACK</td>
<td>OBAK</td>
</tr>
</tbody>
</table>
## 6.2.3 Unit callsigns

### 6.2.3.1 ATS unit

<table>
<thead>
<tr>
<th>ATS unit</th>
<th>Unit callsign when communicating with aircraft/ground vehicles</th>
<th>Inter-unit callsigns</th>
<th>Intra-unit callsigns</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF International</td>
<td><em>(Name of the unit)</em></td>
<td><em>(Position Name)</em></td>
<td><em>(Position Name)</em></td>
</tr>
<tr>
<td>Flight Information Service</td>
<td>FLIGHTWATCH</td>
<td><em>(Position Name)</em></td>
<td><em>(Position Name)</em></td>
</tr>
<tr>
<td>NOTAM Office</td>
<td>-</td>
<td>NOTAM Office</td>
<td>NOTAM Office</td>
</tr>
<tr>
<td>Flight Planning Office</td>
<td>-</td>
<td><em>(Name of the unit)</em></td>
<td>Planning</td>
</tr>
<tr>
<td>Briefing Office</td>
<td>-</td>
<td><em>(Name of centre)</em></td>
<td>Briefing</td>
</tr>
<tr>
<td>Area Control SIS and FIS</td>
<td><em>(Name of the unit)</em> Centre</td>
<td><em>(Name of the unit)</em> Centre</td>
<td><em>(Sector name)</em></td>
</tr>
<tr>
<td>Aerodrome or Aerodrome/Approach Control</td>
<td><em>(Name of the unit)</em> Tower</td>
<td><em>(Name of the unit)</em> Tower</td>
<td>Tower or Flight Data or Ground</td>
</tr>
<tr>
<td>Surface Movement Control</td>
<td><em>(Name of the unit)</em> Ground</td>
<td><em>(Name of the unit)</em></td>
<td>Tower or Ground</td>
</tr>
<tr>
<td>Approach Control (on a frequency separate from Aerodrome Control)</td>
<td><em>(Name of the unit)</em> Approach</td>
<td><em>(Name of the unit)</em> Approach</td>
<td>Approach</td>
</tr>
<tr>
<td>Final Control (civil) on a frequency separate from approach control</td>
<td><em>(Name of the unit)</em> Director</td>
<td><em>(Name of the unit)</em></td>
<td>Director</td>
</tr>
<tr>
<td>Departure Control (on a frequency separate from Aerodrome Control)</td>
<td><em>(Name of the unit)</em> Departures</td>
<td><em>(Name of the unit)</em> Departures</td>
<td>Departures</td>
</tr>
<tr>
<td>Final: Used when the ground installation provides a dedicated final control facility e.g. Amberley Final</td>
<td><em>(Name of the unit)</em> Final</td>
<td><em>(Name of the unit)</em> Final</td>
<td>Final</td>
</tr>
<tr>
<td>Clearance Delivery</td>
<td><em>(Name of the unit)</em> Delivery</td>
<td>As per local instructions</td>
<td>As per local instructions</td>
</tr>
<tr>
<td>AFIS</td>
<td><em>(Name of the unit)</em> Information</td>
<td><em>(Position Name)</em></td>
<td><em>(Position Name)</em></td>
</tr>
</tbody>
</table>
# 6.2.4 Vehicle callsigns

## 6.2.4.1 Vehicles

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Vehicle callsign when communicating with units, aircraft, ground vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine SAR Unit <em>(civil)</em></td>
<td>SAR Launch <em>(name of the unit)</em></td>
</tr>
<tr>
<td>Land SAR Unit</td>
<td>Land Rescue <em>(name of the unit)</em></td>
</tr>
<tr>
<td>Launch</td>
<td>Launch <em>(one, two, three etc.)</em></td>
</tr>
<tr>
<td>ARFF Incident Scene Commander <em>(civil)</em></td>
<td>Fire Commander</td>
</tr>
<tr>
<td>ARFF</td>
<td>Tender <em>(name of the unit)</em></td>
</tr>
<tr>
<td>Fire Truck <em>(military)</em></td>
<td>Truck <em>(name of the unit)</em></td>
</tr>
<tr>
<td>Truck Early Rescue (TER) <em>(military)</em></td>
<td>Rescue <em>(name of the unit)</em></td>
</tr>
<tr>
<td>Truck Fire General Purpose (TFGP) <em>(military)</em></td>
<td>GP/Domestic</td>
</tr>
<tr>
<td>Tractor</td>
<td>Tractor <em>(one, two, three etc.)</em></td>
</tr>
<tr>
<td>Vehicle (van, utility or truck - <em>civil</em>)</td>
<td>Car</td>
</tr>
<tr>
<td>Ambulance <em>(military)</em></td>
<td>Ambulance <em>(name of the unit)</em></td>
</tr>
<tr>
<td>ATS Vehicle <em>(military)</em></td>
<td>Ranger <em>(name of the unit)</em></td>
</tr>
</tbody>
</table>

## 6.2.4.1.1 Other radio-controlled vehicles

Identify other radio-controlled vehicles authorised to use the movement area by callsigns appropriate to their tasks.
6.3 Flight reporting requirements

6.3.1 Responsibility

6.3.1.1 Responsibility for receipt of reports
Obtain reports relating to movements at aerodromes on or near FIA boundaries. Where aerodromes are on the boundary, the unit responsible for the FIA where the aircraft:

a) has been operating, obtains the arrival report; and
b) will operate, obtains the departure report.

6.3.1.1.1 Aerodrome not on boundary
Where an aerodrome is not on the boundary, the unit responsible for the FIA in which the aerodrome is located obtains arrival and departure reports.

6.3.2 Verification of position reports

6.3.2.1 Pilot reported level
Check that the pilot reported level is consistent with the cleared level.

6.3.2.1.1 Level differences
If the reported level differs to the cleared level:

a) seek confirmation immediately; and
b) take action to ensure the accuracy of information used for ATS.

6.3.2.2 Report verification
Unless modified procedures are approved, ensure required position reports are received within expected time parameters and verified as follows:

a) Check report details and the pilot’s estimate for the next position report;

b) Ensure it is consistent with the time of receipt as a whole;

c) Compare the time interval used by the pilot with a time interval based on the ground speed made good between the reporting point just passed and the previous reporting point;

d) If the variation of time intervals varies by no more than two minutes, you may accept the pilot’s estimate for control purposes; and

e) If the variation is more than two minutes:

i) ask the pilot to check and advise ground speed;

ii) use an estimate based on advised ground speed for control purposes; and

iii) amend subsequent reporting points accordingly.
6.4 ATS coordination

6.4.1 Coordination procedures

6.4.1.1 Exchange of information
Exchange information, as necessary, between ATS officers and/or external agencies, to ensure the safe and efficient conduct of flight.

6.4.1.2 Standard coordination
Coordination, or part of coordination, may be effected using standard agreement or system means that meet the requirements of this section. Coordination effected in this way must be specified in local instructions or letters of agreement.

6.4.1.3 Coordination principles
Conduct coordination:
  a) on a point-to-point basis, whenever possible;
  b) so that traffic coordination takes precedence over non-traffic coordination requirements;
  c) on intercom or liaison channels; and
  d) on public telephone channels when c) is not available.

6.4.1.3.1 When to coordinate aircraft
Coordinate with the next ATC unit when an aircraft under your service responsibility will cross, or infringe the boundary coordination parameter of, an adjacent ATC unit boundary and a service is required to be provided by that unit.

6.4.1.4 Special circumstances
Where special circumstances require different minimum coordination requirements, you may promulgate those requirements individually within local instructions.
6.4.2 General coordination principles

6.4.2.1 Changes to estimates
Advise the receiving unit when a previously coordinated estimate has varied by more than two minutes.

6.4.2.2 Changes to coordination
When coordination has been conducted, including where standard transfer agreements exist, conduct further coordination prior to amendment of coordinated items.

6.4.2.3 Boundary positions
Consider a position reporting point or positive radio fix located 10 NM or less from an ATC unit boundary to be at the boundary for the purposes of determining coordination requirements.

6.4.2.4 Assigned level
In any coordination, prefix the cleared level as 'ASSIGNED' or 'ON CLIMB' or 'ON DESCENT' except when the:
   a) aircraft is maintaining the assigned level at the time of coordination; or
   b) the coordination is a taxi or departure advice.

6.4.2.5 Aircraft in another unit’s airspace
If you are responsible for communication with an aircraft in another unit’s airspace, coordinate all information, regarding that aircraft, with the airspace owner.

6.4.2.6 Changes to flight plan details
Coordinate any change to flight plan details involving flight into another unit’s airspace with that unit. Send a change message where other units may also be affected.

6.4.2.7 Changing IFR/VFR procedure
When an aircraft is operating, or intending to operate, using IFR Pick-up, VFR-on-top, VFR climb/descent or VFR departure – and in doing so will affect another unit’s airspace – coordinate the aircraft with that unit.

6.4.2.8 VFR-on-top at vertical boundary
Where the vertical boundary between units is a VFR level – and an aircraft is maintaining VFR-on-top at that level – coordinate the aircraft with the adjacent unit.
6.4.2.9 **IFR near VFR vertical boundary**

Do not coordinate an IFR aircraft with a vertically adjacent unit when the:

a) vertical boundary between units is a VFR level;
b) aircraft is assigned an IFR level 500 FT or more from the boundary; and
c) aircraft requires a separation minima of 1000 FT or less.

6.4.2.10 **Formation or in-company flights**

When coordinating formation or in-company flights, include the type of formation and dimensions if appropriate. For block formations or in-company flights, include the disposition of group members in the coordination.

6.4.2.11 **International NOTAM Office**

As an originator, forward details of any NOTAM requirements to the NOF.

6.4.2.12 **JRCC Australia**

Report all available information on unreported aircraft, and matters involving SAR to JRCC Australia.

6.4.2.13 **International and non-scheduled flights**

Notify the NCC when:

a) an inbound or outbound international flight diverts to an alternate aerodrome or makes an emergency landing elsewhere;
b) a flight entering Australia will land at an airport not listed in AIP as a designated international airport; or
c) information about a non-scheduled inbound international flight is received.

*Note:* The NCC is responsible for all further actions to notify the appropriate Customs and Immigration authorities.
### 6.4.3 Coordination

#### 6.4.3.1 Requirements

The following tables indicate the requirements for conducting coordination between the units specified.

#### 6.4.3.2 All ATS units to all ATS units

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any information regarding:</td>
<td>In sufficient time to allow the receiving ATC unit to take any action required</td>
<td>Required when the condition is likely to have an effect on the:</td>
</tr>
<tr>
<td>a) navaid failures;</td>
<td></td>
<td>a) operations of the other unit; and</td>
</tr>
<tr>
<td>b) communication failures or difficulties;</td>
<td></td>
<td>b) aircraft operating within the adjacent unit’s area of responsibility.</td>
</tr>
<tr>
<td>c) changes to lateral separation points;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) specification of separation responsibility;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) conditions of control e.g. pilot visual separation, wake turbulence waiver, separation restrictions etc;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) airways facilities;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) ATFM requirements, revisions or requests; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) any other significant information.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Approach expectation | | |
|----------------------|-----------------------------|
| If nominated approach is not specified on ATIS/CATIS/DATIS | Advice of actual approach to be used, at or prior to the sequence being coordinated |

<table>
<thead>
<tr>
<th>Details of released airspace (as applicable):</th>
<th>In sufficient time to allow the receiving ATC unit to take any action required</th>
<th>Where no airspace resumption time is agreed, provide 30 min notice to resume the airspace release</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Description of airspace lateral boundary or restricted airspace;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Highest and lowest useable levels; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Expected airspace resumption.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of airspace deactivation:</th>
<th>In sufficient time to allow the receiving ATC unit to take any action required</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Restricted Area number(s) or Restricted Area descriptors as listed in MATS SUPPS; and</td>
<td></td>
</tr>
<tr>
<td>b) New deactivation time.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of MILSPECREQ flights including:</th>
<th>In sufficient time to allow the receiving ATC units to take any action required</th>
<th>Required to ATC units affected by the aircraft’s initial unrestricted climb before approving the aircraft to start.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) planned routing or proposed alternative routing; and</td>
<td></td>
<td>Note: Coordination is done point to point</td>
</tr>
<tr>
<td>b) planned level or proposed alternative level.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Coordination is done point to point
6.4.3.3 Entering or exiting Restricted Airspace (surveillance); or en route control (surveillance) to en route control (surveillance)

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer conditions</td>
<td>Prior to 20 NM of the ATC unit boundary</td>
</tr>
<tr>
<td>a) same FIR and same system</td>
<td></td>
</tr>
<tr>
<td>Transfer conditions</td>
<td>Prior to the aircraft being within 50 NM or 10 minutes of the ATC unit boundary, whichever is the later</td>
</tr>
<tr>
<td>a) cross FIR; or b) different system</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** This table pertains to coordination for aircraft in controlled airspace. Aircraft entering or exiting restricted airspace from Class G airspace are subject to coordination requirements of Clauses 6.4.3.13 and 6.4.3.14.

See MATS 6.4.3.13 ATS units providing Class G airspace services to ATC units
See MATS 6.4.3.14 All ATS units to ATS unit providing Class G airspace services

6.4.3.4 To or from en route control (procedural)

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate for the boundary position and the assigned level</td>
<td>15 minutes before ATC unit boundary estimate</td>
<td>A boundary position exists</td>
</tr>
<tr>
<td>a) The estimate and assigned level for the position report prior to the ATC unit boundary; and b) The position report prior to reaching the boundary.</td>
<td>15 minutes before ATC unit boundary estimate</td>
<td>Required when the last position report prior to the boundary is less than 15 minutes from the boundary</td>
</tr>
<tr>
<td>a) The position report prior to reaching the boundary; or b) The departure time, assigned level and boundary estimate.</td>
<td>15 minutes before ATC unit boundary estimate</td>
<td>Where no boundary position exists on or within 15 minutes of the boundary</td>
</tr>
<tr>
<td>a) Taxi advice, where appropriate; and b) Proposed clearance.</td>
<td>At taxi or prior to issue</td>
<td>Required when: a) the estimated time interval from the departure point to the ATC unit boundary is less than 15 minutes; or b) the required coordination cannot be completed 15 minutes before the ATC unit boundary estimate.</td>
</tr>
</tbody>
</table>
### 6.4.3.5 En route control (procedural or surveillance) to approach (procedural)

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>A vertical sequence which includes:</td>
<td>Prior to transfer to approach</td>
</tr>
<tr>
<td>a) destination estimate;</td>
<td></td>
</tr>
<tr>
<td>b) assigned route;</td>
<td></td>
</tr>
<tr>
<td>c) assigned level; and</td>
<td></td>
</tr>
<tr>
<td>d) sequence number (the aircraft assigned the lowest level is number one, the next assigned level number two, etc).</td>
<td></td>
</tr>
</tbody>
</table>

Where applicable, also include the following information:

| a) clearance limit (if other than normal); | |
| b) EAT if issued; | |
| c) frequency transfer time or point (if not standard); and | |
| d) where holding is required, the pilot’s estimate of the latest diversion time. | |

### 6.4.3.6 Approach/Tower (procedural) to en route control (surveillance or procedural)

<table>
<thead>
<tr>
<th>Coordination Item</th>
<th>Parameter</th>
<th>Conditions and Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next call</td>
<td>When a departing aircraft approaches the runway-holding position/departure position</td>
<td>Only required for aircraft that will depart into en route controlled airspace</td>
</tr>
<tr>
<td>a) Departure time; and</td>
<td>As soon as possible after departure</td>
<td>Not required where a Next call is completed and the aircraft will enter surveillance coverage prior to entering en route airspace</td>
</tr>
</tbody>
</table>

b) Where applicable, provide the following information:

| i) lowest level vacant for use by sector; | In sufficient time to provide information to arriving aircraft |
| ii) average time interval between successive approaches; | |
| iii) type of approach in use; and | |
| iv) information necessary for control of a local flight. | |

Revision of any EAT issued by sector which varies from that calculated by APP | As soon as possible after the variation becomes apparent |

ATIS/CATIS information | Minimum of: |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) instrument approach expectation;</td>
<td>a) At commencement of operations; and</td>
</tr>
<tr>
<td>b) duty RWY; and</td>
<td>When a change to these conditions occurs.</td>
</tr>
<tr>
<td>c) QNH.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 11.2.3.1 Next call from Procedural Tower
## 6.4.3.7  Approach (surveillance) to en route control (surveillance)

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Taxi advice;</td>
<td>At taxi</td>
</tr>
<tr>
<td>b)</td>
<td>Assigned route, tracking point or departure procedure as appropriate;</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Assigned level; and</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>SSR code</td>
<td></td>
</tr>
</tbody>
</table>

### Conditions and exceptions

- At taxi: Not required where departure aerodrome is less than 50 NM from the ATC unit boundary.

### Runway and type of approach in use

- In sufficient time to provide information to arriving aircraft.

## 6.4.3.8  En route control (surveillance) to approach (surveillance)

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Taxi advice;</td>
<td>At taxi</td>
</tr>
<tr>
<td>b)</td>
<td>Assigned route, tracking point or departure procedure as appropriate;</td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>Assigned level; and</td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>SSR code</td>
<td></td>
</tr>
</tbody>
</table>

### Conditions and exceptions

- At taxi: When departure aerodrome is less than 50 NM from the ATC unit boundary.

### Destination estimate or information required for control of transiting flights as appropriate;

- 30 NM or 5 min prior to the ATC unit boundary, whichever is the later.
### 6.4.3.9 Approach to Tower

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Sequence of arriving aircraft in landing order;</td>
<td>Prior to transfer to the Tower</td>
</tr>
<tr>
<td>b) Disposition of arriving traffic;</td>
<td></td>
</tr>
<tr>
<td>c) Any proposal to vary the basic runway usage and circuit direction plan;</td>
<td></td>
</tr>
<tr>
<td>d) Approach instruction issued unless coordinated on a blanket basis;</td>
<td></td>
</tr>
<tr>
<td>e) ETA if not available from other sources;</td>
<td></td>
</tr>
<tr>
<td>f) Level last assigned (if single aircraft or lowest in sequence) or position in vertical sequence at time of transfer;</td>
<td></td>
</tr>
<tr>
<td>g) Route assigned;</td>
<td></td>
</tr>
<tr>
<td>h) Clearance limit (if other than normal);</td>
<td></td>
</tr>
<tr>
<td>i) EAT if issued; and</td>
<td></td>
</tr>
<tr>
<td>j) Where holding is required, the pilot’s estimate of the latest diversion time.</td>
<td></td>
</tr>
</tbody>
</table>

### 6.4.3.10 Tower to Approach

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) General and appropriate sector weather;</td>
<td></td>
</tr>
<tr>
<td>b) Any intention to/or closure of manoeuvring area or airspace to specified operations; and</td>
<td></td>
</tr>
<tr>
<td>c) Any proposal to vary the basic runway usage and circuit direction plan.</td>
<td></td>
</tr>
</tbody>
</table>

### 6.4.3.11 Back coordination

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any amendment to clearance - controlled airspace</td>
<td>Prior to issue</td>
<td>When the aircraft is on a two-way route. Back coordination is not required when an aircraft:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) under surveillance control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) is subject to a clean hand-off; or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) is established by the applicable separation standard inside the relevant sector's airspace; and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) under procedural control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) has passed a positive radio fix at the boundary or within the receiving ATC unit’s airspace; or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) has passed the ATC unit boundary by the route longitudinal time standard.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prior coordinate clearance changes that will cause an aircraft to enter another controller's airspace.</td>
</tr>
</tbody>
</table>
6.4.3.12 **Boundary coordination**

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic information and aircraft intentions, if relevant - surveillance control</td>
<td>Required when the aircraft is within 50 NM of the ATC unit boundary and will subsequently enter or operate within half of the applicable radar standard of that boundary. When different radar standards are applicable on either side of an ATC unit boundary, use the larger of the two standards.</td>
</tr>
</tbody>
</table>
| Traffic information and aircraft intentions, if relevant - procedural control  | a) *Lateral:* When the nominal track of an aircraft plus the applicable navigation tolerances would infringe within 1 NM of an adjacent ATC unit's airspace; or  
   b) *Longitudinal:* When a 15 minute buffer will be infringed prior to establishing either a vertical separation standard or vertical buffer as per MATS Clause 6.4.2.9, from the adjacent unit's airspace. |
| Traffic information and aircraft intentions if relevant - Class G airspace | When the nominal track of an aircraft would infringe within 7.5 NM of an adjacent FIS unit's airspace.                                                                                                                     |

See MATS 6.4.2.9 *IFR near VFR vertical boundary*

6.4.3.13 **ATS units providing Class G airspace services to ATC units**

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
</table>
| a)                | The position report prior to reaching the boundary; or  
   b)                | The departure time                                                                                                                                                                                                       |
| a)                | The estimate and cruising level for the position report prior to the CTA or CTR boundary; and  
   b)                | The position report prior to reaching the boundary                                                                                                                                                                     |
| a)                | Departure time; and  
   b)                | Cruising level if other than flight planned                                                                                                                                                                             |
|                   | Required when the position report prior to the CTA or CTR boundary is less than 50 NM from the boundary                                                                                                                  |
|                   | Required where due to the nearness of the departure point to the boundary, there will be no report prior to the boundary                                                                                                  |
6.4.3.14 All ATS units to ATS unit providing Class G airspace services

<table>
<thead>
<tr>
<th>Coordination item</th>
<th>Parameter</th>
<th>Conditions and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The position report prior to reaching the ATS unit boundary; or departure advice</td>
<td>5 min before the ATS unit boundary estimate</td>
<td>Required for IFR or MLJ traffic only</td>
</tr>
<tr>
<td>b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) The estimate and cruising level for the position report prior to the ATS unit boundary; and</td>
<td>5 min before the ATS unit boundary estimate</td>
<td>Required for IFR or MLJ traffic when the last position report prior to the boundary is less than 5 min from the boundary</td>
</tr>
<tr>
<td>b) The position report prior to reaching the boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advice that an aircraft has left its cruising level</td>
<td>As soon as possible after receipt</td>
<td>Required when the aircraft will enter another FIA on descent or climb</td>
</tr>
<tr>
<td>a) Departure time; and</td>
<td>Required when due to the nearness of the departure point to the boundary, there will be no report prior to the boundary</td>
<td></td>
</tr>
<tr>
<td>b) cruising level if other than flight planned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxiing reports</td>
<td>Required for IFR or MLJ departure where the aerodrome is located within 10 NM of the FIA boundary (or greater distance may be appropriate for jet aircraft)</td>
<td></td>
</tr>
</tbody>
</table>

6.4.4 Acknowledging receipt of coordination

6.4.4.1 Fixed service channel (voice)

Acknowledge receipt of a message over a fixed service channel (voice) by the:

a) callsign of the aircraft involved in the message; and
b) identification of the acknowledging unit when replying to a call addressed to more than one position/unit, or when communicating on HF in conditions where misunderstanding is likely.

6.4.4.2 Readback requirements

Read back the key elements of any received coordination, clearance or instruction from another ATSO.

6.4.4.2.1 Additional requirements

Read back QNH and the words 'VISUAL', 'AMENDED', 'RECLEARED' or 'CANCEL CLEARANCE' in addition to the pilots-to-ATS readback requirements.

See MATS 9.2.2.13.1 ATC route clearance
and MATS 9.2.2.13.2 Key elements
6.4.4.3 **Position reports**

Acknowledge receipt of a position report (including departure report), a level check or a change of level from another ATSO, with:

- a) aircraft callsign; and
- b) advised level.

6.4.4.4 **Receiving operator**

Do not:

- a) give an acknowledgment until you are satisfied that the transmitted information has been received correctly; and
- b) acknowledge receipt of a message by using only the callsign of your unit.

6.4.5 **Communication responsibility**

6.4.5.1 **Control and communication responsibility**

The control and communication responsibility for an aircraft entering airspace assigned to a specific sector or unit should be transferred to that sector or unit.

6.4.5.1.1 **Exception**

Do not apply Clause 6.4.5.1:

- a) to airspace divisions within a TCU/TMA;
- b) as otherwise described in local instructions; or
- c) as otherwise described in letters of agreement.

See MATS 6.4.5.1 Control and communication responsibility

6.4.5.2 **Unusual situations**

For unusual situations, such as weather deviations, where an aircraft will enter the airspace of an adjacent sector, but control responsibility will not be transferred, an airspace release or other agreement must be negotiated between the affected sectors or units.

6.4.5.3 **Hand-off acceptance**

Workload permitting, it is the responsibility of all Controllers to accept a hand-off within a reasonable time period of the hand-off proposal.

6.4.5.3.1 **Unable to accept**

Where workload permits, notify the transferring Controller of any inability to accept a hand-off prior to the hand-off proposal being initiated.
6.4.6 Transferring an aircraft subject to an emergency

6.4.6.1 Aircraft in emergency
Perform voice coordination prior to the hand-off proposal being initiated, if an aircraft subject to an emergency will be transferred to another sector.

6.4.6.2 Coordinating ADS-C emergency reports
Coordinate with another FIR to ensure that the controlling sector has received the ADS-C emergency, when in receipt of an ADS-C emergency report from an aircraft operating in the airspace of that other FIR.

6.4.7 FIO coordination to ATS units

6.4.7.1 Non-delivery essential flight plan information
Pass essential data to the affected unit, by intercom or telephone, when flight plan information cannot be delivered to the position responsible for affected airspace at least 10 minutes before the EOBT. Subsequently distribute the information by AFTN. Detail guidance as to the latest acceptable notification time in local instructions.
### 6.4.8 Phraseology

#### 6.4.8.1 Coordination phraseology

<table>
<thead>
<tr>
<th>Situation</th>
<th>Originating unit</th>
<th>Responding unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Change request</td>
<td>(callsign) REQUESTING (level/amended clearance)</td>
<td>(callsign) CLIMB/DESCEND TO (level) or (callsign) CONCUR (level) or (callsign) (level/amended clearance) APPROVED or (callsign) (level/amended clearance) NOT AVAILABLE DUE (reason)</td>
</tr>
<tr>
<td>2) Relaying position report</td>
<td>POSITION (callsign) (position) (time) FL...., (next position) (time)</td>
<td>(callsign) FL.....</td>
</tr>
<tr>
<td>3) Level check</td>
<td>LEVEL CHECK (callsign) ASSIGNED FL..... or if aircraft cruising ......(callsign) FL.....</td>
<td>(callsign) FL.....</td>
</tr>
<tr>
<td>4) Traffic adjacent to boundary</td>
<td>BOUNDARY TRAFFIC, (callsign)..... (movement report)</td>
<td>(callsign)</td>
</tr>
<tr>
<td>5) In response to a request to cross/enter a runway</td>
<td>SMC/ADC ....[BEHIND (aircraft type) (position of aircraft causing condition)] [number] (aircraft type or description of vehicle) ON...(location) [TO] CROSS/ENTER....(RWY number) [BEHIND]</td>
<td>ADC ...[BEHIND (aircraft type) (position of aircraft causing condition)] [number] (aircraft type or description of vehicle) ON...(location) CROSS/ENTER...(RWY number) [BEHIND] or NEGATIVE. HOLD SHORT SMC [BEHIND] CROSS/ENTER/HOLD SHORT [ON (location)] Include the point of crossing in the readback when coordination is originated by the ADC. Do not abbreviate the above phraseologies to responses such as AFFIRM, YES or OK, which can be heard out of context.</td>
</tr>
<tr>
<td>6) In response to a request to use a helipad</td>
<td>SMC/ADC REQUEST DEPARTURE (specify location).....HELIPAD</td>
<td>ADC EXPECT TO DEPART (specify location e.g. southern helipad) The above phraseologies replace responses AFFIRM, YES or OK, which can be heard out of context.</td>
</tr>
<tr>
<td>Situation</td>
<td>Originating unit</td>
<td>Responding unit</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7) Departing aircraft approaches the runway-holding position</td>
<td>ADC to DEP or procedural TWR to ENR:</td>
<td>DEP to ADC or ENR to procedural TWR:</td>
</tr>
<tr>
<td></td>
<td>NEXT [IN...(number) MINUTES] [AT (time)] (callsign), [RUNWAY (number)].</td>
<td>a) callsign;</td>
</tr>
<tr>
<td></td>
<td><strong>Note 1:</strong> Period of delay not required if the aircraft is anticipated to be airborne within two minutes.</td>
<td>b) (DEP to ADC only) heading or tracking instructions, including turn requirements where applicable; and</td>
</tr>
<tr>
<td></td>
<td><strong>Note 2:</strong> The inclusion of the runway is only required if the aircraft is departing from other than the duty runway, or more than one runway is nominated for departure.</td>
<td>c) any altitude restrictions or the word UNRESTRICTED if there is no altitude restriction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> UNRESTRICTED is not required to be read back.</td>
</tr>
<tr>
<td>8) Receiving unit is unable to deal with the call immediately</td>
<td>Originating unit has called to coordinate information</td>
<td>STANDBY or CALL YOU BACK</td>
</tr>
<tr>
<td>9) Coordinating the transfer of aircraft with a declared emergency or fuel shortage</td>
<td>Advise receiving Controller details of the emergency e.g. (callsign), MINIMUM FUEL</td>
<td>(callsign), MINIMUM FUEL ACKNOWLEDGED</td>
</tr>
<tr>
<td>10) Coordinating separation responsibility</td>
<td>YOUR (or MY) (or (ATC unit)) SEPARATION WITH (callsign)</td>
<td>MY (or YOUR) (or (ATC unit)) SEPARATION WITH (callsign)</td>
</tr>
<tr>
<td>11) To coordinate any restrictions to aircraft being transferred between units</td>
<td>RESTRICTION IS (restriction)</td>
<td>(restriction)</td>
</tr>
<tr>
<td>12) An aircraft’s track or level may be changed without further coordination</td>
<td>NO RESTRICTIONS</td>
<td>A readback is not required</td>
</tr>
<tr>
<td>13) An aircraft’s level may be changed, but the track may not be changed without further coordination</td>
<td>NO VERTICAL RESTRICTIONS</td>
<td>A readback is not required</td>
</tr>
<tr>
<td>14) An aircraft’s track may be changed, but the assigned level may not be changed without further coordination</td>
<td>NO LATERAL RESTRICTIONS</td>
<td>A readback is not required</td>
</tr>
<tr>
<td>15) An aircraft can be issued descent, but the track may not be changed without further coordination</td>
<td>NO RESTRICTIONS ON DESCENT</td>
<td>A readback is not required</td>
</tr>
<tr>
<td>16) An aircraft can be issued climb, but the track may not be changed without further coordination</td>
<td>NO RESTRICTIONS ON CLimb</td>
<td>A readback is not required</td>
</tr>
</tbody>
</table>
### ATS coordination

**Coordination and communication**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Originating unit</th>
<th>Responding unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>17) Where coordination is required in respect of aircraft which have become no longer RVSM compliant and are operating in or planning to operate in the RVSM flight level band</td>
<td>(callsign) NEGATIVE RVSM</td>
<td>(callsign) NEGATIVE RVSM</td>
</tr>
<tr>
<td>18) Non-ADS-B equipped aircraft within or entering CTA where ATS surveillance system separation is provided exclusively by ADS-B at and above FL290</td>
<td>(callsign) NEGATIVE ADS-B</td>
<td>(callsign) NEGATIVE ADS-B</td>
</tr>
<tr>
<td>19) IFR Pick-up</td>
<td>(callsign) REQUESTING IFR PICK-UP</td>
<td>(callsign) FL......</td>
</tr>
<tr>
<td>20) VFR-on-top Requesting</td>
<td>(callsign) REQUESTING VFR-ON-TOP</td>
<td>(callsign) (level, if required)</td>
</tr>
<tr>
<td>Maintaining</td>
<td>(callsign) VFR-ON-TOP</td>
<td>(callsign) (level)</td>
</tr>
<tr>
<td>21) VFR climb/descent</td>
<td>(callsign) VFR CLIMB (or descent)</td>
<td>(callsign) (level)</td>
</tr>
<tr>
<td>22) SIS</td>
<td>(callsign), (appropriate information), REQUESTING FLIGHT FOLLOWING</td>
<td>(callsign) (level) or ATS SURVEILLANCE SERVICE NOT AVAILABLE</td>
</tr>
<tr>
<td>23) Requesting communications checks</td>
<td>REQUEST COMMUNICATIONS CHECKS (callsign) (nature of overdue report) AT (location)</td>
<td>(callsign)</td>
</tr>
<tr>
<td>24) In response to an aircraft's failure to transfer to the required frequency</td>
<td>NO CONTACT (callsign)</td>
<td>(callsign)</td>
</tr>
<tr>
<td>25) Coordinating unmanned free balloon operations</td>
<td>ESTIMATE UNMANNED FREE BALLOON (callsign) (position) AT (time) OPERATING (level) OR ABOVE, MOVING (direction) ESTIMATED GROUND SPEED (number) (other pertinent information, if any)</td>
<td>(callsign) (level)</td>
</tr>
<tr>
<td>26) To request another ATS unit to relay a clearance or information to a third party</td>
<td>FOR [RELAY TO] (third party callsign) (clearance or information)</td>
<td>FOR [RELAY TO] (third party callsign) (clearance or information)</td>
</tr>
</tbody>
</table>
6.5 Other communications

6.5.1 Transfer of communications

6.5.1.1 Frequency change instruction
Instruct pilots to change frequency at the time the change is required.

6.5.1.1.1 Exception - anticipate the requirement
You may anticipate the requirement for a frequency change and relate the instruction to a place, level or time yet to be reached. In this case keep the notice to a reasonable minimum.

6.5.1.2 Initial contact with super or heavy aircraft
When responding to an aircraft's initial radiotelephony contact with each ADC and TMA controller, include the word 'SUPER' or 'HEAVY' following the aircraft callsign.

6.5.1.3 Departing aircraft
Where there is no conflict between the departing aircraft and other ADC traffic, you may issue frequency change instructions preceding the take-off clearance.

6.5.1.4 Nominated departure frequency
When the departure frequency has been previously nominated (e.g. with clearance), you need only nominate the unit to be contacted in the frequency change instruction.

6.5.1.5 Airspace boundaries
Manage frequency changes for transiting aircraft to enable pilot communication with the unit responsible for the airspace in which the aircraft is operating. Complete the transfer within 10 NM either side of the boundary.

6.5.1.5.1 Exception
Transfer aircraft entering controlled airspace within 10 NM prior to the boundary.

6.5.1.5.2 Aircraft entering controlled airspace
Give frequency change instructions to the following aircraft before they enter controlled airspace:
   a) IFR aircraft;
   b) aircraft using IFR Pick-up; and
   c) MLJ aircraft.
6.5.1.5.3 Aircraft performance
Consider aircraft performance when issuing frequency change instructions to assist pilots avoid unauthorised penetration of controlled airspace.

6.5.1.6 Airspace operating frequency
Aircraft are required to remain on the frequency for the airspace in which they are operating, except:

a) in certain aspects of SAR alerting services; or
b) when significant operational advantage will be gained and workload, communications and equipment capabilities permit the responsible Controller to take such action as is necessary to preserve separation (if required).

6.5.1.7 Issue clearances
Issue clearances on the appropriate ATC frequencies unless:

a) communications are limited; or
b) the issuing of traffic information requires the aircraft to be on a non-ATC frequency.

6.5.1.7.1 Using another ATS frequency
You may issue a clearance via another ATS frequency provided that appropriate coordination is effected.

6.5.1.8 Transfer to Tower - separation responsibility
Aircraft may be transferred to the appropriate tower frequency while ATS surveillance system separation is applied by another Controller provided the aircraft:

a) is established on the final approach track and has been cleared for final approach; or
b) has clearance for visual approach and is observed to be within 10 NM of the aerodrome.

6.5.1.9 Transferring aircraft to report in Class G airspace
Prior to an aircraft leaving controlled airspace, facilitate whenever possible, a pilot request for approval to leave the control frequency and report to the unit providing services in Class G airspace. When control requirements make the frequency change impractical, approve requests as soon as possible.
6.5.2 Telephony protocols

6.5.2.1 Reply to a voice call

Reply to a voice call with:

a) identification of the calling unit;

b) identification of the called unit; and

c) STANDBY when appropriate.

6.5.2.2 When contact is established

Once contact is established, continue communication:

a) in the mobile service, by both the ground unit and the aircraft using the aircraft identification; and

b) on other voice channels, without further identification provided that there is no possibility of mistaken identity.

6.5.2.3 Advising transcription requirements

When the message for the called unit requires transcription, alert the receiver to the information that will be received. Precede messages by a word identifying the type of information to be passed, for example:

a) CLEARANCE (aircraft identification);

b) POSITION (aircraft identification);

c) ROUTINE FORECAST FOR (aircraft identification);

d) TAXIING (aircraft identification); and

e) CHANGE OF LEVEL (aircraft identification).

6.5.2.4 Acknowledge receipt

Add to the identification of the aircraft, the word 'ROGER' followed by the identification of the acknowledging unit if not the called unit or communication conditions are difficult e.g. 'ABC ROGER BRISBANE CENTRE'.

6.5.2.4.1 Incorrect use of ROGER

Do not use 'ROGER' to acknowledge a clearance or in lieu of 'SARWATCH TERMINATED'.

6.5.2.5 Omitting phraseology

Phraseology such as 'STANDBY', 'OVER', and 'ROGER' may be omitted when confusion is not likely.
6.5.2.6 Emergency messages

Precede an emergency message by a word identifying the urgency of information, for example:

a) DISTRESS..........; or
b) URGENT..........;

6.5.2.7 General broadcasts

Preface general broadcasts with the words 'ALL STATIONS'.

6.5.2.8 Phrase for change of runway

Use the phrase 'CHANGE OF RUNWAY (discrete runway designator)' when a runway change is initiated or approved.
7 ATS message processing

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7.1 **ATS message creation and transmission**

7.1.1 **Responsibilities for origination and distribution**

7.1.1.1 **Procedures**

Comply with the following procedures when originating and distributing ATS messages over AFTN channels:

a) Retain the intent or requirements of pilots;

b) Convert flight notification, modification, delay, cancellation, departure or arrival information received by radio, telephone, intercommunication, fax or other electronic means into appropriate messages and transmit as necessary;

c) Address messages to non-continuous units as though they were open continuously. Local procedures must ensure delivery of messages to responsible units;

d) Distribute flight details notified by radio to ATS units providing services to the flight;

e) Notify message originators immediately if message errors are detected or misrouted messages are received; and

f) Transmit aircraft movement messages required by more than one sector over the AFTN network. Local instructions may vary this requirement when the sectors are located solely within one ATS Centre or Unit.

7.1.2 **Standard message compilation**

7.1.2.1 **Compilation**

Compile each message field in accordance with ICAO Doc 4444-PANS ATM.
7.1.3 Standard message addressing

7.1.3.1 Procedures and requirements

Comply with the following addressing procedures and requirements:

a) Address to ATS units responsible for the airspace in which the planned flight will operate;

b) For international flights, except when predetermined address indicators (PDAI) are used, address to centres in charge of each FIR and upper FIR along the route using three-letter designators:
   i) ZQZ – IFR aircraft; and
   ii) ZFZ – VFR aircraft;

c) Address international FPL to aerodrome control towers at destination aerodromes using designator ZTZ;

d) Address to units responsible for airspace shown on charts as activated by NOTAM, unless advised the airspace is not active;

e) Do not address nominated alternate or intermediate aerodromes unless aircraft divert. In cases of flight diversion, the unit responsible for the original destination sends the flight notification to the unit responsible for the alternate aerodrome;

f) Address flight notifications for aircraft operating on SARTIME to YBCENSAR;

g) Do not address to cater for requests for track shortening, direct or preferred routes, or for the provision of Flightwatch services only;

h) Address to units responsible for the origination of departure (DEP) messages from intermediate departure points; and

i) Where delivery of a message requires transmission over a voice circuit, transmit information relevant to the addressee only.

See MATS 7.1.5.7.3 Military locations

7.1.3.2 Unknown distribution requirements

Refer to the BOF for origination if distribution requirements are unknown.
7.1.3.3  **Specific addressing requirements**

Use the following table for specific addressing requirements for the particular types of flight listed:

<table>
<thead>
<tr>
<th>Address</th>
<th>Types of flight notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>YAMBZGZX</td>
<td>Military aircraft proceeding into Evans Head restricted airspace</td>
</tr>
<tr>
<td>YBCENSAR</td>
<td>SARTIMES nominated by pilots for either departure or arrival</td>
</tr>
<tr>
<td>YPEAZGZX</td>
<td>Military aircraft proceeding to Gin Gin</td>
</tr>
<tr>
<td>YPEDZGZX</td>
<td>Aircraft proceeding to Woomera</td>
</tr>
<tr>
<td>YPXMYDYX</td>
<td>For aircraft movement messages relating to aircraft proceeding to</td>
</tr>
<tr>
<td></td>
<td>Christmas Island</td>
</tr>
<tr>
<td>YSARYCYX</td>
<td>Aircraft engaged in JRCC Australia coordinated SAR activity or the</td>
</tr>
<tr>
<td></td>
<td>subject of a SAR phase</td>
</tr>
<tr>
<td>YSCBCUST</td>
<td>a) Military aircraft engaged in Maritime Surveillance of Australian</td>
</tr>
<tr>
<td></td>
<td>Fishing Zones; and</td>
</tr>
<tr>
<td></td>
<td>b) Aircraft involved in littoral surveillance operations e.g. Customs</td>
</tr>
<tr>
<td></td>
<td>aircraft.</td>
</tr>
<tr>
<td>ZGZX</td>
<td>Military aircraft proceeding to MIL aerodromes</td>
</tr>
<tr>
<td>NZCHZPZX</td>
<td>For intermediate departures from Pago Pago</td>
</tr>
<tr>
<td>NZCHZPZX</td>
<td>For intermediate departures from NZ, including mainland New Zealand</td>
</tr>
<tr>
<td></td>
<td>and Norfolk Island</td>
</tr>
<tr>
<td>KSFOXAAG</td>
<td>Position reports or other information from United States Air Force</td>
</tr>
<tr>
<td></td>
<td>(USAF) aircraft requesting a 'relay/pass/copy to Hilda' instruction.</td>
</tr>
<tr>
<td></td>
<td>The text of AFTN messages are to be prefixed by FOR HILDA</td>
</tr>
</tbody>
</table>

7.1.4  **Emergency messages**

7.1.4.1  **Alerting message (ALR)**

Send ALR messages in regard to the various states of flight e.g. INCERFA, ALERFA and DETRESFA.

7.1.4.1.1  **International ALR Message Form**

The 'International 'ALR' Message Form' is used to represent the ALR message during non-AFTN communication.

See MATS [13.1.3 International ALR Message Form](#)
7.1.4.2 **AIDC emergency message (EMG)**

Use EMG messages at your discretion when the contents require immediate action, for example:

a) reports of emergency calls or emergency locator transmission reports;
b) messages concerning hijack or bomb warnings;
c) messages concerning serious illness or disturbance among passengers;
d) sudden alteration in flight profile due to technical or navigational failure; or
e) communications failure.

7.1.5 **Flight plan and associated update messages**

7.1.5.1 **Originate messages**

Originate flight notification messages for all flights that have submitted flight plans for the purpose of being provided with services by ATS units along all or part of the planned route.

7.1.5.2 **International flights**

For international flights, originate separate FPL messages for each flight stage when:

a) flights have intermediate stops; and
b) separate flight plans for each stage of the flight are filed at the aerodrome of first departure.

7.1.5.3 **Send a copy of FPL**

Only send a copy of the originally-received FPL to non-automated civil, non-automated military and international agencies.

7.1.5.3.1 **Addressing to ARO**

Use the designator ZPZ when addressing only to the ATS Reporting Office (ARO) at the appropriate aerodrome of intermediate departure.

*Note: The ARO responsible for the aerodrome of departure treats such FPLs as if they have been filed locally and re-distributes accordingly.*

7.1.5.3.2 **Exception**

If an ARO is not located at the aerodrome of intermediate departure, the unit responsible for that aerodrome originates an FPL for the flight stage concerned.
7.1.5.4  **Delay message (DLA)**

Send a DLA message when aircraft are, or will be, delayed for 30 minutes or more after the EOBT.

7.1.5.4.1  **Delay over 0000 UTC**

Where a delay moves the EOBT over 0000UTC and this is to be relayed via AFTN, generate a CHG message for both EOBT and DOF.

7.1.5.5  **Modification message (CHG)**

Originate a CHG message to modify an FPL.

*Note:* When an ATC unit initiates a change to the flight plan of an aircraft requiring the origination of a CHG message, the unit responsible for the message origination is the ATC unit initiating the change.

7.1.5.5.1  **Procedures**

Apply the following procedures to CHG messages:

a) Distribute in lieu of SVC CORRECTION for messages relating to ATS messages;

b) Include the complete data of a field reflecting a modification to any item within that field;

c) Include EOBT wherever possible for domestic flights;

d) When a delay moves the EOBT over 0000UTC generate a change for both EOBT and DOF;

e) Cancel the existing flight plan message when necessary and replace with a new flight plan message incorporating the changes;

f) Originate CHG messages on receipt of messages relating to aircraft in flight;

g) Do not originate CHG messages relating to level changes if voice coordination includes advice of the level change; and

h) Ensure a CHG message is originated unless coordination has been completed to all affected ATS units by other means.

7.1.5.6  **Cancellation message (CNL)**

Originate a cancellation message to cancel an FPL.

7.1.5.6.1  **New/change to DLE period**

Where a new DLE period or a change to an existing DLE period is to be relayed via AFTN:

a) cancel the existing FPL with a CNL message; and

b) originate a new FPL including the new DLE information.
7.1.5.7 Departure message (DEP)

Originate DEP message following departure for the aircraft listed below:

a) IFR aircraft;

b) military and coastal surveillance aircraft; and

c) aircraft involved in JRCC Australia coordinated SAR activity or the subject of an emergency phase.

7.1.5.7.1 Procedures

Apply the following procedures to DEP messages:

a) Include SSR code only when available i.e. do not include '/N';

b) Address messages to all units responsible for services to the flight between departure point and next point of intended landing; and

c) Waive the requirement to originate DEP messages for IFR aircraft when voice coordination takes place with other affected units. Document variations in local instructions.

7.1.5.7.2 At intermediate departure points

Units responsible for origination of civil DEP at intermediate departure points:

<table>
<thead>
<tr>
<th>Civil locations</th>
<th>Unit responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the BN FIR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>Within the ML FIR</td>
<td>YMMMZQZA</td>
</tr>
</tbody>
</table>

7.1.5.7.3 Military locations

Units responsible for origination of military DEP at intermediate departure points:

<table>
<thead>
<tr>
<th>Military location</th>
<th>Unit responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amberley CTR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>Darwin CTR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>East Sale CTR During TWR hours</td>
<td>YMESZGZX</td>
</tr>
<tr>
<td>Outside TWR hours departing for FIA/CTA/RAS</td>
<td>YMMMZQZA</td>
</tr>
<tr>
<td>Edinburgh CTR During TWR hours</td>
<td>YPEDZGZX</td>
</tr>
<tr>
<td>Outside TWR hours</td>
<td>YMMMZQZA</td>
</tr>
<tr>
<td>Nowra CTR During TWR hours</td>
<td>YSNWZGZX</td>
</tr>
<tr>
<td>Outside TWR hours</td>
<td>YMMMZQZA</td>
</tr>
<tr>
<td>Oakey CTR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>Pearce CTR During TWR hours</td>
<td>YPEAZGZX</td>
</tr>
<tr>
<td>Outside TWR hours</td>
<td>YMMMZQZA</td>
</tr>
<tr>
<td>Richmond CTR During TWR hours</td>
<td>YSRIZGZX</td>
</tr>
<tr>
<td>Outside TWR hours</td>
<td>YMMMZQZA</td>
</tr>
<tr>
<td>Tindal CTR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>Townsville CTR</td>
<td>YBBBZQZA</td>
</tr>
<tr>
<td>Williamtown CTR</td>
<td>YBBBZQZA</td>
</tr>
</tbody>
</table>
7.1.5.8 Arrival message (ARR)

Originating ARR messages using the following procedures:

a) Address as requested by the pilot when the aircraft carries the Governor-General or royalty;
b) Transmit arrival reports to units responsible for the airspace containing the place of arrival and the unit nominated to receive the report; and
c) Despatch to the RCC when an aircraft engaged on a SAR operation, or the subject of a SAR phase, has landed.

7.1.6 Coordination messages

7.1.6.1 Current flight plan message (CPL)

CPL is a coordination message and follows the basic format of an FPL. Use CPL messages for aircraft already in flight, and include estimates and cleared levels.

7.1.6.2 Estimate messages (EST)

Originating an EST message to provide an estimate and cleared flight level, along with other pertinent details.

7.1.6.2.1 Origination

Originate an EST when coordination is required between units and is not waived as a result of voice coordination.

7.1.6.2.2 If at other than cleared level

Provide additional information if the aircraft is expected at a level other than the cleared level at the boundary point.

7.1.6.3 Coordination messages (CDN)

Originating CDN messages to propose a change to coordination data as contained in a previously received CPL or EST message.

7.1.6.4 Acceptance messages (ACP)

Accepting units transmit ACP messages to transferring units to indicate acceptance of data in a CPL or EST message.

Note: Either the accepting unit or the transferring unit must transmit an ACP message to indicate that data received in a CDN message is accepted and coordination is complete.

7.1.6.5 Logical acknowledgement messages (LAM)

Only use LAM messages between automated centres. The system sends a LAM on successful receipt of an EST or CPL.
7.1.7 ARP, ARS, AEP or POS messages

7.1.7.1 Responsibility for distribution

Units responsible for initiating AIREP distribution:

<table>
<thead>
<tr>
<th>Area</th>
<th>Responsible unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the international mobile service</td>
<td>The unit holding primary guard</td>
</tr>
<tr>
<td>In the domestic mobile service</td>
<td>The unit responsible for the airspace in which the aircraft is operating</td>
</tr>
</tbody>
</table>

7.1.7.2 AIREP distribution - general

Distribute AIREP and Movement Reports to:

a) units having an operational requirement; and

b) airline companies which have made arrangements for delivery of reports relating to their aircraft.

7.1.7.2.1 Unit acknowledging receipt responsibilities

Where the unit acknowledging receipt of an AIREP is not responsible for distribution, coordinate with the responsible unit and request that unit to effect full distribution.

7.1.7.2.2 AIREP from SAR aircraft

Distribute AIREP from SAR aircraft via AFTN to JRCC Australia.

7.1.7.3 AIREP section 3 distribution - AIREP Special

Distribute AIREP Specials containing meteorological information to:

a) the Australian MWO responsible for the FIR;

b) for international flights, any Australian and foreign MWO responsible for an FIR within 2 hrs flight time of the location of the position report;

c) other aircraft and ATS units, if considered of operational significance;

d) airline companies that have made arrangements for delivery of reports relating to their aircraft;

e) YMMCYYXY, YBBBYPYX; and

f) YPDMMYMYX for information on volcanic activity.
### AIREP Special distribution - long range

Distribute AIREP Specials for international flights over Australia and long range domestic flights to EGRRYMYX, KWBCYMYX and to the following:

<table>
<thead>
<tr>
<th>Route</th>
<th>Distribute to</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADELAIDE-DARWIN</td>
<td>YPRMYMYX YPDMYMYX YMMCYMYX</td>
</tr>
<tr>
<td></td>
<td>YBBBPYX YMRFYMYX</td>
</tr>
<tr>
<td>ADELAIDE-PERTH</td>
<td>YPRMYMYX YPRFYMYX</td>
</tr>
<tr>
<td>MELBOURNE-PERTH</td>
<td>YMRFYMYX YMMCYMYX</td>
</tr>
<tr>
<td>SYDNEY-PERTH</td>
<td>YSRFYMYX YBRFYMYX</td>
</tr>
<tr>
<td>PERTH-NEW ZEALAND</td>
<td></td>
</tr>
<tr>
<td>SYDNEY-TOKYO</td>
<td>YBRFYMYX YSRFYMYX</td>
</tr>
<tr>
<td>BRISBANE-DARWIN</td>
<td>YPDMYMYX YMRFYMYX</td>
</tr>
<tr>
<td>BRISBANE-JAKARTA-SINGAPORE</td>
<td>YBBBMYMYX YMMCYMYX</td>
</tr>
<tr>
<td>MELBOURNE-DARWIN</td>
<td></td>
</tr>
<tr>
<td>SYDNEY-DARWIN</td>
<td></td>
</tr>
<tr>
<td>SYDNEY-BRISBANE-DARWIN</td>
<td></td>
</tr>
<tr>
<td>ALICE SPRINGS-PERTH</td>
<td>YPDMYMYX YPRFYMYX</td>
</tr>
<tr>
<td>PERTH-DARWIN</td>
<td>YPRMYMYX YMRFYMYX</td>
</tr>
<tr>
<td>PERTH-ARGYLE</td>
<td>YBBBPYX YMMCYMYX</td>
</tr>
<tr>
<td>ADELAIDE-JAKARTA-SINGAPORE</td>
<td>YMRFYMYX YMMCYMYX YBBBYPYX</td>
</tr>
<tr>
<td>MELBOURNE-JAKARTA-SINGAPORE</td>
<td>YPDMYMYX YPRMYMYX</td>
</tr>
<tr>
<td>SYDNEY-JAKARTA-SINGAPORE</td>
<td>YPRFYMYX YSRFYMYX YPDMYMYX</td>
</tr>
<tr>
<td>NEW ZEALAND-JAKARTA-SINGAPORE</td>
<td>YPRMYMYX YBBBYPYX YMMCYMYX</td>
</tr>
<tr>
<td>PERTH-PORT HEADLAND-DARWIN</td>
<td>YPRFYMYX YPDMYMYX</td>
</tr>
<tr>
<td>PERTH-KARRATHA</td>
<td>YMMCYMYX YBBBYPYX</td>
</tr>
<tr>
<td>TOWNSVILLE-DARWIN</td>
<td>YBRFYMYX YPDMYMYX YMMCYMYX</td>
</tr>
</tbody>
</table>
### 7.1.7.3.2 AIREP Special distribution - domestic

Distribute AIREP Specials for domestic flights (not long range) according to the following:

<table>
<thead>
<tr>
<th>QNH area in which aircraft is operating</th>
<th>Distributed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>YSRFYMYX YBRFMYMYX</td>
</tr>
<tr>
<td>21</td>
<td>YSRFYMYX YMRFMYX</td>
</tr>
<tr>
<td>22</td>
<td>YSRFYMYX YPRFMYMX YMRFMYX</td>
</tr>
<tr>
<td>24</td>
<td>YSRFYMYX YPRFMYMX YBRFMYX</td>
</tr>
<tr>
<td>30</td>
<td>YPRMMYMYX YMHFMYMX YMRFMYX</td>
</tr>
<tr>
<td>40</td>
<td>YBRFMYMYX</td>
</tr>
<tr>
<td>41</td>
<td>YBRFMYMYX</td>
</tr>
<tr>
<td>43</td>
<td>YPDMYMYX YPRMMYMYX YBRFMYX</td>
</tr>
<tr>
<td>44</td>
<td>YBRFMYMYX</td>
</tr>
<tr>
<td>45</td>
<td>YPDMYMYX YBRFMYMYX</td>
</tr>
<tr>
<td>50</td>
<td>YPRMMYMYX YPRFMYMYX YMRFMYX</td>
</tr>
<tr>
<td>51</td>
<td>YPRMMYMYX YPRFMYMYX YSRFYMYX YMRFMYX</td>
</tr>
<tr>
<td>52</td>
<td>YPDMYMYX YPRMMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>53</td>
<td>YPRMMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>60</td>
<td>YPRMMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>61</td>
<td>YPRMMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>62</td>
<td>YPRFMYMYX</td>
</tr>
<tr>
<td>63</td>
<td>YPRFMYMYX</td>
</tr>
<tr>
<td>64</td>
<td>YPDMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>65</td>
<td>YPRFMYMYX</td>
</tr>
<tr>
<td>66, 68, 69</td>
<td>YPRFMYMYX YPDMYMYX</td>
</tr>
<tr>
<td>70</td>
<td>YMHFMYMYX YMRFMYMYX</td>
</tr>
<tr>
<td>80</td>
<td>YPDMYMYX</td>
</tr>
<tr>
<td>83</td>
<td>YPDMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>84</td>
<td>YPDMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>85</td>
<td>YPDMYMYX YPRMMYMYX YPRFMYMYX</td>
</tr>
<tr>
<td>86-88</td>
<td>YPDMYMYX YPRMMYMYX</td>
</tr>
</tbody>
</table>
## 7.1.7.4 AIREP for airlines

Distribute AIREP for airline companies according to the following:

<table>
<thead>
<tr>
<th>Operating Airline</th>
<th>AFTN</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerolineas Argentinas</td>
<td>YSSYQFAM</td>
<td>All Flights</td>
</tr>
<tr>
<td>Air Caledonie</td>
<td>NZAAANZO</td>
<td>All Flights</td>
</tr>
<tr>
<td>Air Canada</td>
<td>KTULCNDX</td>
<td>CYYCCDNW All Flights</td>
</tr>
<tr>
<td>Air New Zealand</td>
<td>NZAAANZO</td>
<td>WSSSSIAO Destination WSSS</td>
</tr>
<tr>
<td>Air Transport International</td>
<td>KLITATNX</td>
<td>All Flights</td>
</tr>
<tr>
<td>Alitalia</td>
<td>YSSYAZAX</td>
<td>All Flights</td>
</tr>
<tr>
<td>All Nippon Airways</td>
<td>YSSYQFAM</td>
<td>RJAAANAX All Flights</td>
</tr>
<tr>
<td>Atlas Air</td>
<td>KJFKGTIW</td>
<td>All Flights</td>
</tr>
<tr>
<td>British Airways</td>
<td>YSSYQFAM</td>
<td>Not required outbound from Aust</td>
</tr>
<tr>
<td>Federal Express</td>
<td>KMEMFDXN</td>
<td>Not required outbound from Aust</td>
</tr>
<tr>
<td>Fiji Airlines</td>
<td>YSSYQFAM</td>
<td>NZAAANZO All Flights</td>
</tr>
<tr>
<td>Japan Airlines</td>
<td>YSSYQFAM</td>
<td>RJTTJALG All Flights</td>
</tr>
<tr>
<td>Kalitta Air</td>
<td>KYIPCKSO</td>
<td>All Flights</td>
</tr>
<tr>
<td>Polar Air Cargo</td>
<td>KLGBPACO</td>
<td>All Flights</td>
</tr>
<tr>
<td>Qantas</td>
<td>YSSYQFAM</td>
<td>All Flights</td>
</tr>
<tr>
<td>Singapore Airlines</td>
<td>YSSYQFAM</td>
<td>Not required outbound from Aust</td>
</tr>
<tr>
<td>Solomon Airlines</td>
<td>NZAAANZO</td>
<td>All Flights</td>
</tr>
<tr>
<td>South African Airways</td>
<td>YSSYQFAM</td>
<td>Not required outbound from Aust</td>
</tr>
<tr>
<td>United Airlines</td>
<td>KCHIUALW</td>
<td>PGUMCOAX All Flights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flights to/from Guam</td>
</tr>
<tr>
<td>United Parcel Service</td>
<td>KSDFUPSD</td>
<td>All Flights</td>
</tr>
</tbody>
</table>
7.1.8 Supplementary messages

7.1.8.1 Request flight plan message (RQS)
Originates RQS messages to request supplementary information that may have been contained on the flight plan form but was not transmitted in the FPL.

7.1.8.2 Supplementary flight plan message (SPL)
Originates 'Supplementary Flight Plan Message Format' to send supplementary information.
See MATS 13.2.1.1 Supplementary Flight Plan Message Format

7.1.8.3 Request flight plan message (RQP)
Originates the RQP message to request an FPL from an adjacent centre after receipt of an aircraft movement message.

7.1.8.4 RQP messages - exception
Do not transmit RQP messages to military ADATS units.

7.1.8.4.1 When ATS message is not effected
When delivery of an ATS message has not been effected, the unit requiring the message requests flight details via RQP or service message to the:
   a) adjacent ATS unit;
   b) originator of any associated update message;
   c) ZQ - FIC addressee serving the departure aerodrome;
   d) ZP - ATS reporting office serving the departure aerodrome; or
   e) COMC.

7.1.8.4.2 Follow up action
If the RQP message addresses the ZQZX address or the FIR, the Eurocat unit of that FIR ensures follow up action occurs.
7.1.9 Other messages

7.1.9.1 Control (CTL) and transfer of control (TFR) messages

CTL and TFR messages include other messages relating to the control of aircraft for which a high degree of priority is necessary e.g. clearance instruction and coordination messages.

*Note:* Standardisation of CTL and TFR messages is not possible or desirable.

7.1.9.1.1 Procedures

Apply the following procedures to CTL and TFR messages:

a) Originate and address as required;

b) Use standard phrases and abbreviations;

c) Be as brief and clear as possible; and

d) If required, the text of a CTL message containing a clearance closes with a CET.

7.1.10 International Flight Plans

7.1.10.1 ICAO Flight Plan

Utilise the 'ICAO Flight Plan' form for messages requiring international distribution. See MATS 13.2.2.1 ICAO Flight Plan

7.1.11 AFTN message management

7.1.11.1 Test messages

Test messages are used to check continuity or as requested by AFTN connected units.

7.1.11.2 Test message

Test messages consist of:

QJH YBBBBFYX

U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*

U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*

U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*U*
7.1.11.3 Check messages

Check messages transmit automatically to each configured user by the AAMS each hour, hour and 20 minutes, and hour and 40 minutes, in the following format:

<table>
<thead>
<tr>
<th>CSN00004 121220</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
</tr>
</tbody>
</table>

7.1.11.3.1 Check message not received

Advise the AFTN COMC immediately if a check message is not received.

Note: The channel check transmission ensures that the receiving unit is aware of the CSN of the last message.

7.1.11.4 Procedures

Apply the following procedures on receipt of an automatic service message:

a) Check all received messages;
b) Retransmit messages missed by the AAMS;
c) Transmit requests for missing messages if CSN indicates missing messages; and
d) Contact the COMC for advice on appropriate action.

7.1.11.5 Acknowledge receipt of SS

Acknowledge receipt of distress messages, distress traffic and urgency messages (priority indicator SS) individually. The AFTN destination station sends a service message to the AFTN origin station.

Note: AFTN origin station ensures receipt of acknowledgements within a reasonable period.

See MATS 7.1.12.2 SS priority indicator

7.1.11.5.1 Example of SS acknowledgement

An example of an SS acknowledgement:

```
SWA022
SS WSSSYCYX
120022 YBBBYFYX Priority Alarm
R 120017 WSSSYCYX
```
7.1.11.6 COMC role

The AFTN COMC:

a) pursues any outstanding acknowledgements;

b) sends single acknowledgements for domestic users;

c) re-directs received international acknowledgements using FLW REC procedure; and

d) acknowledges receipt of SS messages addressed to ATS units which are closed. Acknowledgement indicates the unit is closed and that delivery has been made to the responsible unit.

7.1.12 AFTN

7.1.12.1 Message priority

Distribute messages in the following order of priority:

1) SS;

2) DD;

3) FF;

4) GG; and

5) KK.

7.1.12.2 SS priority indicator

Use the following table to ascertain when an SS priority indicator is used:

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When SS priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distress messages</td>
<td>Originated by mobile stations when threatened by grave and imminent danger.</td>
</tr>
<tr>
<td></td>
<td>When immediate assistance is required by the mobile station in distress.</td>
</tr>
<tr>
<td>Urgency messages</td>
<td>When there are concerns about the safety of a ship, aircraft or other vehicle, or of some person on board or within sight.</td>
</tr>
</tbody>
</table>

Note: Following despatch of the initial Distress or Urgency message and acknowledgments subsequent messages may be dispatched DD priority unless SS is warranted.

7.1.12.2.1 Priority alarm

The priority alarm is automatically added by the AMI/CADAS INPUT TERMINAL on creation of a priority message and actuates a bell at the receiving unit.
### 7.1.12.3 DD priority indicator

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When DD priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Messages justifying higher priority</td>
<td>Messages other than a reservation message or general aircraft operating agency message may be assigned the priority indicator DD instead of that which the message is normally entitled.</td>
</tr>
</tbody>
</table>

### 7.1.12.4 FF priority indicator

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When a FF priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight safety messages</td>
<td>Movement and control messages (air traffic control messages, position reports from aircraft)</td>
</tr>
<tr>
<td></td>
<td>Messages originated by an aircraft operating agency, of immediate concern to an aircraft in flight or to an aircraft about to depart</td>
</tr>
<tr>
<td></td>
<td>Meteorological advice of immediate concern to aircraft in flight or about to depart, including amended TAFs, TTFs, special aerodrome reports, special AIREPs and SIGMET and AIRMET information</td>
</tr>
<tr>
<td>Meteorological messages (to/from aircraft)</td>
<td>Containing amended meteorological forecasts</td>
</tr>
</tbody>
</table>
### 7.1.12.5 GG priority indicator

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When a GG priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meteorological messages (to/from aircraft)</td>
<td>Containing meteorological forecasts</td>
</tr>
<tr>
<td></td>
<td>Containing exclusively meteorological observations. When addressing AIREPs exclusively to meteorological offices</td>
</tr>
<tr>
<td></td>
<td>Other meteorological messages exchanged between meteorological offices</td>
</tr>
<tr>
<td></td>
<td>Area QNH</td>
</tr>
<tr>
<td>Aeronautical administrative messages</td>
<td>Operation or maintenance of facilities essential for the safety or regularity of aircraft operation</td>
</tr>
<tr>
<td></td>
<td>Exchanged between Government civil aviation authorities relating to aircraft operation</td>
</tr>
<tr>
<td></td>
<td>Essential to the efficient functioning of aeronautical telecommunication services</td>
</tr>
<tr>
<td>NOTAM</td>
<td>Messages containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard</td>
</tr>
<tr>
<td>Approved non-aeronautical administrative messages</td>
<td>Messages on behalf of Customs, Health, and Immigration Departments concerning aircraft under suspicion, aircraft not yet cleared by Customs, etc</td>
</tr>
<tr>
<td></td>
<td>Relating to emergencies handled on behalf of other organisations when normal communications channels are interrupted or inadequate, or when prior approval has been given (domestic service only). This includes messages relating to bushfires, urgent medical supplies, fire, weather warnings, seismic activity, floods, etc. (Handle these messages in accordance with local instructions)</td>
</tr>
</tbody>
</table>
## 7.1.12.6 GG - flight regularity messages

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When a GG priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight regularity messages</td>
<td>Load messages contain:</td>
</tr>
<tr>
<td></td>
<td>a) details of the number of passengers and crew;</td>
</tr>
<tr>
<td></td>
<td>b) weight of cargo;</td>
</tr>
<tr>
<td></td>
<td>c) data required for weight and balance computation; and</td>
</tr>
<tr>
<td></td>
<td>d) remarks essential to the rapid clearance of the load from the aircraft (optional).</td>
</tr>
<tr>
<td></td>
<td>Accept the load messages above when addressed to the point of intended landing and to not more than two other addresses concerned in the general area of the route segment of the flight to which the message refers</td>
</tr>
<tr>
<td></td>
<td>Changes in:</td>
</tr>
<tr>
<td></td>
<td>a) aircraft operating schedules to become effective within 72 hours after the message is filed; or</td>
</tr>
<tr>
<td></td>
<td>b) collective requirements for passengers, crew and cargo caused by unavoidable deviations from normal operating schedules, and necessary for flight regularity in the case of aircraft en route or about to depart. Individual requirements of passengers or crew are not admissible in this type of message.</td>
</tr>
<tr>
<td></td>
<td>Concerns the servicing of aircraft en route or scheduled to depart within 48 hours</td>
</tr>
<tr>
<td></td>
<td>Non-routine landings to be made by an aircraft en route or about to depart</td>
</tr>
<tr>
<td></td>
<td>Parts and material urgently required for the operation of aircraft en route or scheduled to depart within 48 hours</td>
</tr>
<tr>
<td></td>
<td>Pre-flight arrangements of air navigation services and operational servicing for non-scheduled or irregular operations of aircraft, filed within 48 hours of the proposed time of departure</td>
</tr>
</tbody>
</table>
### 7.1.12.7 KK priority indicator

<table>
<thead>
<tr>
<th>Type of message</th>
<th>When a KK priority indicator is used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reservation messages</td>
<td>Originated by aircraft operating agencies concerning the selling, releasing or regulation of weight or space capacity for goods or for the individual accommodation of passengers aboard public transport aircraft scheduled to depart within 72 hours after the message is filed</td>
</tr>
</tbody>
</table>
| General aircraft operating agency messages | **a)** Originated by aircraft operating agencies for:  
    i) information that has a direct bearing on the efficient and economic conduct of the day-to-day operation of international air transport; and  
    ii) reservation messages and flight regularity messages (other than load messages) that do not conform to the time limitation specified therein and are addressed to officers or representatives of aircraft operating agencies; and  
    b) KK priority is not to be used for:  
       i) third party messages; or  
       ii) messages addressed to parties other than aircraft operating agencies or their representatives. |
7.2 AFTN system failures

7.2.1 Responsibilities and procedures for reporting failures

7.2.1.1 Responsibilities

Notify the COMC on becoming aware of:

a) an interruption (no check received); or
b) the last received (LR)/last sent (LS) message indicating a channel sequence number (CSN) discrepancy.

7.2.1.2 AAMS does not advise failure

Messages are not transmitted by the AAMS to advise that an AFTN failure has occurred.

*Note:* The COMC advises all users of occurrences of international circuit outage that may affect the delivery of AFTN traffic and includes an alternate method of delivery.

7.2.1.3 LR/LS on service restoration

You will receive a service message LR/LS on restoration of the service.
8 Information services

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8.1 NOTAM

8.1.1 NOTAM authorities

8.1.1.1 Origination
When information to be disseminated is of a temporary nature and the issue of a SUP or amendment to AIS documents is inappropriate, the appropriate authority originates a NOTAM which is then issued by the NOF.

8.1.1.1.1 Not necessary for air safety
The NOF advises the originator and AIM of any requests for NOTAM which are not necessary for air safety.

8.1.1.2 Originator responsibilities
The originator is responsible for:

a) where applicable, ensuring that information supplied originates from a responsible source;
b) completing all necessary coordination prior to submission;
c) submitting the NOTAM request in the correct format; and
d) verifying and validating the correctness and completeness of the NOTAM issued by the NOF.

8.1.1.2.1 NOTAM request form
Use the NOTAM request form at http://www.airservicesaustralia.com/flight-briefing/notam-originator/ to submit NOTAM requests.
8.1.1.3 Originating authorities

The following authorities are approved to originate NOTAM for promulgation:

a) CASA officers documented in the relevant CASR Part 175 data product specification;

b) Airservices officers including:
   i) Chief Executive Officer (CEO);
   ii) EGM Air Navigation Services;
   iii) EGM Safety & Assurance;
   iv) CATC;
   v) OSM;
   vi) ATM Data Services Manager;
   vii) AIM staff and Procedure Design Specialists as designated in local instructions;
   viii) ATS staff as designated in local instructions; and
   ix) ARFF Managers;

c) Military Airspace and Airfield Authorities;

d) Aerodrome proprietors and their representatives (CASR Part 175 authorised);

e) BoM; and

f) Individuals or organisations authorised in writing under CASR Part 175 to originate NOTAM for matters related to their operations.

Note: Civil Aviation Safety Regulation - CASR Part 175 section 175.450 requires aeronautical data originators to supply the AIS provider (Airservices) with the names of the NOTAM authorised persons for each location. The new rules, as defined in subpart 175D will commence for aeronautical data originators once provided with a data product specification from the AIS provider, Airservices.

8.1.1.4 ATS staff originated NOTAM

ATS staff may originate a NOTAM on their own initiative, if the delegate is not available, provided that the information is essential for flight safety and/or conduct of flight operations.

8.1.1.5 Defence originated NOTAM

AIS-AF originate NOTAM:

a) when an urgent amendment or correction is necessary to a flight information publication map or aeronautical chart and AIPAB action would be unsatisfactory;

b) to promulgate details received from appropriate sources regarding use of airspace over international waters for special exercises; and

c) as required by Air Force Headquarters.
8.1.1.6 Military units - airspace activation

Military ATS units originate NOTAM for activation of airspace for which they are the Controlling Authority or as agreed on behalf of other Defence agencies.

8.1.1.7 Airport owners and personnel

Airport owners are the authorities for originating aerodrome information of a permanent nature and notifying AIM (NOF can facilitate liaison with AIM). Authorised personnel for the aerodrome category may originate temporary information e.g. the closure of an aerodrome due to wet conditions, without reference to AIM.

8.1.2 Origination criteria

8.1.2.1 Facility

Use the following criteria as a guide for the origination of NOTAM concerning the establishment, condition or change of a facility:

a) Establishment, closure or significant changes in operation of aerodrome(s) or runways, including aircraft arrestor systems;

b) Establishment, withdrawal or significant changes made to visual aids;

c) Interruption of or return to operation of major components of aerodrome lighting systems;

d) Establishment, withdrawal or significant changes made to procedures for air navigation services;

e) Occurrence or correction of major defects or impediments in the manoeuvring area; and

f) Establishment, withdrawal or return to operation of hazard beacons marking significant obstacles to air navigation.
8.1.2.2  Service

Use the following criteria as a guide for the origination of NOTAM concerning the establishment, condition or change of a service(s):

a) Establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, COM, MET, SAR etc) including:
   i) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services; or
   ii) changes to BoM equipment or services as specified in the Aeronautical Services Handbook (ASH);

b) Establishment, withdrawal or potentially hazardous test transmissions of electronic and other aids to navigation and aerodromes. This includes: interruption or return to operation, change of frequencies, change of notified hours of service, change of identification, change of orientation (directional aids), change of location, change in broadcast schedules or contents, or irregularity or unreliability of operation of any electronic aid to air navigation, and air-to-ground communication services;

c) Major changes to search and rescue facilities and services available;

d) Significant changes in the level of protection normally available at an aerodrome for rescue and fire fighting purposes when a change of category or service is involved;

e) Outbreak of epidemics necessitating changes in notified requirements for inoculations and quarantine measures; and

f) Allocation, cancellation or changes of location indicators.

8.1.2.3  Procedure

Use the following criteria as a guide for the origination of NOTAM concerning the establishment, condition or change of a procedure:

a) Establishment, withdrawal or significant changes made to procedures for air navigation services;

b) Changes in regulations requiring immediate action;

c) Establishment or discontinuance of prohibited, restricted or danger areas (including activation or deactivation) as applicable;

d) Changes in conditional status of Restricted Areas; and

e) Establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required.
8.1.2.4 Hazard

Use the following criteria as a guide for the origination of NOTAM concerning the establishment, condition or change of a hazard(s):

a) Presence of hazards which affect air navigation (including obstacles, military exercises, displays, races, unmanned aircraft);

b) Erecting, removal of or changes to significant obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;

c) Presence or removal or significant changes in hazardous conditions due to snow, slush, ice or water or other contaminants on the movement area;

d) Operationally significant changes in volcanic activity, the location, date and time of volcanic eruptions and the existence, density and extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;

e) Release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;

f) Establishment of humanitarian relief operations together with procedures and/or limitations which affect air navigation; and

g) Forecasts of solar cosmic radiation.

8.1.2.5 Australian criteria

Originate a NOTAM adhering to the Australian-specific criteria, in addition to the ICAO criteria referred to above, to disseminate information about:

a) changes in the status of Defence administered replenishment facilities at Defence Aerodromes;

b) gliding or parachuting activities; and

c) masts that are:

i) lit; or

ii) unlit when 300 FT AGL or greater.
8.1.2.5.1 **Gliding or parachuting activities**

Originate NOTAM for gliding or parachuting activities that are not published on AIP charts or in ERSA for:

a) locations at which regular glider launching or PJE takes place, prior to the activity being published;

b) major gliding or PJE activities;

c) organised gliding activities at:
   i) aerodromes serviced by RPT operations; or
   ii) licenced aerodromes if the activities involve occupation of the runway; and

d) gliding activities involving airspace reclassification (e.g. to facilitate gliding in controlled airspace). Prior approval must be obtained from the OAR.

*Note 1:* (for point b)) **Major Gliding Activities** are defined as those involving any: winch or vehicle tow launching; or 10 or more gliders being launched within a one hour period; or 20 or more gliders conducting a cross-country exercise on the same route.

*Note 2:* (for point b)) A **major PJE activity** is one to which any of the following applies: three or more aircraft in use simultaneously for parachuting; or 20 or more parachutists dropping simultaneously from a single aircraft; or 100 or more individual parachute descents are expected per day.

8.1.2.6 **Circumstances not to be notified by NOTAM**

Do not issue NOTAM for:

a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;

b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary (e.g. within 10 minutes);

c) temporary obstacles in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;

d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;

e) partial/temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;

f) the lack of apron marshalling services and road traffic control;

g) the unserviceability of location, destination or other instruction signs on the aerodrome/heliport movement area; and

h) other information of a similar temporary nature.
8.1.2.7 Information not to be promulgated by NOTAM

Do not issue NOTAM including information that:

a) relates to an aerodrome or heliport and its vicinity, and does not affect its operational status;
b) is not of direct operational significance;
c) does not impact the safe operation of aircraft; and
d) is not likely to influence a pilot’s or operator’s decision to divert a flight.

8.1.3 NOTAM promulgation – general

8.1.3.1 NOTAM numbering

Allocate each NOTAM a number consisting of a series letter, a four-digit number followed by an oblique stroke and a two-digit number for the year e.g. C0023/13. Commence each series on or after 0001 UTC on the first day of January each year with number 0001.

*Note:* NOTAM register series are specified in AIP.

See AIP

8.1.3.2 NOTAM duration

Except when approved by Head Office, issue NOTAM:

a) for a maximum period of three months; or
b) as a NOTAM PERM.

*Note:* NOTAM PERM amend AIP documents and charts.

8.1.3.3 Notification times

Issue a NOTAM, where practicable, with the following notification:

a) immediately for airspace established for emergency purposes e.g. SAR;
b) 8 hrs for airspace published in DAH or by AIP SUP e.g. military exercises; and
c) 48 hrs from receipt by the NOF for information regarding scheduled maintenance or changes to a facility, service or aerodrome.

*Note:* Advance notice is required to allow operators to make appropriate operational decisions.
8.1.3.4 Information format
Promulgate information as a Head Office, FIR, or location-specific NOTAM. Vary this
collection when safety considerations dictate e.g. when a temporary danger or
Restricted Area overlays an aerodrome which is itself subject to a full NOTAM service.

8.1.3.4.1 Location type
Issue a NOTAM as:
   a) location-specific if the location has an AvFax code;
   b) sub-FIR if the location does not have an AvFax code; or
   c) Head Office.

8.1.3.4.2 Single location or area
Normally refer to a single location, area or PRD and to one FIR in a single NOTAM.
More than one FIR may be indicated when necessary.

8.1.3.4.3 FIR NOTAM coverage
When issuing FIR NOTAM, restrict the area of coverage to coincide with applicable
forecast areas required to provide a complete briefing.

8.1.3.5 PRD NOTAM
Only one NOTAM may be current for each PRD.

8.1.3.5.1 Multiple PRD
Only refer to multiple PRD in a single NOTAM if they are components of an
approved airspace group.

   Note: Airspace groups are published in ERSA.

8.1.3.5.2 Airspace references
Name the airspace groups using terms such as: TOWNSVILLE AIRSPACE, TASMAN
SEA AIRSPACE or WIDE BAY AIRSPACE etc.

8.1.3.6 Single NOTAM
Only refer to one facility or facility group in a single NOTAM. For example, the
unavailability of the ILS in a runway works NOTAM would be incorrect.

8.1.3.6.1 Exception, multiple NOTAM
Only issue multiple NOTAM on the same subject under unusual or special
circumstances. For example, gliding NOTAM where the activity will impact both
aerodrome operations and overflying aircraft.
8.1.3.7 Clarifying NOTAM

On receipt of any requests for NOTAM which are not clearly and completely phrased:

a) issue the NOTAM in the correct format, ensuring that the original intent is not changed;

b) inform the originator of the reason for the alteration; and

c) refer any lack of agreement on the content, wording or punctuation of a NOTAM to a member of the NOF Standardisation team for resolution.

8.1.3.8 NOTAM verification

Verify NOTAM text against the information provided by the originator before promulgation. If this is not possible at the time of receipt of a report, but the information is essential to flight safety, issue the NOTAM including the words NOTAM SUBJECT TO QUERY.

8.1.3.9 Validate information

When out-of-date or incorrect information is suspected, take immediate action to validate the information with the originator.

8.1.4 Reviewing/cancelling NOTAM

8.1.4.1 Amending a current NOTAM

Issue a NOTAMR when an:

a) amendment to information in a current NOTAM is required; or

b) EST is included, in order to extend the effective time of the NOTAM.

Note: A NOTAMR immediately cancels the current NOTAM, and the amendment becomes effective at the start time of the NOTAMR.

8.1.4.2 Cancelling a current NOTAM

When information in a current NOTAM is no longer required or becomes ineffective, issue a NOTAMC.

Note: A NOTAM which contains a definite expiry time is automatically cancelled at that expiry time.
8.1.5 NOTAM for documents and charts

8.1.5.1 Originating NOTAM PERM

Only originate NOTAM PERM by, or with the prior authority of:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil</td>
<td>Head Office, Tel: 02 6268 5063, Fax: 02 6268 5044, or email <a href="mailto:nof@airservicesaustralia.com">nof@airservicesaustralia.com</a>;</td>
</tr>
</tbody>
</table>
| Military | a) ADF NOTAM Officer, AIS-AF, Tel: 03 9282 4614/6219; Fax: 03 9282 6695 or email ais.data@defence.gov.au; or  
             b) When AIS-AF are not available and the information requires immediate distribution:  
                 i) consult with the NOF;  
                 ii) issue a NOTAM EST (including Military Headquarters YMMXYOYX) with a review time not exceeding 10 days; and  
                 iii) forward an email message to the ADF NOTAM Officer, AIS-AF giving reasons for requesting the NOTAM PERM. |

Note: AIS-AF will process the NOTAM EST for PERM status.

8.1.5.2 Reference to documents

Describe document references as follows:

a) ERSA, DAH or charts - do not include the date and/or page number;
b) DAP, AIP book - reference the date and page;
c) Defence documents - as specified by AIS-AF; and
d) All documents - reference the parent document on the last line of the NOTAM (if deemed useful).

8.1.5.3 AIP ERSA information

Issue NOTAM relating to changes in the tabulated aerodrome information in AIP ERSA in accordance with the criteria appearing in the introductory pages of that document.

8.1.5.4 NOTAM information in documents and charts

When the information contained in a NOTAM is incorporated in the relevant aeronautical information documents or charts, cancel the NOTAM on the effective date of the relevant amendment, including the text INFORMATION INCORPORATED IN AIP.

Note: The NOF will be advised by AIS-AF of any military NOTAM requiring this action.
Check current against amended

Check current NOTAM against the document amendments as later NOTAM may have been issued since the compilation of the amendments or AIM may have incorporated information from other sources.

NOTAM subject categories

Subject categories for NOTAM

<table>
<thead>
<tr>
<th>Category</th>
<th>To be used by the originator</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD (Aerodrome)</td>
<td>For promulgating information relating to the establishment, withdrawal from service, or variation in availability of aerodromes or facilities thereon including:</td>
</tr>
<tr>
<td></td>
<td>a) approach and landing aids (instrument or visual);</td>
</tr>
<tr>
<td></td>
<td>b) the existence or removal of hazards or obstacles on and in the vicinity of the aerodrome; and</td>
</tr>
<tr>
<td></td>
<td>c) estimated traffic delays.</td>
</tr>
<tr>
<td>ATS (Air Traffic Services)</td>
<td>To notify the establishment, activation, cancellation, deactivation or variation in services provided by ATS units.</td>
</tr>
<tr>
<td>COM (Communications)</td>
<td>For the promulgation of the establishment, activation, withdrawal, failure or variation in the status of communication facilities or services.</td>
</tr>
<tr>
<td>DOC (Documents)</td>
<td>By or with the authority of AIM, to promulgate changes to specific documents.</td>
</tr>
<tr>
<td>GEN (General)</td>
<td>With the approval of AIM to refer to matters which cannot be defined as being related to a specific subject.</td>
</tr>
<tr>
<td>LJR (Military Low Level Operations)</td>
<td>For the promulgation of the establishment, activation, cancellation or variation of such routes, or activity by such aircraft, outside controlled airspace.</td>
</tr>
<tr>
<td>MET (Meteorological Services)</td>
<td>For the promulgation of the establishment, variation or termination of such services.</td>
</tr>
<tr>
<td>NAV (Navigation)</td>
<td>For the promulgation of the establishment, activation, withdrawal, failure or variation in status of aids to navigation, except aerodrome approach aids, instrument or visual, and the existence or removal of hazards to en route navigation.</td>
</tr>
<tr>
<td>PRD (Prohibited, Restricted and Danger Areas)</td>
<td>To notify the establishment, activation, cancellation, deactivation or variation of such an airspace.</td>
</tr>
<tr>
<td>PROC (Procedures)</td>
<td>For the promulgation or implementation of new procedures, and the variation or cancellation of existing procedures, without specific reference to documents.</td>
</tr>
<tr>
<td>RFF (Rescue and Firefighting Facilities)</td>
<td>To notify the establishment, activation, cancellation, deactivation or variation of the service provided by such a unit.</td>
</tr>
<tr>
<td>SPA (Sport Aviation)</td>
<td>For promulgation of the establishment, activation, cancellation, deactivation or variation of areas or routes to be used for parachuting, hang gliding, ballooning, ultralight aircraft, model aircraft, air racing, air displays or similar activities, where such an activity is not covered by the activation of restricted, danger or controlled airspace, or of any other information relating to such an activity.</td>
</tr>
</tbody>
</table>
8.1.7 NOTAM content

8.1.7.1 Indicators and mandatory fields

<table>
<thead>
<tr>
<th>NOTAM indicators</th>
<th>Description</th>
<th>Mandatory fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTAMN</td>
<td>Contains new information</td>
<td>A, B, C, E</td>
</tr>
<tr>
<td>NOTAMR</td>
<td>Immediately cancels and replaces the NOTAM identified by the serial number following this indicator</td>
<td>A, B, C, E</td>
</tr>
<tr>
<td>NOTAMC</td>
<td>Immediately cancels the NOTAM identified by the serial number following this indicator</td>
<td>A, B, E</td>
</tr>
</tbody>
</table>

8.1.7.2 Field content

Enter content into NOTAM fields in accordance with the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
<th>Comment</th>
</tr>
</thead>
</table>
| A     | 'A)' followed by the location indicator of the location in which the facility, airspace or condition is reported or located e.g. YBBN or YMMM | Examples:  
  a) YSSY - Sydney aerodrome;  
  b) R273 - Restricted Area R273;  
  c) YBBB - Brisbane FIR;  
  d) AMX - Amberley airspace group; and  
  e) BML - Bromelton NDB. |
| B     | 'B)' followed by a 10 figure DTG giving year, month, day, hours and minutes in UTC as one of the following:  
  a) For NOTAMC, the NOTAM origination time; or  
  b) For NOTAMR and NOTAMN:  
    i) the date/time at which the NOTAM comes into force; or  
    ii) where advance notice is required through current PFIB, enter the NOTAM origination time and commence field E) with the implementation date/time e.g. WEF 1605181600. |  
Restrictions:  
  a) NOTAMN and NOTAMR only; and  
  b) Use EST for when the restoration time of an unserviceability is unknown. |
| C     | 'C)' followed by:  
  a) PERM; or  
  b) a 10 figure DTG UTC as one of the following:  
    i) time of cessation of the notification; or  
    ii) an estimated time of cessation with a space and the abbreviation 'EST'. |  
Restrictions:  
  a) NOTAMN and NOTAMR only; and  
  b) Use EST for when the restoration time of an unserviceability is unknown. |
| D     | 'D)' followed by periods of activity within the DTG specified in fields B) and C) | Indicate periods of activity using pairs of 4, 6, 8 or 10 figure DTG |
| E     | 'E)' followed by the text of the NOTAM | Do not use symbols 'A), B), C), D), E), F), and G)' in the text |
8.1.7.3 Guidance material

Use ICAO NOTAM code and/or ICAO abbreviations for all NOTAM.

*Note:* Guidance material is contained in ICAO Annex 15 - Aeronautical Information Services, Doc 8126 - Aeronautical Information Services Manual, and Doc 8400 - ICAO Abbreviations and Codes.

8.1.7.3.1 Domestic abbreviations

You may use approved abbreviations in AIP GEN 2.2 in the text of domestic NOTAM.

8.1.7.3.2 Plain language

When an abbreviation is not available, use plain language in the text of NOTAM messages.

8.1.7.3.3 Avoid extraneous phrases

Do not use extraneous phrases such as: PILOTS ARE WarnED; PILOTS ARE REMINDED; EXERCISE CAUTION; THE AIP ENTRY IS INCORRECT or NEW relating to aerodromes and facilities, without specific approval from the NOF Standardisation team.

8.1.7.4 Field E) text content

Ensure that NOTAM Field E) content:

a) provides only essential information; and

b) is unambiguous and kept to a reasonable length.
8.1.7.4.1 Field E) for NOTAMC

Only the subject and the status are mandatory items in Field E). The following status statements or abbreviations may be used in a NOTAMC:

a) RESUMED NORMAL OPS - resumed normal operations;
b) OPR SUBJ PREVIOUS COND - operative subject to previously published limitations/conditions;
c) OPR - operational;
d) CMPL - completed;
e) CNL - cancelled;
f) WORK CMPL - work completed; and
g) plain language - only if the preceding do not describe the status.

8.1.7.5 Obstacle reference

Reference obstacles by bearing and distance from:

a) a significant point;
b) the Aerodrome Reference Point (ARP) or Heliport Reference Point (HRP); or
c) a prominent charted feature.

8.1.7.6 Latitude and longitude

Describe latitude and longitude in NOTAM as degrees, minutes and (where required) seconds, followed by a cardinal point e.g. 320546S 1385224E. Where more precision is required, the seconds are followed by a decimal point and tenths or hundreds of a second e.g. 320546.3S 1385224.0E.

8.1.7.6.1 Exception - other coordinate formats

When published information does not align to ICAO format, you may depict coordinates in the NOTAM in accordance with the published format, except do not use tenth of a minute.

8.1.7.7 Vertical limits

Specify vertical limits in the:

a) Altimeter Setting Region as either Above Mean Sea Level (AMSL) or Above Ground Level (AGL); or
b) Standard Pressure Region as a Flight Level (FL).
8.1.8 Facility or service NOTAM

8.1.8.1 Facilities and services
Describe facilities, services and aerodromes as:

a) commissioned (CMSD) – when first commissioned; or
b) decommissioned (DCMSD) – when permanently withdrawn from service.

8.1.8.2 Facility or part facility
Describe the status of a facility, or part of a facility, in accordance with the ICAO Doc 8126 NOTAM selection criteria. Where appropriate, add a brief reason for the withdrawal of a facility or service, a qualifying statement regarding tests or the recall of a facility or service.

8.1.8.2.1 Locator/NDB
Issue NOTAM on NDB associated with RWY operations under NAV category with the Q code of QNB**. Do not use the term ‘locator’ in NOTAM.
See MATS 2.7.5.2 Navaid unserviceable

8.1.8.3 Hours of availability
Describe changes in the hours of availability of a facility or service using the abbreviation AVBL. List the hours of availability or, if appropriate, use terms such as HJ or H24, e.g. TWR AVBL HJ MON TO FRI OR FOR SKED FLT AND BY ARRANGEMENT.

8.1.8.4 Pilot report
Describe unconfirmed pilot reports of navaids or facilities that are unreliable as PILOT REPORT.

8.1.9 Aerodrome NOTAM

8.1.9.1 Aerodrome licences
Describe the following for aerodrome licences:

a) a newly licenced aerodrome as LICENCED;
b) an aerodrome with a permanently cancelled licence as NOT LICENCED; or
c) an aerodrome with a temporarily cancelled licence as LICENCE SUSPENDED.

8.1.9.1.1 Aerodrome licence suspension
Cancel current NOTAM prior to an aerodrome licence suspension or licence cancellation. Reissue valid NOTAM if a suspension is withdrawn.
8.1.9.2 Disabled aircraft on runway

When issuing a NOTAM closing a runway, or part of a runway, due to obstruction by a disabled aircraft, enter the following relevant information:

a) Runway obstructed;
b) Type of aircraft causing obstruction;
c) Distance of aircraft from runway end, or length by which runway is reduced;
d) Distance from runway centre line or end at which reduction occurs e.g. SW END;
e) Obstacle height;
f) Declared and supplementary take-off distances of useable parts of the runway as provide by an authorised officer; and

g) The expected duration of the total or partial closure.

8.1.9.3 Reduction of ARFF facilities

Enter the following when advising of a temporary withdrawal or reduction of ARFF facilities:

a) The time the reduction commenced;
b) The anticipated time of restoration, or the anticipated period of reduction of category; and
c) The revised category.

8.1.9.4 NOTAM services for aerodromes

Maintain a full NOTAM service for:

a) certified aerodromes;
b) registered aerodromes;
c) other aerodromes regulated under CASR Part 139.D; and
d) specialised helicopter operations with published terminal instrument flight procedures.

8.1.9.5 Unlicensed aerodrome

A NOTAM service is not provided for unlicensed aerodromes with limited information published in ERSA, except:

a) for changes to navaids or CTAF;
b) for changes to ATS frequencies;
c) for changes to special procedures; or
d) when requested by service provider or CASA.
8.1.10 Military and PRD NOTAM

8.1.10.1 PRD areas

Include the following in NOTAM referring to PRD:

a) In field A): enter the:
   i) PRD number; or
   ii) the airspace group; and

b) In field E): enter the:
   i) PRD numbers of the individual areas affected;
   ii) statement ACT/DEACTIVATED; and
   iii) activity or conditional status for Restricted Areas, where different to that published in DAH.

8.1.10.2 Activating PRD

Any NOTAM which activates a:

a) PRD and increases the published vertical or horizontal limits must be supplemented by a second NOTAM (additional to the airspace NOTAM) which establishes a temporary PRD within the amended airspace limits as approved by OAR; or

b) portion of an established PRD must contain a description of the activated portion in field E). Field E) may contain a statement relating to the status of the deactivated portion if this will assist pilots.

8.1.10.3 TRA NOTAM

Issue a NOTAM promulgating a Temporary Restricted Area if operations are required which exceed the restrictions detailed in the Flight Information Handbook.

8.1.10.4 Low level military operations

Specify in the text the sector altitude Above Ground Level (AGL) when establishing a NOTAM for low level military operations, including LJR.

8.1.10.4.1 Route description

Describe the route in terms of place names, true bearings and distances from place names and/or latitudes and longitudes.

8.1.10.4.2 Activation timing

Unless times are provided by the originator, activate a LJR from 30 minutes prior to the estimated low level entry time to 1 hour after the estimated departure from the low level portion of the flight.
8.1.11 Periodic reviews and distribution

8.1.11.1 Periodic reviews

Undertake reviews in conjunction with the technical officer concerned or, when necessary, by contacting reporting agents directly. ATS managers are responsible for organising these reviews with officers of other sections.

Note 1: NAIPS is Airservices NOTAM management system. Units are able to validate NOTAM holding by means of REQ CH on the AFTN or by contacting the NOF.

Note 2: NOTAM check procedures are normally promulgated in local instructions.

Note 3: NOTAM are stored on the NAIPS computer and are available from AvFax, Flightwatch, the BOF, internet and for distribution via the AFTN.

8.1.11.2 International NOTAM check

Issue a CHECK NOTAM via the AFTN:

a) between 1600-1700 UTC on the last day of each month;
b) to each corresponding overseas NOF; and
c) covering current NOTAM that have been distributed to the overseas NOF.

8.1.11.3 NOTAM distribution internationally

Distribute NOTAM with international significance to NOF with which Australia has a formal exchange arrangement.

8.1.11.3.1 Dissemination

Ensure correct dissemination of NOTAM internationally.

Note: NOF local instructions provide a list of locations and services for international distribution and overseas NOF. Criteria used to determine distribution includes ATS routes flown by international carriers, new (or variations to) navaids and PRD. The list is amended as circumstances change and reviewed with every DAH amendment.

8.1.11.3.2 Additional requirements

Determine the requirement for additional international NOTAM exchanges, or for amendments to existing exchanges, and make arrangements with overseas authorities.
8.1.11.4 **International NOTAM receipt**

Receive all international NOTAM from NOF with which Australia has a formal exchange arrangement and distribute them as appropriate.

8.1.11.4.1 **NOTAM of international significance**

Hold NOTAM of international significance:

a) issued by overseas NOF regarding locations associated with its operations;

b) referring to locations within FIRs for which it has responsibilities affecting international operations; and

c) concerning procedures in Australia as they affect international operations.

8.1.11.5 **Supplementary NOTAM addresses**

Include AIM (YBBBDOCS) and AIS-AF (YMMXYOYX) in the address of permanent NOTAM.
8.2 Briefing

8.2.1 Briefing services

8.2.1.1 Pre-flight information

Provide applicable pre-flight aeronautical information to flight operations personnel, including flight crews and associated services, that is:

a) essential for the safety, regularity and efficiency of air navigation; and
b) relevant to the route stages originating at the aerodrome/heliport.

8.2.1.1.1 Information elements

Include pertinent information elements from the following:

a) Integrated AIP Australia including:
   i) aerodrome/heliport facilities;
   ii) air routes and navaisds;
   iii) maps and charts;
   iv) communication facilities;
   v) rules of the air;
   vi) ATS procedures;
   vii) controlled and PRD airspace;
   viii) international flight entry or transit regulations; and
   ix) SAR facilities and survival information;

b) Meteorological forecasts and reports (provided by the BoM); and

c) NOTAM.

Note: Automated pre-flight information systems may provide aeronautical information/data available to flight operations personnel, including flight crew members, for self-briefing, flight planning and flight information service purposes.

8.2.1.2 International services

Provide a pre-flight briefing service to pilots:

a) from Australia to the first destination outside Australia;
   b) planning to enter Australia from Norfolk Island or Christmas Island; and
   c) from the RAAF, via their Australian Base who will forward it on.

Note: Refer ERSA GEN for international telephone and facsimile numbers for use from outside Australia.

8.2.1.2.1 Non-scheduled operations

For non-scheduled operations to international destinations for which no NOTAM information is held, despatch a request to the appropriate international authority(ies).
8.2.1.2.2 Provision of frequency predictions
Make radio frequency flight plans available to pilots upon request.

*Note:* The BoM Ionospheric Prediction Service provides guidance, based on predictions in the movement of the ionosphere, for the selection of HF frequencies to be used on domestic and international mobile networks.

8.2.1.3 Process flight notification
Accept flight notification and distribute the information to ATS units with a responsibility for the flight.

8.2.1.3.1 Check and correct
When accepting a flight notification:

a) check for compliance with the format and data conventions;

b) check for completeness and, to the extent possible, for accuracy;

c) ensure the exact location of all points on the planned route are known, and include any clarification on unusual places in the RMK/section;

d) take action (including contacting the pilot) to resolve any omissions, errors or anomalies;

e) include reference to any unresolved issues in the RMK/section of the flight notification e.g. RMK/CFM ROUTE or RMK/CFM GNSS RNP2; and

f) verbally advise the relevant ATS units of the unresolved issue or send a service message to the ATS unit responsible for the first point of departure.

8.2.1.4 ATS responsibilities
When necessary, clarify the pilot’s intentions prior to services being provided to those flights for which notifications have been distributed with remarks indicating known deficiencies.

8.2.1.4.1 No remarks
On receiving an incorrect or incomplete flight notification, without a corresponding remark, contact the BOF describing the deficiency.

8.2.1.4.2 Auto-filed flight plans
Auto-filed flight plans are not received by the BOF. Direct any queries relating to these plans to the airline company concerned.

8.2.1.5 Post-flight information service
When a post-flight report is received on weather conditions and air navigation facilities, distribute those reports to the NOF, the relevant meteorological office or other authority as appropriate.
8.3 SARTIME management

8.3.1 Maintaining the SARTIME database

8.3.1.1 Managing SARTIME

Use CENSAR to manage SARTIME for:

a) civil aircraft nominated to all ATSUs; and
b) military aircraft nominated to all Airservices ATSUs and most military units.

Note: Flight notifications addressed to CENSAR automatically enter SARTIME details into the database.

8.3.1.1.1 Exception - local units

ATS units may hold:

a) SARTIME for departure in accordance with Clause 4.4.1.3; or
b) local SARTIME (military) in accordance with LoA/MATS Supps.

See MATS 4.4.1.3 SARTIME

8.3.1.2 Communication checks and alerting action

The following units are responsible for communication checks and alerting action where a SARTIME has been nominated:

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<thead>
<tr>
<th>SARTIME type</th>
<th>Unit responsible</th>
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</tr>
<tr>
<td>SARTIME for departure</td>
<td>HF communications unit or ATS unit responsible for the departure aerodrome as applicable</td>
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<tr>
<td>Local SARTIME (military flights)</td>
<td>Military ATS unit</td>
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8.3.1.2.1 CENSAR notification

For SARTIME in CENSAR, the CENSAR operator alerts the appropriate HF operator when both the SARTIME and INCERFA times are reached.

8.3.1.3 Changes to SARTIME

Only cancel or vary a SARTIME at the request of the pilot, AMSA or Headquarters Air Command (military flights only).

8.3.1.3.1 Actions at expiration

Do not cancel the SARTIME at expiration if incidental information received indicates that the aircraft may have arrived safely, but no contact with the pilot has taken place during the communications checks phase.
9 Control practices

9.1 Provision of FIS

9.1.1 Scope of FIS

9.1.2 Responsibilities

9.1.3 Transmission of information

9.1.4 Safety alerts and traffic avoidance advice

9.1.5 Traffic information

9.1.6 Traffic information assessment and content

9.1.7 Flightwatch

9.2 Clearances

9.2.1 Purpose and content

9.2.2 Airways clearance

9.2.3 Blanket clearances

9.2.4 VFR climb/descent - Classes D and E airspace

9.2.5 VFR-on-top - Class E airspace

9.2.6 VFR procedures - Class D aerodrome

9.2.7 Special VFR

9.2.8 STAR clearances

9.2.9 Abbreviated clearances - Class D Aerodromes

9.3 Altimetry

9.3.1 Altimeter settings

9.3.2 Local QNH

9.3.3 Area QNH

9.3.4 Pressure settings in Military Controlled Airspace

9.4 Level assignment

9.4.1 Procedure

9.4.2 Operations below LSALT

9.4.3 Vertical buffers between aircraft inside and outside controlled airspace

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<td>Breaking trail</td>
</tr>
</tbody>
</table>
9.1 Provision of FIS

9.1.1 Scope of FIS

9.1.1.1 Responsibility

Provide FIS to all aircraft which are:

a) provided with air traffic control service; or

b) otherwise known to the relevant air traffic services units.

9.1.1.2 Provision includes

FIS includes the provision of pertinent:

a) pre-flight information;

b) operational information such as:

i) meteorological conditions and the existence of non-routine MET products (e.g. amended TAF, selected SPECI, SIGMET, AIRMET);

ii) changes to air routes;

iii) changes to the status of air routes, aerodromes, navigation facilities e.g. RAIM, communication facilities and approach aids;

iv) changes to ATS procedures;

v) changes to airspace status;

vi) information on unmanned free balloons; and

vii) release into the atmosphere of radioactive materials or toxic chemicals.

c) traffic information to aircraft operating in airspace Classes C, D, E and G when licenced to do so;

d) ATS surveillance system derived information to aircraft operating in Classes E and G when licenced to do so; and

e) other information likely to affect safety.
9.1.2 Responsibilities

9.1.2.1 ATSO responsibility
The ATSO whose area of responsibility is affected by the information is responsible for communication with the relevant aircraft. This may involve addressing the message to the pilot through another unit.

9.1.2.1.1 Coordinate responsibility
Clearly coordinate the responsibility if the area affected is in the vicinity of unit boundaries.

Note: Pilots are responsible for obtaining information necessary to make operational decisions.

9.1.2.2 Precedence
Where air traffic service units provide both flight information and air traffic control services, give precedence to the provision of air traffic control over flight information, unless doing so would compromise safety.

9.1.2.3 Pilot access to information
Advise pilots to access information on an alternate frequency if your workload or frequency congestion makes it more practical.

Note: Aerodrome information may be obtained from a local Automatic Broadcast Service including ATIS, AAIS, AWIS and WATIR.

9.1.3 Transmission of information

9.1.3.1 Notify components of FIS
Notify components of FIS to the relevant aircraft as soon as practicable after receipt.

9.1.3.2 Aircraft to notify
Notify aircraft at the time operational information or the existence of non-routine MET products is identified:

a) except for AIRMET, by directed transmission to those aircraft maintaining continuous communication and within one hour’s flight time of the conditions (two hours in the case of SIGMET);

b) where continuous communication is not required, by broadcasting on appropriate ATS frequencies to those aircraft that could be within one hour’s flight time of the conditions (two hours in the case of SIGMET); and

c) by directed transmission to all affected aircraft engaged in SAR action.

See MATS 9.1.3.5 AIRMET
9.1.3.3 Broadcast vs directed transmission

Where workload or frequency congestion dictates, broadcast to aircraft in continuous communication in place of a directed transmission e.g. broadcast of ATIS changes.

Note: Notification of the existence of non-routine MET products may include a summary of significant changes.

9.1.3.3.1 Transmit details on request

Transmit details of these products on request where workload or frequency congestion permits.

9.1.3.4 Hazard alert

Prefix directed transmissions and broadcasts with HAZARD ALERT when a sudden change to a component of FIS, not described in a current MET product or NOTAM, has an immediate and detrimental effect on the safety of aircraft.

9.1.3.4.1 Prolonged effect on safety

When a hazard alert is expected to be prolonged, repeat broadcasts at H+15 and H+45 in the hour following the initial broadcast.

9.1.3.4.2 Cease broadcasts

Cease broadcasts after one hour or when an updated MET product or NOTAM is available for dissemination, whichever is earlier.

See MATS 9.1.3.1 Notify components of FIS

9.1.3.5 AIRMET

Disseminate AIRMET by broadcasting their availability on appropriate ATS frequencies. Do not use directed transmissions.

9.1.3.5.1 AIRMET relevance

Include details as required to assist pilots to determine the relevance of the AIRMET.

9.1.3.5.2 Repeat broadcast

Repeat the broadcast in the hour following the initial broadcast at H+15 and H+45.

9.1.3.6 Amended ATIS

Detail in local instructions any routine requirement for ENR/CEN to pass notification of an amended ATIS to aircraft.
9.1.3.7 **Take-off and landing information**

Transmit take-off or landing information to a pilot who has not notified receipt of the current ATIS and include as much of the following as may be significant at the time:

- a) runway;
- b) surface wind velocity, including crosswind components if significant, and any discernible tailwind component;
- c) QNH;
- d) surface air temperature;
- e) visibility;
- f) low cloud;
- g) dew point if requested by the pilot;
- h) prevailing weather conditions; and
- i) a time check to the nearest half minute (at pilot request for departing aircraft only).

9.1.3.7.1 **Significant crosswind**

Consider crosswind to be significant when it equals or exceeds 8 kt for civil single engine aircraft, 10 kt for military aircraft, or 12 kt for civil multi-engine aircraft.

9.1.3.8 **Aerodrome information**

Tower controllers are responsible for ensuring aircraft under their control are advised of sudden and unexpected changes to the aerodrome information, pending an amended ATIS.

9.1.4 **Safety alerts and traffic avoidance advice**

9.1.4.1 **Vigilance**

Remain vigilant for the development of safety alert or traffic avoidance advice situations.

9.1.4.2 **Responsibility**

Do not assume that because another Controller has responsibility for an aircraft that an unsafe situation has been observed and a safety alert or traffic avoidance advice has been issued.
9.1.4.3 Issuing a safety alert

Unless the pilot has advised that action is being taken to resolve the situation or that the other aircraft is in sight, issue a safety alert prefixed by the phrase ‘SAFETY ALERT’ when you become aware that an aircraft is in a situation that places it in unsafe proximity to:

a) terrain;
b) obstruction;
c) active restricted or prohibited areas; or
d) other aircraft.

9.1.4.3.1 Airspace classes - safety alerts

You may issue safety alerts, including those based on visual observation, in all classes of airspace both within and outside ATS surveillance system coverage.

9.1.4.4 Traffic avoidance advice

Issue traffic avoidance advice, prefixed by the phrase 'AVOIDING ACTION', to an aircraft that:

a) is receiving an ATS surveillance service; and
b) in your judgement, is in a situation that places it at risk of a collision with another aircraft under surveillance.

9.1.4.4.1 'SUGGEST' prefix

Prefix advice to turn or change level with 'SUGGEST' unless the advice is for controlled flights with reference to other controlled flights e.g. 'AVOIDING ACTION, SUGGEST (turn or level advice [VISUAL])'.

9.1.4.5 Abbreviated phraseology

When required, you may abbreviate safety alert and traffic avoidance advice phraseologies to ensure timely provision of advice.

9.1.4.6 Discontinuing

You may discontinue issuing further safety alerts or traffic avoidance advice when the pilot advises action is being taken to resolve the situation or has reported the other aircraft in sight.
9.1.5 Traffic information

9.1.5.1 Flight category

Base provision of traffic information on flight category in accordance with the following table:

<table>
<thead>
<tr>
<th>Airspace class</th>
<th>IFR re IFR</th>
<th>IFR re VFR</th>
<th>VFR re IFR</th>
<th>VFR re VFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class C</td>
<td>(Separation required)</td>
<td>(Separation required)</td>
<td>(Separation required)</td>
<td>Provide traffic information</td>
</tr>
<tr>
<td>Class D</td>
<td>(Separation required)</td>
<td>Provide traffic information</td>
<td>Provide traffic information</td>
<td>Provide traffic information</td>
</tr>
<tr>
<td>Class E</td>
<td>(Separation required)</td>
<td>Provide traffic information where practicable</td>
<td>Provide traffic information if in receipt of a SIS</td>
<td>Provide traffic information if in receipt of a SIS</td>
</tr>
<tr>
<td>Class G</td>
<td>Provide traffic information</td>
<td>Provide traffic information where practicable</td>
<td>Provide traffic information if in receipt of a SIS</td>
<td>Provide traffic information if in receipt of a SIS</td>
</tr>
</tbody>
</table>

9.1.5.1.1 IFR conducting VFR procedures

For the purposes of providing traffic information, treat VFR departures, VFR climb/descent and VFR-on-top aircraft as:

a) VFR category in Class C or Class D airspace; or
b) VFR category in receipt of a SIS in Class E and Class G airspace.

*Note:* A visual departure is not a VFR departure and remains IFR.

9.1.5.1.2 MLJ

For the purposes of providing traffic information, treat MLJ aircraft as IFR regardless of flight-planned category.

9.1.5.2 VFR aircraft receiving a SIS

Pass traffic information to VFR traffic when:

a) requested by pilots;
b) pilots notify intention to change level and/or track; or
c) you become aware of relevant traffic.

See MATS 9.7.9 Surveillance Information Service

9.1.5.2.1 No reported IFR traffic

When applicable, provide advice that no reports have been received from IFR traffic.
9.1.5.3 **IFR aircraft**
Pass traffic information to IFR traffic when:

a) requested by pilots;
b) pilots notify intention to change level and/or track;
c) pilots notify either taxi or airborne or departure, whichever is first; or
d) you become aware of relevant traffic.

9.1.5.3.1 **No reported IFR traffic**
When applicable, provide advice that no reports have been received from IFR traffic.

9.1.5.3.2 **Ceasing traffic information**
Your obligation to provide traffic information to or about an aircraft ceases when:

a) the pilot reports changing to the CTAF;
b) military pilots report ceasing guard on ATS frequencies; or
c) the pilot cancels SARWATCH and:
   i) has reported in the circuit area; or
   ii) the destination ETA has been reached.

*Note*: Workload or communications may not allow traffic information to be passed to a pilot who has cancelled SARWATCH.

9.1.5.3.3 **Military flight following**
Cancel SARWATCH after a military flight following aircraft is established outside controlled airspace and has advised transferring to MILITARY FLIGHT FOLLOWING.

*Note*: Aircrews will specifically request a civil SARWATCH where required.

9.1.5.4 **Not on frequency**
Pass traffic information relating to aircraft not yet on the appropriate ATS frequency.

9.1.5.5 **MLJ**
Workload permitting, broadcast the intentions of MLJ on the appropriate area frequencies, prior to the aircraft transiting the area served by the frequency concerned.

9.1.5.5.1 **Broadcast progress**
Broadcast the progress of MLJ whenever practical.

9.1.5.5.2 **Planned levels**
Use actual planned levels in broadcasts e.g. '350 AGL', or refer to the flight as 'LOW LEVEL MILITARY OPERATIONS'.
9.1.5.6 **Routine movement reports**
Do not update traffic information when a conflicting aircraft subsequently passes routine movement reports unless there is a change to the previously advised traffic information.

9.1.5.7 **Traffic information for other units**
As far as practicable, anticipate the traffic information responsibilities of accepting ATS units.

9.1.5.7.1 **Advise accepting unit**
Advise the accepting unit of traffic passed on their behalf.

9.1.5.8 **Leaving controlled airspace**
Advise aircraft leaving controlled airspace of observed traffic within the airspace to be entered where:

a) the aircraft is on descent and pressure altitude-derived level information of observed traffic indicates it is operating within 2000 FT of the base of CTA; or
b) other information indicates a potential conflict exists.

9.1.6 **Traffic information assessment and content**

9.1.6.1 **When in doubt**
Within the guidelines of this section, provide traffic information as far as is practicable. If you are ever in doubt as to whether traffic information is required, provide advice.

9.1.6.2 **Possibility of conflict**
Pass traffic information to qualifying aircraft when data assessment indicates the possibility of conflict.

9.1.6.3 **Be concise**
Keep traffic information concise.
9.1.6.4 **Content of traffic information**

To assist the pilot in identifying the other aircraft, include relevant information from the following:

a) aircraft identification;

b) type, and description if unfamiliar;

c) position information;

d) estimated time of passing or closest point of approach;

e) direction of flight or route of aircraft;

f) level;

g) intentions of the pilot, such as:
   i) initial departure track and intended cruising level; and
   ii) inbound track or direction, level and next estimate; and

h) advice that an aircraft is not yet on the appropriate frequency.

9.1.6.5 **Position information**

Provide position information by:

a) clock reference;

b) bearing and distance;

c) relation to a geographical point;

d) reported position and estimate; or

e) position in the circuit.

9.1.6.5.1 **Features not on an ERC**

Provide reference information, if required, when traffic information relates to positions or features not shown on an ERC.

9.1.6.6 **Unverified information**

When providing traffic information, prefix unverified level information by the words UNVERIFIED LEVEL.

9.1.6.6.1 **2000 FT or more**

Where pressure altitude-derived level information is unverified and indicates 2000 FT or more above or below aircraft receiving traffic information, disregard the data for traffic or avoidance except when other information indicates a potential conflict.
9.1.6.7  **Class G airspace - surveillance not available**

When ATS surveillance system information is not available, use the following guidelines to determine whether to issue traffic information between:

a)  aircraft that climb, descend or operate with less than 1000 FT vertical spacing and less than 15 NM lateral or longitudinal spacing;

b)  overtaking or opposite direction aircraft on the same or reciprocal tracks with less than 1000 FT vertical spacing, and less than 10 minutes longitudinal spacing, based on pilot estimates; and

c)  aircraft that depart and arrive with less than 10 minutes between other departing and arriving aircraft from the one aerodrome and falling within these guidelines.

9.1.6.7.1  **Less than 2000 FT vertical displacement**

Issue traffic information when less than 2000 FT vertical spacing exists between aircraft and:

a)  severe turbulence is reported;

b)  aircraft are operating above FL290; or

c)  due to different altimetry rules beyond Australian FIRs, aircraft are at and below:
   i)  20 000 FT along the Port Moresby and Honiara boundaries;
   ii) 11 000 FT along the New Caledonia Sector Boundary; and
   iii) 10 000 FT along the remainder of Australian airspace oceanic limits.

9.1.6.8  **Assistance to avoid traffic**

On request, assist aircraft receiving an ATS surveillance service to avoid other traffic provided:

a)  traffic information has been issued about the other traffic;

b)  advice to turn or change level is prefixed with 'SUGGEST'; and

c)  you notify pilots when the conflict no longer exists.

See MATS 9.1.4.3  **Issuing a safety alert**

9.1.7  **Flightwatch**

9.1.7.1  **Flightwatch services**

On request, provide flight information and briefing service via air-to-ground communication channels to pilots:

a)  unable to obtain information pre-flight; or

b)  requiring an in-flight briefing update.

9.1.7.1.1  **Essential information**

This service is normally limited to information considered essential to the first point of intended landing where access to a telephone or facsimile is available.
9.2 Clearances

9.2.1 Purpose and content

9.2.1.1 Objectives
Issue air traffic control clearances as necessary to prevent collisions, and to expedite and maintain an orderly flow of air traffic.

9.2.1.2 Issuing clearances
Issue clearances to provide separation between:

a) all flights in airspace Class A;
b) IFR flights in airspace Classes C, D and E;
c) IFR flights and VFR flights in airspace Class C;
d) IFR flights and special VFR flights; and
e) special VFR flights when visibility is less than VMC.

9.2.1.2.1 Exception
When requested by an IFR flight in Class D or E airspace, you may clear the flight without providing separation in visual meteorological conditions in accordance with:

a) VFR climb/descent procedures in Classes D and E airspace;
b) VFR-on-top procedures in Class E airspace; or
c) VFR departure procedures at Class D aerodromes.

See MATS 9.2.4 VFR climb/descent - Classes D and E airspace
See MATS 9.2.5 VFR-on-top - Class E airspace
See MATS 9.2.6 VFR procedures - Class D aerodrome

9.2.1.3 Content of a clearance
Include the following when issuing a clearance:

a) aircraft identification;
b) destination, area of operation, position or clearance limit;
c) route of flight; and
d) cleared level.

9.2.1.3.1 Additional instructions
You may include any additional instructions such as:

a) a level restriction;
b) departure type for IFR flights;
c) SSR code; and
d) frequency requirements.
9.2.1.3.2 Lengthy clearance
When the content of a clearance is considered complex or lengthy, advise the pilot that a clearance is available prior to issuing it. The pilot should then advise when ready to copy. This does not apply when a pilot has requested a clearance and is expecting a reply.

9.2.1.3.3 Anticipate request
Anticipate a clearance request in order to minimise delays. If a delay is anticipated, advise the pilot of the expected delay and offer an alternative, where practicable.

9.2.1.3.4 Purpose
Issue clearances that will enable an aircraft to remain within CTA if the pilot has planned to do so. If the clearance would involve a significant delay, you may offer a pilot an alternative route or track which would take the aircraft outside controlled airspace, provided that:

a) you advise the pilot that the amended clearances will take the flight outside controlled airspace;

b) the pilot accepts the amended clearance; and

c) you issue a specific clearance to re-enter controlled airspace if the flight will re-enter after the initial diversion.

9.2.1.3.5 Validity
The clearance, and its amendments during the flight only apply:

a) to the first point at which the aircraft leaves controlled airspace;

b) to the first landing point if the flight is wholly within controlled airspace;

c) to the clearance limit if issued;

d) until the expiration of a clearance void time; or

e) until cancelled by a controller.

9.2.2 Airways clearance

9.2.2.1 Issuing
When issuing an airways clearance, include at least the first position at which the flight planned route is joined.

9.2.2.2 AIP routes
Clear IFR flights on routes published in AIP, where available.

9.2.2.2.1 Non-published routes
Obtain ORM/Military Supervisor approval to use non-published routes.

Note: Supervisor approval is not required for minor route deviations.
9.2.2.3 **Flight planned route**
You may use the phrase 'FLIGHT PLANNED ROUTE' in an initial airways clearance to describe any route or portion of route that is identical to that filed in the flight notification after providing sufficient route details to definitely establish the aircraft on its route.

9.2.2.4 **Amendment to an airways clearance**
If the route and/or level issued in the initial airways clearance is not in accordance with the held Flight Plan, prefix the route and/or level clearance with 'AMENDED'.

9.2.2.4.1 **Exception**
Do not use the prefix 'AMENDED' or 'RECLEARED':
   a) for SID or STAR clearances; or
   b) during normal progressive climb/descent instructions.

9.2.2.5 **Amended route clearances**
Describe amended route clearances by:
   a) ATS route designators published in AIP;
   b) turning points in accordance with ERC (not permissible in respect of VFR flights other than RPT, or VFR at night where DR turning points are specified); or
   c) visual fix points (at night fix points are only permissible for route description in respect of aircraft operating VFR at night).

9.2.2.5.1 **Amended en route**
Except as stated in Clause 9.2.2.4.1, when an airways clearance is amended en route, prefix the route and/or level information with the term 'RECLEARED' to indicate to the pilot that a change has been made to the previous clearance and this new clearance supersedes the previous clearance or part thereof.

   See MATS 9.2.2.4.1 Exception

9.2.2.5.2 **Flight planned route**
Do not use the phrase 'FLIGHT PLANNED ROUTE' when reclearing an aircraft.

9.2.2.5.3 **Level assignment**
Assign a level with all clearance changes regardless of whether a change has been made to the cleared level.
9.2.2.6 Clearance for VFR at night

Issue airways clearances to aircraft operating VFR at night in accordance with the flight planned route except:

a) when the pilot specifically requests another route;

b) when an amended route is deemed satisfactory in relation to the planned route (e.g. coastline flying); or

c) for short-term route variations:
   i) by vectoring; or
   ii) within 30 miles of a controlled aerodrome, by visual tracking.

9.2.2.6.1 Delay

You may delay a departing aircraft operating VFR at night until a planned route is available.

9.2.2.7 Area navigation tracking

Only issue route clearances authorising area navigation tracking when:

a) the flight segment is contained within ATS surveillance system coverage;

b) the route is published in AIP; or

c) prior coordination has been conducted between affected units.

9.2.2.8 Loss of area navigation capability

On pilot advice of loss or reduction of area navigation capability, reclear the aircraft via ground based navigation aids where practicable.

9.2.2.9 Imposing clearance limits

Impose clearance limits where required to ensure separation.

Note 1: The clearance limit for aircraft navigating on instruments is the holding fix associated with the final approach to be used.

Note 2: A holding instruction imposes a clearance limit on the aircraft.

9.2.2.10 Description of a holding path

A description of a holding path to be flown at a clearance limit is not required when:

a) the holding fix is published in aeronautical information documents; or

b) it has been imposed temporarily, and it is expected that the requirement to hold will have lapsed before the aircraft arrives at the designated holding fix.

9.2.2.11 Repeat turn direction

Repeat the direction of turn when an aircraft is instructed to turn through 180 degrees or more.
9.2.2.12 **Cancelling clearance limit**

When a clearance limit is cancelled, issue an onwards clearance specifying the level and route to be flown from that point.

9.2.2.13 **Pilot readback**

Obtain a readback in sufficient detail that clearly indicates pilot's understanding of and compliance with all ATC clearances, including conditional clearances, instructions and information which are transmitted by voice.

9.2.2.13.1 **ATC route clearance**

Obtain a readback of an ATC route clearance in its entirety, as well as any amendments.

9.2.2.13.2 **Key elements**

Obtain a readback of the key elements of the following ATC clearances, instructions and information:

a) en route holding instructions;
b) any route and runway-holding position specified in a taxi clearance;
c) any clearances or instructions to hold short of, enter, land on, line up on, wait, take-off from, cross, taxi or backtrack on, any runway or HLS;
d) an assigned runway or HLS;
e) any approach clearance;
f) altimeter settings directed to specific aircraft, radio and radio navaid frequency instructions;
g) SSR codes and data link logon codes; and
h) level instructions, direction of turn, heading and speed instructions.

*Note:* Pilots are not required to read back an expectation of the runway to be used.

9.2.2.13.3 **Readback discrepancies**

Correct readback discrepancies immediately.

9.2.2.14 **Avoiding volcanic ash**

When a clearance includes air routes affected by volcanic ash within Australian-administered airspace:

1) determine the pilot's awareness of the volcanic ash and intentions; and
2) suggest amended routing if necessary.

*Note:* A pilot may have more up to date information on volcanic activity and may plan or request route clearances and amendments contrary to information available to ATC.
9.2.3 Blanket clearances

9.2.3.1 Use of blanket clearance

Originate blanket clearances for activities or events that require extended approval to operate within controlled airspace.

9.2.3.1.1 Written approval

Publish the terms of blanket clearances in local agreements. Include applicable details from the following:

a) Area or route of operation;
b) Approved level(s) of operation;
c) Applicable times of operation;
d) Restrictions or limitations;
e) Aircraft callsigns or activities to which the agreement applies; and
f) Other information e.g. emergency or contingency procedures.

9.2.4 VFR climb/descent - Classes D and E airspace

9.2.4.1 VFR climb/descent

In Classes D and E airspace, on receiving a request for VFR climb/descent, you may clear the pilot to 'CLIMB/DESCEND VFR' for a specified portion of the flight.

Note: Separation is not provided to an aircraft during VFR climb/descent.

See MATS 9.1.5.1.1 IFR conducting VFR procedures

9.2.5 VFR-on-top - Class E airspace

9.2.5.1 VFR-on-top

In Class E airspace, on receiving a request for VFR-on-top, you may instruct the pilot to climb to 'VFR-ON-TOP'. Include in the instruction:

a) if required, a clearance limit, routing and an alternative clearance if VFR-on-top is not reached by the lower of a specified altitude or the upper limit of Class E airspace;
b) the requirement to report reaching VFR-on-top; and
c) the reported height of the tops or that no tops report is available.

9.2.5.1.1 Maintain VFR-on-top

Once the pilot reports reaching VFR-on-top, you may re-clear the aircraft to 'MAINTAIN VFR-ON-TOP'.

Note: Separation is not provided to an aircraft cleared to maintain VFR-on-top.

See MATS 9.1.5.1.1 IFR conducting VFR procedures
9.2.5.1.2 **Night restriction**

Do not clear an aircraft to 'MAINTAIN VFR-ON-TOP' at night to separate holding aircraft from each other or from en route aircraft unless restrictions are applied to ensure the appropriate IFR vertical separation exists.

9.2.5.1.3 **Refusal of procedure**

When the use of VFR-on-top may adversely impact your workload, or may impose a collision risk, then you may refuse use of the procedure or impose vertical limits to separate the aircraft from other traffic.

9.2.5.1.4 **Vertical boundary**

Where a vertical boundary exists between units within Class E airspace, impose a level restriction on an aircraft climbing to/maintaining VFR-on-top to prevent the aircraft from entering the adjacent unit’s airspace, until appropriate coordination has been effected.

9.2.6 **VFR procedures - Class D aerodrome**

9.2.6.1 **VFR departure**

At a Class D aerodrome, on pilot request, you may approve an IFR aircraft to conduct a VFR departure.

*Note:* The pilot of an IFR flight conducting a VFR departure must:

a) comply with the VFR;

b) obtain ATC clearance prior to entering Class A or C airspace;

c) obtain ATC approval to resume IFR in Class A, C, D or E airspace; and

d) notify ATC when resuming or cancelling IFR once in Class G airspace.

See MATS 10.1.5.5 Transfer of separation responsibility

9.2.6.1.1 **Service provided**

Treat aircraft as:

a) VFR for separation purposes in Class C, D or E airspace until the pilot requests and is granted an IFR clearance;

b) VFR in Class C or D airspace and VFR in receipt of a SIS in Class E or G airspace for traffic information; and

c) IFR for all other services, including in Class G airspace.

See MATS 9.1.5.1.1 IFR conducting VFR procedures

See MATS 10.1.5.3 Resume responsibility

See MATS 10.1.5.4 IFR conducting VFR procedures

9.2.6.2 **VFR arrival**

When an aircraft will arrive at a Class D aerodrome the pilot may change flight rules to facilitate entry to the control zone.
9.2.7 Special VFR

9.2.7.1 Special VFR clearance conditions
A Special VFR clearance may be issued:
   a) at pilot request;
   b) by day;
   c) when VMC does not exist;
   d) for a VFR flight:
      i) within a CTR; or
      ii) in CTA next to the CTR for the purpose of entering or leaving the CTR; and
   e) provided an IFR flight will not be unduly delayed.

9.2.8 STAR clearances

9.2.8.1 Use of STARs
Initiate STARs when they are available unless circumstances, such as weather, render them impractical.

9.2.8.2 Responsible sector to issue
Issue the STAR clearance on initial contact with the aircraft and prior to commencement of descent.

9.2.8.3 STAR expectation
Prior to issuing the clearance, advise the pilot that a clearance is available, unless the pilot has been advised by the preceding sector to 'EXPECT STAR CLEARANCE' on first contact.

9.2.8.3.1 Local instructions
Specify in local instructions when the preceding sector will issue 'EXPECT STAR CLEARANCE'.

9.2.8.4 Content
A STAR clearance contains:
   a) STAR designator;
   b) a transition route when applicable;
   c) a runway, when a STAR includes more than one arrival track; and
   d) a cleared level.
9.2.8.5 Specify compliance

When an aircraft has commenced a STAR and published speed or level restrictions remain, indicate STAR compliance in all descent instructions e.g. '[WHEN READY] DESCEND VIA STAR TO A100'.

9.2.8.5.1 No remaining published restrictions

If there are no remaining published restrictions on the STAR, the phrase 'DESCEND TO (level)' should be used.

9.2.8.5.2 Before STAR has commenced

When an aircraft is cleared on a STAR, but has not commenced it, indicate STAR compliance in sufficient time to allow pilots to comply with published restrictions.

9.2.8.5.3 Exception - holding

When an aircraft has commenced a STAR and is instructed to descend within a holding pattern, do not use STAR phrases.

9.2.8.6 Speed restrictions - STAR

Consider an ATC-issued speed control instruction to explicitly cancel published speed restrictions.

Note: Airspace speed limitations still apply.

See MATS 9.5.1.2 Published speeds

9.2.8.7 Level restriction changes - STAR

Reiterate all level restrictions when an aircraft is on a STAR with published level restrictions and:
1) ATC level restrictions are issued; and
2) any level restrictions are subsequently cancelled e.g. 'DESCEND VIA STAR TO A040, CANCEL LEVEL RESTRICTIONS, DESCEND TO REACH A060 BY LETTA DUE CROSSING TRAFFIC'.

9.2.8.8 Heavy jet

With the exception of Australian and New Zealand operators, do not assign Super or Heavy jet aircraft the visual segment of a STAR.

9.2.8.9 Timely descent

Assign descent in sufficient time to allow pilots to comply with vertical navigation restrictions.

Note: A published level restriction depicted on a STAR chart does not authorise a pilot to descend to meet that restriction.
9.2.8.10 **Vector on request**

Provide vectors on pilot request during a STAR.

*Note:* Where a STAR incorporates circuit legs to a runway, pilots of aircraft not equipped with a flight management system may accept the STAR clearance in anticipation of vectors from approach control e.g. ‘(callsign) REQUEST VECTORS FROM (waypoint or fix)’.

9.2.8.11 **Vectoring or deviations after a STAR has been issued**

When an arriving aircraft is vectored or cleared to deviate away from its cleared route after a STAR has been issued, and there is an expectation it will join (or rejoin) the STAR at or after its commencement point:

a) reiterate the cleared level;

b) provide speed and level restrictions as necessary; and

c) notify the pilot of the expectation the aircraft will subsequently join (or rejoin) the STAR.

*Note 1:* All published speed and level restrictions of the STAR are automatically cancelled.

*Note 2:* A holding aircraft is not considered to have left the STAR.

9.2.8.12 **Rejoining a STAR**

When an aircraft is instructed to rejoin a STAR, specify any transition restrictions that must be complied with up to, but not including the waypoint where the STAR is rejoined.

*Note:* The pilot must comply with all published speed and level restrictions at and after the waypoint where the STAR is rejoined.

9.2.8.12.1 **Include STAR designator**

When an expectation to rejoin the STAR is not provided, include the STAR designator when clearing the aircraft to rejoin the STAR.
9.2.9 Abbreviated clearances - Class D Aerodromes

9.2.9.1 Clearance by establishing two-way communication

You may authorise an aircraft to enter Class D airspace, in accordance with the pilot’s stated intentions, by establishing two-way communications with the pilot.

**Note 1:** On initial contact the pilot will advise of current position, altitude, intentions, any requests and, if intending to land, ATIS received.

**Note 2:** Two-way communication is established if you respond to a pilot’s radio call on the Class D frequency with the aircraft’s radio identification. A clearance ‘issued’ by establishing two-way communication permits a pilot intending to land to descend as necessary to join the aerodrome traffic circuit.

**Note 3:** A clearance to take-off is a clearance to operate within a Class D CTR.

9.2.9.2 Alternative clearance

To maintain separation or expedite the flow of traffic, you may issue specific instructions that differ from the stated altitude and intentions. In such circumstances normal readback requirements apply.

See MATS 9.2.2.13 Pilot readback
9.3 Altimetry

9.3.1 Altimeter settings

9.3.1.1 Common settings
Consider aircraft using Local QNH and aircraft using Area QNH to be on common settings, provided the difference between the QNHs is not greater than 5 HPA.

9.3.1.2 QNH variations
Notify the MET office when you observe that the difference between Local QNH and Area QNH exceeds 5 HPA.

9.3.1.3 Transition layer
Australian FIRs use a transition layer between the 10 000 FT transition altitude and the transition level of FL110 to FL125 depending on QNH.

9.3.1.3.1 Use of transition layer
Do not clear aircraft to cruise within the transition layer.

9.3.1.4 QNH less than 1013 HPA
Flight levels in the Standard Pressure Region are precluded from use when:

<table>
<thead>
<tr>
<th>QNH is less than</th>
<th>Flight level not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1013 HPA</td>
<td>FL110</td>
</tr>
<tr>
<td>997 HPA</td>
<td>FL115</td>
</tr>
<tr>
<td>980 HPA</td>
<td>FL120</td>
</tr>
<tr>
<td>963 HPA</td>
<td>FL125</td>
</tr>
</tbody>
</table>

9.3.1.4.1 Area and local QNH
ATC may assign a level if either the Area or Local QNH permits.

9.3.1.4.2 Aircraft outside controlled airspace
In the event of an aircraft outside controlled airspace reporting at a non-permissible flight level due to the current Area QNH value being less than 1013 HPA, advise the aircraft of the Area QNH so that adjustment of cruising level can be made e.g. 'AREA QNH ONE ZERO ZERO THREE PRECLUDES CRUISING AT FLIGHT LEVEL ONE ONE ZERO - ADVISE INTENTIONS'.

9.3.1.5 Altimeter settings to pilot
Give altimeter settings in HPAs and rounded down to the nearest whole HPA.
9.3.2 Local QNH

9.3.2.1 Pass local QNH
Pass Local QNH to aircraft that will be arriving at or departing from a controlled aerodrome.

9.3.2.1.1 Aircraft descending
Provide an aircraft descending in controlled airspace with a Local QNH when it is first assigned an altitude.

9.3.2.2 QNH older than 30 min
Do not pass a QNH that is more than 30 minutes old.

9.3.3 Area QNH

9.3.3.1 Area QNH
Advise aircraft intending to cruise in the Altimeter Setting Region of Area QNH:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Unit responsible</th>
<th>Action required</th>
</tr>
</thead>
<tbody>
<tr>
<td>When departing from an aerodrome outside controlled airspace</td>
<td>For the departure aerodrome</td>
<td>Transmits the current Area QNH for the zone to IFR aircraft on receipt of a departure report</td>
</tr>
<tr>
<td>When departing from an aerodrome within a control zone</td>
<td>For sector control, if the aircraft will transfer to a sector frequency; or The appropriate flight information unit</td>
<td>Pass the Area QNH when communication is established</td>
</tr>
</tbody>
</table>

9.3.3.2 En route aircraft
Advise en route aircraft cruising in the Altimeter Setting Region of Area QNH when crossing:

a) the lateral boundary of an Area QNH zone; and

b) additional boundaries specified due to pressure distribution.

9.3.3.3 Descending aircraft
Advise Area QNH to aircraft in the Standard Pressure Region when:

a) descending to cruise at an altitude in the Altimeter Setting Region; and

b) on final descent out of the Standard Pressure Region to a non-controlled aerodrome.
9.3.3.4 Changes greater than 5 HPA
Broadcast the current Area QNH on all air-ground frequencies whenever the Area QNH changes by greater than 5 HPA.

9.3.3.4.1 Advice
As far as possible, specifically advise aircraft known to be affected.

9.3.3.5 Dissemination of Area QNH
Current Area QNH and subsequent Area QNH information received from the BoM for the next period is to be:

a) displayed at briefing units; and
b) included in verbal briefing for non-radio equipped aircraft and for aircraft not using radio for reporting.

9.3.3.6 Brief pilots of Area QNH
Brief pilots planning to enter other Area QNH zones with the appropriate Area QNH. If the adjacent Area QNH is not readily obtainable, instruct the pilot of an aircraft equipped with radio to make a specific call at the boundary to obtain the information.

9.3.4 Pressure settings in Military Controlled Airspace

9.3.4.1 Flights departing
Notify flights departing military airspace intending to cruise in the Altimeter Setting Region of Area QNH, after transfer of responsibility.

9.3.4.2 Flights proceeding NOCOM
Make Area QNH available before departure for flights intending to proceed NOCOM before airspace boundary.

9.3.4.3 Notify arriving flights
Notify arriving flights cruising in the Altimeter Setting Region of Local QNH on first descent assignment unless the pilot indicates receipt of ATIS.

**Note 1:** In military airspace local flights operating in the Altimeter Setting Region normally remain on Local QNH.

**Note 2:** In military airspace overflying aircraft operating in the Altimeter Setting Region remain on Area QNH unless requested to set Local QNH (settings are considered the same for separation purposes).
9.4 Level assignment

9.4.1 Procedure

9.4.1.1 Considerations
Assign levels, taking into account:

a) separation;
b) terrain clearance;
c) the tables of cruising levels;
d) provision for radio failure; and
e) priority.

See MATS 9.2 Clearances
See MATS 9.7 Surveillance system procedures
See MATS 11.1 Arriving aircraft
See MATS 11.2 Departing aircraft

9.4.1.2 Minimum assignable level
Assign levels no lower than the applicable LSALT unless the pilot has accepted responsibility for terrain clearance.

Note: A pilot calculated LSALT is acceptable for this purpose, when not on a published route.

See MATS 9.4.2 Operations below LSALT
See MATS 9.7.11.1 Vectoring - TCU control
See MATS 9.7.11.2 Vectoring - en route control

9.4.1.2.1 Assigning levels in accordance with an RTCC
Only assign levels in accordance with an RTCC when you are providing a surveillance approach service.

9.4.1.2.2 RNAV (GNSS) approaches
Assign levels no lower than the level depicted for the intermediate fix where the aircraft intercepts the RNAV (GNSS) procedure.

See MATS 11.1.2.1 Vectoring aircraft for approaches - ground based navaids

9.4.1.2.3 RNAV (RNP) approaches
Assign the segment minimum safe altitude depicted in the approach segment at or after the waypoint where the aircraft intercepts the RNAV (RNP) procedure.

See MATS 11.1.2.1 Vectoring aircraft for approaches - ground based navaids
See MATS 11.1.10.2 RNAV (RNP) approach terrain clearance
See AIP DAP
9.4.1.3 **Compliance with CAR 157**
Issue clearances to enable pilots to comply with CAR 157 (low flying).

*Note:* Compliance with CAR 157 remains a pilot responsibility.

9.4.1.4 **One level or band**
Assign one cruising level or band of levels to an aircraft at any one time.

9.4.1.5 **Block level clearances**
Do not issue block level clearances to:

a) civil aircraft in Class E airspace; or

b) aircraft to which a Mach number technique is applied.

*Note:* For NVG in Class E airspace, a clearance not above an altitude or level does not constitute a block level clearance.

9.4.1.6 **Cancellation**
Cancel block level clearances if other aircraft request a clearance to operate at levels within the block.

9.4.1.7 **Priority**
Apply level assignment, as follows:

a) Aircraft at levels conforming to the tables of cruising levels have priority over aircraft at non-conforming levels;

b) Aircraft assigned a level have priority over aircraft requesting that level; and

c) When two or more aircraft are at the same level, the preceding aircraft has priority.

9.4.1.8 **Cruising levels**
Assign cruising levels conforming to the tables of cruising levels.

9.4.1.9 **Non-conforming levels**
Assign cruising levels not conforming to the tables of cruising levels only when:

a) traffic disposition or other operational circumstances preclude the use of conforming levels; or

b) operationally required by a flight crew member.

9.4.1.9.1 **Continuous assessment**
Continually assess the risk to all traffic against any operational penalty to the non-conforming aircraft following the assignment of a non-conforming level.
9.4.1.9.2 **Return to standard levels**
Return aircraft to conforming levels when traffic, workload and aircraft performance allow.

9.4.1.10 **Where RVSM not applied**
Unless coordination is effected, assign aircraft entering airspace where RVSM is not applied, a level complying with the accepting sector’s tables of cruising levels before the sector boundary, or by the time or distance specified by the accepting sector.

9.4.1.11 **Non-conforming cruising levels - outside of controlled airspace**
Advise pilots operating at, or notifying intention to operate at, a cruising level not conforming to the tables of cruising levels, that they are at a non-conforming cruising level and request their intentions.

See AIP

9.4.1.12 **Cruise climb**
Do not authorise aircraft to use the ICAO cruise climb procedure.

9.4.1.13 **Non-continuous climb or descent**
Where there is an expectation that an aircraft will maintain a level on climb or descent include the instruction 'AND MAINTAIN' e.g. 'DESCEND TO AND MAINTAIN FL250'.

9.4.1.14 **Leave CTA descending**
When the applicable LSALT is within controlled airspace and an IFR aircraft is descending to leave controlled airspace:

a) if the pilot is visual, append 'VISUAL' to the clearance; or

b) if it is not certain that VMC exists:
   i) do not clear the aircraft below the LSALT;
   ii) instruct the aircraft to report approach intentions at that altitude; and
   iii) issue further clearances as required.

See MATS 9.4.2.1 Issuing levels below LSALT

9.4.1.14.1 **Lowest holding altitude**
Continue to maintain separation with an aircraft holding, leaving controlled airspace or re-entering controlled airspace on an instrument approach, until a successful approach is assured.

**Note:** A clearance to leave CTA on the approach also authorises the aircraft to re-enter CTA or Restricted Areas on the published missed approach.
9.4.1.15 **Entering CTA climbing**
Where it is not certain that a clearance that enables uninterrupted climb to route LSALT will be available without delay, then on receipt of a taxi report or clearance request:

a) advise the pilot that clearance to route LSALT is not available;
b) advise the expected delay; and
c) propose a clearance on an alternative route, where practicable.

9.4.1.16 **Instruct aircraft**
You may instruct aircraft to enter controlled airspace at a specified time, position or level when issuing a clearance.

9.4.2 **Operations below LSALT**

9.4.2.1 **Issuing levels below LSALT**
You may assign a pilot a level below the applicable LSALT provided that:

a) by day, the IFR pilot has reported 'VISUAL' and 'VISUAL' is appended to the level assigned; or

b) by night:
   i) for VFR aircraft the clearance is issued by use of the phrase 'WHEN ESTABLISHED WITHIN THREE MILES, DESCEND TO (level)'; or
   ii) for IFR aircraft, the pilot has reported 'VISUAL', and the clearance is issued by use of the phrase 'WHEN ESTABLISHED IN THE CIRCLING AREA, DESCEND TO (level) VISUAL'.

See MATS 9.7.11.3 **Approving pilot terrain clearance**
See MATS 12.9.4.2 **VMC by day only**
### 9.4.2.1.1 Exception - authorised flights

You may assign pilots levels below the published or pilot calculated LSALT, on pilot request, in accordance with the following table:

<table>
<thead>
<tr>
<th>Type of flight</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customs</td>
<td>At night for operational requirements</td>
</tr>
<tr>
<td></td>
<td>Example: NVG, surveillance, maritime operations.</td>
</tr>
<tr>
<td>CASA exemption</td>
<td>Use the phrase '{level instruction} CASA EXEMPTION'</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The pilot will initiate the request using the phrase 'REQUEST (altitude), CASA EXEMPTION'.</td>
</tr>
<tr>
<td>CAR 174B Exemption (VFR Flights at night)</td>
<td>Assign levels at least as high as the applicable LSALT</td>
</tr>
<tr>
<td></td>
<td>Example: 'OPERATE NOT ABOVE (LSALT or higher level if requested)'.</td>
</tr>
<tr>
<td>Civil - NVG</td>
<td>At night in VMC</td>
</tr>
<tr>
<td></td>
<td><strong>Note 1:</strong> The pilot will initiate the request using the phrase 'REQUEST NOT ABOVE (altitude) [PILOT CALCULATED LOWEST SAFE] VISUAL' or 'REQUEST [NOT ABOVE] (altitude) NVG'.</td>
</tr>
<tr>
<td></td>
<td><strong>Note 2:</strong> If visual reference is lost, either through equipment failure or deteriorating weather conditions, crews will not comply with the issued clearance, will climb to the applicable LSALT and advise ATC as soon as practicable.</td>
</tr>
<tr>
<td>Military - In IMC or VMC at night without NVG</td>
<td>Use the phrase '{level instruction} MILITARY TERRAIN CLEARANCE'.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The pilot will initiate the request using the phrase 'REQUEST (altitude), MILITARY TERRAIN CLEARANCE'.</td>
</tr>
<tr>
<td>Military - In VMC at night with NVG</td>
<td>Use the phrase '{level instruction} NVG'.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The pilot will initiate the request using the phrase 'REQUEST (altitude), NVG'.</td>
</tr>
</tbody>
</table>

**Note 1:** These procedures do not substitute for the conditions of a visual approach at night.

**Note 2:** In accepting the clearance, the pilot accepts the responsibility for terrain clearance.
9.4.3 Vertical buffers between aircraft inside and outside controlled airspace

9.4.3.1 Vertical buffer with base of CTA - VFR aircraft

Assign levels to VFR aircraft to provide a buffer of at least 500 FT with the base of CTA.

9.4.3.2 Vertical buffer with base of CTA - IFR aircraft

Except on pilot request, assign levels to IFR aircraft to provide a buffer with the base of CTA in accordance with the following table:

<table>
<thead>
<tr>
<th>Base of CTA</th>
<th>Vertical buffer</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFR level</td>
<td>1000 FT from the base of CTA</td>
<td>No IFR traffic operating at base of CTA - provide 500 FT from the base of CTA</td>
</tr>
<tr>
<td>All other levels</td>
<td>500 FT from the base of CTA</td>
<td>IFR traffic operating less than 500 FT below the CTA base - provide 1000 FT from the base of CTA</td>
</tr>
</tbody>
</table>

*Note 1:* It is a pilot responsibility to ascertain if CTA containment is required when conducting an instrument approach procedure which will take the aircraft into Class G airspace.

*Note 2:* IFR aircraft must remain not less than 500 FT above the base of CTA during visual descent below the LSALT or the conduct of a visual approach.

9.4.3.2.1 IFR aircraft

Provide traffic information about aircraft operating outside CTA when levels are assigned without the appropriate buffer with the base of CTA.

See MATS 9.1.5 Traffic information
9.4.4 Level restrictions

9.4.4.1 Departing aircraft
Do not issue level restrictions for departing aircraft which apply beyond a distance of 50 NM (or as specified in local instructions) from the departure aerodrome.

9.4.4.2 Repeat level restrictions
Repeat level restrictions issued by ATC in air-ground communications in conjunction with subsequent level clearances in order for them to remain in effect.

9.4.4.3 Further restriction
Whenever a restriction has been imposed and a further restriction is required, the subsequent instruction cancels all previous restrictions unless:

a) all restrictions are restated; or
b) you prefix the subsequent instruction with 'FURTHER RESTRICTION'.

9.4.4.4 Enable pilots to comply
Assign levels in sufficient time to enable pilots to comply with vertical navigation restrictions.

9.4.4.5 Future level restrictions
You may advise pilots to expect a future level restriction which will apply beyond the terms of their current clearance e.g. 'EXPECT A RESTRICTION TO REACH FL210 BY TARAL'.

9.4.4.5.1 Expectation of future level
Do not provide the expectation of a future level restriction in the same transmission as a level assignment.
9.5 Speed control

9.5.1 Application

9.5.1.1 Speed control principles

Adhere to the following when applying ATC-issued speed control:

a) Avoid alternate decreases and increases in speed;
b) Avoid the use of minimum speed when a higher speed is practicable;
c) Do not vary the final approach speed;
d) Advise the pilot of future intentions;
e) Remove ATC-issued speed control restrictions when the application of speed control is no longer necessary; and
f) Make speed adjustments judiciously in advance of the point at which the new speed is required, depending on the aircraft type and amount of adjustment involved.

Note 1: In some circumstances the minimum guidance figures quoted in the speed control data table are lower than the recommended turbulence penetration speeds.

Note 2: For like type aircraft, performance may vary between companies or within the same company. Factors affecting performance include the:
   a) model or series of the aircraft;
   b) operational conditions; and
   c) in-flight or operator requirements.

9.5.1.2 Published speeds

Avoid cancelling published speed restrictions for arriving aircraft, except when necessary for:

a) traffic management; or
b) aircraft operational requirements.

See MATS 9.2.8.6 Speed restrictions - STAR
See MATS 11.2.2.2.2 Speed restrictions - SID

9.5.1.3 Performance variations

For like type aircraft, performance may vary between companies or within the same company. Factors in the performance variations include the:

a) model or series of the aircraft;
b) operational conditions; and
   c) in-flight or operator requirements.

9.5.1.4 Formation and MILSPECREQ (LTD FUEL ENDCE) flights

Do not apply speed control to formation or MILSPECREQ (LTD FUEL ENDCE) flights.
## Aircraft speed data guidance table

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>CLIAS</th>
<th>MAX CRUISE</th>
<th>PROFILE to 30 NM</th>
<th>MNM to 30 NM</th>
<th>MNM 30 to 15 NM</th>
<th>MNM 15 NM to Final</th>
<th>MAX DESCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A320 (Jetstar)</td>
<td>275 - 320</td>
<td>M.76-M.78</td>
<td>280*</td>
<td>230</td>
<td>210</td>
<td>170</td>
<td>M.80/340</td>
</tr>
<tr>
<td>A321 (Jetstar)</td>
<td>280/M.77</td>
<td>M.76-M.78</td>
<td>280</td>
<td>245</td>
<td>220</td>
<td>180</td>
<td>M.80/340</td>
</tr>
<tr>
<td>B787 (Jetstar)</td>
<td>300 - 330</td>
<td>M.80-M.86</td>
<td>M.85/310</td>
<td>250</td>
<td>230</td>
<td>150</td>
<td>M.86/350</td>
</tr>
<tr>
<td>A320 (Tiger)</td>
<td>290 - 320</td>
<td>M.78</td>
<td>260 - 280</td>
<td>230</td>
<td>210</td>
<td>170</td>
<td>M.80/340</td>
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<tr>
<td>A330 (Jetstar)</td>
<td>275 - 310</td>
<td>M.81</td>
<td>280*</td>
<td>220</td>
<td>200</td>
<td>170</td>
<td>M.84/320</td>
</tr>
<tr>
<td>A330 (Qantas)</td>
<td>280 - 330</td>
<td>M.84</td>
<td>280 - 310*</td>
<td>210</td>
<td>200</td>
<td>160</td>
<td>M.82/310</td>
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<tr>
<td>KC30A</td>
<td>280 - 330</td>
<td>M.84</td>
<td>280</td>
<td>210</td>
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<td>160</td>
<td>M.84/330</td>
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<tr>
<td>A380 (Qantas)</td>
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<td>M.86</td>
<td>280 - 310*</td>
<td>210</td>
<td>200</td>
<td>160</td>
<td>M.85/320</td>
</tr>
<tr>
<td>B712 (Cobham)</td>
<td>280/M.76</td>
<td>M.76</td>
<td>M.76/260</td>
<td>M.72/230</td>
<td>210</td>
<td>145</td>
<td>M.78/320 280 B100 250 B050 210 B030</td>
</tr>
<tr>
<td>B722</td>
<td>290 - 320</td>
<td>M.80</td>
<td>300</td>
<td>230</td>
<td>210</td>
<td>170</td>
<td>M.85/350</td>
</tr>
<tr>
<td>B737/All (Virgin, Qantas)</td>
<td>270 - 300</td>
<td>M.80</td>
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<td>230</td>
<td>170</td>
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<td>200</td>
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<td>230</td>
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<td>B767</td>
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<td>C17</td>
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<td>M.825/350</td>
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<td>Aircraft Type</td>
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<td>MAX CRUISE</td>
<td>PROFILE to 30 NM</td>
<td>MNM to 30 NM</td>
<td>MNM 30 to 15 NM</td>
<td>MNM 15 NM to Final</td>
<td>MAX DESCENT</td>
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<td>DH8B/C (QLINK)</td>
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<td>160 - 232</td>
<td>230 210 B030</td>
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<td>232</td>
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<td>DH8D (QLINK)</td>
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<td>238 - 276* 210 B030</td>
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<td>F18</td>
<td>350</td>
<td>M.88</td>
<td>350</td>
<td>300 - 250</td>
<td>210</td>
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<td>450+</td>
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<tr>
<td>F27</td>
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<tr>
<td>F28</td>
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<td>M.70</td>
<td>270</td>
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<td>170</td>
<td>M.72/300</td>
</tr>
<tr>
<td>F100 (Alliance)</td>
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<td>200</td>
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<td>330</td>
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<tr>
<td>HAWK</td>
<td>350/M.74</td>
<td>450/M.85</td>
<td>350</td>
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<td>M.1/2/575</td>
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<tr>
<td>HS25A/B</td>
<td>230/M.63</td>
<td>M.73</td>
<td>250</td>
<td>200</td>
<td>-</td>
<td>-</td>
<td>M.72/300</td>
</tr>
<tr>
<td>LJ25/35</td>
<td>250/M.70</td>
<td>M.78</td>
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<td>210</td>
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<td>P3</td>
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<td>140</td>
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<td>245</td>
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<tr>
<td>WW24</td>
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<td>M.71</td>
<td>350</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>350</td>
</tr>
</tbody>
</table>

* 250 knots below 10 000 approximately 40 track miles
** Wedgetail operations restricted to no greater than 250 KIAS below 5000 FT AGL

Note: IAS is in knots unless otherwise depicted.
9.6 Holding

9.6.1 Rules and procedures

9.6.1.1 Issuing holding instructions

When holding is required, use the published procedure or clear the aircraft to a holding position.

9.6.1.1.1 Holding other than published

You may require or approve a request for an aircraft to hold or orbit in a manner different from that published provided that:

a) the specified holding pattern will not take the aircraft outside controlled airspace; and

b) terrain clearance is maintained.

9.6.1.2 Holding due weather

When aircraft are holding because weather conditions are worse than the prescribed landing minima of an applicable instrument approach, instruct the pilot to report at scheduled intervals not exceeding 15 minutes.

9.6.1.3 Onward clearance times

When a delay of 6 min or more is expected, notify the pilot as soon as possible of the:

a) EAT;

b) ETL; or

c) expected time to depart from the holding fix.

Note 1: Pilots are required to advise latest divert times when operationally necessary.

Note 2: Holding delays may be broadcast on the ATIS.

See MATS 3.1.1.5 Order of ATIS information

9.6.1.3.1 Changes to delay advice

Advise changes to the aircraft’s onward clearance time on arrival at the holding fix, and as considered necessary.
9.7 Surveillance system procedures

9.7.1 Application

9.7.1.1 Surveillance system information

Use the information provided by the surveillance system and presented on a situational display to:

a) provide surveillance services to:
   i) improve airspace utilisation;
   ii) reduce delays;
   iii) provide for direct routings;
   iv) optimise flight profiles; and
   v) enhance safety;

b) provide vectoring to:
   i) departing aircraft to facilitate an expeditious and efficient departure flow and expedite climb to cruise level;
   ii) aircraft to prevent potential conflicts;
   iii) arriving aircraft to establish an expeditious and efficient approach sequence; and
   iv) assist pilot navigation;

c) provide separation and maintain normal traffic flow when an aircraft experiences communication failure within the area of coverage;

d) maintain flight path monitoring of air traffic; and

e) maintain a watch on the progress of air traffic in order to provide:
   i) improved position information regarding aircraft under control;
   ii) supplementary information regarding other traffic; and
   iii) information regarding any significant deviations by aircraft from the terms of their respective clearances.

9.7.2 Identification

9.7.2.1 Establish identification

Establish identification before providing an ATS surveillance service to an aircraft.

9.7.2.2 Maintain identification

Maintain identification until the ATS surveillance service is terminated.
9.7.2.3 **Identification advice**

Advise aircraft when identification is established or terminated.

9.7.2.3.1 **Exception aerodrome control**

Do not advise aircraft when identification is established when providing a Tower ATS surveillance service unless vectoring.

See MATS 12.9.2.5.1 Identification advice

9.7.2.4 **Identification procedures**

Establish identification by one of the following procedures:

a) correlate an alpha-numeric label with an aircraft’s ATS surveillance system position symbol provided the correlation is consistent with the aircraft’s expected position;

b) transfer of identification;

c) observe compliance with an instruction to:

i) operate the Special Position Identification (SPI);

ii) change to a specific SSR code; or

iii) transmit ADS-B IDENT; or

d) correlate an observed radar position symbol with manoeuvres currently executed by a departing aircraft which acknowledged instructions to that effect, provided that identification is established within 3 NM of the radar sensor.

9.7.2.5 **Additional identification procedures - PSR**

When PSR is used, the following procedures may also be used to establish identification:

a) correlate a particular radar position symbol with an aircraft reporting its position over, or bearing and distance from, a point shown on the situation display, provided the track of the radar position symbol is consistent with the aircraft path or reported heading;

b) correlate an observed radar position symbol with an aircraft which is known to have departed, provided that the identification is established within 1 NM from the end of the runway used; or

c) ascertain the aircraft heading, if required, and following a period of track observation:

i) instruct the pilot to execute one or more changes of heading of 30 degrees or more and correlate the movements with the aircraft’s acknowledged execution of the instructions given; or

ii) correlate the movements of a particular radar position symbol with the reported manoeuvres of an aircraft.
9.7.2.5.1 Identification conditions - PSR
When using PSR identification procedures:
   a) verify that the movements of not more than one radar position symbol correspond with those of the aircraft;
   b) ensure that the manoeuvre(s) will not carry the aircraft outside the coverage of the radar or the situation display; and
   c) allow for equipment tolerances in the reported position and in the observed radar position symbol.

9.7.2.6 Identification by visual observation
Establish identification by correlating a particular radar position symbol to the position of an aircraft observed visually.

9.7.3 SSR code management

9.7.3.1 Verification of Mode 3A
On initial radar contact:
   a) check that the Mode 3A Code set is identical to that assigned to the aircraft; and
   b) verify by matching the callsign displayed in the label to a radar position symbol.

9.7.3.1.1 Display discrepancy
Where the Mode 3A data displayed does not correspond to that assigned, request the pilot to confirm selection of the correct code.

9.7.3.1.2 Continuing discrepancy
If the discrepancy continues, instruct the pilot to turn the transponder to STANDBY or OFF.

9.7.3.1.3 Do not advise verification
Do not advise the pilot of verification of Mode 3A data.

9.7.3.2 Issue SSR on first contact
When an aircraft will operate within radar coverage, issue an SSR code:
   a) on first contact; or
   b) upon entering Australian-administered airspace.

9.7.3.3 SSR code dissemination
Disseminate assigned SSR codes to international HF positions responsible for third party communications for inbound and overflying flights.
9.7.3.4 Testing of emergency functions

Notify the supervisor when a pilot advises intention to test avionics emergency functions e.g. transponder emergency codes, ADS-B or ADS-C emergency mode.

9.7.4 Flight ID management

9.7.4.1 FLTID discrepancy

Ask the pilot to reset the FLTID to match the FPL ACID or callsign as appropriate, if the situation display shows that the FLTID transmitted by a Mode S or an ADS-B equipped aircraft is different from that expected.

9.7.4.1.1 Discrepancy continues

If the discrepancy continues:

a) advise the pilot; and
b) notify the supervisor.

Note: Military aircraft are not required to transmit FLTID or registration for some or all legs of a flight if prior coordination with ATC has been completed.

9.7.5 Pressure altitude-derived level information

9.7.5.1 Application

You may use verified pressure altitude-derived information for:

a) the application of vertical separation; and
b) ascertaining if aircraft are maintaining, have vacated, passed or reached a level.

9.7.5.2 Determine level occupancy

Determine level occupancy by verified pressure altitude-derived level information as follows:

<table>
<thead>
<tr>
<th>Level occupancy</th>
<th>Level information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining a level</td>
<td>Within +/- 200 FT of the assigned level</td>
</tr>
<tr>
<td>Vacating a level</td>
<td>A change of 400 FT or more in the anticipated direction from the previously assigned level</td>
</tr>
<tr>
<td>Passing a level on climb or descent</td>
<td>Passed the level in the required direction by 400 FT or more</td>
</tr>
<tr>
<td>Reaching a level</td>
<td>Within +/- 200 FT of the assigned level for the greater of three consecutive updates or 15 seconds</td>
</tr>
</tbody>
</table>
9.7.5.2.1 Below 10 000 FT

Note: Pressure altitude-derived level information received from airborne equipment is QNH corrected below 10 000 FT.

9.7.5.3 Verify accuracy
Verify the accuracy of displayed pressure altitude-derived level information:

a) as soon as possible after initial contact with an aircraft and prior to use; and
b) where continuous monitoring has not been carried out.

9.7.5.4 Methods of verifying accuracy
Verify by simultaneous comparison with:

a) altimeter-derived level information received from the same aircraft by radiotelephony; or
b) the aerodrome elevation during the take-off roll, provided that the level information subsequently indicates a positive climb after take-off.

9.7.5.5 Display tolerance
The tolerance for pressure altitude-derived level information displayed to the controller is +/- 200 FT.

9.7.5.5.1 Discrepancy
When the displayed pressure altitude-derived level information differs from the pilot reported or known altitude by more than 200 FT:

a) advise pilot;
b) request check of pressure setting; and
c) confirm current level.

9.7.5.5.2 Continuing discrepancy
Where there is a continuing discrepancy after confirmation of the correct pressure setting:

a) request the pilot to stop pressure altitude data transmission provided there is no loss of position and identification information; and
b) coordinate this action with the next ATC unit.

9.7.5.6 Changing information source
Verification is retained when an aircraft changes pressure altitude information source.
9.7.6 Transfer of identification

9.7.6.1 Relaying aircraft identification
When relaying the identification of an aircraft from one Controller to another, and transfer of control is not effected, the relaying Controller advises that the aircraft is FOR IDENT. The receiving Controller acknowledges identification by replying with the callsign for the aircraft.

<table>
<thead>
<tr>
<th>Position</th>
<th>Phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaying Controller</td>
<td>FOR IDENT (\text{callsign})...(additional coordination remarks if required)</td>
</tr>
<tr>
<td>Receiving Controller</td>
<td>(\text{callsign}) (additional remarks if required)</td>
</tr>
</tbody>
</table>

9.7.6.1.1 Methods
Effect transfer of identification by one of the following methods:

a) designation of the position symbol by automated means, provided that only one position is indicated and there is no doubt as to the correct identification;

b) notification of the aircraft’s discrete SSR code or aircraft address;

c) notification that the aircraft is SSR Mode S equipped with an aircraft identification feature when SSR Mode S coverage is available;

d) notification that the aircraft is ADS-B equipped with an ACID feature when ADS-B coverage is available;

e) direct designation (pointing with the finger) of the position symbol on a shared or an adjacent situation display. Be aware of errors resulting from parallax effects;

f) designation of the position symbol by reference to, or in terms of bearing and distance from, a geographical position or navigational facility accurately indicated on both situational displays (see Clause 9.7.6.1.2);

g) instruct the aircraft to change SSR code and the change is observed by the accepting Controller; or

h) instruct the aircraft to ‘SQUAWK IDENT’ or ‘TRANSMIT ADS-B IDENT’ and the change is observed by the accepting Controller.

Note: (for point \(g\) and \(h\)) Prior coordination is required between Controllers as observed indications by the accepting Controller are of short duration.

See MATS 9.7.6.1.2 Differences in situation displays

9.7.6.1.2 Differences in situation displays
Make allowance for any inherent differences in the situation displays which may cause the position of an aircraft in relation to a known point to vary between the two displays e.g. displays fed by equipment located at different sites.
Surveillance system procedures

9.7.6.1.3 **Surveillance system label**

Advise notification of an ATS surveillance system label if:

a) a discrete (four-digit) SSR code has been assigned to the aircraft; and
b) the transferring Controller describes the ATS surveillance system position symbol by bearing from a known point or fix using compass points and advises the callsign e.g. 'NORTH EAST THAT IS DELTA INDIA KILO'.

9.7.6.1.4 **Non-linked RDP systems**

Do not apply the method in Clause 9.7.6.1.3 across non-linked RDP systems unless:

a) approved by the Business Unit detailed in local instructions; and
b) an independent method of ensuring the integrity of the data in both systems is actioned prior to the aircraft reaching the hand-off point.

See MATS 9.7.6.1.3 Surveillance system label

9.7.6.1.5 **Relay target identification using AGSS**

Relay positive identification of an AGSS derived target position by:

a) direct designation; or
b) specifying the location of the AGSS derived target by reference to identifiable features of the movement area displayed on the AGSS.

9.7.6.2 **Relative position information required**

When aircraft are within 10 NM, or a distance otherwise specified in local instructions, of one or more other aircraft, pass relative position information to ensure correct relay of identification.

9.7.6.2.1 **Positive identification**

The receiving Controller may consider identification positive if only one return observed on the display agrees with the information specified. Points used are limited to those marked on the situation display.

9.7.6.3 **ATS surveillance coverage**

Only transfer identification from one Controller to another when the aircraft is within the accepting Controller’s ATS surveillance system coverage.
9.7.7  Hand-off and acceptance

9.7.7.1  Hand-off
Hand-off may be done verbally or by silent or system means.

9.7.7.1.1  Verbal hand-off
Do not transfer responsibility for an aircraft until the receiving Controller advises that identification is complete by use of the phrase:

<table>
<thead>
<tr>
<th>Position</th>
<th>Phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transferring Controller</td>
<td>THAT IS..... (callsign)</td>
</tr>
<tr>
<td>Receiving Controller</td>
<td>ACCEPT..... (callsign)</td>
</tr>
</tbody>
</table>

9.7.7.1.2  Silent or system hand-off
Do not transfer responsibility for an aircraft until the receiving Controller indicates that identification is complete by use of the approved procedures:

<table>
<thead>
<tr>
<th>Position</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transferring Controller</td>
<td>Propose hand-off by approved procedure</td>
</tr>
<tr>
<td>Receiving Controller</td>
<td>Accept hand-off by approved procedure</td>
</tr>
</tbody>
</table>

9.7.7.1.3  Clean hand-off
Apply clean hand-offs unless otherwise coordinated or specified in local instructions.

9.7.8  ATS surveillance system position information

9.7.8.1  Providing position information
Provide position information when required by circumstances or when requested by another ATC unit. Pass the information with reference to:

a) a bearing or track and distance from any significant point (bearing may be magnetic or as points of a compass);

b) a well-known geographical position;

c) a distance to runway touchdown point if the aircraft is on final approach;

d) a distance to runway touchdown point as track miles to run; or

e) distance and direction from the centre line of an ATS route.

9.7.8.1.1  Pertinent positions
Whenever practicable relate position information to positions or routes pertinent to the navigation of the aircraft concerned and shown on the situation display.
### 9.7.9 Surveillance Information Service

#### 9.7.9.1 General

The SIS is an on-request traffic, position or navigation information service provided to assist pilots of VFR flights, within ATS surveillance system coverage in Class E and G airspace, to avoid other aircraft or to assist in navigation.

See MATS 9.1.5 Traffic Information

#### 9.7.9.2 Alerting service

Maintain an alerting service with respect to those flights provided with a SIS.
9.7.9.3  Provision

Provide SIS unless workload or other factors prevents it.

*Note 1:* To utilise these services, flights are to be in direct VHF communication with ATS and equipped with a serviceable SSR transponder or ADS-B transmitter.

*Note 2:* Responsibility for aircraft and terrain avoidance remains with the pilot.

9.7.9.3.1  Unable to provide SIS

Advise the pilot when unable to provide a SIS.

9.7.9.3.2  Specific transponder code

Prior to providing a SIS, identify the aircraft and, unless the service requested is of a short duration and it would be impractical to do so, allocate the pilot a specific transponder code.

9.7.9.3.3  Snap shot service

Consider pilot requests for specific information as a snap shot service. Terminate the SIS after providing the requested information to the pilot.

9.7.9.3.4  Flight following

Consider pilot requests for flight following as an ongoing service, provided on a sector specific basis.

9.7.9.3.5  SIS annotation

Enter the annotation SIS into the aircraft’s label when the pilot requests flight following and the flight is subject to an ongoing SIS.

9.7.9.3.6  Sector-specific basis

The provision of a SIS is on a sector-specific basis, however, when a pilot requests hand-off for flight following you may initiate coordination and transfer to an adjacent unit; any ongoing service is subject to the approval of the adjacent unit.
9.7.9.4 **Terminating a SIS**

A SIS may be terminated at any time:

a) by ATC due to workload considerations; or

b) on pilot advice.

9.7.9.4.1 **Advise pilot**

Terminate a SIS by advising the pilot that identification is terminated.

9.7.9.4.2 **At sector boundary**

If terminating at a sector boundary, also advise that a frequency change is approved.

9.7.10 **Vectoring**

9.7.10.1 **General principles**

You may vector aircraft to:

a) apply ATS surveillance system separation;

b) achieve an expeditious flow of aircraft;

c) maximise use of available airspace;

d) comply with noise abatement procedures; and

e) avoid areas of known hazardous weather or known severe turbulence.

9.7.10.1.1 **Vector arriving aircraft**

Vector arriving aircraft to:

a) adjust the arrival sequence;

b) establish the aircraft on final approach track of a pilot-interpreted approach; and

c) manoeuvre an aircraft into a suitable position below cloud near an aerodrome for a visual approach and landing.

9.7.10.2 **Prohibition on vectoring**

Do not vector:

a) aircraft displayed as a flight plan position symbol or ADS-C position symbol;

b) aircraft displayed as an ATS surveillance system position symbol for the purpose of remaining clear of an aircraft displayed as a flight plan or ADS-C position symbol when a procedural separation standard has not been established;

c) special VFR aircraft, except when warranted by emergency conditions;

d) an aircraft that is OCTA, except when warranted by emergency conditions; or

e) an aircraft at a pilot calculated LSALT that is below the lowest applicable LSALT.
9.7.10.3  Vectoring considerations

When vectoring aircraft:

a)  vector aircraft along or in close proximity to routes which are likely to simplify pilot navigation in the event of ATS surveillance system failure, whenever possible;

b)  advise the pilot:
   i)  of the reason for the vector (unless obvious);
   ii) the extent of the vector in general terms (if known); and
   iii) expectation at the completion of vectoring; and

c)  repeat the direction of turn when an aircraft is instructed to turn through 180 degrees or more;

d)  request the pilot who reported unreliable directional instruments to make all turns at an agreed rate, and to carry out instructions immediately on receipt, before issuing manoeuvring instructions;

e)  ensure that adequate terrain clearance exists at all times until the aircraft arrives at the point where the pilot resumes own navigation;

f)  advise pilot of the aircraft’s position sufficiently to permit the pilot to resume own navigation in the event of radio or ATS surveillance system failure;

g)  ensure that intervals between transmissions are short to enable the pilot to recognise a failure in communications. Where minimum separation is provided with other aircraft, or where terrain clearance infringement may occur, the interval between transmissions should not exceed 30 seconds; and

h)  avoid areas of known hazardous weather, including known severe turbulence, as indicated by all available information on weather conditions.

See MATS 9.7.10.8 Instructions to pilots

9.7.10.4  Vectoring departing aircraft

Vector departing aircraft if:

a)  the aircraft can be re-established on its cleared route prior to loss of identification; or

b)  a transfer of ATS surveillance system control can be effected.

9.7.10.5  Issuing system derived distance

To allow an aircraft to carry out a descent to the minimum in accordance with a published DME or GPS arrival procedure, you may issue ATS surveillance system-derived distance and appropriate altitude assignments to an aircraft using a track for which a DME or GPS arrival procedure is specified, when:

a)  DME is not available; or

b)  a pilot conducting GPS arrival reports the loss of RAIM.

See MATS 10.3.5.4 GNSS unavailable
9.7.10.5.1  **Ensure reference is displayed**
When using ATS surveillance system-derived distances as a substitute for DME or GPS-derived distance information, ensure that the reference is displayed on the situation display.

9.7.10.6  **Terminating a vector**
When terminating vectoring of an aircraft provide the aircraft with position information (including displacement from nominal track if applicable) and one of the following:

a) A heading as necessary to intercept the nominal track of a pilot-interpreted navaid appropriate to its cleared route;

b) A clearance direct to a pilot-interpreted navaid (e.g. NDB or VOR site) for interception of its cleared route; or

c) A clearance direct to an area navigation waypoint for interception of the aircraft’s cleared route for approved SCNS aircraft.

9.7.10.6.1  **Exception**
Military aircraft under the control of a Defence controller do not need to be provided with position information when terminating vectors.

9.7.10.7  **Terminating of vectoring**
Do not terminate a vectoring service until the aircraft is established within the navigation tolerance of its cleared route.

9.7.10.8  **Instructions to pilots**
Issue instructions to pilots that leave them in no doubt of their responsibilities for terrain clearance and to self-navigate following the vector e.g. the use of 'VISUAL' when a pilot resumes own navigation and is below the applicable LSALT.

9.7.10.9  **Continue vectoring**
Subject to maintaining identification, continue a vectoring service when the aircraft transfers to the Tower frequency, if the service is requested by the pilot.
9.7.11 Terrain clearance

9.7.11.1 Vectoring - TCU control

When vectoring, assign altitudes no lower than the minimum assignable altitude specified on a civil or military RTCC.

9.7.11.1.1 Use of terrain clearance charts

Except when warranted by emergency conditions, altitudes specified on a civil or military RTCC may only be assigned to aircraft receiving an ATS surveillance service inside controlled airspace.

*Note:* Airservices units may apply to the OSM for exemptions that will allow the use of RTCC levels outside controlled airspace.

9.7.11.1.2 Terrain clearance requirements

Inform a pilot of terrain clearance requirements for a particular sector prior to entering that sector, if necessary.

See MATS 9.7.10.2 Prohibition on vectoring

9.7.11.1.3 Cold temperature correction

When the temperature at the RTCC reference aerodrome is below ISA minus 15°C:

a) do not use the existing RTCC; or

b) where available, use a 'Cold Temperature RTCC'.

<table>
<thead>
<tr>
<th>Location</th>
<th>Elevation (FT)</th>
<th>ISA minus 15°C(C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canberra (YSCB)</td>
<td>1886</td>
<td>-3</td>
</tr>
<tr>
<td>Melbourne (YMML)</td>
<td>434</td>
<td>-1</td>
</tr>
<tr>
<td>Nowra (YSNW)</td>
<td>400</td>
<td>-1</td>
</tr>
<tr>
<td>Oakey (YBOK)</td>
<td>1335</td>
<td>-3</td>
</tr>
<tr>
<td>Tindal (YPTN)</td>
<td>443</td>
<td>-1</td>
</tr>
<tr>
<td>All other locations</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note:* 'Cold Temperature RTCCs' must be capable of being shown on the situation display.
9.7.11.2 Vectoring - en route control

When an aircraft is vectored, assign altitudes no lower than the Grid Lowest Safe Altitude displayed on the Situation Display.

See MATS 9.7.10.2 Prohibition on vectoring

9.7.11.2.1 Grid boundaries

Ensure that an aircraft approaching a grid, within which a higher Grid Lowest Safe Altitude applies, is at the higher altitude 5 NM before the grid boundary and when entering a grid with a lower, Lowest Safe Altitude that the aircraft is not descended to the lower altitude until it is 5 NM past the boundary.

9.7.11.3 Approving pilot terrain clearance

You may permit an aircraft being vectored or given a direct routing in VMC by day to arrange its own terrain clearance, provided that the responsibility is specifically assigned to the pilot.

See MATS 9.4.2.1 Issuing levels below LSALT

See MATS 12.9.4.2 VMC by day only

9.7.11.4 Terrain clearance and range scales

Ensure that aircraft are at an altitude which provides a minimum 1000 FT vertical clearance above any obstacle within a radius of:

a) 3 NM of the aircraft when the range scale is not greater than 50 NM; and
b) 5 NM of the aircraft when the range scale is greater than 50 NM.

9.7.11.4.1 Obstacle clearance requirements

The obstacle clearance requirements for the above clause do not apply:

a) when vectoring as part of an issued SID;
b) when conducting a visual departure;
c) in VMC by day only, when ATC assigns responsibility for arranging obstacle clearance specifically to the pilot; or
d) when conducting an ATS surveillance system cloud break procedure.
9.7.12 Monitoring flights

9.7.12.1 Flight path monitoring
Use information displayed by an ATS surveillance system to maintain flight path monitoring of air traffic.

9.7.12.2 Assessing aircraft deviation
When assessing whether an aircraft has deviated from its route or track, consider the extent of the deviation or continuing divergence in the context of location specific factors such as terrain clearance, separation assurance, traffic management and expected navigation performance.

9.7.12.3 Track deviation
When advising pilots of a route or track deviation, do not use pilot track keeping requirements and procedural navigation tolerances as parameters within which a pilot is permitted to navigate.

9.7.12.4 Flight path deviation
Provide deviation advice to a pilot when observed by ATC.

9.7.12.5 Advise pilot
Advise the pilot the extent of the deviation, position information and tracking advice.
9.7.13 Variation of services

9.7.13.1 Termination of surveillance
Inform aircraft provided with an ATS surveillance service of service interruptions or termination.

9.7.13.2 Termination of control
Where an aircraft exits controlled airspace into an area of continued ATS surveillance services, advise the pilot 'CONTROL SERVICE TERMINATED'.

9.7.13.3 Transferring aircraft
Do not advise a change of service for aircraft transferring from an Approach Unit providing ATS surveillance services to a control tower providing tower ATS surveillance services.
See MATS 11.1.1.6 Continue surveillance separation

9.7.13.4 Non-functioning ADS-B site monitor
The absence of a functioning ADS-B site monitor does not preclude the use of ADS-B by controllers.

9.7.14 Aircraft without a serviceable SSR transponder

9.7.14.1 No serviceable SSR transponder
Do not issue an airways clearance to an aircraft without a serviceable SSR transponder into airspace in which surveillance system separation is provided exclusively by SSR.

9.7.14.2 No serviceable SSR transponder - exception
You may issue an airways clearance to an aircraft without a serviceable SSR transponder when officers of the affected unit(s), as designated in local instructions, are satisfied that the clearance will not impact on the safe operation of other aircraft in those airspace(s).

9.7.14.2.1 Safety considerations
Consider the following when issuing a clearance:
   a) Traffic density en route and at the destination aerodrome;
   b) Current and forecast weather en route and at the destination aerodrome, including the possibility of a diversion; and
   c) Procedural control alternatives.
9.7.14.2.2 **Airborne failure considerations**

If an SSR transponder fails when airborne within SSR coverage:

a) subject to safety considerations, endeavour to process the aircraft concerned to the first point of intended landing; and

b) consider the necessity for a decision prior to losing primary radar surveillance and the need to hold the aircraft within PSR coverage pending a decision.

---

9.7.15 **Aircraft without a serviceable ADS-B transmitter**

9.7.15.1 **No serviceable ADS-B transmitter**

Only issue an airways clearance to an IFR aircraft without a serviceable ADS-B transmitter provided the relevant conditions are met:

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>State aircraft</td>
<td>Provide equal priority to other ADS-B equipped aircraft</td>
</tr>
<tr>
<td>Aircraft subject to an exemption</td>
<td>RMK/ADSB EXEMPT in field 18 of the FPL</td>
</tr>
<tr>
<td>Aircraft with an ADS-B failure</td>
<td>a) ATC has issued an approval; and</td>
</tr>
<tr>
<td></td>
<td>b) RMK/ATC APPROVED NIL ADSB is entered in the flight data record</td>
</tr>
<tr>
<td>Other IFR</td>
<td>a) An occurrence report is submitted, and</td>
</tr>
<tr>
<td></td>
<td>b) If in CTA and outside SSR coverage, operate at or below FL280. For aircraft entering CTA from outside Australian administered airspace, descend the aircraft as soon as practicable to meet this condition.</td>
</tr>
</tbody>
</table>

9.7.15.2 **State Aircraft**

Provide non-ADS-B equipped State Aircraft with equal priority to ADS-B equipped aircraft.
9.8 Data Link procedures

9.8.1 Data Link reporting and communication

9.8.1.1 Scheduled position reporting
Scheduled position reporting by CPDLC or voice is not required while ADS-C reporting indicates satisfactory in-flight progress.

9.8.1.1.1 Continuing reporting
Inform the pilot that only ADS-C reporting is required if CPDLC (or voice) reporting continues following an initial CPDLC position report.

9.8.1.1.2 Periodic reporting rates

<table>
<thead>
<tr>
<th>Controller</th>
<th>Periodic reporting rate</th>
<th>Additional notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Controller</td>
<td>A minimum of 5 min intervals</td>
<td>Circumstances depending</td>
</tr>
<tr>
<td>Adjacent ATS units with ADS contracts established with the same aircraft</td>
<td>A minimum of 14 minute intervals</td>
<td>Circumstances depending. Liaise with controlling authority who must agree to reduce high reporting rate.</td>
</tr>
</tbody>
</table>

9.8.1.3 Demand Contract Request
Initiate a Demand Contract Request if an ADS-C periodic or waypoint report is not received within 3 min of the expected time.

9.8.1.2 CPDLC for DCPC
When utilising CPDLC for DCPC:

a) the separating Controller must be the current data authority; or
b) when transferring across an FIR boundary:
   i) the transferring Controller must be the current data authority;
   ii) the receiving Controller must have an inactive CPDLC connection prior to the FIR boundary; and
   iii) the receiving Controller must receive a CPDLC downlink within 3 minutes of the aircraft crossing the FIR boundary.

9.8.1.2.1 Request position report
Send the preformatted uplink message element REQUEST POSITION REPORT if a CPDLC position report is not received within 3 minutes at the FIR boundary.
9.8.2 Connection management

9.8.2.1 Control responsibility

The ATS unit with control responsibility for the aircraft:

a) controls ADS-C connection management;

b) gives the highest priority for connection to the next ATS unit with control responsibility; and

c) controls the allocation of contracts to adjacent ATS units via the address forwarding process, including adjacent ATS units which require a contract for monitoring purposes.

Note 1: The establishment of an ADS-C connection is initiated by the ground system. Pilot interactions with ADS-C are limited to turning the application on and off and to activating and cancelling the ADS-C emergency mode. Pilots cannot initiate a normal ADS-C report.

Note 2: FANS 1/A equipped aircraft can have ADS-C connections with up to five different ground facilities. The fifth connection is usually reserved for the airline’s operational control unit. All ADS-C connections have equal status within the system. There is no equivalent to the inactive CPDLC connection.

9.8.2.1.1 LoA for monitoring units

Specify in a Letter of Agreement when an adjacent unit requires an ADS-C contract for monitoring purposes.

9.8.3 Data authority

9.8.3.1 AFN logon

If an adjacent FIR requires an ADS contract to allow monitoring of an aircraft’s progress near the boundary, initiate an AFN logon from the aircraft via the address forwarding process.

9.8.3.2 Next data authority message

Send a NEXT DATA AUTHORITY message and perform address forwarding to the next data authority prior to address forwarding to any other unit. This ensures the next ATS unit with direct control responsibility for the flight can establish an ADS contract with the aircraft.
9.8.4 Data Link failures

9.8.4.1 FANS 1/A
Instruct pilots to send position reports via CPDLC when a FANS 1/A equipped aircraft is unable to report by ADS-C.

9.8.4.2 Establish voice communication
On recognising a CPDLC connection failure, establish voice communications immediately.

9.8.4.2.1 Alerting service
When voice communication is established, the alerting service becomes the responsibility of the voice operator.

9.8.4.3 CPDLC dialogue interruption
If a CPDLC dialogue is interrupted by a system failure, repeat the entire dialogue on the voice frequency.

9.8.4.4 Instructions to pilot
Depending on the circumstances and location of the aircraft, instruct the pilot to logon to the Centre again or to continue with control services by voice.

9.8.4.5 Message failed
If an open uplink exists when CPDLC fails, the uplink message is considered to have failed.

9.8.4.6 Planned system shutdown
During a data link system shutdown, advise FANS 1/A aircraft reporting by either ADS-C or CPDLC that voice position reports are required.

9.8.4.7 Unexpected system shutdown
When the data link system shuts down unexpectedly, inform:

a) adjacent ATS units by direct coordination;
b) all relevant parties via the publication of a NOTAM, if appropriate; and
c) all currently affected aircraft and advise them of the requirement for voice position reports.
9.8.4.8 Separation

If the loss of ADS-C impacts on separation standards, take action to implement an alternative form of separation between all affected aircraft pairs.

Note: FOM data is not required for the validation or use of current separation standards. Consequently, the display of a low quality ADS-C report may not have any impact on the application of current procedural separation standards.

9.8.5 ADS-C level data

9.8.5.1 ADS-C level occupancy

Determine level occupancy by using ADS-C level information as follows:

<table>
<thead>
<tr>
<th>ADS-C level occupancy</th>
<th>ADS-C level information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining or reaching a level</td>
<td>Within +/- 200 FT of the assigned level</td>
</tr>
<tr>
<td>Vacating a level</td>
<td>A change of 400 FT or more in the anticipated direction from the previously assigned level</td>
</tr>
<tr>
<td>Passing a level on climb or descent</td>
<td>Passed the level in the required direction by 400 FT or more</td>
</tr>
</tbody>
</table>

9.8.5.2 Level update

Send a Demand Contract Request to an aircraft when:

a) the ADS-C requires updating; and
b) the ADS-C information for an aircraft maintaining a level differs from the expected or cleared level by more than 200 FT.

9.8.5.2.1 ADS-C level discrepancy

If, following the update, the ADS-C level is still beyond the required tolerances, advise the pilot and request confirmation of the aircraft’s level.

9.8.5.2.2 Continuing ADS-C level discrepancy

If, following confirmation of the level, the displayed ADS-C level is still beyond the required tolerance, consider another method of determining level information.
9.9  Management of formation flights

9.9.1  Providing services to formation flights

9.9.1.1  Civil formation flights
Do not issue a clearance to civil formation flights to operate in RVSM airspace.

9.9.1.2  In-trail request
In response to an in-trail request, establish trail by the use of the phrase '(callsign) ADOPT (number) MILE TRAIL, REPORT ESTABLISHED'.

Note 1: When describing an in-trail formation, the distance as advised by flight notification or the formation leader refers to the distance between each aircraft and not the total length of the trail. Spacing may vary during climb, descent or on request from the formation leader. During level flight all aircraft in the formation are co-altitude.

Note 2: The formation leader normally initiates an in-trail procedure by either:
   a) reporting established;
   b) establishing in-trail; or
   c) requesting in-trail.

Note 3: Aircraft use speed variation to achieve the required spacing during the transition from other formation types to in-trail.

Note 4: In-trail procedures may be established on departure as part of a formation stream take-off.

9.9.1.3  Loss of trail
Instruct the formation to 'REPORT ANY LOSS OF TRAIL'.

9.9.1.4  Prefix formation instructions
Prefix all formation instructions with the words 'IN-TRAIL' e.g. 'IN-TRAIL DESCEND TO 5000' or 'IN-TRAIL TURN LEFT HEADING 350'.

9.9.1.4.1  Obtain readback
Ensure a readback of formation instructions is obtained from the formation leader.

9.9.1.5  In-trail turns
Limit in-trail turns to 60 degree increments or less to avoid exceeding the radar scan limits.
9.9.2   **Loss of contact**

9.9.2.1 **Aircraft reports lost contact**  
In the event that an aircraft reports 'LOST CONTACT', the formation leader acknowledges with a report of current altitude and position.

9.9.2.2 **Safe separation**  
Safe separation is achieved by the formation leader:

a) adopting snake trail procedures;
b) requesting ATC assistance; and
c) directing aircraft behind to shepherd the affected aircraft.

9.9.2.3 **Lost contact formation flight**  
On notification of 'LOST CONTACT' within a formation flight:

a) pass traffic information until the aircraft regains contact if equal or greater than the applicable separation standard exists; or

b) take immediate steps to effect separation including the use of emergency separation standards if less than the applicable separation standard exists.

**Note:** During a snake climb or descent the aircraft ahead of the no contact aircraft reports passing altitudes at regular intervals. The formation leader may make a PAN call if these procedures are conducted in or near controlled airspace.

9.9.3   **Breaking formation**

9.9.3.1 **Action a formation break**  
When requested to action a formation break:

a) When vectoring for separation:

i) ensure that the aircraft concerned are correctly identified and formation position known;

ii) achieve separation in the lateral plane by assigning individual headings that diverge by 30 degrees or more; and

iii) assign headings appropriate to the aircraft's relative position in the formation; and

b) When achieving separation in the vertical plane assign different levels to each aircraft in the formation.

**Note:** Breaks in formation are only initiated by the formation leader.
9.9.4 Breaking trail

9.9.4.1 Split formation into individual aircraft units

If required, split the formation into individual aircraft units by:

a) establishing vertical separation;
b) applying speed control e.g. second aircraft performs cockpit checks for landing; or
c) changing heading of individual aircraft, generally at base turn stage by turning the preceding aircraft onto base and extending the downwind legs of subsequent aircraft.

Note: Formation leaders normally request termination of in-trail procedures however ATC may need to split the formation into individual units for control purposes.

9.9.4.1.1 In-trail speed control

Avoid applying ATC speed restrictions when there are more than two aircraft in-trail.

9.9.4.2 Breaking trail

Issue positive instructions when breaking trail to all aircraft in the formation, whether they are being broken from the trail or not e.g. 'HIPSHOT BREAKING TRAIL, HIPSHOT 1: TURN LEFT HEADING 180 FOR BASE, HIPSHOT 2 AND 3: CONTINUE IN-TRAIL HEADING 270'.

Note: The whole formation or individual aircraft may be broken from trail using 'BREAKING TRAIL'.

9.9.4.2.1 Illustration

![Illustration of formation breaking trail]

- Hipshot 1
- Hipshot 2
- Hipshot 3
## 10 Separation

### 10.1 Responsibilities for separation

10.1.1 Responsibilities

10.1.2 Military variations to standards

10.1.3 Application of separation

10.1.4 Performance based navigation

10.1.5 Transfer of separation responsibility

10.1.6 Emergency separation

### 10.2 ATS surveillance system

10.2.1 ATS surveillance system separation - conditions

10.2.2 ATS surveillance system standards

### 10.3 Longitudinal

10.3.1 Separation standard conditions

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10.3.3 Longitudinal time separation - general conditions

10.3.4 Longitudinal distance separation - general conditions

10.3.5 DME/GNSS distance conditions

10.3.6 Area navigation distance conditions

10.3.7 ADS-C and RSP 180 distance conditions

10.3.8 Performance-based communication and surveillance (PBCS) conditions

10.3.9 Departure separation - conditions

10.3.10 Departing aircraft - time separation

10.3.11 Departing aircraft - distance separation

10.3.12 Arriving aircraft - distance separation

10.3.13 Climb, cruise and descent on the same track - time separation

10.3.14 Climb, cruise and descent on the same track - distance separation

10.3.15 One aircraft maintains while other changes level - time separation

10.3.16 One aircraft maintains while other changes level - distance separation

10.3.17 Opposite direction climb/descent - time separation

10.3.18 Opposite direction climb/descent - distance separation

10.3.19 Crossing track - time separation

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10.1 Responsibilities for separation

10.1.1 Responsibilities

10.1.1.1 Provide separation

Provide separation using approved separation standards, associated conditions and procedures ensuring spacing between aircraft is never less than a prescribed separation minimum.

See MATS 10.1.5 Transfer of separation responsibility

10.1.1.1.1 Assure separation

Assure separation through the process of assessing traffic, identifying conflicts, planning to ensure separation, executing the plan and monitoring the situation to ensure the standard is not infringed.

10.1.1.1.2 Maintain separation

Where the type of separation or minimum used to separate two aircraft cannot be maintained, establish another type of separation or another minimum prior to the time when the current separation minimum would be infringed.

10.1.1.2 Separation with unknown aircraft

In providing ATS within controlled airspace or designated restricted airspace, ATC has no responsibility to maintain prescribed separation minima between a controlled flight and an unknown aircraft that can reasonably be assumed to be outside controlled airspace.

10.1.1.2.1 Likely hazard

If, in your judgement, the action of an observed ATS surveillance system position symbol or information received from other sources gives you good reason to believe that the unknown aircraft is likely to be a hazard to a controlled flight, you have complete discretion to take such action as considered necessary to maintain the safety of the controlled flight. This may comprise the provision of:

a) traffic information;

b) controller initiated traffic avoidance advice; or

c) a Safety Alert.

10.1.1.3 Responding to deviation advisories

ATC is not responsible for providing separation between an aircraft that is responding to a wind shear escape event or TCAS RA and any other aircraft, airspace, terrain or obstruction.
10.1.2 Military variations to standards

10.1.2.1 Authority to vary standards
Separation standards contained in this document may be varied by the appropriate military authority within ADF controlled/administered airspace. These variations are promulgated in the relevant Orders or Instructions.

10.1.2.1.1 Exceptions
Do not apply these varied separation standards and procedures to:

a) Head of State aircraft; or
b) civil IFR aircraft, except through prior agreement by the chief pilot with the appropriate military authority.
10.1.3 Application of separation

10.1.3.1 Expedition
Expedition is secondary to the absolute requirement for safety.

10.1.3.2 Operational advantage
Base the method of separation on operational advantage.

10.1.3.3 Using radio navaids for VFR
You may use separation based on radio navaids for VFR operations.

10.1.3.3.1 Exception
Do not apply time standards to VFR flights which require the use of radio navaids to determine position.

10.1.3.4 Speed confirmation
Where differing aircraft speed may compromise a separation standard, obtain speed confirmation from the aircraft concerned.

10.1.3.4.1 Adjust speed
If required, apply speed control to ensure separation is maintained.

10.1.3.5 In-flight advice
You may use the pilot’s in-flight advice of approval status in the application of separation.

10.1.4 Performance based navigation

10.1.4.1 Navigation equivalency for separation
You may use RNAV10 for the application of RNP10 separation standards.
10.1.5 Transfer of separation responsibility

10.1.5.1 Between units
When assigning separation for specific aircraft to another unit:

a) coordinate which ATC unit has the responsibility for separation; and
b) clearly define any restrictions, where applicable.

See MATS 6.4 ATS coordination

10.1.5.2 Assigning to pilot
When pilots are assigned responsibility for separation in controlled airspace, the responsibility:

a) takes effect when pilots acknowledge the clearance or instruction; and
b) continues to apply, with respect to all advised traffic, until an alternative ATC separation standard exists.

Note 1: This transfer of responsibility includes flights conducting IFR pick-up, VFR-on-top (excluding cancelling VFR-on-top), VFR departures or VFR climb/descent, flights joining or breaking formation and the application of visual separation standards.

Note 2: Pilot separation responsibility when using VFR-on-top, VFR departure, VFR climb/descent or IFR pick-up may involve a transition to, or from, an alternative form of separation or a different class of airspace.

10.1.5.2.1 Responsibility
Assign pilots responsibility for separation with any traffic in the airspace appropriate to the procedure.

10.1.5.3 Resume responsibility
When cancelling VFR-on-top, resume separation responsibility when the aircraft is cleared to maintain an IFR level.

Note: When a flight changes from VFR to IFR resulting in ATC assuming responsibility for separation pilots remain responsible for separation with all advised traffic until an alternative ATC separation standard exists.

10.1.5.4 IFR conducting VFR procedures
Regard IFR flights maintaining VFR-on-top in Class E airspace, conducting VFR departures from Class D aerodromes or operating VFR climb/descent in Class D or Class E airspace, as IFR flights, except that pilots assume responsibility for separation with other traffic.
10.1.6 Emergency separation

10.1.6.1 Reduction of vertical standard

If during an emergency situation, such as radar failure, it is not possible to ensure that the applicable procedural separation minima will be maintained, you may temporarily use half the applicable vertical separation minima.

<table>
<thead>
<tr>
<th>Separate by</th>
<th>Flight level and airspace</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 FT</td>
<td>Up to and including FL290 or in RVSM airspace</td>
</tr>
<tr>
<td>1000 FT</td>
<td>At or above FL290 in non-RVSM airspace</td>
</tr>
</tbody>
</table>

10.1.6.1.1 Traffic information

Issue traffic information to affected aircraft.
10.2  
**ATS surveillance system**

10.2.1  
**ATS surveillance system separation - conditions**

10.2.1.1  
**Application**

Only apply ATS surveillance system separation between identified aircraft when there is reasonable assurance that identification will be maintained.

10.2.1.2  
**Establish direct communications**

Establish direct VHF/UHF communications between ATC and the aircraft prior to the provision of ATS surveillance separation.

See MATS 6.4.5.1 Control and communication responsibility

10.2.1.2.1  
**Exception, direct communications do not exist**

You may provide surveillance separation to aircraft without direct VHF/UHF communications where special circumstances exist, such as emergencies, or when under normal operation there would be no possibility of intervention required, including where:

a) the disposition and relative performances of all aircraft concerned are such that ATS surveillance system separation exists and will continue to exist;

b) a procedural separation standard is established;

c) snap shot information is provided to another ATS unit, such as:
   i)  position information, of the aircraft, or of the aircraft relative to airspace routes, boundaries or locations depicted on the situation display; or
   ii) the relative disposition of two or more aircraft e.g. definite passing; or

d) aircraft are approved to leave the frequency.

See MATS 5.1.6 Military Non-Continuous Communication (NOCOM) flights 6.4.5 Communication responsibility 10.2.1.5 Leaving controlled airspace

10.2.1.2.2  
**Communication adequacy**

Where direct communications do not exist, assess the adequacy of the available communication link prior to and during the application of surveillance-based separation minima. Consider the possibility of unexpected intervention, the time required to receive replies from two or more aircraft and the overall workload/traffic volume.
10.2.1.3  Measuring between position symbols
Apply separation based on the distance between the centres of position symbols.

10.2.1.3.1  No overlap
Do not allow edges of the position symbols to touch or overlap unless vertical separation is applied between aircraft.

10.2.1.4  ADS-B position symbols
When using ADS-B position symbols, only use Class 1 symbols for ATS surveillance system separation.

10.2.1.4.1  RAIM outage area
Do not apply ATS surveillance system separation using ADS-B position symbols within a forecast immediate RAIM outage area.

10.2.1.5  Leaving controlled airspace
You may apply ATS surveillance system separation between aircraft about to leave controlled airspace provided that:

a) the horizontal separation is not less than the prescribed minimum; and
b) you pass mutual traffic information to the aircraft concerned before they leave controlled airspace.

10.2.1.6  Procedural navigation tolerance
Where an aircraft is under ATS surveillance system control and will remain identified you may provide ATS surveillance system separation from the procedural navigation tolerance of an aircraft not under ATS surveillance system control provided:

a) the procedural navigation tolerance is shown on the situation display; or
b) a surveillance separation minimum and the procedural tolerance applicable to the non-surveillance aircraft are applied when constructing a lateral separation diagram or using an authorised lateral separation tool.

10.2.1.7  Separation - inside/outside coverage
Separation continues to exist between aircraft when one of the aircraft has passed beyond ATS surveillance system coverage provided that when proceeding:

a) on the same track, ATS surveillance system separation existed at the time the leading aircraft passed beyond ATS surveillance system coverage, and procedural separation is established before the following aircraft arrives within 5 NM of the last observed position of the leading aircraft; or
b) on reciprocal tracks, the aircraft in ATS surveillance system coverage has passed the last observed position of the outbound aircraft by the applicable ATS surveillance system separation minimum.
10.2.2 ATS surveillance system standards

10.2.2.1 Half the applicable standard
You may apply half the applicable ATS surveillance system separation minimum from a displayed system map boundary when:

a) the adjacent ATS unit, in controlled airspace, has the same ATS surveillance system processing and display system;
b) the Restricted Area activity is designated ‘non-flying’; or
c) the Restricted Area activity is designated ‘military flying’ and the ADF will apply the following separation between the activity and the Restricted Area boundary:
   i) Half the applicable ATS surveillance system separation minimum as detailed in MATS Supplementary Procedures; or
   ii) An appropriate procedural navigation tolerance.

See MATS 2.4.3.4.4 Military flying/non-flying classification for Restricted Area activity designation.

10.2.2.1.1 Different minima on either side of an airspace boundary
Where different ATS surveillance system separation minima apply on either side of an airspace boundary, apply half the larger of the two minima to the system map boundary.

10.2.2.1.2 Operations up to an airspace boundary
Apply ATS surveillance system separation minimum to a system map boundary that divides ATS units where one unit is authorised to operate up to the boundary.

10.2.2 S1 - 3 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft are in communication with and under the control of either a TCU or an associated control tower providing Class C or Class D services and are:</td>
<td></td>
</tr>
<tr>
<td>a) within 100 NM of an MSSR sensor;</td>
<td></td>
</tr>
<tr>
<td>b) within 30 NM of a radar sensor using:</td>
<td></td>
</tr>
<tr>
<td>i) military high definition TAR; or</td>
<td></td>
</tr>
<tr>
<td>ii) primary data from a civil high definition TAR; or</td>
<td></td>
</tr>
<tr>
<td>c) within ADS-B surveillance.</td>
<td>a) Parallel approaches in IMC;</td>
</tr>
<tr>
<td>b) Where the required wake turbulence distance separation minimum is greater than 3 NM; and</td>
<td></td>
</tr>
<tr>
<td>c) Prevented from use by local instructions.</td>
<td></td>
</tr>
</tbody>
</table>


### 10.2.2.1 S1a - 2.5 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation between aircraft meeting the conditions of S1 may reduce to 2.5 NM spacing when:</td>
<td>a) Parallel approaches in IMC;</td>
</tr>
<tr>
<td>a) aircraft are established on the same final approach track within 10 NM of the runway end;</td>
<td>b) Where the required wake turbulence distance separation minimum is greater than 2.5 NM;</td>
</tr>
<tr>
<td>b) the average runway occupancy time of landing aircraft does not exceed 50 seconds;</td>
<td>c) Where the surveillance source is ADS-B only.</td>
</tr>
<tr>
<td>c) the runway is dry or braking action is reported as good;</td>
<td></td>
</tr>
<tr>
<td>d) the aerodrome controller is able to observe the runway in use and associated exit and entry taxiways:</td>
<td></td>
</tr>
<tr>
<td>i) visually; or</td>
<td></td>
</tr>
<tr>
<td>ii) by means of AGSS; and</td>
<td></td>
</tr>
<tr>
<td>e) approved by the CATC, or the appropriate Defence authority, for the specific runway and published in AIP or FIHA.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The 'same final approach track' means both aircraft are inbound on the same instrument approach path or both aircraft are aligned with the runway centreline.

### 10.2.3 S2 - 5 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional conditions</td>
<td>a) Parallel approaches in IMC; and</td>
</tr>
<tr>
<td></td>
<td>b) Where the required wake turbulence distance separation minimum is greater than 5 NM.</td>
</tr>
</tbody>
</table>

### 10.2.4 S3a - 5 NM, UFB or DRA (TMA/TCU)

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) UFB or DRA;</td>
<td>Not applicable</td>
</tr>
<tr>
<td>b) TMA/TCU; and</td>
<td></td>
</tr>
<tr>
<td>c) Display range does not exceed 150 NM.</td>
<td></td>
</tr>
</tbody>
</table>

### 10.2.5 S3b - 10 NM, UFB

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) UFB; and</td>
<td>Not applicable</td>
</tr>
<tr>
<td>b) Display range does not exceed 500 NM.</td>
<td></td>
</tr>
</tbody>
</table>
10.3 Longitudinal

10.3.1 Separation standard conditions

10.3.1.1 Application of conditions

Apply separation conditions to separation standards in accordance with the following table:

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal separation - overall conditions</td>
<td>All longitudinal standards</td>
</tr>
<tr>
<td>Longitudinal time separation - general conditions</td>
<td>All longitudinal time standards and crossing track standards</td>
</tr>
<tr>
<td>Longitudinal distance separation - general conditions</td>
<td>All longitudinal distance standards</td>
</tr>
<tr>
<td>DME/GNSS distance conditions</td>
<td>All longitudinal distance standards - DME/GNSS i.e. those standards with a D prefix</td>
</tr>
<tr>
<td>Area navigation distance conditions</td>
<td>All longitudinal distance standards - area navigation i.e. those standards with an R prefix</td>
</tr>
<tr>
<td>ADS-C distance conditions</td>
<td>All longitudinal distance standards - ADS-C i.e. those standards with an A prefix</td>
</tr>
<tr>
<td>Departure separation conditions</td>
<td>All departure standards i.e. those standards with a DEP prefix</td>
</tr>
</tbody>
</table>

10.3.2 Longitudinal separation - overall conditions

10.3.2.1 Same or reciprocal track

Apply longitudinal separation between aircraft on the same or reciprocal tracks.
10.3.2.1.1 **Reciprocal and crossing track definition**

For separation purposes, reciprocal and same tracks are those tracks that intercept at less than 45 degrees. Crossing tracks are those tracks that intersect at or between 45 degrees and 135 degrees.

**Note:** Time departure standards and the crossing track standard T8 allow some variation to this rule.

See MATS 10.3.19.1 T8a - 15 min, at the crossing point
to MATS 10.3.19.2 T8b - 15 min, from the crossing point

10.3.2.2 **Communication and navigation capability**

Apply the separation standard appropriate to the communications and navigational capability of the aircraft concerned.

10.3.2.3 **Methods of determining separation**

Methods of determining longitudinal distance separation may include:

a) voice or CPDLC reports from aircraft;

b) the use of system tools to measure the distance between the displayed positions of two or more ADS-C or surveillance position symbols; or

c) a comparison of an ADS-C report symbol with the position of another aircraft determined by an alternative form of position fixing, such as surveillance, voice or CPDLC.

See MATS 10.3.4.1 DCPC or ATC monitoring
See MATS 10.3.7.2 Measurement between ADS-C and non-ADS-C

10.3.2.3.1 **Tolerances**

Take into account all system tool tolerances in any measurement.
10.3.2.4 Speed management

When aircraft are at, or expected to reduce to, the minimum separation standard apply speed control techniques to ensure that the separation minimum exists throughout the period of application of the standard.

Note: When applying speed control, variations in environment, pilot and system accuracy may affect aircraft ability to strictly maintain an assigned speed.

10.3.2.5 Integrity cross check

Cross check separation restrictions to ensure the integrity of calculations and to confirm the calculation is consistent with the traffic disposition.

10.3.2.5.1 Discrepancy

On finding a significant discrepancy or inconsistency:

a) perform the initial calculation again and re-apply the integrity cross check; or

b) perform further verification using an alternative means.

10.3.3 Longitudinal time separation - general conditions

10.3.3.1 Calculating longitudinal time separation

Calculate the time interval between aircraft using the speed of the following aircraft.

10.3.3.1.1 Computing times

When applying separation, you may need to compute the time at which:

a) opposite direction flights will pass; and

b) separation between two same direction flights of differing speeds will be reduced or increased to the minimum permissible.

10.3.3.1.2 Computing methods

You may compute the times required using:

a) actual or estimated times at a common point;

b) authorised system tools;

c) the Appleyard Scale; and

d) the time of passing calculation matrix.

See MATS 10.3.20 Manual calculation tables - longitudinal separation
10.3.3.2 Mach number technique

When applying Mach number technique:

a) only apply between jet aircraft with approved SCNS;

b) do not assign a block level clearance;

c) use a common point, defined as:
   i) a geographical point on the aircraft’s track over which both aircraft will fly; or
   ii) a point along the individual track of each aircraft which is equidistant from the geographical point described in 'i'); and

d) base application on the requirement that the last assigned Mach number will be maintained at all times, including during any climbs or descents.

10.3.4 Longitudinal distance separation - general conditions

10.3.4.1 DCPC or ATC monitoring

Only apply distance-based longitudinal separation standards when:

a) DCPC exist; or

b) ATC monitors all distance reports made by the aircraft.

*Note: The requirement for DCPC is met by the use of CPDLC.*

10.3.4.1.1 Communication adequacy

Assess the adequacy of the available communication link prior to and during the application of distance-based separation minima. Consider the time required to receive replies from two or more aircraft and the overall workload/traffic volume associated with the application of such minima.
10.3.4.2 **Same beacon/waypoint**

Obtain all distance reports with reference to the same DME beacon or waypoint. As shown in the following diagram, you may use beacon/waypoint A or B, provided that both aircraft use the same beacon.

10.3.4.3 **Co-sited DME beacon and waypoint**

Consider a DME beacon to be co-sited with a waypoint or the azimuth navaid providing tracking guidance, when the DME site is located within 600 metres of the waypoint or azimuth navaid.

10.3.4.4 **Off-track waypoint**

When applying same direction distance separation, you may use an off-track waypoint or beacon provided that the distance reports from both aircraft are together increasing or decreasing.

10.3.4.4.1 **Relative to waypoint**

Do not apply same direction distance separation if aircraft B1 is in this position relative to A, as shown in the following diagram.
10.3.4.5 Different route clearances

When applying same direction distance separation to aircraft during a period when different route clearances apply, track the leading aircraft directly to or from the beacon/waypoint or co-sited navaid.

<table>
<thead>
<tr>
<th>Tracking to</th>
<th>Tracking from</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

10.3.4.6 Mix of distances

When using a mix of DME and approved SCNS distances, only base the SCNS distance information on the coordinates of an en route tracking navaid that is co-sited with the DME, not on the location of the DME site.

10.3.4.7 Distance requests

Where distance information is required from a DME or GNSS, include the required source in the distance request e.g. ‘REPORT DISTANCE FROM NWN DME’ or ‘REPORT GNSS DISTANCE FROM BEZZA’.

10.3.4.8 Checking the distance

During the application of same direction distance standards, check the distance between aircraft:

a) at least every 30 min; or
b) at sufficient intervals to ensure that the required separation is maintained.

Note: Separation checked by an ATS surveillance system satisfies this requirement.
10.3.4.8.1 **Voice distance check**
When the ATS surveillance system-derived distance between aircraft is less than the sum of the distance required by the procedural separation minimum and the applicable ATS surveillance system separation minimum, conduct a voice distance check with the aircraft before the first aircraft leaves ATS surveillance system coverage.

10.3.4.8.2 **CPDLC distance check**
For distance reports obtained by CPDLC, check to ensure the reports have been sent:
- a) from both aircraft at the same time; or
- b) from the leading aircraft first.

10.3.4.9 **Closing speeds**
Closing speed between aircraft may exist, provided that:
- a) separation is in excess of the minimum distance required;
- b) distance checks are made at intervals not exceeding 15 min; and
- c) when aircraft are cruising at levels not vertically separated, the closing speed is not greater than 35 kt IAS or Mach 0.06.

**Note:** When applying same direction distance standards during a change of level and/or where different routes apply, aircraft spacing may reduce despite similarities in aircraft performance.

10.3.4.10 **Diverging or converging route clearances**
If aircraft are on diverging or converging route clearances, measurements may be either to or from a common point on the route clearances, or taken from where the abeam position of one aircraft intersects the route of the other.
10.3.5 DME/GNSS distance conditions

10.3.5.1 DME includes TACAN
You may use TACAN distances for the same purpose as DME provided all tolerances and conditions shown for DME are applied.

10.3.5.2 Using GNSS for standards D1 to D4
In CTA only, GNSS distance information may be provided by RNP2 or RNP4 approved aircraft for the application of standards D1 to D4, subject to the following conditions:

a) where a mix of GNSS and DME distances is used, do not use distance reports if one aircraft is within 20 NM of the reference point; and

b) when GNSS is used by both aircraft, you must apply the standard with reference to published waypoints.

10.3.5.3 Separation standards D4, D7 and R3
You may also apply separation standards D4, D7 and R3 (change of level) between two aircraft if:

a) the aircraft are confirmed to be on opposite sides of an en route navaid, and one aircraft's distance is established to be not closer to that navaid than the distance required by the separation minimum;

b) the distance determined by an ATS surveillance system, or by the position of one identified aircraft and a distance report from the other, establishes that the distance between the aircraft is not less than the distance required by the procedural separation minimum plus the applicable ATS surveillance system separation minimum;

c) one aircraft's distance is established by approved SCNS/DME and the second aircraft's position is established, by day, with reference to a visual fix, provided that:

i) the fix is a prominent topographical feature within 10 000 FT of the aircraft; and

ii) the feature is displayed on maps available to ATC.

See MATS 10.3.12.1 D4e - 15 NM, aircraft inbound to a controlled aerodrome
See MATS 10.3.14.3 R3 - 30 NM
See MATS 10.3.14.8 D4d - 15 NM DME/GNSS - leading aircraft descending through level of climbing aircraft
See MATS 10.3.16.1 D4a - 15 NM
See MATS 10.3.16.2 D4b - 15 NM
See MATS 10.3.16.3 D4c - 15 NM
See MATS 10.3.16.4 D7, DME/GNSS distance proportional to closure rate and level change
10.3.5.4  **GNSS unavailable**

Do not use GNSS as the basis for separation when a pilot advises 'GNSS UNAVAILABLE' (e.g. loss of RAIM or RAIM alert).

10.3.5.5  **GNSS available**

Reassess the implementation of GNSS-based separation standards following pilot use of the phrase 'GNSS AVAILABLE'.

10.3.6  **Area navigation distance conditions**

10.3.6.1  **Area navigation distance standards**

Apply area navigation distance standards between aircraft with approved SCNS or approved SCNS and DME where permitted.

10.3.6.2  **Operation outside criteria**

Do not apply area navigation standards after pilot advice of:

a) operation of approved SCNS equipment outside prescribed criteria including deterioration or failure;

b) operation of an INS/IRS outside the following time limits specified in the operational approval:
   i) CTA - 5 hrs multiple sensor/3 hrs single sensor; or
   ii) OCA - 12 hrs multiple sensor/5 hrs single/4.5 hrs MNPS; or

c) continuous operation of GNSS equipment in the DR mode for more than one minute or non-RAIM operation for more than five minutes.

10.3.6.2.1  **Confirm update interval**

Obtain the time of the last update from the pilot if the limits specified in Clause 10.3.6.2 b) might not be met throughout the application of an area navigation standard.

See MATS 10.3.6.2 Operation outside criteria
10.3.7 **ADS-C and RSP 180 distance conditions**

10.3.7.1 **Using ADS-C**

Apply separation appropriate to the capabilities of an ADS-C aircraft and other aircraft so that when:

a) both aircraft are ADS-C equipped and ADS-C is used as the sole means of establishing and monitoring separation, use only ADS-C separation standards and ensure the periodic reporting rate is in accordance with the requirements of the standard being applied;

b) both aircraft are ADS-C equipped but one aircraft is identified within surveillance airspace, apply the appropriate ADS-C standard; or

c) one aircraft is without ADS-C, apply procedural separation.

10.3.7.2 **Measurement between ADS-C and non-ADS-C**

When determining longitudinal distance separation between ADS-C and non-ADS-C aircraft, only commence the measurement after receiving an ADS-C report from the ADS-C aircraft.

10.3.7.2.1 **Request for voice report**

Make the request for the voice report as soon as possible after the ADS-C report symbol displays. Only use this procedure when a distance greater than the minimum of the applicable standard is available.

10.3.7.2.2 **Comparing report symbol with voice report**

When comparing an ADS-C report symbol with a voice report from another aircraft, measure from the ADS-C symbol to the beacon or waypoint reported by the other aircraft.

10.3.7.3 **ADS-C reports**

If an ADS-C report is not received within:

a) 3 min of the time it should have been sent, take action to obtain the report; and

b) 6 min of the time the original report should have been sent, take action to resolve any potential conflict(s) within a further 7.5 min.
10.3.7.4 **ADS-C position symbols**
You may determine longitudinal separation by reference to extrapolated ADS-C position symbols.

10.3.7.4.1 **Demand contract request**
If any doubt exists as to the integrity of the information displayed by an extrapolated ADS-C position symbol, send a demand contract request. If doubt still exists, consider using an alternative method of separation.

10.3.7.4.2 **Extrapolated positions off-track**
Do not use extrapolated ADS-C position as the sole information source for the planning or application of separation while the aircraft is off-track.

10.3.7.5 **Measuring aircraft on same identical track**
When two aircraft reporting by ADS-C are flying on the same identical track (same or opposite direction), you may use system tools to measure directly between the two ADS-C symbols.

10.3.7.6 **Measuring aircraft with a bend in track**
For a bend in track only take the measurements between each symbol and the turning point not between the two symbols.
10.3.7.7 **ADS-C diverging or converging**

If two ADS-C aircraft are flying on diverging or converging route clearances, you may take measurements to/from:

a) a common point on the route clearances; or

b) where the abeam position of one aircraft intersects the route of the other.

---

10.3.8 **Performance-based communication and surveillance (PBCS) conditions**

10.3.8.1 **Using PBCS**

PBCS capability may be used to meet the conditions of PBCS separation standards.

10.3.8.2 **Required Communication Performance (RCP) 240**

To meet the condition of RCP 240 capability:

a) the aircraft's FDR must indicate 'P2' in Field 10;

b) DCPC exists; and

c) an alternative means of communication is available that would allow controller intervention within 10.5 minutes.

*Note:* **HF is an acceptable alternative means of communication.**
10.3.8.3 **Required Surveillance Performance (RSP) 180**
To meet the condition of RSP 180 capability the aircraft's FDR must indicate 'SUR/RSP180' in Field 18.

10.3.9 **Departure separation - conditions**

10.3.9.1 **Application**
Apply the time departure standards only during initial climb until reaching the cruising level.

10.3.9.1.1 **Climbing/cruising speeds**
Where the planned speed differential between aircraft is at or near the minimum prescribed, assign climbing/cruising speeds where appropriate to ensure the integrity of the standard.

10.3.9.2 **General aviation VFR flights**
Do not amend the notified CLIAS of general aviation VFR flights.

10.3.9.2.1 **Other VFR**
You may alter the CLIAS of other VFR flights if the pilot agrees.

10.3.9.3 **DEP 1 to 7**
Apply departure standards 1 to 7 when:

a) both aircraft proceed on the same route where a turn of 40 degrees or less is specified; or

b) the subsequent aircraft’s route involves a turn of more than 40 degrees and the preceding aircraft continues straight ahead or turns by 30 degrees or less.

10.3.9.4 **DEP 2A to 7A**
Apply departure standards 2A to 7A when both aircraft proceed on the same route on which a turn of 41 degrees to 65 degrees is specified.
10.3.10 Departing aircraft - time separation

10.3.10.1 DEP 1 - 1 min, following aircraft climbing to a higher or lower level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) CLIAS of the leading aircraft is at least:</td>
<td></td>
</tr>
<tr>
<td>i) 50 kt faster than the CLIAS of the following aircraft; and</td>
<td></td>
</tr>
<tr>
<td>ii) 30 kt faster than the cruising IAS of the following aircraft; and</td>
<td></td>
</tr>
<tr>
<td>b) Either:</td>
<td></td>
</tr>
<tr>
<td>i) the bearing from a point 1 NM along the runway extension to a point 5</td>
<td></td>
</tr>
<tr>
<td>NM along the departure track is within 30 degrees of the runway bearing; or</td>
<td></td>
</tr>
<tr>
<td>ii) you can visually separate the aircraft until they have intercepted the departure track with the required separation.</td>
<td></td>
</tr>
</tbody>
</table>

Diagram:

- A: Leading aircraft
- B: Following aircraft

1 minute
### 10.3.10.2 DEP 2/2A - 2/5 min, following aircraft climbing to a higher level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIAS of the following aircraft is at least 10 kt slower and not more than 90% of the CLIAS or Mach number of the leading aircraft.</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- B
- A

2 minutes

2A - 5 minutes
10.3.10.3 DEP 3/3A - 2/5 min, following aircraft climbing to a lower level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report reaching the lower cruising level;</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) If the following aircraft reaches the cruising level first, apply another form of separation immediately;</td>
<td>B and A are shown with a dashed line separating them.</td>
</tr>
<tr>
<td>c) CLIAS of the following aircraft is at least 10 kt slower and not more than 90% of the CLIAS or Mach number of the leading aircraft; and</td>
<td></td>
</tr>
<tr>
<td>d) Cruising IAS of the following aircraft is less than or equal to the CLIAS or Mach number of the leading aircraft.</td>
<td>The diagram shows a 2 minute and a 3A - 5 minutes separation between B and A.</td>
</tr>
</tbody>
</table>
### 10.3.10.4 DEP 4/4A - 5/10 min, following aircraft climbing to the same level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report reaching the cruising level;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>b) If the following aircraft reaches that level first, apply another form of separation immediately; and</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>c) CLIAS and cruising IAS of the following aircraft is at least 10 kt slower and not more than 90% of the CLIAS and cruising IAS or Mach number of the leading aircraft.</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>
### 10.3.10.5 T1c - 5 min, aircraft cruising in a continuation of DEP 4

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cruising IAS of the following aircraft is at least 10 kt less than and not more than 90% of the cruising IAS of the leading aircraft.</td>
<td><img src="image" alt="Diagram" /> 5 minutes</td>
</tr>
</tbody>
</table>
10.3.10.6 DEP 5/5A - 5/10 min, following aircraft climbing to a higher level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
</table>
| a) CLIAS of the following aircraft is less than or equal to the CLIAS of the leading aircraft; and b) If the turn in track is between 31 and 40 degrees:  
  i) the turning point must be defined as a radio navaid; or  
  ii) an ATS surveillance system must be used to observe the turn and ensure the departure standard does not decrease until the aircraft is established on the new track. | ![Diagram](image) |

Aircraft B 5 minutes  
Aircraft A 5A - 10 minutes
### 10.3.10.7 DEP 6/6A - 5/10 min, following aircraft climbing to a lower level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report reaching the lower cruising level;</td>
<td></td>
</tr>
<tr>
<td>b) If the following aircraft reaches cruising level first, apply another form of separation immediately;</td>
<td></td>
</tr>
<tr>
<td>c) CLIAS of the following aircraft is less than or equal to the CLIAS of the leading aircraft; and</td>
<td></td>
</tr>
<tr>
<td>d) If the turn in track is between 31 and 40 degrees:</td>
<td></td>
</tr>
<tr>
<td>i) the turning point must be defined as a radio navaid; or</td>
<td></td>
</tr>
<tr>
<td>ii) an ATS surveillance system must be used to observe the turn and ensure the departure standard does not decrease until the aircraft is established on the new track.</td>
<td></td>
</tr>
</tbody>
</table>
### 10.3.10.8 DEP 7/7A - 10/15 min, following aircraft climbing to the same level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report reaching the cruising level;</td>
<td><img src="https://via.placeholder.com/150" alt="Diagram" /></td>
</tr>
<tr>
<td>b) If the following aircraft reaches cruising level first, apply another form of separation immediately; and</td>
<td></td>
</tr>
<tr>
<td>c) CLIAS of the following aircraft is less than or equal to the CLIAS of the leading aircraft.</td>
<td></td>
</tr>
</tbody>
</table>
10.3.11 Departing aircraft - distance separation

10.3.11.1 DEP 8 - distance determined by height, faster following aircraft climbing to a higher level

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td><strong>Vertical distance between aircraft</strong></td>
</tr>
<tr>
<td>ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td><strong>5000 FT to 7000 FT</strong></td>
</tr>
<tr>
<td>b) Do not mix GNSS and DME distances;</td>
<td><strong>7001 FT to 10 000 FT</strong></td>
</tr>
<tr>
<td>c) Only usable when the leading aircraft has reached 5000 FT or above;</td>
<td><strong>10 001 FT to 20 000 FT</strong></td>
</tr>
<tr>
<td>d) Determine the distance and level:</td>
<td><strong>More than 20 000 FT</strong></td>
</tr>
<tr>
<td>i) for both aircraft, when they are both airborne; or</td>
<td><strong>NM to be subtracted</strong></td>
</tr>
<tr>
<td>ii) for the leading aircraft, when the following aircraft has not departed. Update the restriction once the following aircraft has departed;</td>
<td>15</td>
</tr>
<tr>
<td>e) Use the vertical difference between the aircraft to determine the appropriate distance required between the aircraft. Subtract this distance from the distance of the leading aircraft; and</td>
<td>10</td>
</tr>
</tbody>
</table>
| f) Instruct the following aircraft to reach 1000 FT above the leading aircraft's cruising or maintained level by the distance determined at ‘e)’.

**Note:** This standard is designed to provide separation of not less than 15 NM when the following aircraft reaches 1000 FT above the level the leading aircraft has maintained.
10.3.11.2 R1 - 20 NM, aircraft climbing to a higher or lower level

**Example 1:** An F50 climbing to FL160 reports 50 DME. An A320 ready for departure is required to reach FL170 by 45 DME. After departing, the A320 reports 7000 FT at 9 DME and the F50 65 DME, cruising FL160; the A320 may be given an updated restriction to reach FL170 by 55 DME.

**Example 2:** A DHC8 reports cruising 9000 FT at 30 DME. A B737 just departed is required to reach 10 000 FT on climb to FL250 by 20 DME.

**Example 3:** An F50 climbing to FL180 reports 45 GNSS and is maintained at FL130. A B737 after departing and climbing through 4000 FT is required to reach FL140 by 35 GNSS.

**Example 4:** A C130 climbing to FL230 reports at 45 TACAN leaving 10 000 FT. An F18 ready for departure is instructed to reach FL240 by 35 TACAN.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
</table>
| a) In CTA only and between:  
  i) aircraft with approved SCNS; or  
  ii) between an aircraft with approved SCNS and an aircraft with DME;  
 b) Where the following aircraft is climbing to the lower level, both aircraft report reaching their cruising levels; and  
 c) If the following aircraft reports at the cruising level first, apply another form of separation immediately. | ![Diagram](image-url) |
10.3.12 Arriving aircraft - distance separation

10.3.12.1 D4e - 15 NM, aircraft inbound to a controlled aerodrome

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td></td>
</tr>
<tr>
<td>b) Both aircraft are inbound and the leading aircraft is within 30 NM of a controlled aerodrome with DME or a published waypoint; and</td>
<td></td>
</tr>
<tr>
<td>c) The aircraft are assigned vertically separated levels.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 10.3.5.2 Using GNSS for standards D1 to D4
See MATS 10.3.5.3 Separation standards D4, D7 and R3
### 10.3.12.2 D5 - 10 NM, aircraft inbound to a controlled aerodrome

#### Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td></td>
</tr>
<tr>
<td>b) Do not mix GNSS and DME distances;</td>
<td></td>
</tr>
<tr>
<td>c) Both aircraft are inbound and the leading aircraft is within 20 NM of a controlled aerodrome with DME or a published waypoint; and</td>
<td></td>
</tr>
<tr>
<td>d) The aircraft are assigned vertically separated levels.</td>
<td></td>
</tr>
</tbody>
</table>

**Diagram**

- **B** is the aircraft inbound to the controlled aerodrome.
- **A** is the leading aircraft within 20 NM.
- The distance between **B** and **A** is 10 NM.

### 10.3.12.3 D6 - 5 NM, aircraft inbound to a controlled aerodrome

#### Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td></td>
</tr>
<tr>
<td>b) Do not mix GNSS and DME distances;</td>
<td></td>
</tr>
<tr>
<td>c) Both aircraft are inbound and the leading aircraft is within 15 NM of a controlled aerodrome with DME or a published waypoint; and</td>
<td></td>
</tr>
<tr>
<td>d) The aircraft are assigned vertically separated levels; and</td>
<td></td>
</tr>
<tr>
<td>e) Wake turbulence standards are applied.</td>
<td></td>
</tr>
</tbody>
</table>

**Diagram**

- **B** is the aircraft inbound to the controlled aerodrome.
- **A** is the leading aircraft within 15 NM.
- The distance between **B** and **A** is 5 NM.
10.3.13 Climb, cruise and descent on the same track - time separation

10.3.13.1 T3 - 15 min

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within all CTA and OCA.</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- A
- B

15 min
10.3.13.2 T2 - 10 min

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent determination of position and speed is possible by:</td>
<td></td>
</tr>
<tr>
<td>a) use of nav aids;</td>
<td></td>
</tr>
<tr>
<td>b) use of approved SCNS (INS/IRS minimum GS 300 kt) within CTA;</td>
<td></td>
</tr>
<tr>
<td>c) use of RNAV10/RNP10 or RNP4 within RNP airspace; or</td>
<td></td>
</tr>
<tr>
<td>d) visual reference to the ground by day (or night for VFR aircraft).</td>
<td></td>
</tr>
</tbody>
</table>
10.3.13.3  T4 - 10 min, Mach number technique

**Conditions**

Use the following table to apply Mach number technique between aircraft:

a) on the same track where the aircraft have reported over a common point and 10 min will be maintained until another form of separation is established; or

b) on converging tracks and it is confirmed that 10 min:
   i) will exist at the point the aircraft concerned enter lateral conflict; and
   ii) will be maintained until another form of separation is established.

**Note:** For this standard, a common point is:

a) a geographical point on the aircraft's track over which both aircraft will fly; or
b) a point along the individual track of each aircraft which is equidistant from the geographical point described in 'a'.

See MATS 10.3.3.2 Mach number technique

<table>
<thead>
<tr>
<th>Difference in Mach</th>
<th>000 - 600 NM</th>
<th>601 - 1200 NM</th>
<th>1201 - 1800 NM</th>
<th>1801 - 2400 NM</th>
<th>2401 - 3000 NM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>0.02</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>0.03</td>
<td>13</td>
<td>16</td>
<td>19</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>0.04</td>
<td>14</td>
<td>18</td>
<td>22</td>
<td>26</td>
<td>30</td>
</tr>
<tr>
<td>0.05</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>0.06</td>
<td>16</td>
<td>22</td>
<td>28</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>0.07</td>
<td>17</td>
<td>24</td>
<td>31</td>
<td>38</td>
<td>45</td>
</tr>
<tr>
<td>0.08</td>
<td>18</td>
<td>26</td>
<td>34</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>0.09</td>
<td>19</td>
<td>28</td>
<td>37</td>
<td>46</td>
<td>55</td>
</tr>
<tr>
<td>0.10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
</tbody>
</table>
10.3.13.4 T5 - 9 to 5 min, Mach number technique

Apply Mach number technique between aircraft where opening speed exists provided that:

a) the required time interval will exist at the common point, observed by:
   i) ATS surveillance system; or
   ii) passage over the same on-track, positive radio fix; and
b) the leading aircraft is maintaining a greater Mach number than the following aircraft, in accordance with the following table.

**Note:** For this standard, a common point is:

a) a geographical point on the aircraft's track over which both aircraft will fly; or

b) a point along the individual track of each aircraft which is equidistant from the geographical point described in 'a').

See MATS 10.3.3.2 Mach number technique

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 min</td>
<td>Mach 0.02 faster</td>
</tr>
<tr>
<td>8 min</td>
<td>Mach 0.03 faster</td>
</tr>
<tr>
<td>7 min</td>
<td>Mach 0.04 faster</td>
</tr>
<tr>
<td>6 min</td>
<td>Mach 0.05 faster</td>
</tr>
<tr>
<td>5 min</td>
<td>Mach 0.06 faster</td>
</tr>
</tbody>
</table>
### 10.3.13.5 T1a - 5 min

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The leading aircraft has maintained and will continue to maintain an indicated airspeed at least 30 kt greater than the following aircraft;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>b) 5 min separation has been established by passage of both aircraft over:</td>
<td></td>
</tr>
<tr>
<td>i) the same positive radio fix; or</td>
<td></td>
</tr>
<tr>
<td>ii) the same ATS surveillance system position;</td>
<td></td>
</tr>
<tr>
<td>c) One aircraft maintains level while vertical separation does not exist; and</td>
<td></td>
</tr>
<tr>
<td>d) Vertical separation at the commencement of the level change does not exceed 4000 FT.</td>
<td></td>
</tr>
</tbody>
</table>
10.3.14 Climb, cruise and descent on the same track - distance separation

10.3.14.1 R4 - 50 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft have either RNAV10/RNP10 or RNP4 approval and are within RNP airspace;</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) Separation is established:</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>i) by reference to the same on-track waypoint, whenever possible ahead of both aircraft; or</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>ii) by use of ADS-C;</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>c) If an aircraft fails to report its position within 3 min, take action to establish communication. If communication is not established within 8 min from the time the report should have been received, apply an alternative form of separation; and</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
<tr>
<td>d) Obtain distance reports at least every 24 min.</td>
<td><img src="image.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

See MATS 10.3.4.9 Closing speeds
### 10.3.14.2 A1 - 50 NM, ADS-C and PBCS

**Conditions**

#### ADS-C

a) Both aircraft have either RNP10 or RNP4 approval and are within RNP airspace; and

b) The maximum ADS-C periodic reporting interval is not greater than 24 min.

#### PBCS

Both aircraft:

a) are within RNP airspace; and

b) meet the following performance-based capabilities and maximum reporting interval:

<table>
<thead>
<tr>
<th>RNP</th>
<th>RCP</th>
<th>RSP</th>
<th>Max ADS-C reporting interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>240</td>
<td>180</td>
<td>27 min</td>
</tr>
<tr>
<td>4</td>
<td>240</td>
<td>180</td>
<td>32 min</td>
</tr>
</tbody>
</table>

**Note:** RNAV10 is equivalent to RNP10.

See MATS 10.3.7 ADS-C and RSP 180 distance conditions

See MATS 10.3.8 Performance-based communication and surveillance (PBCS) conditions

See MATS 10.3.9 Closing speeds
### 10.3.14.3 R3 - 30 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) In CTA only and between:</td>
<td><img src="https://via.placeholder.com/150" alt="Diagram" /></td>
</tr>
<tr>
<td>i) aircraft with approved SCNS;</td>
<td></td>
</tr>
<tr>
<td>ii) an aircraft with approved SCNS and an aircraft with DME;</td>
<td></td>
</tr>
<tr>
<td>b) Above FL290, when a DME distance is supplied by either aircraft, both aircraft are on the same side of the DME beacon;</td>
<td><img src="https://via.placeholder.com/150" alt="Diagram" /></td>
</tr>
<tr>
<td>c) Both aircraft report reaching their cruising levels;</td>
<td></td>
</tr>
<tr>
<td>d) If the following aircraft reports at the cruising level first, take immediate action to ensure separation is maintained; and</td>
<td><img src="https://via.placeholder.com/150" alt="Diagram" /></td>
</tr>
<tr>
<td>e) Separation standards A3 and R3 may be transitioned across the CTA/OCA boundary provided that the conditions for both standards apply prior to transitioning.</td>
<td><img src="https://via.placeholder.com/150" alt="Diagram" /></td>
</tr>
</tbody>
</table>

See MATS [10.3.5.3 Separation standards D4, D7 and R3](#)
### 10.3.14.4 A3 - 30 NM, ADS-C and PBCS

**Conditions**

<table>
<thead>
<tr>
<th>ADS-C</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft are RNP4 approved and are within RNP airspace;</td>
<td><img src="image" alt="Diagram of ADS-C" /></td>
</tr>
<tr>
<td>b) The maximum ADS-C periodic reporting interval is not greater than 12 min; and</td>
<td></td>
</tr>
<tr>
<td>c) Separation standards A3 and R3 may be transitioned across the CTA/OCA boundary provided that the conditions for both standards apply prior to transitioning.</td>
<td></td>
</tr>
</tbody>
</table>

**PBCS**

Both aircraft:

<table>
<thead>
<tr>
<th>PBCS</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) are within RNP airspace; and</td>
<td><img src="image" alt="Diagram of PBCS" /></td>
</tr>
<tr>
<td>b) meet the following performance-based capabilities and maximum reporting interval:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RNP</th>
<th>RCP</th>
<th>RSP</th>
<th>Max ADS-C reporting interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>240</td>
<td>180</td>
<td>12 min</td>
</tr>
</tbody>
</table>

See MATS 10.3.7 ADS-C and RSP 180 distance conditions

See MATS 10.3.8 Performance-based communication and surveillance (PBCS) conditions
**10.3.14.5 D1 - 20 NM DME/GNSS climb to cruise**

**Conditions**
- Distance information is provided by:
  - DME; or
  - GNSS in CTA only, by RNP2 or RNP4 approved aircraft;
- Where the following aircraft is climbing to the lower cruising level or both aircraft are climbing to levels which are not vertically separated, both aircraft report reaching their cruising levels; and
- If the following aircraft reports at cruising level first, apply another form of separation immediately.

See MATS 10.3.5.2 Using GNSS for standards D1 to D4

**Diagram**

---

**10.3.14.6 D2 - 20 NM DME/GNSS cruise**

**Conditions**
- Distance information is provided by:
  - DME; or
  - GNSS in CTA only, by RNP2 or RNP4 approved aircraft.

See MATS 10.3.5.2 Using GNSS for standards D1 to D4

**Diagram**
### 10.3.14.7 D3 - 20 NM DME/GNSS descending

**Conditions**

Distance information is provided by:

a) DME; or
b) GNSS in CTA only, by RNP2 or RNP4 approved aircraft.

See MATS 10.3.5.2 Using GNSS for standards D1 to D4.

**Diagram**

![Diagram of D3 separation standards]

### 10.3.14.8 D4d - 15 NM DME/GNSS - leading aircraft descending through level of climbing aircraft

**Conditions**

a) Distance information is provided by:
   i) DME; or
   ii) GNSS in CTA only, by RNP2 or RNP4 approved aircraft;

b) The leading aircraft is descending through the level of the following aircraft (climbing); and

c) Above FL290, when a DME distance is provided and the aircraft are on opposite sides of the same on-track DME used by both aircraft, increase the standard to 20 NM by DME.

See MATS 10.3.5.2 Using GNSS for standards D1 to D4.

See MATS 10.3.5.3 Separation standards D4, D7 and R3.
### 10.3.15 One aircraft maintains while other changes level - time separation

#### 10.3.15.1 T1b - 5 min

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Apply to a:</td>
<td></td>
</tr>
<tr>
<td>i) preceding aircraft descending through a following aircraft's level; or</td>
<td></td>
</tr>
<tr>
<td>ii) following aircraft climbing through a preceding aircraft's level;</td>
<td></td>
</tr>
<tr>
<td>b) One aircraft maintains level while vertical separation does not exist;</td>
<td></td>
</tr>
<tr>
<td>c) The vertical separation at the commencement of the change does not exceed 4000 FT;</td>
<td></td>
</tr>
<tr>
<td>d) No closing speed (IAS or Mach number) exists;</td>
<td></td>
</tr>
<tr>
<td>e) Separation has been established by the passage of both aircraft over the same:</td>
<td></td>
</tr>
<tr>
<td>i) positive radio fix; or</td>
<td></td>
</tr>
<tr>
<td>ii) ATS surveillance system position; and</td>
<td></td>
</tr>
<tr>
<td>f) The level change is commenced within 10 min of the time the second aircraft passed over the:</td>
<td></td>
</tr>
<tr>
<td>i) positive radio fix; or</td>
<td></td>
</tr>
<tr>
<td>ii) ATS surveillance system position.</td>
<td></td>
</tr>
</tbody>
</table>
10.3.16 One aircraft maintains while other changes level - distance separation

10.3.16.1 D4a - 15 NM

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS in CTA only, by RNP2 or RNP4 approved aircraft;</td>
<td></td>
</tr>
<tr>
<td>b) One aircraft maintains level while vertical separation does not exist; and</td>
<td></td>
</tr>
<tr>
<td>c) Above FL290, when a DME distance is provided, both aircraft must be on the same side of the DME beacon.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 10.3.5.2 Using GNSS for standards D1 to D4
See MATS 10.3.5.3 Separation standards D4, D7 and R3

Note: A descending following aircraft (C1) may be faster than the cruising aircraft (B), or a climbing lead aircraft (A2) may be slower than the cruising aircraft (B) causing a reduction in spacing.
10.3.16.2 D4b - 15 NM

**Conditions**

<table>
<thead>
<tr>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
</tr>
<tr>
<td>i) DME; or</td>
</tr>
<tr>
<td>ii) GNSS in CTA only, by RNP2 or RNP4 approved aircraft; and</td>
</tr>
<tr>
<td>b) Aircraft are established on opposite sides of an en route navaid as follows:</td>
</tr>
<tr>
<td>i) The non-DME/GNSS aircraft is descending or climbing on the safe side of the navaid at the commencement of the level change while the DME/GNSS aircraft maintains level; and</td>
</tr>
<tr>
<td>ii) The DME/GNSS aircraft is at least 15 NM from the navaid.</td>
</tr>
</tbody>
</table>

See MATS 10.3.5.2 Using GNSS for standards D1 to D4
See MATS 10.3.5.3 Separation standards D4, D7 and R3

**Diagram**

![Diagram showing separation standards D4b - 15 NM](image)

**Note:** A descending following aircraft (B1) may be faster than the cruising aircraft (A), or a climbing lead aircraft (B2) may be slower than the cruising aircraft (C) causing a reduction in spacing.
### 10.3.16.3 D4c - 15 NM

**Conditions**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS in CTA only, by RNP2 or RNP4 approved aircraft; and</td>
<td></td>
</tr>
<tr>
<td>b) Aircraft are established on opposite sides of an en route navaid as follows:</td>
<td></td>
</tr>
<tr>
<td>i) The non-DME/GNSS aircraft maintains level on the safe side of the navaid at the commencement of the level change and the DME/GNSS aircraft is descending or climbing; and</td>
<td></td>
</tr>
<tr>
<td>ii) The DME/GNSS aircraft is 15 NM or more from the navaid.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS [10.3.5.2 Using GNSS for standards D1 to D4](#)

See MATS [10.3.5.3 Separation standards D4, D7 and R3](#)

**Note:** A descending following aircraft (C1) may be faster than the cruising aircraft (B), or a climbing lead aircraft (A2) may be slower than the cruising aircraft (B) causing a reduction in spacing.
10.3.16.4 D7, DME/GNSS distance proportional to closure rate and level change

Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>i) DME; or</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>b) Do not mix GNSS and DME distances;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>c) One aircraft maintains level while vertical separation does not exist;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>d) Above FL290, both aircraft must be on the same side of an on-track DME beacon or published waypoint used by both aircraft;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>e) Check distances when the aircraft are vertically separated by the minimum amount appropriate to the table to be used;</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>f) Determine the separation required, proportional to the aircraft rate and amount of level change, from the tables:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>i) where the position of one aircraft is determined by an ATS surveillance system, add the applicable ATS surveillance system separation minimum; and</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>ii) when applying to an aircraft transiting the transition level and the Area QNH is higher than 1013 HPA, add 1000 FT to the amount of level change and utilise that value in the table, e.g. for a 3000 FT level change, use 4000 FT table; and</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>g) The level change commences within 1 minute of obtaining distances. When the separation is on the minimum, issue instructions to ensure that the level change is commenced within this time.</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

See MATS 10.3.5.3 Separation standards D4, D7 and R3
One aircraft A without DME

Closing IAS table

<table>
<thead>
<tr>
<th>CLOSING IAS (kt)</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>150</th>
<th>190</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>45</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>3000</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>45</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>1000</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>45</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>
10.3.17 Opposite direction climb/descent - time separation

10.3.17.1 T6a, 10/15 min before time of passing

During a change of level, vertical separation must exist by the estimated time of passing minus:

a) the time standard (10 or 15 min), as applicable to the route; or

b) 10 min between aircraft equipped with approved SCNS.

[Diagram showing vertical separation between B1 and B2 with A and 10 or 15 min indicated.]
## 10.3.17.2 T6b, 10/15 min after time of passing

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>During a change of level, vertical separation must exist until the estimated time of passing plus:</td>
<td></td>
</tr>
<tr>
<td>a) the time standard (10 or 15 min), as applicable to the route; or</td>
<td></td>
</tr>
<tr>
<td>b) 10 min between aircraft equipped with approved SCNS.</td>
<td></td>
</tr>
</tbody>
</table>

During a change of level, vertical separation must exist until the estimated time of passing plus:

- a) the time standard (10 or 15 min), as applicable to the route; or
- b) 10 min between aircraft equipped with approved SCNS.

![Diagram showing vertical separation conditions](attachment:image.png)
### 10.3.18 Opposite direction climb/descent - distance separation

#### 10.3.18.1 R5 - 50 NM, definite passing

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
</table>
| a) Reports (including ADS-C reports) indicate that the aircraft have passed and the distance between them is opening; and | ![Diagram showing 50 NM separation and two aircraft passing each other.](image)
| b) Both aircraft have either RNAV10/RNP10 or RNP4 approval and are within RNP airspace. |   |
### 10.3.18.2 A2 - 50 NM, ADS-C and PBCS definite passing

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADS-C</strong></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>a) Prior to the application of this standard, a demand contract request is sent to each aircraft, the ADS-C reports indicate that the aircraft have passed and the distance between them is opening; and</td>
<td>a) Prior to the application of this standard, a demand contract request is sent to each aircraft, the ADS-C reports indicate that the aircraft have passed and the distance between them is opening; and</td>
</tr>
<tr>
<td>b) Both aircraft have either RNP10 or RNP4 approval and are within RNP airspace.</td>
<td>b) Both aircraft have either RNP10 or RNP4 approval and are within RNP airspace.</td>
</tr>
<tr>
<td><strong>PBCS</strong></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>Both aircraft:</td>
<td>Both aircraft:</td>
</tr>
<tr>
<td>a) are within RNP airspace;</td>
<td>a) are within RNP airspace;</td>
</tr>
<tr>
<td>b) ADS-C reports show the aircraft have passed by 50 NM; and</td>
<td>b) ADS-C reports show the aircraft have passed by 50 NM; and</td>
</tr>
<tr>
<td>c) meet the following performance-based capabilities:</td>
<td>c) meet the following performance-based capabilities:</td>
</tr>
<tr>
<td><strong>RNP</strong></td>
<td><strong>RCP</strong></td>
</tr>
<tr>
<td>10</td>
<td>240</td>
</tr>
</tbody>
</table>

**Note:** RNAV10 is equivalent to RNP10

See MATS 10.3.7 ADS-C and RSP 180 distance conditions

See MATS 10.3.8 Performance-based communication and surveillance (PBCS) conditions
### 10.3.18.3 A4 - 30 NM, ADS-C and PBCS definite passing

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADS-C</strong></td>
<td></td>
</tr>
<tr>
<td>a) Prior to the application of this standard, a demand contract request is sent to each aircraft, the ADS-C reports indicate that the aircraft have passed and the distance between them is opening; and</td>
<td></td>
</tr>
<tr>
<td>b) Both aircraft have RNP4 approval and are within RNP airspace.</td>
<td></td>
</tr>
<tr>
<td><strong>PBCS</strong></td>
<td></td>
</tr>
<tr>
<td>Both aircraft:</td>
<td></td>
</tr>
<tr>
<td>a) are within RNP airspace;</td>
<td></td>
</tr>
<tr>
<td>b) ADS-C reports show the aircraft have passed by 30 NM; and</td>
<td></td>
</tr>
<tr>
<td>c) meet the following performance-based capabilities:</td>
<td></td>
</tr>
<tr>
<td>RNP</td>
<td>RCP</td>
</tr>
<tr>
<td>4</td>
<td>240</td>
</tr>
</tbody>
</table>

See MATS 10.3.7 ADS-C and RSP 180 distance conditions
See MATS 10.3.8 Performance-based communication and surveillance (PBCS) conditions
### Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
</table>
| a) In CTA only and between:  
  i) aircraft with approved SCNS; or  
  ii) an aircraft with approved SCNS and an aircraft with DME;  
| ![Diagram](image) |
| b) Using the same waypoint, reports indicate that the aircraft have passed and the distance between them is opening; and |
| c) Whenever a DME derived distance is 30 NM or less, you apply a correction for DME slant range error. |
10.3.18.5 D8a - 10/12 NM, definite passing

Conditions | Diagram
---|---
a) Distance information is provided by: 
  i) DME; or 
  ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;
b) Do not mix GNSS and DME distances;
c) Use on reciprocal tracks and tracks differing by more than 90 degrees;
d) Reports indicate that the aircraft have passed and the distance is opening; and
e) Increase the standard to 12 NM if DME distances are greater than 180 NM.
### 10.3.18.6 D8c - 10 NM, definite passing

**Conditions**

- **a)** Distance information is provided by:
  - i) DME; or
  - ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;

- **b)** Reports by reference to a prominent topographical feature by one aircraft and a DME beacon or published waypoint by the other aircraft indicate that the aircraft have passed by at least 10 NM;

- **c)** The non-DME/GNSS-equipped aircraft passes over and within 10 000 FT of the topographical feature; and

- **d)** The topographical feature together with its distance from the DME beacon or published waypoint is specified in local instructions.

---

**Diagram**

- A non-DME/GNSS-equipped aircraft passes over and within 10 000 FT of a topographical feature, then flies 10 NM away from it.
- Another aircraft, equipped with DME or GNSS, provides distance information by referencing the topographical feature and a published waypoint.

Prominent topographical feature within 10,000 ft of levels flown by non-DME/GNSS aircraft.
10.3.18.7 D8b - 5 NM, definite passing

**Conditions**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Distance information is provided by:</td>
<td><a href="#">Diagram</a></td>
</tr>
<tr>
<td>i) DME; or</td>
<td></td>
</tr>
<tr>
<td>ii) GNSS, in CTA only, by RNP2 or RNP4 approved aircraft with reference to a published waypoint;</td>
<td></td>
</tr>
<tr>
<td>b) Do not mix GNSS and DME distances;</td>
<td></td>
</tr>
<tr>
<td>c) Reports indicate that the aircraft have passed and the distance is opening; and</td>
<td></td>
</tr>
<tr>
<td>d) If using a DME distance, one aircraft is within 20 NM of the DME beacon.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 10.6.1.6 Wake turbulence caution

10.3.18.8 T7c - sight and pass

**Conditions**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report sighting and passing the other by day (and in OCA by night);</td>
<td><a href="#">Diagram</a></td>
</tr>
<tr>
<td>b) Both aircraft are above 10 000 FT; and</td>
<td></td>
</tr>
<tr>
<td>c) You ensure there is no possibility of incorrect identification by either aircraft.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 10.6.1.6 Wake turbulence caution
### 10.3.18.9 T7d - surveillance passing

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Aircraft are on reciprocal tracks;</td>
<td><img src="diagram10.3.18.9T7d.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) Aircraft are observed by an ATS surveillance system to have definitely passed and position symbols are not touching; and</td>
<td></td>
</tr>
<tr>
<td>c) Not applicable to Class 2 ADS-B symbols.</td>
<td></td>
</tr>
</tbody>
</table>

See MATS 10.6.1.6 Wake turbulence caution

#### Wake turbulence caution

Both aircraft report passing the same positive radio fix.

See MATS 10.6.1.6 Wake turbulence caution

---

### 10.3.18.10 T7a - opposite sides of a navaid

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both aircraft report passing the same positive radio fix.</td>
<td><img src="diagram10.3.18.9T7a.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

See MATS 10.6.1.6 Wake turbulence caution
10.3.18.11  T7b, opposite sides of a visual fix

**Conditions**

<table>
<thead>
<tr>
<th></th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Both aircraft report passing the same visual fix, by day, or by night if both aircraft are VFR at night; and</td>
<td><img src="diag1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) The visual fix must be a prominent topographical feature within 10,000 FT of the levels of each aircraft.</td>
<td>See MATS 10.6.1.6 Wake turbulence caution</td>
</tr>
</tbody>
</table>

**10.3.19 Crossing track - time separation**

**10.3.19.1 T8a - 15 min, at the crossing point**

**Conditions**

<table>
<thead>
<tr>
<th></th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Each aircraft has either an approved SCNS or MNPS;</td>
<td><img src="diag2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) Ground speeds are a minimum of 300 kt; and</td>
<td>Crossing Point</td>
</tr>
<tr>
<td>c) Separation exists when there is at least 15 min between estimates at the intersection of the tracks.</td>
<td>15 minutes to crossing point</td>
</tr>
</tbody>
</table>
### 10.3.19.2 T8b - 15 min, from the crossing point

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Each aircraft has either an approved SCNS or MNPS;</td>
<td><img src="" alt="Diagram" /></td>
</tr>
<tr>
<td>b) Ground speeds are a minimum of 300 kt;</td>
<td></td>
</tr>
<tr>
<td>c) Vertical separation must exist:</td>
<td></td>
</tr>
<tr>
<td>i) from 15 min prior to the estimate for B at the intersection; and</td>
<td></td>
</tr>
<tr>
<td>ii) until 15 min after A has passed the intersection.</td>
<td></td>
</tr>
</tbody>
</table>
10.3.20 Manual calculation tables - longitudinal separation

10.3.20.1 Same traffic direction

Calculate reducing or increasing separation to the minimum on the Appleyard Scale as shown below.

See MATS 10.3.20.1.1 Reduction using ground speed to MATS 10.3.20.1.5 Increase using time

10.3.20.1.1 Reduction using ground speed

<table>
<thead>
<tr>
<th>Reduction of separation to the minimum using ground speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
</tr>
<tr>
<td>OVER</td>
</tr>
<tr>
<td>AGAINST</td>
</tr>
<tr>
<td>READ</td>
</tr>
<tr>
<td>ADD</td>
</tr>
</tbody>
</table>

10.3.20.1.2 Reduction using time

<table>
<thead>
<tr>
<th>Reduction of separation to the minimum using time</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
</tr>
<tr>
<td>OVER</td>
</tr>
<tr>
<td>AGAINST</td>
</tr>
<tr>
<td>READ</td>
</tr>
<tr>
<td>ADD</td>
</tr>
</tbody>
</table>

10.3.20.1.3 Reduction using Mach number technique

<table>
<thead>
<tr>
<th>Reduction of separation to the minimum using Mach number technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method: For every 600 NM travelled, add 1 min to the basic time separation for each 0.01 Mach closing.</td>
</tr>
<tr>
<td>Example: 1200 NM route segment with Mach 0.04 closing plus 10 min minimum time separation required at the exit gate.</td>
</tr>
<tr>
<td>Calculation: Required multiplier: 1200 ÷ 600 = 2 Mach 0.04 ÷ 0.01 = 4 2 x 4 = 8 min. Therefore, the minimum time required at the entry gate to ensure 10 min at the exit gate, is: Result: 8 + 10 = 18 min.</td>
</tr>
</tbody>
</table>
10.3.20.1.4 **Increase using ground speed**

### Increase of separation to the minimum using ground speed

<table>
<thead>
<tr>
<th>SET</th>
<th>difference of ground speeds on outer scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVER</td>
<td>ground speed of slower aircraft on inner scale</td>
</tr>
<tr>
<td>AGAINST</td>
<td>required increase in separation to that indicated at fix, on outer scale</td>
</tr>
<tr>
<td>READ</td>
<td>increment on inner scale</td>
</tr>
<tr>
<td>ADD</td>
<td>increment to time of faster aircraft at fix</td>
</tr>
</tbody>
</table>

10.3.20.1.5 **Increase using time**

### Increase of separation to the minimum using time

<table>
<thead>
<tr>
<th>SET</th>
<th>total increase in separation between two common fixes on outer scale – that is, difference in times at second fix less the difference in times at first fix</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVER</td>
<td>time interval of leading aircraft on inner scale</td>
</tr>
<tr>
<td>AGAINST</td>
<td>required increase in separation to that indicated at fix on outer scale</td>
</tr>
<tr>
<td>READ</td>
<td>increment on inner scale</td>
</tr>
<tr>
<td>ADD</td>
<td>increment to time of first aircraft at first fix</td>
</tr>
</tbody>
</table>

10.3.20.2 **Time of passing**

Calculate time of passing on the Appleyard Scale or using a calculation matrix as described below.

See MATS 10.3.20.2.1 Using ground speed to MATS 10.3.20.2.5 Time of passing calculation matrix example

10.3.20.2.1 **Using ground speed**

### Time of passing using ground speed

<table>
<thead>
<tr>
<th>SET</th>
<th>sum of ground speeds of the two aircraft on the outer scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVER</td>
<td>ground speed of later aircraft on the inner scale</td>
</tr>
<tr>
<td>AGAINST</td>
<td>difference in time over the common fix point on the outer scale</td>
</tr>
<tr>
<td>READ</td>
<td>increment on the inner scale</td>
</tr>
<tr>
<td>ADD</td>
<td>increment to the time of the first aircraft over fix to obtain time of passing</td>
</tr>
</tbody>
</table>
10.3.20.2.2 Using time intervals

<table>
<thead>
<tr>
<th>Time of passing using time intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
</tr>
<tr>
<td>OVER</td>
</tr>
<tr>
<td>AGAINST</td>
</tr>
<tr>
<td>READ</td>
</tr>
<tr>
<td>ADD</td>
</tr>
</tbody>
</table>

10.3.20.2.3 Using position reports and the matrix

Calculate the time of passing graphically using the time of passing calculation matrix as follows:

1) determine common waypoints between which aircraft are anticipated to pass;
2) for each aircraft
   i) mark the ETA at the respective waypoints – ensure the waypoints selected on either side of the matrix are common to both aircraft; and
   ii) draw a straight line connecting respective waypoint ETAs;
3) intersection of lines will indicate time of passing (minutes only); and
4) interpolation between minutes may be necessary to achieve accurate results.
### 10.3.20.2.4 Time of passing calculation matrix

<table>
<thead>
<tr>
<th>ETA @ Waypoint ....</th>
<th>ETA @ Waypoint ....</th>
<th>Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>00</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>06</td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>10</td>
<td>10</td>
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<td>12</td>
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<td></td>
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<tr>
<td>58</td>
<td>58</td>
<td></td>
</tr>
</tbody>
</table>

**Calculating Time of Passing**

1) Determine common waypoints between which aircraft are anticipated to pass.

2) For each aircraft:
   i) mark the ETA at the respective waypoints. (Ensure the waypoints selected on either side of the matrix are common to both aircraft); and
   ii) Draw a straight line connecting respective waypoint ETAs.

3) Intersection of lines will indicate Time of Passing (minutes only); and

4) Interpolation between minutes may be necessary to achieve accurate results.
### 10.3.20.2.5 Time of passing calculation matrix example

<table>
<thead>
<tr>
<th>ETA @ Waypoint ABCDE</th>
<th>ETA @ Waypoint UVWXY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>00</td>
<td>00</td>
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<tr>
<td>02</td>
<td>02</td>
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<td>04</td>
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<td>58</td>
<td>58</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ETA @ Waypoint UVWXY</th>
<th></th>
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<tbody>
<tr>
<td>1800</td>
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<td>00</td>
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<td>48</td>
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<tr>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

#### Calculating Time of Passing

1) Determine common waypoints between which aircraft are anticipated to pass:

2) For each aircraft:
   i) mark the ETA at the respective waypoints. (Ensure the waypoints selected on either side of the matrix are common to both aircraft); and
   ii) Draw a straight line connecting respective waypoint ETAs:

3) Intersection of lines will: indicate Time of Passing (minutes only); and

4) Interpolation between: minutes may be necessary to achieve accurate results.
10.4  Lateral

10.4.1  General

10.4.1.1  Lateral separation standard
The lateral separation standard is 1 NM between the possible positions of two aircraft.

10.4.1.2  Data sources
Apply lateral separation using authorised:

a) lateral separation diagrams;
b) tables; or
c) lateral conflict tools.

10.4.1.2.1  Manual plotting exception
If you cannot resolve the conflict using authorised lateral separation diagrams, tables or lateral conflict tools, use the information contained in this chapter to calculate or plot the appropriate lateral separation requirements.

10.4.2  Lateral separation

10.4.2.1  Approved application of lateral separation
Approved means for the application of lateral separation are:

a) establishing an aircraft's position outside lateral conflict;
b) applying an appropriate ATS surveillance system separation minimum; or
c) by day only, applying a 1 NM buffer to the track or position of an aircraft which is determined relative to a prominent topographical feature provided that the aircraft is:
   i) tracking visually; and
   ii) not more than 10 000 FT above the topographical feature.

See MATS 10.4.5.1 Establishing entry and exit points

10.4.2.1.1  Establishing an aircraft's position outside lateral conflict
When establishing an aircraft's position outside lateral conflict, determine lateral separation by:

1) applying the appropriate tolerance(s);
2) determining the area of conflict;
3) identifying the relevant BLSP; and
4) calculating entry and exit points.
10.4.3 Determining aircraft position

10.4.3.1 Tolerances
To determine the possible position of an aircraft, apply appropriate tolerances and range limitations to the route or area of operation.

10.4.3.1.1 Minimum tracking tolerance
Except for CASR Part 173 applications, where other tolerances are less than 1 NM, apply a minimum tracking tolerance of 1 NM.

10.4.3.2 Selecting dependent or independent tolerances
Apply independent tolerances to aircraft on an individual (per aircraft) basis. Apply dependent tolerances only between aircraft pairs with the appropriate navigation approval.

10.4.3.3 Identified and non-identified aircraft
When applying lateral separation between an identified aircraft and a non-identified aircraft:
   a) apply a tolerance equal to the applicable ATS surveillance separation minima to the identified aircraft;
   b) apply the appropriate independent tolerance to the non-identified aircraft; and
   c) ensure the identified aircraft will remain identified until another standard is in place.

Note: The 1 NM lateral separation standard is incorporated in the tolerances specified.
See MATS 10.2.1.6 Procedural navigation tolerance

10.4.3.4 Transiting airspace tolerances
Where an aircraft is transiting into an airspace in which larger tolerances than that being exited are applied, consider separation to exist provided:
   a) the smaller separation standard exists;
   b) the aircraft are established on flight paths that will diverge by 15 degrees or more until the larger separation standard is established; and
   c) both aircraft have approved SCNS.

10.4.3.5 Transitioning OCA and CTA standards
The 30 NM dependent tolerance may be transitioned with independent tolerances across the CTA/OCA boundary provided that the conditions for both standards apply prior to transitioning.
10.4.4 Area of conflict and Basic Lateral Separation Points (BLSP)

10.4.4.1 Determining the area of conflict

Determine an area of conflict by applying tolerances between:

a) two aircraft; or
b) an aircraft and an airspace boundary.

10.4.4.1.1 Smallest tolerance

Use the smallest tolerance applicable to the aircraft or aircraft pair.

*Note:* An area of conflict exists where applied tolerance(s) overlap, or infringe an airspace boundary. BLSP exist where the possible position of each aircraft are no closer than 1 NM.

10.4.4.2 Determining the BLSP

Determine the BLSP for the area of conflict by using an applicable tolerance type(s) and adding the 1 NM lateral separation standard as required from the following table:

<table>
<thead>
<tr>
<th>Separation between</th>
<th>Tolerance type(s)</th>
<th>1 NM lateral separation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two aircraft</td>
<td>A dependent tolerance</td>
<td>Included</td>
</tr>
<tr>
<td>Two independent tolerances</td>
<td>Add 1 NM for lateral separation</td>
<td></td>
</tr>
<tr>
<td>An independent tolerance</td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td>A surveillance tolerance</td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td>An aircraft and an airspace boundary</td>
<td>An independent tolerance</td>
<td>Add 1 NM for lateral separation</td>
</tr>
<tr>
<td>An aircraft and an airspace boundary</td>
<td>A surveillance tolerance</td>
<td>Included</td>
</tr>
</tbody>
</table>

*Note:* Airspace containment and lateral separation for aircraft on instrument flight procedures may also be determined by designers approved under CASR Part 173 where the protected areas do not overlap.

10.4.4.2.1 Lateral separation from non-flying areas

The addition of 1 NM for lateral separation is not required for Restricted Areas with non-flying activity.

10.4.4.2.2 Selecting BLSP

Use the most conservative BLSP for the tolerances selected. For entry, this is the first BLSP that the aircraft could pass. For exit, this is the last BLSP that the aircraft could pass.
10.4.4.2.3 **Calculating the BLSP distance**

Calculate the BLSP distance by measuring from a significant point on the aircraft’s route to the BLSP.

See MATS 10.4.10 Manual plotting examples - diagrams

See MATS 10.2.2.1 Half the applicable standard

---

**10.4.5 Entry and exit points**

10.4.5.1 **Establishing entry and exit points**

Establish entry and exit points by one of the following:

a) Applying time buffers to the estimate for a BLSP;

b) Applying area navigation tolerances;

c) Applying slant range and DME equipment error corrections to a BLSP;

d) Passage over a visual fix located on the opposite side of a BLSP from the area of conflict;

e) Passage over a positive radio fix located on the opposite side of a BLSP from the area of conflict; or

f) visual observation of a departing aircraft relative to a RWY centreline.

*Note: Entry and exit points are used to establish an aircraft outside lateral conflict.*

See MATS 10.4.2.1 Approved application of lateral separation

10.4.5.2 **Lateral separation using visual observation**

By day, establish lateral separation using visual observation by:

a) ensuring that the extended runway centreline is greater than 1 NM from the tracking tolerances of the other aircraft; and

b) visually monitoring the departing aircraft until such time as:
   i) an alternate form of separation is achieved; or
   ii) a turn away from the runway centreline is made and the 1 NM will not be infringed.

10.4.5.3 **Lateral separation using time**

When assessing lateral separation, calculate the times for entering or leaving lateral conflict for each aircraft using the following method:

1) Calculate the estimate for the BLSP;

2) Calculate a time buffer equal to half the longitudinal time standard applicable to the aircraft;

3) Subtract the time buffer from the first BLSP estimate to calculate the entry point; and

4) Add the time buffer to the last BLSP estimate to calculate the exit point.
10.4.5.3.1 **Lateral separation exists**
Consider lateral separation to exist if the estimate for the first aircraft's exit point is the same or earlier than the estimate for the second aircraft's entry point.

*Note:* The time buffer allows for ambiguities associated with the aircraft's progress along track.

See MATS 10.4.10.3 Entry and exit points - example 2

10.4.5.4 **Lateral separation does not exist**
Where lateral separation using time does not exist, establish another form of separation by the estimate or distance for the second aircraft's entry point.

10.4.5.4.1 **Level restrictions based on distance**
Issue and obtain acceptance of distance based level restrictions before the estimate for the second aircraft's entry point.

*Note:* Lateral separation is re-established at the time or distance of the first aircraft's exit point. The pilot must report passing the required distance where this method is used.

10.4.5.5 **Lateral separation using area navigation**
To calculate an entry or exit point using an area navigation distance:
1) calculate the distance to the BLSP; and
2) if the area of conflict is based on one or more cross track tolerances, apply a distance buffer equal to the area navigation CEP of the aircraft, to a position outside the area of conflict.

See MATS 10.4.4.2.3 Calculating the BLSP distance
See MATS 10.4.10.5 Entry and exit points - example 4

10.4.5.6 **Lateral separation using DME**
Calculate a DME based lateral separation entry or exit point as follows:
1) Determine the distance from the DME site to the BLSP;
2) If the area of conflict (or part of it) is between the BLSP and the DME site, add the slant range correction to the BLSP distance;
3) Apply the correction for DME equipment error to the distance derived from steps 1 and 2, away from the area of conflict; and
4) Where the lateral separation point is less than 60 NM from and between the area of conflict and the reference DME site, subtract 1 NM from the distance derived at step 3.

10.4.5.6.1 **GNSS in lieu of DME**
Where the navigation tolerance is determined with reference to ground-based navaids, you may use GNSS distances in lieu of a co-sited DME in the steps above.
10.4.5.7  **DME equipment error**

**DME equipment error**

<table>
<thead>
<tr>
<th>Tolerance</th>
<th>Condition</th>
<th>Slant range</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 0.25 NM plus 1.25% of the slant range</td>
<td></td>
<td>300 NM or less</td>
<td>4 NM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>220 NM or less</td>
<td>3 NM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>140 NM or less</td>
<td>2 NM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 NM or less</td>
<td>1 NM</td>
</tr>
</tbody>
</table>

10.4.5.8  **Slant range correction - NMs**

**Ground distance**

<table>
<thead>
<tr>
<th>Ground distance</th>
<th>&lt; FL150</th>
<th>&lt; FL290</th>
<th>&lt; FL460</th>
<th>&lt; FL600</th>
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</thead>
<tbody>
<tr>
<td>3 NM</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>4-5 NM</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>6-7 NM</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
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<td>8 NM</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
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<tr>
<td>9-10 NM</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>11-12 NM</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13-14 NM</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15 NM</td>
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<td>4</td>
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<td>16-24 NM</td>
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<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25-30 NM</td>
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<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>31-50 NM</td>
<td>1</td>
<td>1</td>
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<td>2</td>
</tr>
<tr>
<td>&gt; 50 NM</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

10.4.5.8.1  **Disregard slant range error**

Disregard slant range error at or below:

a) 2000 FT AGL at distances of 10 NM or greater from the DME site; or
b) 4000 FT AGL at a distance of 30 NM or greater from the DME site.

10.4.5.8.2  **Precise slant range correction**

Where required for a particular lateral separation problem, local instructions may specify a lateral separation point based on a precise slant range correction for the levels concerned.
10.4.6  Outside lateral conflict - other methods

10.4.6.1  Surveillance position symbol

Consider lateral separation to exist when an ATS surveillance system position symbol is observed beyond an exit point displayed or calculated on the screen:

a) by the appropriate ATS surveillance system separation minimum; or
b) without applying an ATS surveillance separation minimum, provided:
   i) no cross track tolerances are applied; and
   ii) the tolerance for the identified aircraft is equal to or greater than the applicable ATS surveillance system separation minimum.

*Note:* For the purpose of this clause, a TSAD position symbol is not an ATS surveillance system position symbol.

See MATS 10.4.5.5 Lateral separation using area navigation

10.4.6.2  ADS-C report symbol

Consider lateral separation to exist when an ADS-C report symbol is observed beyond an exit point displayed or calculated on the screen provided:

a) no cross track tolerances are applied; or
b) you apply the appropriate area navigation tolerance where one or more cross track tolerances are used.

See MATS 10.4.5.5 Lateral separation using area navigation
10.4.6.3 **Topographical feature examples**

The following examples illustrate application of a 1 NM buffer to the track or position of an aircraft determined relative to a prominent topographical feature:

a) Example 1: both aircraft operating visually, one aircraft operating 1 NM from the topographical feature; or

b) Example 2: two methods for one aircraft operating visually and one independent tolerance:

i) Visual aircraft operating 1 NM from a topographical feature; or
ii) Aircraft independent tolerances are 1 NM from geographical feature.

**Note 1:** The 1 NM lateral separation standard is included in all examples.

**Note 2:** This application may be used with other ground based nav aids.

See MATS 10.4.2.1 Approved application of lateral separation
10.4.6.4 Lateral separation using visual observation

The following examples illustrate application of a 1 NM buffer to extended RWY centreline.

a) One aircraft tracking visually in reference to a topographical feature that is at least 1 NM from the extended RWY centreline and the departing aircraft as monitored by the tower controller to maintain the extended RWY centreline until an alternate form of separation is achieved or turn away from the area of conflict such that the 1 NM cannot be infringed;

b) One aircraft tracking visually and the departing aircraft is monitored by the tower controller to maintain the extended RWY centreline until an alternate form of separation is achieved or turn away from the area of conflict such that the 1 NM between the RWY centreline and the tracking tolerances of the other aircraft will not be infringed;
c) One aircraft navigating visually, via conventional ground based navigation aids or area navigation methods and the departing aircraft is monitored by the tower controller to maintain the extended RWY centreline until an alternate form of separation is achieved or turn away from the area of conflict such that the 1 NM between the RWY centreline and the tracking tolerances of the other aircraft will not be infringed;

d) A departing aircraft is monitored by the tower controller to maintain the extended RWY centreline until an alternate form of separation is achieved or turn away from the area of conflict such that the 1 NM between the RWY centreline and the PRD area will not be infringed.
10.4.7 Lateral separation tables

10.4.7.1 Entry/exit point table details

For tables in this section, the number in the 'Angular difference' column represents the angular difference in degrees between tracks. The number in the adjacent 'Distance' column represents the distance in NM of the entry or exit point from the track intersection.

10.4.7.1.1 Tolerances applied

Where required, the 1 NM lateral separation standard and a 1 degree charting tolerance are incorporated in the minima.

10.4.7.1.2 Navaid use in tables

Conditions for the use of entry/exit point tables where navaids are specified are:

a) Where DME is specified:
   i) the DME is to be co-sited with the azimuth tracking navaid;
   ii) distances are corrected for DME slant range and equipment error;
   iii) where DME is not used, a DME entry/exit point may be used as the distance of the BLSP from the azimuth navaid; and
   iv) GNSS distances may be used in lieu of co-sited DME distances as an entry or exit point;

b) Where ground based azimuth navaids are specified, aircraft must have reported receiving or be within the published range of the navaid; and

c) Use VOR columns for TACAN.

Note: Additional conditions may be specified with individual tables.
### 10.4.7.2 Generic navigation tolerances (independent)

<table>
<thead>
<tr>
<th>Means of position fixing</th>
<th>Tolerance</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead Reckoning (DR)</td>
<td>± 12 degrees</td>
<td>Where provided with initial track guidance by NDB, VOR, TACAN and there is no subsequent change in track.</td>
</tr>
<tr>
<td></td>
<td>± 9 degrees</td>
<td></td>
</tr>
<tr>
<td>Flight path monitoring</td>
<td>± 9 degrees</td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> Not applicable to Class 2 ADS-B position symbols.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) aircraft is observed on the ATS surveillance system to maintain track;</td>
<td></td>
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<tr>
<td></td>
<td>b) tolerance applied from the edge of a circle of 5 NM radius centred on the last observed position; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) when using radar, the distance from the radar site is less than 200 NM.</td>
<td></td>
</tr>
<tr>
<td>Minimum tracking tolerance</td>
<td>± 1 NM</td>
<td>Except for CASR Part 173 applications, apply in cases where other tolerances are less than 1 NM.</td>
</tr>
<tr>
<td>Maximum tracking tolerance - CTA</td>
<td>± 30 NM</td>
<td>Apply in all cases where other tolerances exceed 30 NM.</td>
</tr>
<tr>
<td>Maximum tracking tolerance - OCA</td>
<td>± 50 NM</td>
<td>Apply in all cases where other tolerances exceed 50 NM.</td>
</tr>
</tbody>
</table>

**Note:** Tolerances that are expressed as ‘± (value)’ are cross track tolerances.
### 10.4.7.3 Short range navaid tolerances (independent)

<table>
<thead>
<tr>
<th>Navaid</th>
<th>Tolerance for precise plotting</th>
<th>Tolerance for manual plotting</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILS localiser Front Beam</td>
<td>± 2.4 degrees</td>
<td>± 2.5 degrees</td>
<td>Within 25 NM except: &lt;br&gt;a) above 2000 FT AGL, within ± 5 degrees of course line – 25 NM; &lt;br&gt;b) below 5000 FT – 30 NM; and &lt;br&gt;c) 5000 FT and above – 50 NM</td>
</tr>
<tr>
<td>GNSS Localiser Equivalence - GNSS equipped</td>
<td>± 1 NM</td>
<td>± 1 NM</td>
<td>When an aircraft is established: &lt;br&gt;a) on a GLS approach and: &lt;br&gt;i) within 23 NM of the GBAS site; and &lt;br&gt;ii) aligned with the runway centreline; or &lt;br&gt;b) on an RNAV (GNSS) approach or RNP APCH or RNAV (RNP) approach or RNP AR APCH and: &lt;br&gt;i) within 25 NM of the runway threshold; &lt;br&gt;ii) at or inside the IAF; and &lt;br&gt;iii) aligned with the runway centreline.</td>
</tr>
<tr>
<td>VOR radials (or TACAN)</td>
<td>± 5.2 degrees</td>
<td>± 5.5 degrees</td>
<td>Range – based on height above navaid: &lt;br&gt;a) below 5000 FT – 60 NM; &lt;br&gt;b) 5000 - 9999 FT – 90 NM; &lt;br&gt;c) 10 000 - 14 999 FT – 120 NM; &lt;br&gt;d) 15 000 - 19 999 FT – 150 NM; and &lt;br&gt;e) at or above 20 000 FT – 180 NM</td>
</tr>
<tr>
<td>NDB</td>
<td>± 6.9 degrees</td>
<td>± 7 degrees</td>
<td>Range – as per ERSA</td>
</tr>
<tr>
<td>DME arc</td>
<td>± 2.5 NM</td>
<td>± 2.5 NM</td>
<td>Includes DME equipment error</td>
</tr>
</tbody>
</table>

**Note:** Tolerances that are expressed as ‘± (value)’ are cross track tolerances.
### 10.4.7.4 DME entry/exit points for navaid - navaid (independent)

<table>
<thead>
<tr>
<th>Angular Difference</th>
<th>0 - FL150</th>
<th>- FL290</th>
<th>- FL420</th>
<th>- FL600</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOR-VOR</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
</tr>
<tr>
<td>VOR-NDB</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
</tr>
<tr>
<td>NDB-NDB</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
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<td>No Lat Sep</td>
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<td>8</td>
<td>10</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>VOR-VOR</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
<td>No Lat Sep</td>
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<tr>
<td>VOR-NDB</td>
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</tr>
</tbody>
</table>

#### 10.4.7.4.1 Warning

Aircraft may re-enter conflict outside the coverage of the navaid when the angular difference between tracks is:

a) less than 20 degrees for NDB; or

b) less than 14 degrees for VOR.
10.4.7.5 GNSS/DME entry/exit points for navaid - GNSS (independent)

<table>
<thead>
<tr>
<th>Angular Difference</th>
<th>0 - FL150</th>
<th>- FL290</th>
<th>- FL460</th>
</tr>
</thead>
<tbody>
<tr>
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<td>GNSS-GNSS</td>
<td>VOR-GNSS</td>
<td>NDB-GNSS</td>
</tr>
<tr>
<td>14°</td>
<td>60</td>
<td>61</td>
<td>-</td>
</tr>
<tr>
<td>15°</td>
<td>15</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>16°</td>
<td>11</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>17°</td>
<td>11</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>18°</td>
<td>11</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>19°</td>
<td>11</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>20°</td>
<td>11</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>21-28°</td>
<td>11</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>29-35°</td>
<td>10</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>36-44°</td>
<td>10</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>45-59°</td>
<td>8</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>60-135°</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

10.4.7.5.1 Navaid - GNSS table conditions for use

Apply the table:

a) in CTA;

b) when GNSS information is from an approved SCNS;

c) when turns in track at the common waypoint or navaid are not greater than five degrees;

d) when the GNSS aircraft is:
   i) tracking via a published waypoint, navaid or a waypoint that has been flight planned; and
   ii) confirmed to be established on track to or from the common waypoint or navaid from which separation will be applied;

e) using DME, when the DME is co-sited with the azimuth navaid;

f) where DME is not available, using the DME lateral separation point as the distance of the BLSP from the azimuth navaid; and

g) using VOR columns for TACAN.

Note 1: Aircraft may not be established on track outbound from a fly over waypoint.

Note 2: Distances are corrected for DME slant range and equipment error.

See Table 10.4.7.9 Entry/exit points for approved SCNS - 7 NM and 14 NM CEP (independent) for angular difference less than 14°.

See MATS 10.3.5.1 DME includes TACAN.
10.4.7.5.2 **Confirm established on track - exception**

There is no requirement to verbally confirm an aircraft is established on track when turns in track at a waypoint or navaid are 55 degrees or less and the aircraft is:

a) below FL195; and

b) 5 NM or more past the waypoint or navaid.

---

10.4.7.5.3 **Requirement to be established on track - exception**

When one aircraft has exited the area of conflict, there is no requirement for either aircraft to remain established on the GNSS track provided one or both aircraft turn away from the other.

See MATS 12.9.3.2 Outside area of conflict - TSAD

10.4.7.6 **Visual tracking and position fixing tolerances (independent)**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>By day - powered aircraft</td>
<td></td>
</tr>
<tr>
<td>0-2000 FT AGL</td>
<td>± 1 NM</td>
</tr>
<tr>
<td>2001-5000 FT AGL</td>
<td>± 2 NM</td>
</tr>
<tr>
<td>5001-10 000 FT AGL</td>
<td>± 4 NM</td>
</tr>
<tr>
<td>By day - non-powered glider aircraft</td>
<td></td>
</tr>
<tr>
<td>0-10 000 FT AGL</td>
<td>± 5 NM</td>
</tr>
<tr>
<td>By night</td>
<td></td>
</tr>
<tr>
<td>0-2000 FT AGL</td>
<td>± 2 NM</td>
</tr>
<tr>
<td>2001-5000 FT AGL</td>
<td>± 3 NM</td>
</tr>
<tr>
<td>5001-10 000 FT AGL</td>
<td>± 5 NM</td>
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<tr>
<td>By day and night</td>
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</tr>
<tr>
<td>10 001 FT AGL-FL200</td>
<td>± 8 NM</td>
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<tr>
<td>FL201-FL300</td>
<td>± 12 NM</td>
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<tr>
<td>FL301-FL400</td>
<td>± 16 NM</td>
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**Note:** Tolerances that are expressed as ‘± (value)’ are cross track tolerances.
### 10.4.7.7 DME entry/exit points for navaid - visual (independent)

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<th>Day</th>
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<th>- 5000 AGL</th>
<th>---</th>
<th>- 10 000 AGL</th>
<th>GFY:0 - 10 000 AGL</th>
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</thead>
<tbody>
<tr>
<td>Night</td>
<td>---</td>
<td>0 - 2000 AGL</td>
<td>- 5000 AGL</td>
<td>---</td>
<td>- 10 000 AGL</td>
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#### Angular Difference

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<th>VOR</th>
<th>NDB</th>
<th>VOR</th>
<th>NDB</th>
<th>VOR</th>
<th>NDB</th>
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<th>NDB</th>
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<td>No Lat Sep</td>
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<tr>
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<td>&gt;100</td>
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## Lateral Separation

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<tr>
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<th>0 - 2000 AGL</th>
<th>- 5000 AGL</th>
<th>- 10 000 AGL</th>
<th>GFY: 0 - 10 000 AGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>VOR</td>
<td>NDB</td>
<td>VOR</td>
<td>NDB</td>
</tr>
<tr>
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<td>43-44 °</td>
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<td>84-90 °</td>
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</table>
### 10.4.7.8 Area navigation system tolerances in CTA (independent and dependent)

<table>
<thead>
<tr>
<th>PBN approval</th>
<th>CTA tolerance/separation standard</th>
<th>Conditions</th>
</tr>
</thead>
</table>
| RNP1         | 5 NM between aircraft (dependent) | a) Both aircraft are RNP1, RNP APCH or RNP AR APCH approved;  
b) Both aircraft will remain established on a SID, STAR or RNP APCH approved while the standard is applied;  
c) The distance between the aircraft is not less than 5 NM as determined by reference to waypoints on the SID, STAR or RNP APCH approved and as published on an authorised lateral separation diagram; and  
d) If at least one aircraft has exited or will not enter the area of conflict, there is no requirement for either aircraft to remain established on the procedure provided any turn ensures the separation standard is maintained.  
See MATS 12.9.3.1 TSAD use  
See MATS 12.9.3.2 Outside area of conflict - TSAD |
| RNP2         | 7 NM CEP (independent)           |            |
| RNP4         | 14 NM CEP (independent)          |            |
| RNP4         | ± 15 NM (independent)            | a) Aircraft flight notification must indicate INS/IRS; and  
b) INS/IRS update conditions are met. |
| RNP4         | Expanding formula (independent)  | a) Aircraft flight notification must indicate INS/IRS;  
b) Use the following formula in preparation of an approved lateral separation diagram or condition specified in local instructions;  
c) The tolerance is a circle of radius:  
i) 3 NM on departure; or 4 NM at update; and  
ii) expanding at a rate of 3 NM per hour since departure or update to a maximum of 14 NM radius; and  
d) INS/IRS update conditions are met. |
| RNP4         | 50 NM between aircraft (dependent) |            |

**Note 1:** Tolerances that are expressed as ‘± (value)’ are cross track tolerances.  
**Note 2:** RNAV10 is equivalent to RNP10.
10.4.7.8.1 **INS/IRS update conditions**

For INS/IRS tolerances, apply the following update conditions:

a) The update interval (i.e. the flight time since departure or a waypoint suitable for updating present position) does not exceed:
   i) 3 hrs for aircraft equipped with single INS/IRS; or
   ii) 5 hrs for aircraft with two or more INS/IRS; and

b) Assume an update has occurred when one of the following occurs:
   i) Aircraft passage within 180 NM of two DME stations for a DME/DME fix where the position lines cross at an angle between 30 degrees and 150 degrees;
   ii) Aircraft passage within 25 NM of a co-located VOR/DME beacon;
   iii) Aircraft passage over a VOR beacon at or below FL200; or
   iv) Aircraft is equipped with GNSS.
### 10.4.7.9 Entry/exit points for approved SCNS - 7 NM and 14 NM CEP (independent)

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10.4.7.10  **GNSS/DME entry/exit points for NDB - 7 NM CEP (independent)**

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<td>98 - 180</td>
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10.4.7.10.1  **NDB - 7 NM CEP table conditions of use**

Use this table when the following conditions exist:

a) One aircraft tracking directly to or from the NDB and established on the relevant bearing;

b) The other aircraft is RNP2 approved and tracking directly to or from a point co-sited with the NDB; and

c) Where DME is used, the aircraft must be operating at FL290 or below.
10.4.7.11 Area navigation system tolerances in RNP airspace (independent and dependent)

<table>
<thead>
<tr>
<th>PBN approval</th>
<th>Tolerance</th>
<th>Conditions</th>
</tr>
</thead>
</table>
| RNP4         | ± 15 NM (independent) | a) Aircraft flight notification must indicate INS/IRS; and  
b) INS/IRS update conditions are met. |
| RNP4         | ± 30 NM (independent) | a) Aircraft flight notification must indicate INS/IRS; and  
b) INS/IRS update conditions do not apply. |
| RNP4         | 23 NM (dependent)   | Both aircraft meet the following performance-based capabilities:  |
|              |                    | **RNP** | **RCP** | **RSP** |
|              |                    | 4       | 240     | 180     |
|              | See MATS 10.3.8 Performance-based communication and surveillance (PBCS) conditions   |
| RNP4         | 30 NM (dependent)   | a) RNP airspace designated OCA;  
b) Only usable for separation with another aircraft indicating RNP4;  
c) Both aircraft must be reporting position via ADS-C and maintain DCPC; and  
d) If an ADS-C report is not received within:  
  i) 3 min of the time it should have been sent, take action to obtain the report; and  
  ii) 6 min of the time the original report should have been sent, resolve the conflict within a further 7.5 min using available communication means. |
| RNP4         | 50 NM between aircraft (dependent) | RNP between aircraft (dependent) | A RNP between aircraft (dependent) | A RNP between aircraft (dependent) |

**Note 1:** Tolerances that are expressed as ‘± (value)’ are cross track tolerances.

**Note 2:** RNAV10 is equivalent to RNP10.

10.4.7.11.1 INS/IRS update conditions

For INS/IRS tolerances, apply the following update conditions where indicated:

a) The update interval (i.e. the flight time since departure or a waypoint suitable for updating present position) does not exceed:
  i) 3 hrs for aircraft equipped with single INS/IRS; or  
  ii) 5 hrs for aircraft with two or more INS/IRS; and  

b) Assume an update has occurred when one of the following occurs:
  i) Aircraft passage within 180 NM of two DME stations for a DME/DME fix where the position lines cross at an angle between 30 degrees and 150 degrees;  
  ii) Aircraft passage within 25 NM of a co-located VOR/DME beacon;  
  iii) Aircraft passage over a VOR beacon at or below FL200; or  
  iv) Aircraft is equipped with GNSS.
### 10.4.7.12 Entry/exit points for approved SCNS - 30 NM and 50 NM between aircraft (dependent)

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10.4.8  Lateral separation diagrams

10.4.8.1 Separation diagrams

Only prepare lateral separation diagrams in accordance with ATS-provider approved methods and indicate:

a) where lateral separation points rely on the serviceability of one or more navaid(s); and
b) other lateral separation points using alternative navaids, if appropriate.

10.4.8.1.1 Develop diagrams

Develop diagrams using:

a) data produced by lateral separation software approved by the OSM and used by officers trained to use the software;
b) instrument flight procedure and holding pattern data produced by a certified CASR Part 173 designer; or
c) information contained in this chapter.

10.4.8.1.2 Diagram approval

All published lateral separation diagrams are to be authorised within:

a) Airservices - by the CATC or delegate; or
b) Defence - by HQ 44WG (ATCSTAND1).

Note 1: This includes specific approval to use an offset navaid or a navaid beyond the range listed in Clause 10.4.7.3.

Note 2: Service providers may develop and apply ready reference lateral separation tables between respective tracks to assess and resolve lateral separation conflicts.

See MATS 10.4.7.3 Short range navaid tolerances (independent)
10.4.9.1 Outbound from a single navaid

The following diagram details how to plot tolerances for an aircraft tracking outbound from a single navaid:
10.4.9.2 **Overshoot/undershoot**

The following diagrams detail plotting overshoot/undershoot error at a turning point not provided with a radio navaid:

a) No DME guidance:

![Diagram showing overshoot/undershoot error at a turning point without DME guidance](image)

b) DME guidance:

![Diagram showing overshoot/undershoot error at a turning point with DME guidance](image)

10.4.9.3 **Aircraft with continuous navaid coverage**

The following diagram details navigation tolerances for aircraft with continuous navaid coverage:

![Diagram showing navigation tolerances for aircraft with continuous navaid coverage](image)
10.4.9.3.1 Turning point in continuous navaid coverage

The following diagram details navigation tolerances from a single navaid to single navaid with a turning point:

**Note 1:** Positions B and B1 indicate two different cases. In both cases, the limit of navigation tolerances on the top side is the unbroken line from A through the undershoot point B or B1. On the lower side, the limit of the navigational tolerances is the unbroken line from A to the overshoot point, and then to B or B1.

**Note 2:** The tolerance angle at B1 may be greater than that published for that navaid, even though continuous navaid cover is available.

10.4.9.4 Navaid behind, navaid ahead

The following diagram details navigational tolerances - beyond the range of the navaid behind, but entering the range of the navaid ahead:
10.4.9.5  **Offset navigation**

The following diagram details offset navigation using VOR/DME or NDB/DME:

**Note:** Prior approval is required for use of this standard.

10.4.9.6  **Area of occupancy - VOR/ADF and DME**

The following diagram details area of occupancy using VOR or ADF and DME distance reports:

**10.4.9.6.1 ADF bearing and DME distance/crossing VOR radial**

When a pilot reports an ADF bearing and a DME distance, or crossing a VOR radial and a DME distance, regard the aircraft as occupying an area contained within:

a) the radii of the reported distance from the DME site plus or minus DME error; and

b) the appropriate tolerance of the reported navaid.
10.4.9.6.2 **Subsequent flight**
Calculate the subsequent navigation tolerance by applying a divergence of ± 12 degrees to the aircraft’s nominal track, plotted from two points within the aircraft’s area of occupancy that provide the greater possibility of track error.

10.4.9.6.3 **Standard dependent on DME reading**
Only apply this standard when the DME reading indicates that the aircraft is within the approved range of the NDB or VOR.

10.4.9.7 **Area of occupancy VOR or ADF**
The following diagram details an area of occupancy using VOR or ADF reports:

![Diagram of navigation tolerance](image)

10.4.9.7.1 **ADF bearing or crossing a VOR radial**
When a pilot of a non-DME equipped aircraft, whose normal navigation tolerance would overlap either side of an off-track navaid, reports an ADF bearing or crossing a VOR radial, regard the aircraft as being located on one side of the navaid within the appropriate tolerance for the bearing.

10.4.9.7.2 **Aircraft position**
Take the aircraft's position along this tolerance as being any point between the navaid and a maximum distance determined by the normal navigation tolerance for the aircraft's track.

10.4.9.7.3 **Subsequent flight**
Calculate the subsequent navigation tolerance by using the normal navigation tolerance on the side farthest from the navaid and plotting 12 degrees divergence to nominal track from the navaid site.
10.4.9.8 Crossing airspace boundaries

The following diagrams detail how to plot tolerances for an aircraft crossing an airspace boundary:

a) The CTA/OCA boundary - outbound:

![Diagram showing CTA/OCA boundary - outbound]

b) The CTA/OCA boundary - inbound:

![Diagram showing CTA/OCA boundary - inbound]

10.4.9.8.1 Crossing an FIR boundary

Where common tolerances are not used across an FIR boundary, the tolerance diagram at b) may be used, with relevant tolerances, for flight in either direction.
10.4.10 Manual plotting examples - diagrams

10.4.10.1 Rounding calculations

When manually calculating or plotting lateral separation, round:

a) BLSP calculations up or down on the 'safe side' to the nearest NM; and
b) radio navaid tolerances up to the next higher half degree.

10.4.10.2 Entry and exit points - example 1

The following diagram details entry and exit points for aircraft outbound from a departure point or navaid with independent tolerances expressed in degrees plus 1 NM for lateral separation. In this example the exit/entry point is determined using the DME:

![Diagram showing entry and exit points for aircraft with navigation tolerances and lateral separation buffer.]

NOT TO SCALE
10.4.10.3 Entry and exit points - example 2

The following diagram details entry and exit lateral separation points for aircraft using two independent cross track tolerances plus 1 NM for lateral separation. The exit/entry point is determined using time:

10.4.10.4 Entry and exit points - example 3

The following diagram details entry and exit lateral separation points for aircraft B using two independent tolerances expressed in degrees, plus 1 NM for lateral separation. The exit/entry point is determined using DME:
10.4.10.5 Entry and exit points - example 4

The following diagram details entry and exit lateral separation points for aircraft using one cross track tolerance and one CEP tolerance plus 1 NM for lateral separation. The exit/entry point is determined using area navigation:

10.4.10.6 Entry and exit points - example 5

The following methods detail calculation of entry and exit lateral separation points when applying either two independent CEP tolerances plus 1 NM for lateral separation, or a dependent tolerance.

Note: The BLSP are the points at which lateral distance between the tracks is less than the required minimum. As all tolerances are included, the BLSP are also the entry/exit points. In this case, the area bound by the lateral separation points is termed the area of conflict.
10.4.10.6.1 Calculating the BLSP - method 1

You may calculate the BLSP by:

1) calculating an offset equal to:
   i) the dependent tolerance; or
   ii) the sum of both aircraft CEP tolerances plus 1 NM;

2) drawing the offset from nominal track 1. Where the offset intersects with
   nominal track 2 is the BLSP; and

3) measuring the distance from a significant point to the BLSP.

*Note:* The process may be applied on both sides of either nominal track.
10.4.10.6.2  **Calculating the BLSP - method 2**

When developing tables or approved diagrams, you may calculate the BLSP using the formula: \( l = \frac{S_y}{\sin \theta} \), where
- \( l \) = the distance of the BLSP from the intersection rounded to the next whole NM,
- \( S_y \) = the dependent tolerance, or sum of both aircraft CEP tolerances plus 1 NM, and
- \( \theta \) = the angle between tracks.

**Note 1:**  *The BLSP may be referenced to any significant point.*

**Note 2:**  *Prior approval is required for use of this method.*

![Diagram of lateral separation and area of conflict](image)
10.5  Vertical

10.5.1  Vertical separation - conditions

10.5.1.1  Geometric height data

Do not use geometric height data for separation.

10.5.1.2  UFB - at or above FL130

Only use verified UFB pressure altitude-derived information at or above FL130 to apply vertical separation.

10.5.1.3  Use ADS-C level

Use ADS-C level information for the application of vertical separation if:

a) the reported ADS-C level is FL130 or above; and

b) the displayed ADS-C level information is within the specified tolerances of the expected or cleared flight level.

See MATS 9.8.5.1 ADS-C level occupancy

10.5.2  Vertical separation during climb and descent

10.5.2.1  Transitioning RVSM

Regard RVSM approved aircraft transitioning into or out of the RVSM band to be vertically separated with aircraft already inside the RVSM band, provided:

a) vertical separation of 1000 FT exists at all times; and

b) at the completion of the level change, the appropriate vertical separation standard exists.

10.5.2.2  Describe rate

Describe the rate of climb or descent in each level clearance when a specified rate is required to maintain vertical separation.

10.5.2.2.1  International aircraft

When it is necessary to specify a rate of climb or descent to an international aircraft, specify the rate in feet per minute. Do not issue standard rate.
10.5.2.2.2 **Do not specify rate**

Do not specify a rate of climb or descent if it is believed that an aircraft is:

a) operating in close vertical proximity to the control area upper or lower limit; or

b) climbing or descending VISUAL or VFR to an assigned level and maintaining clearance from terrain or cloud.

10.5.2.2.3 **Approaches and arrivals**

Do not specify a rate of descent to an aircraft instructed to make VISUAL APPROACH or DME ARRIVAL, or to an aircraft on that part of an instrument approach below the lowest holding altitude.

10.5.2.3 **Assigning vacated levels**

A level vacated by one aircraft may be assigned immediately to another aircraft provided that:

a) the required vertical separation has not been increased due to the possibility of turbulence;

b) the first aircraft has been assigned a level requiring a level change of at least the minimum being applied; and

c) both aircraft have been instructed to change level at a specified rate which ensures that the applicable vertical separation is not infringed.

10.5.2.4 **Step climb**

To simultaneously climb aircraft to vertically separated levels, you may apply the step climb procedure by:

a) advising pilots when they are subject to a step climb;

b) progressively assigning the lower aircraft levels which provide vertical separation with the level vacated by the higher climbing aircraft; and

c) advising pilots when the step climb is no longer required.

**Note:** The pilot of the higher aircraft, on hearing the lower aircraft report approaching each assigned level, will report the last vacated level.

See MATS 10.5.2.6 **Rate in step climb/descent**
**10.5.2.5 Step descent**

To simultaneously descend aircraft to vertically separated levels, you may apply the step descent procedure by:

a) advising pilots when they are subject to a step descent;

b) progressively assigning the higher aircraft levels which provide vertical separation with the level vacated by the lower descending aircraft; and

c) advising pilots when the step descent is no longer required.

**Note:** The pilot of the lower aircraft, on hearing the higher aircraft report approaching each assigned level, will report the last vacated level.

See MATS 10.5.2.6 Rate in step climb/descent

**10.5.2.6 Rate in step climb/descent**

Only specify a rate of climb or descent when the rate will apply to all levels of the climb or descent. Specify the rate in the initial clearance using 'STEP CLIMB (or STEP DESCENT) STANDARD RATE (or AT (number) FEET PER MINUTE)'.

### 10.5.3 Vertical separation minima

#### 10.5.3.1 V1 - 500 FT minimum

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply 500 FT between IFR and VFR aircraft (including SVFR), or between</td>
<td>500ft</td>
</tr>
<tr>
<td>SVFR aircraft where SVFR clearance is due to visibility, under the following conditions:</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>a) both aircraft are 7000 kg MTOW or less;</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) both aircraft are at or below 10 000 FT; and</td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td>c) traffic information is provided to the IFR aircraft, unless it is</td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td>impracticable.</td>
<td><img src="image5.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

#### 10.5.3.2 V2 - 1000 FT minimum

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply 1000 FT to:</td>
<td>1000ft</td>
</tr>
<tr>
<td>a) all aircraft, up to and including FL290; and</td>
<td><img src="image6.png" alt="Diagram" /></td>
</tr>
<tr>
<td>b) aircraft with RVSM approval except military formation aircraft, from</td>
<td><img src="image7.png" alt="Diagram" /></td>
</tr>
<tr>
<td>FL290 to FL410 inclusive.</td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

*Note:* A pilot report OPERATING ON ONE PRIMARY ALTIMETER ONLY when within the RVSM band does not constitute an equipment failure for the application of RVSM separation.
### 10.5.3.3 V3 - 2000 FT minimum

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply 2000 FT:</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>a) in known standing wave conditions or severe turbulence at all levels;</td>
<td></td>
</tr>
<tr>
<td>b) from FL290 to FL410 inclusive:</td>
<td></td>
</tr>
<tr>
<td>i) when at least one aircraft is not RVSM approved;</td>
<td></td>
</tr>
<tr>
<td>ii) following pilot report of an inability to comply with RVSM due to equipment failure;</td>
<td></td>
</tr>
<tr>
<td>iii) following an encounter with turbulence that affects the capability to maintain flight level; or</td>
<td></td>
</tr>
<tr>
<td>iv) to military formation aircraft, regardless of the individual RVSM approval state of each aircraft within the formation; and</td>
<td></td>
</tr>
<tr>
<td>c) above FL410 to all aircraft.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** A pilot report OPERATING ON ONE PRIMARY ALTIMETER ONLY when within the RVSM band does not constitute an equipment failure for the application of RVSM separation.

### 10.5.3.4 V4 - 3000 FT minimum

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply 3000 FT at all levels when one or more aircraft is operating at supersonic speeds.</td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
</tbody>
</table>
10.6 Wake turbulence separation

10.6.1 Wake turbulence separation - conditions

10.6.1.1 Wake turbulence category

Wake turbulence separation is determined by grouping aircraft types according to the maximum take-off weight and wake turbulence characteristics as follows:

<table>
<thead>
<tr>
<th>WT category</th>
<th>Aircraft types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super (H) or (J)</td>
<td>A380, AN225</td>
</tr>
<tr>
<td>Heavy (H)</td>
<td>All other aircraft types of 136 000 kg or more</td>
</tr>
<tr>
<td>Medium (M)</td>
<td>Aircraft types less than 136 000 kg but more than 7000 kg</td>
</tr>
<tr>
<td>Light (L)</td>
<td>Aircraft types of 7000 kg or less</td>
</tr>
</tbody>
</table>

10.6.1.1.1 B757, H47 and H53

Due to the wake turbulence characteristics of the B757, H47 and H53, classify these aircraft as Heavy aircraft if leading and as Medium aircraft if following.

10.6.1.2 Ensure wake turbulence separation

Except when specified in Clause 10.6.1.4, issue clearances that ensure a following aircraft will not enter a preceding aircraft’s wake turbulence envelope.

See MATS 10.6.1.4 When not required

10.6.1.2.1 Application of wake turbulence separation

Apply wake turbulence separation minima when:

a) an aircraft is directly behind and within 760 m laterally of another aircraft; or
b) both aircraft are using the same runway, or parallel runways separated by less than 760 m.

*Note:* Directly behind includes that portion of flight where one aircraft crosses the track of another aircraft.

10.6.1.3 VFR wake turbulence separation

Apply wake turbulence separation when a VFR aircraft is:

a) in flight and would operate within the wake turbulence envelope of a Super category aircraft;

b) departing; or

c) arriving as per Clause 10.6.4.1 c).

See MATS 10.6.4.1 Full length and crossing runway operations
10.6.1.4 When not required

Wake turbulence separation is not required:

a) when a Light aircraft will enter the wake turbulence envelope of a Medium fixed wing aircraft of less than 25 000 kg MTOW;

b) between an aircraft landing behind an aircraft taking-off on the same runway;

c) for VFR flights except when required in accordance with Clause 10.6.1.3;

d) if a pilot has initiated a waiver of the relevant departure wake turbulence separation standard; or

e) when the pilot of an IFR aircraft in flight has reported the preceding aircraft in sight and has accepted responsibility for visual separation with that aircraft. If it is determined by the flight crew that additional spacing is required, the flight crew may state their requirements to ATC.

See MATS 10.6.1.3 VFR wake turbulence separation

10.6.1.5 Wake turbulence waiver

Only apply a wake turbulence waiver to a departing aircraft:

a) when initiated by the pilot; and

b) in VMC by day.

10.6.1.5.1 Do not apply a waiver

Do not apply a waiver when a Light or Medium aircraft will commence take-off on the same runway behind, or in the reciprocal direction to, a Heavy or Super aircraft that has rotated or made a low or missed approach.

10.6.1.6 Wake turbulence caution

Issue a wake turbulence caution in any of the following circumstances:

a) Less than the applicable wake turbulence separation minima may exist;

b) The applied wake turbulence separation minima may be infringed;

c) The pilot initiates a waiver;

d) When wake turbulence separation is not provided in circumstances described in Clause 10.6.1.4 c) and e) you consider that wake turbulence may have an adverse effect on the aircraft;

e) When opposite direction aircraft have passed using separation standards T7a, T7b, T7c, T7d or D8b, and a lighter category aircraft will enter the wake turbulence envelope of a heavier category aircraft, except when the heavier category aircraft is a Medium fixed wing aircraft of less than 25 000 kg MTOW; or

f) To an air taxiing helicopter that will operate in the wake turbulence envelope of a heavier category aircraft.

See MATS 10.6.1.4 When not required
### 10.6.2 Wake turbulence standards - departures

#### 10.6.2.1 Full length or crossing runway operations

**Conditions**

<table>
<thead>
<tr>
<th>a)</th>
<th>Apply wake turbulence separation to departing aircraft when:</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>both aircraft are using the same runway for take-off;</td>
</tr>
<tr>
<td>ii)</td>
<td>an aircraft taking off behind a landing heavier wake turbulence</td>
</tr>
<tr>
<td></td>
<td>category aircraft is expected to become airborne before the</td>
</tr>
<tr>
<td></td>
<td>touchdown point of the landing aircraft;</td>
</tr>
<tr>
<td>iii)</td>
<td>an aircraft is taking off and a preceding departing or arriving</td>
</tr>
<tr>
<td></td>
<td>aircraft on a crossing runway has rotated at or before the</td>
</tr>
<tr>
<td></td>
<td>runway intersection or touched down at or beyond the</td>
</tr>
<tr>
<td></td>
<td>intersection; or</td>
</tr>
<tr>
<td>iv)</td>
<td>using parallel runways or HLS for departures when the runways</td>
</tr>
<tr>
<td></td>
<td>or HLS are separated by less than 760 m, unless the HLS location</td>
</tr>
<tr>
<td></td>
<td>and projected flight path of the helicopter are located outside the</td>
</tr>
<tr>
<td></td>
<td>wake turbulence envelope of the other aircraft; and</td>
</tr>
</tbody>
</table>

| b) | When applying wake turbulence separation: |
| i) | ensure that between departures, a following aircraft does not |
|    | become airborne until either the specified time interval has |
|    | elapsed since a leading aircraft became airborne or the specified |
|    | distance minimum is achieved behind a leading aircraft; |
| ii) | between an aircraft executing a missed approach and the |
|     | following aircraft taking off on the same runway do not issue the |
|     | take-off clearance until the specified time or distance interval has |
|     | elapsed since the preceding aircraft crossed the threshold or |
|     | initiated the missed approach - whichever occurs later; and |
| iii) | when crossing runways are in use, apply the full length standard |
|     | and ensure that the required separation exists at the |

See MATS 10.6.1.2 Ensure wake turbulence separation

**Diagram**

<table>
<thead>
<tr>
<th>Aircraft categories</th>
<th>Separation minima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading aircraft</td>
<td>Following aircraft</td>
</tr>
<tr>
<td>Super</td>
<td>Heavy</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Light</td>
</tr>
<tr>
<td>Heavy</td>
<td>Heavy</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Light</td>
</tr>
<tr>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
</tr>
</tbody>
</table>
### 10.6.2.2 Intermediate departures

#### Aircraft categories

<table>
<thead>
<tr>
<th>Leading aircraft</th>
<th>Following aircraft</th>
<th>Separation min</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super</td>
<td>Heavy</td>
<td>4</td>
<td>Apply intermediate standards when the following aircraft will depart or will conduct a touch and go landing from the same runway or a parallel runway/HLS separated by less than 760 m from a point more than 150 m after the take-off commencement point of the preceding aircraft.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Heavy</td>
<td>Medium</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Not applicable to a HLS when the HLS location and projected flight path of the helicopter are located outside the wake turbulence envelope of the other aircraft.

See MATS 10.6.5.1 Using a surveillance standard or aircraft report
10.6.2.3 Displaced landing threshold

<table>
<thead>
<tr>
<th>Aircraft categories</th>
<th>Departing aircraft</th>
<th>Separation min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Super</td>
<td>Heavy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>3</td>
</tr>
<tr>
<td>Heavy</td>
<td>Medium</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>2</td>
</tr>
<tr>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
<td>2</td>
</tr>
</tbody>
</table>
## 10.6.3 Wake turbulence standards - opposite direction

### 10.6.3.1 Opposite direction

<table>
<thead>
<tr>
<th>Opposite direction</th>
<th>Aircraft categories</th>
<th>Separation minima</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading aircraft</td>
<td>Affected aircraft</td>
<td>min</td>
<td></td>
</tr>
<tr>
<td>Super</td>
<td>Heavy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Heavy</td>
<td>Medium</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
<td>2</td>
<td>Apply opposite direction standards when the affected aircraft is using the opposite direction runway for take-off or landing to a heavier category aircraft that has taken off or executed a missed approach.</td>
</tr>
</tbody>
</table>

![Diagram of aircraft separation](image-url)
10.6.4 Wake turbulence standards - arrivals

10.6.4.1 Full length and crossing runway operations

Conditions

Apply wake turbulence separation to arriving aircraft when:

a) both aircraft are using the same runway for landing;
b) an aircraft is landing and could still be airborne at the intersection of a crossing runway and a preceding departing or arriving aircraft on that crossing runway has rotated at or before the runway intersection or touched down at or beyond the intersection;
c) a Light aircraft during its landing run will cross the flight path of, or intersection of a crossing runway, behind a departing Heavy or Super aircraft that has rotated at or before the intersection; or
d) using parallel runways or an HLS when the runways or HLS are separated by less than 760 m unless the HLS location and projected flight path of the helicopter are located outside the wake turbulence envelope of the other aircraft.

See MATS 10.6.1.3 VFR wake turbulence separation

<table>
<thead>
<tr>
<th>Aircraft categories</th>
<th>Separation minima</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leading aircraft</td>
</tr>
<tr>
<td>Super</td>
<td>Heavy</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Light</td>
</tr>
<tr>
<td>Heavy</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Light</td>
</tr>
<tr>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
</tr>
</tbody>
</table>
10.6.5 Wake turbulence standards - distance-based

10.6.5.1 Using a surveillance standard or aircraft report

Where you can determine the required separation by distance using an aircraft report or ATS surveillance system, you do not need to apply the time standard, unless the aircraft is departing from an intermediate point as described in Clause 10.6.2.2.

See MATS 10.6.2.2 Intermediate departures

10.6.5.2 Distance-based minima

<table>
<thead>
<tr>
<th>Application</th>
<th>Aircraft categories</th>
<th>Separation minima</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply distance based wake turbulence separation minima when:</td>
<td><strong>Leading aircraft</strong></td>
<td><strong>Following aircraft</strong></td>
</tr>
<tr>
<td>a) an aircraft is directly behind and within 760 m laterally of another aircraft; or</td>
<td>Super</td>
<td>Heavy</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>8</td>
</tr>
<tr>
<td>b) both aircraft are using the same runway, or parallel runways separated by less than 760 m.</td>
<td>Heavy</td>
<td>Heavy</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>6</td>
</tr>
<tr>
<td>Note: Directly behind includes that portion of flight where one aircraft crosses the track of another aircraft</td>
<td>Medium fixed wing aircraft with MTOW of 25 000 kg or more and all Medium helicopters</td>
<td>Light</td>
</tr>
</tbody>
</table>
10.7 Visual - ATC

10.7.1 Identification of aircraft

10.7.1.1 Establish positive identification

Establish positive identification before providing visual separation as follows:

a) by the use of an ATS surveillance system as described in Clause 9.7.2.6 or by use of a TSAD as described in Clause 12.9.3.7 (d);

b) by day:
   i) identification by type;
   ii) identification by distinguishing markings if aircraft are of the same type; or
   iii) identification by observing a change of heading or altitude of one of the relevant aircraft; and

c) by night:
   i) momentarily extinguishing navigation lights;
   ii) select flashing navigation lights to steady;
   iii) extinguish hazard beacon;
   iv) momentarily switch on landing lights; or
   v) change heading.

See MATS 9.7.2.6 Identification by visual observation

See MATS 12.9.3.7 Aircraft identification

10.7.2 Separation using visual observation

10.7.2.1 Reduction in separation

You may reduce the specified separation minima in the vicinity of aerodromes when adequate separation can be provided using visual observation and each aircraft is continuously visible to the aerodrome controller.

10.7.2.1.1 Exceptions

Provided the aircraft can be visually reacquired, it is acceptable to:

a) intermittently look away from the aircraft; and

b) allow an aircraft to be temporarily obscured from view, for example, due to cloud or terrain.
10.7.2.2 **Projected flight paths**
Only provide visual separation when the projected flight paths of the aircraft do not conflict.

10.7.2.2.1 **Tracking tolerances**
Allow for the applicable tracking tolerances on the projected flight path.

10.7.2.3 **Considerations**
When applying visual separation, consider:

a) aircraft performance characteristics, particularly in relation to faster following aircraft and closure rates;
b) position of the aircraft relative to each other;
c) projected flight paths of the aircraft;
d) possibility of an ACAS RA due to closer proximity of operation;
e) known weather conditions; and
f) the possibility of visual errors.

See MATS 10.7.2.8 Use of relative distance or height

10.7.2.4 **Tower separates for approach**
Where applicable, the Tower may provide visual separation as coordinated with Approach provided that:

a) the Tower is in agreement and accepts responsibility for the provision of such visual control;
b) where required, the aircraft concerned are on the aerodrome control frequency; and

c) where required, approach releases specific airspace to the Tower for the purpose of providing such control.

10.7.2.5 **Traffic information**
Provide traffic information where, in your judgement, one aircraft may observe the other aircraft either visually or by ACAS and could be uncertain of the intention of that aircraft.

10.7.2.6 **Binoculars**
You may use binoculars to supplement normal vision.

10.7.2.7 **Use of azimuth**
In providing visual separation, primarily use azimuth.
10.7.2.8  Use of relative distance or height

Only conduct visual separation by judgement of relative distance or height when there are wide margins, and there is no possibility of the aircraft being in close proximity.

Note: Visual determination of the relative distance of aircraft in close proximity can be in error or affected by optical illusion.

10.7.2.9  Beyond Tower view

Consider two approaching aircraft to be separated while the second approaching aircraft is on final approach beyond view of the tower controller if, before commencing such final approach, the first approaching aircraft:

a) has been sighted by the tower controller, there is reasonable assurance that a landing can be accomplished and it is clear that no conflict will occur; or
b) has reported commencing a missed approach and is proceeding from a point and on a clearance which will permit separation to be maintained should the second aircraft miss its approach.

10.7.2.9.1  DME or GNSS arrival

When the second of the two aircraft will follow a DME or GNSS arrival procedure, consider final approach to commence when the aircraft passes a point 10 NM from the aerodrome.

10.7.2.9.2  Clearance before 10 NM

Unless you can clear the following aircraft for the DME or GNSS arrival before passing 10 NM from the aerodrome, provide another form of separation.
10.8 Visual - pilot

10.8.1 Applying visual separation

10.8.1.1 Visual separation by pilot

You may only assign responsibility for visual separation to a pilot when:

a) aircraft are operating at or below 10 000 FT; and

b) the pilot of one aircraft:
   i) reports sighting the other aircraft; and
   ii) accepts responsibility to maintain own separation with or follow that aircraft.

*Note:* The pilot will maintain separation while complying with ATC instructions.

10.8.1.1.1 Considerations before assigning responsibility

Before assigning responsibility for visual separation to a pilot, consider the following:

a) aircraft performance characteristics, particularly in relation to faster following aircraft and closure rates;

b) position of the aircraft relative to each other;

c) projected flight paths of the aircraft;

d) possibility of an ACAS RA due to closer proximity of operation; and

e) known weather conditions.

10.8.1.1.2 Limitations to visibility

Consider the following limitations to a pilot’s ability to maintain visual separation responsibility:

a) the field of vision from the cockpit;

b) the contrast of aircraft with the background against which it will appear;

c) glare of the sun; and

d) restrictions on atmospheric visibility which may not be currently apparent to the pilot e.g. loss of forward visibility following descent into a haze layer.

10.8.1.2 Maintain separation

When the pilot of one aircraft has been assigned the responsibility for visual separation from a second aircraft, do not alter the clearance of the second aircraft unless you are certain that visual separation can be maintained.

10.8.1.3 Alternative instruction

Issue an alternative instruction to provide separation if there is any doubt as to the pilot’s ability to keep the other aircraft in sight or maintain separation.
10.8.1.4 **Pass traffic information**

When assigning visual separation responsibility to the pilot, pass traffic information in sufficient time and detail to enable the pilot to identify and maintain separation from other aircraft.

See MATS 9.1.6 *Traffic information assessment and content*

10.8.1.4.1 **IFR aircraft**

When an aircraft is instructed to maintain own separation from an IFR aircraft, also issue traffic information to the IFR aircraft, including advice of assignment of responsibility for separation to other aircraft.

10.8.1.4.2 **Sequence number**

Advise pilots of their number in the landing sequence to assist in identification of traffic.

10.8.1.4.3 **Pilot corroboration**

When necessary, obtain corroborative evidence from the pilot of one aircraft on the relative position of the second aircraft.
10.9 Aerodrome

10.9.1 Applying aerodrome separation

10.9.1.1 Separation standards
Apply the wake turbulence standards in conjunction with the runway standards when providing runway separation.

10.9.1.1.1 Military aircraft
You may apply different standards between military aircraft as required by the relevant military authority.

10.9.1.2 Equal application
Apply runway separation standards equally to runway operations or to a strip having a single landing and take-off path.

10.9.1.2 Pilot confirmation of position
When take-off or landing separation is based on the position of a preceding landing or taxiing aircraft and visual determination is limited, particularly at night or in reduced visibility, by poor azimuth resolution or other factors, instruct the pilot of that aircraft to report when the aircraft has:

a) crossed and is clear of a runway intersection;
b) stopped short of a runway strip; or
c) vacated the runway.

See MATS 12.9.2.1 Augment visual observation

10.9.1.3 Adjacent Class C and Class D
At Class D aerodromes, treat IFR aircraft or aircraft operating on a special VFR clearance due cloud, established on tower frequency and operating in the aerodrome traffic circuit as VFR for the purpose of separation with aircraft in adjacent Class C airspace.
10.9.2 Separation between arriving and departing aircraft

10.9.2.1 Lateral separation exists

Lateral separation exists between an arriving aircraft and a departing aircraft cleared on a segregated flight path provided the departing aircraft commences take-off before the arriving aircraft commences final approach.

Note 1: A segregated flight path exists when the departing aircraft will not be manoeuvring within 45 degrees either side of the final approach path of the arriving aircraft.

Note 2: For aircraft carrying out a DME or GNSS arrival, final approach commences when the aircraft passes a point 10 NM from the aerodrome. For the application of a segregated flight path:

a) When an aircraft is cleared a Sector DME or GNSS arrival, apply 45 degrees either side of the sector boundary unless the aircraft is cleared on a specific track; and

b) An IFR aircraft cleared for a Visual Approach complies with the requirements of a DME/GNSS arrival.

10.9.2.1.1 Diagram for DME or GNSS arrivals
10.9.2.2.1 Final for straight-in instrument approach

When an aircraft has commenced final of a straight-in instrument approach, an aircraft may commence take-off provided that:

a) the departing aircraft is cleared on a segregated flight path;

b) the arriving aircraft has not passed a point 5 NM from the landing threshold as determined either by:
   i) ATS surveillance system; or
   ii) DME or GNSS report adjusted for the distance between the landing threshold in use and the DME site;

c) separation will exist at the time the take-off is commenced;

d) the ATS surveillance system position symbol or DME or GNSS report is used to confirm that separation is not infringed; and

e) when an ATS surveillance system described in Clause 10.2.2.2 is used to determine the position of the arriving aircraft, ensure it is not closer than 3 NM from the landing threshold at the time a departing aircraft:
   i) commences take-off on the runway to be used by the landing aircraft; or
   ii) crosses the intersection of the runway to be used by the landing aircraft.

Note 1: The specified distances of 3 NM and 5 NM include an allowance for equipment errors.

Note 2: A segregated flight path exists when the departing aircraft will not be manoeuvring within 45 degrees either side of the final approach path of the arriving aircraft.
10.9.2.2 Diagram for straight-in instrument approach

10.9.2.3 Increase distances

Increase distances contained in MATS Clauses 10.9.2.1 and 10.9.2.2.1 as appropriate to ensure that separation will be maintained:

a) when missed approaches are likely;
b) if a tailwind component exists on final approach; or
c) a faster type aircraft is approaching in respect of a slower type aircraft taking off.

See MATS 10.9.2.1 Lateral separation exists
See MATS 10.9.2.2.1 Final for straight-in instrument approach
10.9.3 Runway separation standards - take-off

10.9.3.1 Behind a preceding departing aircraft

Apply the 'take-off behind a preceding departing aircraft' standard to fixed wing aircraft provided that you do not permit a departing aircraft to commence take-off unless the preceding departing aircraft:

a) has crossed the up-wind end of the runway-in-use;

b) has commenced a turn;

c) is airborne and has reached a point at least 1800 m (6000 FT) ahead of the following aircraft provided the runway is longer than 1800 m (6000 FT) and the distance can be readily determined;

d) is airborne and has reached a point at least 600 m (2000 FT) ahead of the following aircraft provided the:
   i) preceding aircraft has an MTOW of 7000 kg or less;
   ii) following aircraft has an MTOW of less than 2000 kg; and
   iii) following aircraft is slower than the preceding aircraft;

or

e) is airborne and has reached a point at least 600 m (2000 FT) ahead of the following aircraft provided both aircraft have an MTOW of less than 2000 kg.

10.9.3.1.1 Take-off behind a preceding departing aircraft
10.9.3.2 Behind a preceding landing aircraft

Apply the 'take-off behind a preceding landing aircraft' standard to fixed wing aircraft provided that:

a) you do not permit the departing aircraft to commence take-off until the preceding aircraft has vacated and is taxiing away from the runway; and
b) if wake turbulence separation is necessary, the appropriate arrival wake turbulence separation standard has been achieved.

10.9.3.2.1 Take-off behind a preceding landing aircraft

10.9.3.3 Behind landing or departing aircraft on intersecting runways

Apply the 'take-off behind landing or departing aircraft on intersecting runways' standard to fixed wing aircraft, provided that you do not permit a departing aircraft to commence take-off until:

a) a preceding departing aircraft on an intersecting runway has crossed the intersection; or
b) an aircraft landing on the crossing runway has either crossed the intersection or stopped short.
10.9.3.3.1 Take-off behind landing or departing aircraft on intersecting runways

10.9.3.4 After an aircraft has departed in the opposite direction

Apply the 'take-off after an aircraft has departed in the opposite direction' standard to fixed wing aircraft, provided that you do not permit a departing aircraft to commence take-off until:

a) the preceding aircraft has crossed the point at which the following aircraft will commence take-off; and

b) if applicable, the appropriate wake turbulence separation standard has been achieved.

10.9.3.4.1 Take-off after an aircraft has departed in the opposite direction
10.9.3.5 Application of runway departure separation standards - helicopters

Where a helicopter requires a take-off roll and uses a runway prior to becoming airborne, you may clear the helicopter for take-off when:

a) the preceding departing aircraft is airborne and visual separation is applied; and

b) if wake turbulence separation is necessary, apply the appropriate wake turbulence separation standard.

10.9.3.6 Helicopter departing from a HLS

Apply the 'take-off helicopter' standard to departing helicopters. You may clear helicopter 1 for take-off when:

a) a preceding departing helicopter 2 has departed the HLS; or

b) a preceding arriving helicopter 3 has moved clear of the HLS.

10.9.3.6.1 Take-off helicopter
10.9.4 Runway separation standards - landing

10.9.4.1 Behind a preceding landing aircraft

Apply the 'landing behind a preceding landing aircraft' standard to fixed wing aircraft, provided that you do not permit a landing aircraft to cross the runway threshold until the preceding aircraft has vacated and is taxiing away from the runway.

10.9.4.1.1 MTOW exception - less than 7000 kg

Apply the 'landing behind a preceding landing aircraft' standard to fixed-wing aircraft, provided that you do not permit a landing aircraft to cross the runway threshold until the preceding aircraft has landed and has passed a point at least 600 m from the threshold of the runway, is in motion and will vacate the runway without backtracking and:

a) the preceding aircraft has an MTOW of less than 7000 kg; and
b) the following aircraft has an MTOW of 2000 kg or less.
10.9.4.1.2 **MTOW exception - 7000 kg or more**

Apply the 'landing behind a preceding landing aircraft' standard provided that you do not permit a landing aircraft to cross the runway threshold until the preceding aircraft has landed and has passed a point at least 2400 m from the threshold of the runway, is in motion and will vacate the runway without backtracking and:

a) the preceding aircraft has an MTOW of 7000 kg or more;

b) application is during the hours of daylight, from 60 minutes after first light to 60 minutes before last light;

c) visibility is at least 5 km and cloud ceiling is 1000 FT or more;

d) tailwind component does not exceed 5 kt;

e) wake turbulence separation minima is applied;

f) traffic information is provided to the following aircraft;

g) the runway is dry or the braking action is assessed as 'good'; and

h) the runway has been approved for reduced runway separation by the CATC or the appropriate Defence authority.
10.9.4.2 Behind preceding departing or landing

Apply the 'landing behind preceding departing or landing' standard to fixed-wing aircraft, provided that you do not permit a landing aircraft to cross the runway threshold unless, in the opinion of the tower controller, no collision risk exists and:

a) the landing aircraft has an MTOW below 3000 kg and is a Performance Category A aircraft; and

b) the preceding aircraft has an MTOW of 7000 kg or less, is at least 1000 m from the threshold of the runway and:
   i) if landing, will vacate the runway without backtracking; or
   ii) if departing, has commenced its take-off run.

10.9.4.2.1 Behind a preceding departing or landing aircraft

10.9.4.3 Behind a preceding departing aircraft

Apply the 'landing behind a preceding departing aircraft' standard to fixed-wing aircraft, provided that you do not permit the landing aircraft to cross the runway threshold until the preceding aircraft is airborne and:

a) has either commenced a turn; or

b) is beyond the point on the runway at which the landing aircraft could be expected to complete its landing roll and there is sufficient distance to enable the landing aircraft to manoeuvre safely in the event of a missed approach.

10.9.4.3.1 Behind a preceding departing aircraft
10.9.4.4  After intersecting runway traffic

Apply the 'landing after intersecting runway traffic' standard to fixed wing aircraft, provided that you do not permit the landing aircraft to cross the runway threshold until a preceding departing or landing aircraft on an intersecting runway has either crossed the intersection or stopped short.

10.9.4.4.1  After intersecting runway traffic

10.9.4.5  Helicopter landing - HLS

You may clear helicopter 1 to land when:

a) departing helicopter 2 has left the HLS; or
b) the preceding arriving helicopter 3 has moved clear of the HLS.

10.9.4.5.1  Helicopter landing - HLS
10.9.4.6 Helicopter landing - runway
You may permit the landing helicopter to land when:

a) the preceding landing or departing aircraft is at least 300 m down the runway from the landing threshold; and

b) in the opinion of tower controller, no collision risk exists.

10.9.4.6.1 Helicopter landing - runway

10.9.5 Land and Hold Short Operations

10.9.5.1 When LAHSO is applied
Notwithstanding aerodrome separation standards, you may permit operations by an aircraft landing on one runway and another aircraft either taking off or landing simultaneously on a crossing runway, subject to the provisions of LAHSO.

10.9.5.2 Aircraft classification
Consider LAHSO to be a dependent procedure with participating aircraft classified as either:

a) active - when an aircraft is issued a hold short requirement and is alerted about traffic on a crossing runway; or

b) passive - when an aircraft has unrestricted use of the full runway length and is alerted about traffic on a crossing runway.
Aerodrome Separation

**10.9.5.3 Active participation**

Active participation in LAHSO is available to pilots of:

a) Australian registered aircraft of Performance Categories A, B or C (or other categories specifically approved by CASA Airline Operations Branch) engaged in operations conducted under a training and checking organisation authorised under CAR 217, subject to the operator providing Operations Manual information and certifying participating pilots for LAHSO;

b) Australian registered aircraft of performance categories A, B or C where the pilot’s log book is endorsed for LAHSO by a chief pilot, chief flying instructor, or a person approved in writing by CASA to conduct LAHSO training;

c) Australian military aircraft in Performance Categories A, B, C;

d) foreign military aircraft in Performance Categories A, B, C subject to a letter of agreement between the relevant military authority and the ATS provider; and

e) Operators and aircraft contained in an exemption issued by CASA under CASRs.

**10.9.5.4 Passive participation**

Passive participation in LAHSO is available to pilots of:

a) Australian civil and military aircraft categories A, B and C at pilot discretion;

b) other civil aircraft, including foreign operators, as approved by CASA;

c) RAAF HAWK, FA18 and other Australian military aircraft as approved by the relevant Operational Airworthiness Authority;

d) foreign military aircraft approved by Defence, operating at Defence aerodromes, subject to a letter of agreement;

e) foreign military aircraft subject to a letter of agreement between the relevant military authority and the civil ATS provider (the letter of agreement will exclude foreign military aircraft of performance category D operating at civil aerodromes); and

f) Operators and aircraft contained in an exemption issued by CASA under CASRs.

**10.9.5.5 LAHSO exemptions - Refer IMA_V53_01**

CASA has issued exemptions to the following operators/aircraft types to actively and passively participate in LAHSO:

a) Airbus A320 series aircraft operated by Air New Zealand Limited;

b) Airbus A321 aircraft operated by Jetstar Airways Pty Ltd;

c) Boeing 787-8 aircraft operated by Jetstar Airways Pty Ltd; and

d) Boeing 737-800 series aircraft operated by Jetconnect Ltd of New Zealand.
10.9.5.6 **LAHSO participation**

The following operators have notified ability to participate in LAHSO at the following locations:

<table>
<thead>
<tr>
<th>Location</th>
<th>Active and passive</th>
<th>Passive only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darwin</td>
<td>Alliance, Cobham Regional Services, Jetstar, Qantas, QantasLink, REX, Tiger Airways and Virgin</td>
<td></td>
</tr>
<tr>
<td>Melbourne</td>
<td>Alliance, Cobham Regional Services, Jetstar, Qantas, QantasLink, REX, Tiger Airways and Virgin</td>
<td></td>
</tr>
</tbody>
</table>

10.9.5.7 **Pilot requirements**

Pilots who expect and elect to participate actively in LAHSO are required to:

a) obtain the ATIS/CATIS/DATIS broadcast as early as possible;

b) if within 200 NM of destination, and if LAHSO is in progress, immediately confirm ability to participate by advising 'LAHSO APPROVED' to the ATS unit currently providing services; and

c) advise ATS as soon as possible if situational awareness is compromised and they are not able to hold short.

10.9.5.7.1 **Exceptions**

Pilots of civil aircraft operating under a FNC and pilots of Australian military aircraft may omit the words 'LAHSO APPROVED' as required above.

10.9.5.7.2 **Sequencing**

You may sequence these aircraft for LAHSO unless the pilot expressly states an intention not to participate.

10.9.5.8 **Ineligible for LAHSO**

Do not permit pilots of foreign registered civil aircraft and of Australian registered aircraft operating under foreign air carrier FNC to participate actively or passively in LAHSO unless specifically approved.

*Note 1:* Operators of aircraft in any category may elect not to allow their pilots to participate in LAHSO. They are required to advise ATS in writing, specifying the company's withdrawal from active, passive or both modes of participation.

*Note 2:* Qantas A388 aircraft are excluded from active participation in LAHSO.

See MATS 10.9.5.3 Active participation

See MATS 10.9.5.4 Passive participation
10.9.5.9 Conditions

LAHSO are subject to the following conditions:

a) Runways are equipped with standard LAHSO signs, lights and runway markings as specified in AIP Aerodromes (AD);

b) Cloud ceiling is not less than the highest sector MVA, as specified in local instructions, within 8 KM (5 NM) of the aerodrome and visibility not less than 8 KM;

c) Active and passive participation is restricted to nominated runways as per Clause 12.2.1;

d) For active participants, ground based visual or electronic glide slope guidance is available; and

e) No wind shear is reported.

See MATS 12.2.1 Selection of runway in use

Note: A runway not broadcast on the ATIS/CATIS/DATIS but offered to an aircraft is considered to be runway nomination.

10.9.5.9.1 Transitioning from LAHSO to non-LAHSO mode

During the period where conditions change from LAHSO mode to a non-LAHSO mode:

a) you may allow aircraft established on final within the IAF to continue to land on the arrival runway provided:
   i) you advise the pilot of the revised landing conditions;
   ii) the pilot accepts the changed conditions and elects to continue the approach; and
   iii) you restate any hold short instruction; and

b) aircraft beyond the IAF, and any departures are processed for the new runway as per runway change processes detailed in local instructions.

10.9.5.9.2 Exception - aircraft landing without external glide slope guidance

You may issue an aircraft landing Runway 36 at Darwin a hold short requirement when:

a) it is by day; and

b) the aircraft is a non-jet of less than 5700 kg MTOW of performance CAT A or B.

10.9.5.9.3 LAHSO termination

Terminate LAHSO for any situation or weather condition which, in the judgement of the tower controller/supervisor, would adversely affect LAHSO.
10.9.5.9.4 **Reduction in weather values**

The weather criteria in Clause 10.9.5.9 b) may be reduced to ceiling not less than the MVA for the sector and visibility not less than 5000 m when sector observation(s) indicate that:

a) tower controllers are assured of visually acquiring the aircraft before the loss of a surveillance standard; and

b) cloud ceiling allows for visual separation to be applied to missed approach(es), until another form of separation is established.

See MATS 10.9.5.9 Conditions

10.9.5.9.5 **Allowance for missed approaches**

Where conditions exist that increase the likelihood of missed approaches, tower controllers must advise the TCU. TCU will advise a heading or range of headings that may be used by tower, without further coordination.

In the event of a missed approach, or dual missed approaches, the tower is responsible for maintaining visual separation until such time as another separation standard may be applied.

10.9.5.9.6 **Simultaneous landings**

You may permit simultaneous landings by day and night.

10.9.5.9.7 **Simultaneous take-off and landing**

Only permit simultaneous take-off and landing by day.

10.9.5.9.8 **Low level wind shear**

Do not give a 'HOLD SHORT' requirement when low level wind shear is reported.

10.9.5.9.9 **Runway damp or wet**

When the runway is damp or wet, only issue a 'HOLD SHORT' requirement if the braking characteristics are assessed as 'good' by a pilot of an aircraft in the same performance category.

Unless weather conditions improve, obtain pilot reports of runway braking characteristics hourly or with the next arrival whichever is the later.
10.9.5.10 Responsibilities

When applying LAHSO:

a) ensure that the occulting runway hold short lights are illuminated at all times that LAHSO are in progress;

b) ensure that the published distance from the landing threshold to the hold short point of the crossing runway is adequate for the performance category of the aircraft;

c) nominate LAHSO and both the active and passive runways:
   i) on the ATIS/CATIS/DATIS; or
   ii) where ATIS/CATIS/DATIS is not serviceable, by directed advice prior to transfer to tower;

d) issue directed traffic information to both aircraft participating in the procedure;

e) ensure readback of a 'HOLD SHORT' requirement; and

f) withhold issuing a take-off clearance to a departing aircraft while another aircraft is landing on a crossing runway having been issued with a duly acknowledged 'HOLD SHORT' requirement, until such time that there is reasonable assurance that both aircraft will not occupy the intersection at the same time, should the landing aircraft subsequently fail to hold short.

Note: To point c) the words 'active' and 'passive' are not required to be included.

10.9.5.11 Requiring a pilot report

When circumstances warrant, you may require a pilot issued with a HOLD SHORT requirement to report '(callsign) HOLDING SHORT'.

Note: Situations which may warrant such a requirement include wet weather conditions, or to assist in the application of Clause 10.9.5.10 f) above. The pilot report may be made when the aircraft is decelerating and the pilot is satisfied that the HOLD SHORT requirement can be complied with.

See MATS 10.9.5.10 Responsibilities

10.9.5.12 Hold short no longer applicable

Advise pilots when a 'HOLD SHORT' instruction no longer applies.

10.9.5.13 Crossing of runway and non-operational end

By day when a landing aircraft has been issued with requirements to hold short of a crossing runway strip, you may permit aircraft and vehicles to cross the upwind end of the runway, beyond the hold short point, provided the crossing is authorised by the Aerodrome Controller and traffic information is provided to both.
10.9.6 Landing distance for LAHSO

10.9.6.1 LDA for LAHSO
You may sequence participating aircraft for LAHSO regardless of category if you are aware that the aircraft may be able to land within the LDA. In all circumstances, the pilot is required to determine whether the LDA is sufficient in the prevailing conditions.

10.9.6.1.1 Non-jet Category B
You may sequence non-jet Category B aircraft below 5700 kg MTOW for LAHSO where the LDA, published in ERSA RDS, is determined by the pilot as suitable.

10.9.6.1.2 Airline LDR
Use the following minimum LDR for active participation in LAHSO:

<table>
<thead>
<tr>
<th>Airline</th>
<th>Minimum LDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jetstar</td>
<td>2200 m</td>
</tr>
<tr>
<td>Qantas</td>
<td>2000 m</td>
</tr>
<tr>
<td>Virgin</td>
<td>2200 m</td>
</tr>
<tr>
<td>Tiger Airways</td>
<td>2000 m</td>
</tr>
<tr>
<td>Cobham Regional Services</td>
<td>1674 m</td>
</tr>
</tbody>
</table>

10.9.6.1.3 Reduced LDRs
You may apply reduced LDRs, as determined by CASA, provided that a letter of agreement between the ATS Provider/Defence and an aircraft operator has been approved by the local CASA District Office.
10.9.7 Letters of agreement for LAHSO

10.9.7.1 Foreign military

Letters of agreement are raised between relevant ATS providers and any foreign military authority following an initial request from the relevant military authority.

10.9.7.1.1 Inclusions

Letters of agreement include:
- a) the specific aerodrome at which the agreement is valid;
- b) the ATC service provider bound by the agreement;
- c) the foreign military authority bound by the agreement;
- d) a validity period;
- e) the LAHSO procedures that are the subject of the agreement; and
- f) a statement authorising active and/or passive participation by pilots of specified aircraft types and categories.

10.9.8 Simultaneous parallel operations

10.9.8.1 Dependent runways

You may permit fixed wing aircraft to use more than one landing/take-off path in the same direction on the one aerodrome if the proposed paths are treated as one runway for separation purposes.

Note: The suitability of a landing area for simultaneous parallel landings or take-offs by fixed wing aircraft and the associated control procedures is established in consultation with the relevant military authority or CASA. For military CTRs, the procedures are published in Local Orders.
10.9.8.2 Independent runways

At Class D aerodromes, you may authorise simultaneous, independent, same direction operations on parallel runways, on parallel landing areas, or on a runway and a parallel landing area if:

a) VMC exists or visual separation between the relevant aircraft is applied;
b) two-way radio communication is maintained with the aircraft involved;
c) pertinent traffic information is issued; and
d) the distance between the runways or landing areas is in accordance with the spacing specified in the table below:

<table>
<thead>
<tr>
<th>Aircraft (Note 1)</th>
<th>Runway centrelines</th>
<th>Edges of adjacent landing areas or runway and landing areas (Note 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single engine propeller driven aircraft or helicopter</td>
<td>90 m</td>
<td>60 m</td>
</tr>
<tr>
<td>Twin engine propeller driven aircraft or helicopter</td>
<td>150 m</td>
<td>120 m</td>
</tr>
<tr>
<td>All others</td>
<td>210 m</td>
<td>180 m</td>
</tr>
</tbody>
</table>

*Note 1:* The greater minimum applies where a mix of aircraft is operating.

*Note 2:* A landing area includes a glider runway strip or HLS.

*Note 3:* CASA may give approval for variations from the distances prescribed in the table.

10.9.9 Taxiway separation

10.9.9.1 Responsibilities

The separation of aircraft taxiing on the manoeuvring area is a joint pilot and controller responsibility.

See MATS 12.3.1.4 Taxi instructions
10.10 Miscellaneous

10.10.1 Unmanned free balloons

10.10.1.1 Visual separation

Visual separation between an aircraft and a Medium or Heavy unmanned free balloon may be applied provided that the:

a) confirmed drift of the balloon is away from the aircraft;
b) balloon is ascending; and
c) operations are during daylight.

10.10.1.2 Avoid transit below

Due to the possibility of cutdown without warning, unless visual separation is applied, do not permit aircraft in CTR/CTA to transit vertically below a 15 NM radius of a Medium or Heavy unmanned free balloon's position while the balloon is ascending until the balloon has passed FL600.

10.10.1.3 Lateral navigation tolerances

Apply a navigation tolerance of +/- 15 NM to a Medium or Heavy unmanned free balloon. Apply a 1 NM buffer between the navigation tolerances of an aircraft and a Medium or Heavy unmanned free balloon.

10.10.1.4 Plotting track

When plotting the predicted track of a Medium or Heavy unmanned free balloon, apply a tolerance of +/- 15 NM radius drawn at the:

a) departure point;
b) FL200 predicted position; and
c) FL600 predicted position.

10.10.1.4.1 Redraw at FL200

Redraw the predicted track using FL200 actual position, and incorporate and update track information.

10.10.1.5 LoA

A LoA is to be signed between the relevant ATS Unit and the operator of a Medium or Heavy unmanned free balloon prior to commencement of operations, detailing:

a) notification procedures;
b) communication requirements;
c) launch and cutdown procedures; and
d) restrictions on particular time blocks for launches due to increased RPT traffic on adjacent upper air routes.
### 10.10.2 Manned balloons

#### 10.10.2.1 Manned balloon operations

Separate balloons from other airspace users, and issue relevant information at all altitudes according to the classification of airspace in which the balloon is flown.

*Note:* Separation requirements applying to aircraft weighing less than 5700 kg also apply to balloons.

#### 10.10.2.2 Traffic information

There is no requirement to pass traffic information on other balloons within an authorised formation.

### 10.10.3 Unspecified operations

#### 10.10.3.1 Unspecified separation requirements

Separation requirements from operations for which standards have not been specified are:

a) determined by Operational Standards (civil) or 44WG HQ (Defence) after liaison with affected ATS units; and

b) published in local instructions.

#### 10.10.3.2 Buffers

Add the following buffers to the parameters of the operations:

a) 1 NM buffer to the notified geographical coordinates of the activity;

b) 15 minutes before and after the notified time of the activity; and

c) at least 500 FT to the maximum notified altitude of the activity.

### 10.10.4 Formation flights

#### 10.10.4.1 Separation between aircraft

Separation between aircraft within a formation flight is the responsibility of the flight leader and pilots of other aircraft within the formation. This also includes take-off, landing and periods of transition, when aircraft are manoeuvring to attain separation within the formation or during join up and break away.

#### 10.10.4.2 Vertical separation with formations

Before applying vertical separation with a formation, check the levels of all formation aircraft as necessary to establish the full vertical extent of the formation.
10.10.4.3 Formation type

The basis for separating formation aircraft from other airspace users is determined by the formation type:

a) Close formation – when aircraft are in close formation, they are considered to be one aircraft. Separation between this type of formation and other airspace users is based on the lead aircraft;

b) Standard formation – when aircraft are in standard formation, they may be manoeuvred up to 1 NM either side of, co-altitude with and up to 1 NM behind the lead aircraft. Separation between this type of formation and other airspace users is based on the outer edges of these limits;

c) Block formation - when aircraft are in block formation they may operate anywhere within a prearranged airspace block. Separation between this type of formation and other airspace users is based on the outer edges of the airspace block; or

d) In-trail formation – when aircraft are in an in-trail formation, individual aircraft use aircraft radar and/or TACAN to maintain contact and spacing with the aircraft ahead. Separation between this type of formation and other airspace users is based on the first and last aircraft in the trail.

Note 1: A clearance is required prior to transitioning to a different formation type e.g. close formation to block formation. The formation leader will inform when the transition is complete.

Note 2: Where practicable, when in block formation, individual aircraft will squawk normal if proceeding in-trail and the distance between aircraft is 2 NM or greater.

See MATS 9.9.1 Providing services to formation flights

10.10.4.3.1 Specification

Formation leaders specify the formation type on first contact with approach/ departures when outbound, or the first ATC element contacted when inbound. If the formation leader does not specify the formation or there is doubt as to the type of information, seek confirmation.

10.10.4.4 Formation changes

When military formation flights are planned for operations in controlled airspace, and weather conditions indicate the possibility of a formation break being required, the military authority will make suitable arrangements with ATC pre-flight to ensure that the desired formation break procedure does not compromise the safety of other controlled traffic. These arrangements may involve airspace reservation or assignment of a band of levels to the military formation.

10.10.4.4.1 Withhold approval

Withhold approval for formation changes if the change may compromise separation with other aircraft.
10.10.4.5 Separation of civil aircraft in formation flights

Consider a group of civil aircraft conducting the same flight (e.g. air safari) to be separate aircraft when operating at separation distances greater than those specified for formation flights.

10.10.5 In-company flights

10.10.5.1 Separation between airborne aircraft

Separate in-company flights from other airspace users based on the outer limits of the airspace block specified in the clearance.

Note: Separation between airborne aircraft within an in-company flight is the responsibility of the individual pilots. This also includes periods of transition, when aircraft are manoeuvring to attain separation within the in-company flight, and during join up and break away.

10.10.5.2 Provide runway separation

For each aircraft element of in-company flights:

a) issue separate landing/take-off clearances to each aircraft; and
b) provide runway separation.

Note: Runway separation includes separation between helicopters operating to or from a HLS subject to ATC.
# 11 Approach control

## 11.1 Arriving aircraft

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11.1  Arriving aircraft

11.1.1  Arrival and approach procedures

11.1.1.1  Establishing aircraft sequence
Establish a sequence of arriving aircraft before reaching the point of transfer to approach control.

11.1.1.1.1  Adjusting the sequence
Once transferred, the approach controller adjusts the sequence to achieve the correct priority for all approaching aircraft.

11.1.1.2  Allow for radio failure
To provide for the possibility of radio failure, do not assign the same level to aircraft under procedural control, cleared to the same holding fix or holding fixes that are not laterally separated, while they are flying within 10 minutes of the holding fix.

11.1.1.2.1  Exception - laterally separated
Two arriving aircraft on flight paths which are at least 90 degrees apart may be cleared to make simultaneous visual approaches or instructed to descend visually to the same level, or different levels when a visual approach cannot be authorised, provided:
   a) there is no significant cloud at or below the levels assigned to the aircraft;
   b) visibility is 30 KM or more; and
   c) both aircraft have been instructed to report at a distance outside the point at which lateral separation would be infringed and at which distance it is known that visual separation can be applied.

11.1.1.3  Clearances for instrument approach
When an aircraft requires an instrument approach, issue a clearance for the approach at least three minutes before expected commencement, or as soon as conditions allow.

11.1.1.4  Two or more arriving aircraft
In a sequence of two or more arriving aircraft, the following aircraft may be authorised to make either:
   a) an instrument approach for which a holding pattern is available preceding the instrument approach; or
   b) a DME or GPS arrival.
11.1.1.5 **Final approach - surveillance**

Maintain ATS surveillance system separation between aircraft on the same final approach until the preceding aircraft passes the threshold.

11.1.1.6 **Continue surveillance separation**

Where ATS surveillance system separation has been applied by a TCU and one aircraft will subsequently transfer to an associated control tower, the TCU may continue to provide ATS surveillance system separation subject to any conditions specified in local instructions.

11.1.1.7 **Directing aircraft to holding fix**

When subsequent aircraft in an approach sequence are directed to the holding fix associated with the selected instrument approach and, on arrival at the holding fix, cannot be cleared for final approach, hold the aircraft until an appropriate clearance can be issued.

See MATS 9.6.1.3 Onward clearance times and MATS 9.6.1.3.1 Changes to delay advice

11.1.2 **Vectoring**

11.1.2.1 **Vectoring aircraft for approaches - ground based nav aids**

When vectoring an aircraft for final approach:

a) provide an intercept angle with the final approach track of 45 degrees or less;

b) enable the aircraft to be established on the final approach track prior to intercepting the glide path of the approach procedure from below;

c) advise the range from the aerodrome or position with reference to the final approach point;

d) inform that the vector is to intercept the approach;

e) provide a clearance for the approach, when clearance has been authorised;

f) instruct the pilot to report when established on final approach track;

g) ensure that the aircraft is established on final approach track at least 2 NM before commencement of final approach; and

h) if an aircraft will intercept the glide path at a level other than a level flight segment depicted on the instrument approach chart, instruct the pilot to maintain the particular level until established on the glide path.

11.1.2.1.1 **Abbreviated procedure - final approach**

When vectoring an aircraft that will not follow the full instrument approach procedure, consider the commencement of final approach to be that point at which the aircraft intercepts the prescribed descent profile.
11.1.2.2 When established on final
When a pilot reports established on final approach track:
   a) advise the pilot of the aircraft's distance to touchdown; and
   b) instruct the pilot to transfer to the tower frequency.

   Note: Vectoring services are then automatically terminated.

11.1.2.3 Aircraft not reporting established
Issue instructions to ensure safe air traffic management, if an aircraft does not report established on the final approach track on reaching the final approach point.

11.1.2.4 Vectoring through final
Advise the pilot the reason for the vector, if assigning a vector that will take the aircraft through the final approach track.
11.1.3 Clearance direct to waypoint

11.1.3.1 Clearance to the FAF
Do not clear aircraft direct to the FAF.

11.1.3.2 RNAV (GNSS) - clearance to the IF
Ensure an aircraft that has been vectored or subjected to random tracking prior to commencing an RNAV (GNSS) approach at the IF:

a) is established on a direct track to the IF at least 2 NM prior to the IF; and
b) does not have a resulting track change greater than 45 degrees at the IF.
**11.1.3.3 Clearance to intercept an RNAV (RNP) approach**

Only track aircraft direct to a waypoint on an RNAV (RNP) approach when the:

a) waypoint is the IAF or the LIP; and

b) IAF or the LIP is not located at the commencement of an RF leg.

**11.1.3.3.1 RNAV (RNP) - clearance to the LIP**

Ensure an aircraft that has been vectored or subject to random tracking prior to intercepting an RNAV (RNP) approach at a published Latest Intercept Point (LIP) is established on a track to the LIP that does not result in a track change at the LIP of greater than 30 degrees.

See MATS 11.1.10.3 RNAV (RNP) approach phraseology
11.1.3.3.2  RNAV (RNP) - clearance to the IAF

Ensure an aircraft that has been vectored or subject to random tracking prior to intercepting an RNAV (RNP) approach at a published Initial Approach Fix (IAF) is established on a track to the IAF that does not result in a track change at the IAF of greater than 90 degrees.

*Note 1:* Direct tracking may prevent aircraft from meeting published speed restrictions.

*Note 2:* In the diagram below 3000A depicts that the pilot must cross the waypoint at 3000 FT or above.

See MATS 11.1.10.3 RNAV (RNP) approach phraseology
### 11.1.4 ATS surveillance system cloud break procedure

#### 11.1.4.1 Defence applications with military aircraft

The ATS surveillance system cloud break procedure may only be used by military aircraft and only applied by a Defence Air Traffic Controller or a civil Air Traffic Controller who is providing ATS under contract to Defence where specified in MATS Supplementary Procedures.

#### 11.1.4.2 Cloud break procedure - conditions

Assign military aircraft within 10 NM of the aerodrome an altitude not more than 500 FT below the MVA (e.g. 1500 FT can be assigned in a 2000 FT sector) provided that:

a) in any case, the minimum altitude assigned is not below the highest prescribed circling minimum for the aerodrome;

b) the reported cloud base in the applicable sector is at least 300 FT above the assigned altitude e.g. in a 2000 FT sector where descent to 1500 FT is permissible, the reported cloud base is to be at or above 1800 FT;

c) visual flight is certain at or above the altitude assigned; and

d) the aircraft is on a heading which causes it to pass within 3 NM of the aerodrome.

#### 11.1.4.2.1 Restrictions

Do not use ATS surveillance system cloud break procedures:

a) on tracks for which a DME arrival procedure is prescribed; and

b) to runways served by an instrument approach navaid providing a straight-in approach procedure.
### 11.1.4.3 Cloud break procedure - application

<table>
<thead>
<tr>
<th>When</th>
<th>Provided that</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual flight is certain at or above altitude assigned within 10 NM of the aerodrome:</td>
<td>a) The reported cloud base in the applicable sector is at least 300 FT above the assignable altitude e.g. in a 2000 FT minimum altitude sector where descent to 1500 FT is permissible, the cloud base is to be at or above 1800 FT; and</td>
</tr>
<tr>
<td></td>
<td>b) The aircraft is on a heading which causes it to pass within 3 NM of the centre of the aerodrome as shown on the situation display.</td>
</tr>
<tr>
<td>Visual flight is probable at or above altitude assigned within 10 NM of the aerodrome, but is certain after further descent clearance to the prescribed minimum altitude at 4 NM range from the aerodrome:</td>
<td>a) The reported cloud base in the applicable sector is at the assigned altitude or between the assigned altitude and 300 FT above e.g. in a 2000 FT minimum altitude sector where descent to 1500 FT is permissible, the cloud base is to be at least 1500 FT or between 1500 FT and 1800 FT;</td>
</tr>
<tr>
<td></td>
<td>b) The procedure is applied to DME-equipped aircraft only;</td>
</tr>
<tr>
<td></td>
<td>c) The aircraft is on a heading which will cause it to pass within 3 NM of the centre of the aerodrome as shown on the situation display but after passing 4 NM the aircraft is to be on a heading to track directly towards the centre of the aerodrome; and</td>
</tr>
<tr>
<td></td>
<td>d) A procedure for 'loss of communication' is issued with the initial descent instructions at 10 NM.</td>
</tr>
<tr>
<td>Visual flight is not possible at altitude assigned within 10 NM of the aerodrome, and is not possible until at or above prescribed minimum altitude after a further descent clearance issued at 4 NM from the aerodrome:</td>
<td>a) The reported cloud base in the applicable sector is at the prescribed minimum altitude, or between the prescribed minimum altitude and the assigned altitude;</td>
</tr>
<tr>
<td></td>
<td>b) The procedure is applied to DME-equipped aircraft only;</td>
</tr>
<tr>
<td></td>
<td>c) The aircraft is on a heading which will cause it to pass within 3 NM of the centre of the aerodrome as shown on the situation display, but after passing 4 NM the aircraft is to be on a heading to track directly towards the centre of the aerodrome; or is established on the extended runway centre line before reaching 4 NM;</td>
</tr>
<tr>
<td></td>
<td>d) The aircraft is instructed to report at 4 DME when initial descent instruction is issued at 10 NM; and</td>
</tr>
<tr>
<td></td>
<td>e) A 'loss of communication' procedure is issued with the initial descent instructions at 10 NM.</td>
</tr>
</tbody>
</table>
**11.1.5 Independent parallel approaches**

### 11.1.5.1 Conditions

Independent parallel approaches may be conducted to parallel runways at Brisbane and Sydney provided:

a) approaches are any combination of:
   i) a precision approach procedure; and
   ii) an RNP AR APCH;

*Note: The ATS surveillance system must meet the criteria detailed in PANS-ATM and contingency requirements detailed in Local Instructions.*

b) as early as practicable after first contact with the approach unit, aircraft are advised of:
   i) the expected approach;
   ii) the assigned runway (if not already assigned);
   iii) independent parallel approaches in progress;
   iv) information considered necessary to confirm correct runway selection; and
   v) any additional information considered necessary (e.g. finals monitoring in progress);

*Note: Advice that independent instrument approaches are in operation may be via the ATIS.*

c) the final approach course or track is intercepted by use of:
   i) vectoring; or
   ii) a published arrival and approach procedure that intercepts with the IAF or IF;

See MATS 11.1.5.1.1 Vectoring to intercept the final approach track.

d) separation is maintained until aircraft are within the normal operating zone and:
   i) are established inbound on the final approach course or track; or
   ii) established on an RNP AR APCH;

*Note: Consider an aircraft established on an RNP AR APCH when it has passed both the IAF and a waypoint on the approach more than 3 NM from the adjacent approach procedure, both as depicted on the situation display.*

e) an NTZ of at least 610m (2000 FT) is established equidistant between extended runway centre lines and must be displayed on the ATS surveillance system display used by the monitoring controller(s);
Approach control

Arriving aircraft

11.1.5.1.1

f) approaches are monitored using an ATS surveillance system by either:
   i) a separate controller for each runway; or
   ii) a single controller for no more than two runways if determined by a
       safety assessment approved by the OSM and detailed in Local
       Instructions;

g) the monitoring controller has frequency override capability for aerodrome
   control; and

h) the nominal tracks of the missed approach procedures diverge by at least
   30 degrees.

11.1.5.1.1 Vectoring to intercept the final approach track

When vectoring to intercept the final approach course or track:
   a) issue the final vector to:
      i) enable the aircraft to intercept at an angle not greater than
         30 degrees;
      ii) provide at least 1 NM straight and level flight prior to the final
          approach course or track intercept; and
      iii) enable the aircraft to be established on the final approach course or
          track, in level flight for at least 2 NM prior to intercepting the glide
          path or vertical path for the selected instrument approach procedure;
          and
   b) advise the aircraft of:
      i) its position relative to a fix on the final approach course or track;
      ii) the altitude to be maintained until established on the final approach
          course or track, to the glide path or vertical path intercept point; and
      iii) if required, clearance for the appropriate approach.

11.1.5.1.2 Monitoring

Monitor to ensure:
   a) aircraft do not penetrate the NTZ; and
   b) the applicable longitudinal and wake turbulence separation between aircraft
      on the same final approach course or track is maintained.

See MATS 11.1.5.2 Deviation towards the NTZ.
See MATS 11.1.5.3 Penetrating the NTZ - break-out procedure.

11.1.5.1.3 Terminating monitoring

Do not terminate monitoring until:
   a) visual separation is applied, provided procedures ensure that both
      controllers are advised whenever visual separation is applied;
   b) the aircraft has landed; or
   c) in case of a missed approach, the aircraft is at least 1.9 km (1 NM) beyond
      the departure end of the runway and separation with any other traffic is
      established.

   Note: There is no requirement to advise the aircraft that monitoring is
         terminated.
11.1.5.2 Deviation towards the NTZ

When an aircraft is observed to overshoot the turn-on or to continue on a track which will penetrate the NTZ, instruct the aircraft to return immediately to the correct track.

11.1.5.3 Penetrating the NTZ - break-out procedure

When an aircraft will penetrate the NTZ and separation cannot be maintained, instruct the aircraft on the adjacent final approach course or track to break-out immediately and climb and turn to the assigned altitude/height and heading in order to avoid the deviating aircraft.

Note: If required, specify additional break-out procedures in Local Instructions.

11.1.5.3.1 Below MVA

For aircraft below the MVA, do not issue a heading instruction in excess of 45 degrees track difference with the final approach course or track unless approved by the OSM and detailed in local instructions.

Note: The OSM may approve heading instructions in excess of 45 degrees if supported by a CASR Part 173 obstacle assessment of the additional overflown area.

11.1.5.3.2 Below 400 FT above the runway threshold

Do not issue a heading instruction to an aircraft below 400 FT above the runway threshold elevation. The aircraft may conduct a missed approach or continue its approach and land provided it is issued a safety alert as appropriate.

11.1.5.3.3 Descending break-out

Only issue a descending break-out in exceptional circumstances.
11.1.6 Dependent instrument approaches

11.1.6.1 Conditions

Dependent instrument approaches may be conducted to parallel runways at Brisbane and Sydney provided:

a) approaches are any combination of:
   i) a precision approach procedure; and
   ii) an RNP AR APCH;

b) aircraft are advised that approaches are in use to both runways;

Note: Advice that approaches are in use to both runways may be via the ATIS.

c) the final approach course or track is intercepted by use of:
   i) vectoring; or
   ii) a published arrival and approach procedure that intercepts with the IAF or IF;

d) a minimum of 1000 FT or 3 NM separation be maintained until aircraft are established:
   i) inbound on the final approach course or track; or
   ii) on an RNP AR APCH.

Note: Consider an aircraft established on an RNP AR APCH when it has passed both the IAF and a waypoint on the approach more than 3 NM from the adjacent approach procedure, both as depicted on the situation display.

e) approach/director has a frequency override capability for aerodrome control;

f) the nominal tracks of the missed approach procedures diverge by at least 30 degrees; and

g) the minimum diagonal separation between successive aircraft on adjacent final approach courses or tracks is as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Diagonal separation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brisbane</td>
<td>1.5 NM</td>
</tr>
<tr>
<td>Sydney</td>
<td>1 NM</td>
</tr>
</tbody>
</table>

![Diagram](image-url)
**11.1.7 Independent parallel visual approaches**

**11.1.7.1 Centre lines separated by at least 760 m**

Conduct independent visual approaches to parallel runways provided that:

a) centre lines are separated by at least 760 m;
b) the aircraft are making straight-in approaches commencing at the outer marker or 4 NM from the runway threshold;
c) a minimum 1000 FT vertical or 3 NM radar separation is maintained between aircraft until:
   i) one aircraft is established within the furthest IAF when both aircraft are established on their respective localiser or GLS final approach course in visual conditions; or
   ii) one aircraft is established on the localiser or GLS final approach course in visual conditions and the other is established on a heading to intercept final inside the furthest IAF with the runway reported in sight; or
   iii) both aircraft are established on a heading to intercept final inside the furthest IAF with the runway reported in sight; and
d) when vectoring an aircraft to intercept the final course, ensure that the final vector permits the aircraft to intercept at an angle not greater than 30 degrees.

*Note:* A pilot should report 'VISUAL' and/or 'RUNWAY (number) LEFT/RIGHT IN SIGHT' as soon as possible after first contact with Approach/Director.

**11.1.7.1.1 Approach anticipation**

Advise the pilot, on first contact with Approach, when an independent visual approach is anticipated.

**11.1.7.1.2 IVA requirements not met**

If the requirements of Clause 11.1.7.1 are not established or are lost (e.g. pilot loses sight of the runway), provide traffic information regarding aircraft on approach using the adjacent centreline. Take immediate steps to establish another form of separation.

See MATS 11.1.7.1 Centre lines separated by at least 760 m

**11.1.7.1.3 Traffic information**

When aircraft will be within 1 NM of each other provide abbreviated mutual traffic information with the relative position (ahead, behind or adjacent) and aircraft type.
11.1.7.2 Pilot fails to report

If a pilot does not report the runway in sight by a position 3 NM from the centre line of the adjacent parallel runway, you may vector the aircraft away from the final approach for sequencing for a dependent approach, if necessary.

*Note:* Only a VISUAL report is required from an aircraft established on the localiser or GLS final approach course.

11.1.7.3 Runway change to maintain separation

To avoid a go-around and ensure maintenance of separation, you may offer a change of runway (right to left or left to right) to an aircraft already established on final.

11.1.7.3.1 Conditions for offer

Offer a change of runway only when the aircraft is:

- a) in visual conditions; and
- b) outside 5 NM from the aircraft’s intended threshold.

11.1.7.4 Independent parallel VSA at night phraseology

Use the following phraseology to assign the visual approach at night:

<table>
<thead>
<tr>
<th>Situation</th>
<th>Phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent visual approaches</td>
<td>CLEARED INDEPENDENT VISUAL APPROACH RUNWAY (number), NOT BELOW (altitude) UNTIL ESTABLISHED ON THE VASIS (or PAPI) (or GLIDEPATH)</td>
</tr>
</tbody>
</table>

11.1.8 Segregated parallel operations

11.1.8.1 Types of approaches

The following types of approach procedures may be used in segregated operations:

- a) precision approach;
- b) RNP AR APCH;
- c) RNAV (GNSS);
- d) surveillance radar approach (SRA) or precision approach radar (PAR) approach; and
- e) visual approach.

11.1.8.2 Departure and missed approach tracks

Segregated operations may be conducted on parallel runways provided that the nominal departure track diverges immediately after take-off by at least 30 degrees from the missed approach track of the adjacent approach.
11.1.9 Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)

11.1.9.1 SODPROPS

You may conduct SODPROPS when:

a) runway centre lines are separated by a minimum of 860 m;

b) meteorological conditions are equal to or better than the MVA or the lowest minimum commencement level for instrument approaches to the arrival runway, whichever is lower. Without prior approval, the minima are not to be less than cloud base 2500 FT and visibility 8 KM, in the arrival and departure sector concerned;

c) traffic information is passed on conflicting traffic; and

d) the departure runway course diverges by 15 degrees from the approach course of the other runway.

11.1.9.2 Arriving aircraft

When arriving aircraft are conducting instrument or visual approaches to the runway:

a) ensure the aircraft intercepts the final course at an angle not greater than 30 degrees and is on this heading for at least 1 NM before intercepting final;

b) retain the aircraft on the approach controller’s frequency until established on final; and

c) establish the aircraft on final approach and transfer to Tower frequency no later than 10 NM from touchdown.

11.1.9.3 Localiser or GBAS failure

In the event of a localiser or GBAS failure, confirm that the pilot of an aircraft on visual approach has the runway in sight.

11.1.9.4 Traffic information

Pass traffic information to arriving and departing aircraft that includes runway, position of the traffic and may include aircraft type.

11.1.9.4.1 Arriving aircraft

Advise arriving aircraft of all departing aircraft that can be expected to depart off the opposite direction parallel runway and are likely to pass when it is within 10 NM of touchdown e.g. 'TRAFFIC (aircraft type) DEPARTING ON OPPOSITE DIRECTION PARALLEL RUNWAY, TURNING EAST'.
11.1.9.4.2 Departing aircraft

Advise departing aircraft of all arriving aircraft that can be expected on final for the opposite direction parallel runway and are likely to pass when it is within 10 NM of departure e.g. 'TRAFFIC (aircraft type) EIGHT MILES FROM TOUCHDOWN FOR OPPOSITE DIRECTION PARALLEL RUNWAY'.

Note: Pilots are not required to report traffic sighted.

11.1.9.5 Reduction in distance requirement

Subject to OSM approval and incorporation into local instructions, the 10 NM distance requirement may be reduced if the divergence between tracks is greater than 15 degrees.

11.1.9.6 Monitoring departure track

The tower controller:

a) visually monitors an aircraft’s departure and turn towards the initial departure track; and

b) notifies the appropriate controller if an aircraft fails to comply with departure procedures.

11.1.10 Instrument approach procedures

11.1.10.1 Descent clearance in IMC

Do not issue a clearance which authorises or requires a pilot to descend in IMC below the lowest safe altitude for the route segment in a manner different from that specified in:

a) DME, DME or GNSS, or GNSS arrival procedures;

b) the procedures, plan and profile diagram of IAL charts published in AIP/FLIP Terminal;

c) an approved instrument approach procedure published in NOTAM;

d) procedures where a lower minimum altitude has been specified for use when providing ATS surveillance services; or

e) approved RNAV (RNP) approaches.

See MATS 9.7.11.1 Vectoring - TCU control

11.1.10.1.1 GNSS overlay

When requested by the pilot, ATC may clear an aircraft to conduct a published non-precision approach procedure irrespective of the carriage or serviceability of a VOR or ADF/NDB.

Note: A DME/GNSS arrival is a terminal procedure, not a non-precision approach.
11.1.10.2 RNAV (RNP) approach terrain clearance

Do not clear an aircraft for an RNAV (RNP) approach procedure unless:

a) the aircraft is joining an RNAV (RNP) approach from a published STAR transition or ATS route; or
b) ATC surveillance is used to determine that an aircraft subject to a direct track to an IAF or LIP does not result in a track change greater than:

i) 30 degrees at the LIP; or
ii) 90 degrees at the IAF.

Note: ATC is responsible for terrain clearance until the aircraft is established on the RNAV (RNP) approach.

See MATS 9.7.10.3 e) Vectoring considerations

11.1.10.3 RNAV (RNP) approach phraseology

Use the following phraseology to provide a clearance for the RNAV (RNP) approach when an aircraft is on a direct track to the IAF or the LIP: 'WHEN ESTABLISHED, CLEARED (chart title) APPROACH'.

11.1.10.4 DME/GNSS procedures

When using DME or GNSS arrival procedures, you may assign aircraft:

a) 'CLEARED DME (or GNSS) ARRIVAL';
b) the level applicable to the aircraft's position in the procedure; or
c) a lower altitude specified within the procedure using the phrase 'DESCEND TO (level) NOT BELOW DME (or GNSS) STEPS', provided that the clearance is issued:

i) after the aircraft reaches the first step of the procedure; or
ii) prior to the aircraft reaching the first step of the procedure and you specify the distance within the procedure at which the first step commences e.g. 'FROM (distance) DME (or GNSS), DESCEND TO (level) NOT BELOW DME (or GNSS) STEPS'.

11.1.10.5 Level occupancy

Do not assume that an aircraft cleared for DME or GNSS arrival is flying at the appropriate step level.

11.1.10.6 Issuing direct DME or GNSS arrival

Select a direct DME or GNSS arrival when:

a) the relative position of the preceding aircraft, planned departures and the ceiling give clear indications of a successful approach; and
b) traffic will flow expeditiously as a consequence.
11.1.10.6.1 Direct DME/GNSS arrival
When selecting a direct DME/GNSS arrival, review the traffic situation before the aircraft reaches 10 NM from the aerodrome.

11.1.10.6.2 Separation not assured
If the required lateral or longitudinal separation cannot be maintained when the aircraft reaches 10 NM, the aircraft may continue on the direct DME/GNSS arrival if vertical separation is maintained with the preceding aircraft in the sequence, until:
   a) a visual approach is possible and visual separation has been established by the tower controller; or
   b) the preceding aircraft has landed.

11.1.10.7 Use of GNSS in lieu of DME
IFR aircraft that comply with AIP ENR 1.10 sub-section 3.3 and whose flight notification indicates RNP2 or RNP4, may use GNSS in lieu of DME for NDB/DME, VOR/DME, ILS/DME, or LOC/DME approaches, as well as SID and STAR procedures where:
   a) the DME required for the approach or procedure is:
      i) able to be selected from the database; or
      ii) co-located with the NDB or VOR where their coordinates exist in the database; and
   b) the IAL chart states the use of GNSS in lieu of DME.
See MATS 10.3.5.4 GNSS unavailable
See MATS 9.7.10.5 Issuing system derived distance

11.1.10.8 Unrestricted descent
When an aircraft has been cleared for an instrument approach, do not issue a level instruction that precludes compliance with the published profile or limits descent.

11.1.10.8.1 Exception
You may instruct an aircraft to track via an instrument approach procedure not below a specified level if the aircraft is:
   a) in VMC conducting instrument approach training; or
   b) a military aircraft conducting a:
      i) non-precision approach procedure; or
      ii) precision approach procedure, provided clearance for the approach is issued in sufficient time for the aircraft to maintain the descent profile for the procedure being flown.
11.1.10.9 Chart title

Use the chart title of the instrument approach in all clearances, coordination and readbacks including entry procedures.

11.1.10.9.1 Multiple approach procedures

Where multiple approach procedures are on the same chart, refer only to the approach being conducted.

Note: With the exception of circling approaches, you may omit the suffix if there is no possibility of confusion.

11.1.10.10 ILS or GLS approach with displaced threshold

Do not issue an ILS or GLS approach to a runway with a displaced threshold. You may issue a localiser approach.

11.1.10.11 Glide path

Request the glide path to be removed from service when the threshold is displaced.

11.1.11 Visual approach procedures

11.1.11.1 Authorising visual approach

When a flight other than that described in Clause 11.1.11.3 is within 30 NM of an aerodrome, a visual approach may be authorised by day or night for:

a) a VFR flight; or

b) an IFR flight when:

i) the pilot has established and can continue flight to the aerodrome with continuous visual reference to the ground or water; and

ii) the visibility along the flight path is not less than 5000 m (or by day, the aerodrome is in sight).

See MATS 11.1.11.3 Visual approach for Heavy jet aircraft
11.1.11.1 **Exception - ATC initiated deviations**

At night, if an arriving aircraft has been vectored or instructed to deviate from track as a result of ATC initiated requirements, you may assign an IFR aircraft a visual approach at any distance from an aerodrome if the:

a) aircraft has been assigned the lowest practicable LSALT;

b) aircraft is given heading or tracking instructions to intercept final or to position the aircraft within the circling area of the aerodrome; and

c) following phraseology is used to assign the visual approach:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>When aircraft are vectored or given tracking instructions for the circling area</td>
<td>WHEN ESTABLISHED IN THE CIRCLING AREA, CLEARED VISUAL APPROACH</td>
</tr>
<tr>
<td>When aircraft are vectored or given tracking instructions for VASIS/Glidepath</td>
<td>WHEN ESTABLISHED ON THE VASIS (or PAPI) (or GLIDEPATH) CLEARED VISUAL APPROACH</td>
</tr>
</tbody>
</table>

**Note:** This paragraph does not apply where the deviations are at pilot request, or where the aircraft has been re-established on cleared track or route following ATC-initiated deviations.

See MATS 11.1.11.3 *Visual approach for Heavy jet aircraft*

11.1.11.2 **Unrestricted descent**

Do not limit the descent of aircraft cleared for a visual approach.

11.1.11.3 **Visual approach for Heavy jet aircraft**

In addition to the requirements of Clause 11.1.11.1, with the exception of Australian and New Zealand operators and aircraft conducting independent visual approaches at Sydney, only assign Super or Heavy jet aircraft a visual approach when:

a) specifically requested by the pilot and the pilot has reported the landing runway is in sight; or

b) the straight-in approach navaid is unserviceable.

See MATS 11.1.11.1 *Authorising visual approach*

11.1.11.4 **Straight-in approach navaid unserviceable**

In case of the straight-in approach navaid being unserviceable:

a) vector the aircraft to intercept final no closer than 8 NM from the runway threshold, at an altitude not less than 2500 FT AAL; and

b) assign a straight-in visual approach when:

i) the aircraft is established on final or a heading to intercept final course at an angle of not more than 30 degrees;

ii) visual glide slope guidance (VASIS/PAPI) is available; and

iii) the pilot has reported the landing runway in sight.
11.2 Departing aircraft

11.2.1 Instructions for departing aircraft

11.2.1.1 Departure heading

When a departing aircraft is required to assume a heading following take-off, determine the heading and advise the tower controller as follows:

a) For VFR flights by day or for IFR flights by day in VMC not departing via a SID, using the phraseology 'RUNWAY HEADING VISUAL' or 'RIGHT/LEFT (degrees) VISUAL'; and

b) For aircraft departing via a radar SID a three digit numerical radar heading is to be coordinated, using the phraseology 'HEADING/RIGHT/LEFT (degrees)'.

Note: Direction of turn may be omitted from the coordination of heading or tracking instructions in accordance with Clause 11.2.3.3.

See MATS 11.2.3.3 Order of instructions

11.2.1.1.1 Alternative coordination requirements

With the exception of numerical radar headings at point b), local instructions may alter the coordination requirements for departure headings in Clause 11.2.1.1.1

See MATS 11.2.1.1 Departure heading

11.2.1.2 Runway track - radar SID

When an aircraft departing via a radar SID is required to maintain runway track, advise the tower controller using the phraseology 'TRACK EXTENDED CENTRE LINE (three digits) DEGREES'.

11.2.1.2.1 Conditions for use of runway track

Assign runway track to an aircraft departing on a radar SID only when:

a) the runway track and the initial SID track are coincident;

b) there are no subsequent tracks on the SID;

c) terrain clearance requirements are applied as for an assigned heading; and

d) local environmental requirements are complied with.
11.2.1.3 Runway track - cancel procedural SID

In a surveillance environment you may cancel a procedural SID and instruct an aircraft to depart on runway track provided that:

a) a radar SID is published for the location and the runway track and radar SID tracks are coincident until the aircraft reaches the MVA;

b) the obstacle-clearance climb gradient of the cancelled SID is equal to or greater than the obstacle-clearance climb gradient of the equivalent radar SID;

c) the aircraft is provided the same terrain clearance requirements as would be applied under an equivalent procedural SID;

d) local environmental requirements are complied with; and

e) approval is contained in local instructions.

**Note:** The aircraft will use the climb gradient specified in the cancelled SID.

11.2.1.3.1 Phrase for cancel SID

Use the phraseology: 'CANCEL SID, TRACK EXTENDED CENTRE LINE (three digits) DEGREES'.

11.2.1.3.2 Exception - RNP SID

Unless requested by the pilot do not cancel an RNAV (RNP) departure procedure until the aircraft is airborne and is at or above the applicable LSALT.

11.2.1.4 Instructions to pilot

While local instructions may abbreviate the appropriate phraseology, do not abbreviate the instruction to the pilot.

11.2.2 Instrument and visual departures

11.2.2.1 Issuing departure clearance

Issue an appropriate SID or approved RNP departure procedure to IFR aircraft by night, or by day in IMC.

*Note:* A SID is appropriate when it services the cleared route and the ATC holds the relevant rating.

11.2.2.1.1 Class D aerodromes

Where the SID will result in undue delay, advise the pilot of an alternative clearance and, if the pilot accepts, the SID may be cancelled.
**11.2.2.2 SID speed amendment**

Do not cancel or amend published SID speed restrictions unless:

a) the aircraft is at or above the applicable LSALT; and  
b) noise abatement procedures are maintained.

**11.2.2.2.1 Speed amendment exception**

You may cancel or amend a published SID speed restriction below the LSALT provided that:

a) the speed is for ATC traffic management only;  
b) airspace containment, terrain clearance and noise abatement are not affected; and  
c) approval is contained in local instructions.

**11.2.2.2 Speed restrictions - SID**

Consider an ATC-issued speed control instruction to explicitly cancel published speed restrictions.

*Note: Airspace speed limitations still apply.*

See MATS 9.5.1.2 Published speeds

**11.2.2.3 Specify compliance**

When an aircraft is cleared on a SID and speed or level restrictions remain, indicate SID restriction compliance in all climb instructions e.g. 'CLIMB VIA SID TO A090'.

*Note: For aircraft conducting a radar SID, specifying SID restriction compliance is not required when the aircraft:  
a) has turned onto their assigned heading; and  
b) is above the applicable LSALT.*

**11.2.2.3.1 Level restriction changes - SID**

Reiterate which restrictions remain or are cancelled when an aircraft is on a SID and:

1) level instructions are published;  
2) ATC level restrictions are issued; and  
3) level restrictions are subsequently cancelled e.g. 'CLIMB VIA SID TO A080, CANCEL LEVEL RESTRICTIONS, CLIMB TO REACH A060 BY NUMBA DUE CROSSING TRAFFIC'.

**11.2.2.3.2 No remaining published restrictions**

If there are no remaining published restrictions on the SID, the phrase 'CLIMB TO (level)' should be used.
11.2.2.4 Vectoring or deviations away from a SID
When a departing aircraft is vectored or cleared to deviate away from the SID:

a) reiterate the cleared level;
b) provide speed and level restrictions as necessary; and
c) notify the pilot if there is an expectation the aircraft will subsequently rejoin the SID.

*Note:* All published speed and level restrictions of the SID are cancelled.

11.2.2.5 Rejoining a SID
When instructing an aircraft to rejoin a SID, specify any transition restrictions that must be complied with up to, but not including the waypoint where the SID is rejoined.

*Note:* The pilot must comply with all published SID speed and level restrictions at and after the waypoint where the SID is rejoined.

11.2.2.5.1 Include SID designator
When an expectation to rejoin the SID is not provided, include the SID designator when clearing the aircraft to rejoin the SID.

11.2.2.6 Subsequent headings on a Radar SID
When providing subsequent headings to an aircraft below MVA on a Radar SID:

a) do not turn the aircraft into an area with a higher climb gradient; and
b) reiterate the cleared level e.g. 'CLIMB VIA SID TO (level)'.

11.2.2.7 Visual departure in lieu of a SID
You may issue a visual departure in lieu of a SID:

a) by day;
b) in VMC; and
c) provided that the cloud base is such that the pilot can maintain flight in VMC below the applicable LSALT.

11.2.2.8 Tracking instructions
Specify tracking instructions when:

a) there is no appropriate SID;
b) a SID is cancelled;
c) a visual departure clearance is issued in lieu of a SID;
d) aircraft or ground based navaid(s) are not available;
e) requested by Australian military aircraft; or
f) requested by foreign military aircraft approved by Defence or subject to a letter of agreement.
11.2.3 Control of departing aircraft

11.2.3.1 Next call from Procedural Tower

Where a Next call is unable to be completed by a Procedural TWR to an en route control sector, the aircraft may be allowed to depart and maintained within the Tower airspace until coordination is completed.

See MATS 6.4.3.6 Approach/Tower (procedural) to en route control (surveillance or procedural)

See MATS 6.4.8.1 Coordination phraseology

11.2.3.2 Departures instruction

The Departures Controller issues appropriate instructions.

11.2.3.3 Order of instructions

Issue departure instructions in the following order:
1) callsign;
2) heading or tracking instructions, including turn requirements, except that a turn requirement may be omitted from the coordination where:
   i) already specified in SID instructions;
   ii) for a radar SID, the assigned heading is within 5 degrees of the SID track from which this turn is made; or
   iii) the departure track for a non-SID aircraft is within 5 degrees of the runway bearing; and
3) altitude restrictions or the word 'UNRESTRICTED' if there is no altitude restriction ('UNRESTRICTED' is not transmitted to the aircraft).

11.2.3.4 Transfer of SAR responsibility

The transfer of SAR responsibility from ADC to TCU/approach occurs with the frequency change due:
a) 2 minutes after the 'NEXT' call;
b) as defined in local instructions for auto releases; or
c) at the coordinated airborne time.

11.2.3.5 Auto release

Business units may use Auto Release operations to vary ATC departure procedures.
11.2.3.6 Independent departures

Independent IFR departures may be conducted from parallel runways at Brisbane and Sydney provided a suitable ATS surveillance system capable of identification of the aircraft within 1 NM from the end of the runway is available and the nominal departure tracks diverge by at least:

a) 15 degrees immediately after take-off; or
b) 10 degrees where:
   i) both aircraft are flying an RNAV or RNP instrument departure; and
   ii) the turn commences no more than 2 NM from the departure end of the runway.

11.2.3.7 Separation of departing aircraft - surveillance

You may apply ATS surveillance system separation between an aircraft taking off and a preceding departing aircraft, or other ATS surveillance system controlled traffic, provided:

a) there is reasonable assurance that the departing aircraft will be identified within the prescribed distance of the end of the runway; and
b) the disposition and relative performance of the aircraft are such that, under normal operation, or with the provision of an initial heading to the aircraft about to depart, ATS surveillance system separation will exist.

See MATS 9.7.11.2 Vectoring - en route control
See MATS 10.2.1.2.1 Exception, direct communications do not exist
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12.1 Aerodrome control functions

12.1.1 Aerodrome control functions

12.1.1.1 Functions

When performing aerodrome control functions, issue information, clearances and instructions to achieve a safe, orderly and expeditious flow of air traffic on and in the vicinity of the aerodrome, with the object of preventing collisions between:

a) aircraft flying in the aerodrome traffic circuits around an aerodrome;
b) aircraft operating on the manoeuvring area;
c) aircraft landing or taking off;
d) aircraft and vehicles operating on the:
   i) manoeuvring area; and
   ii) helicopter movement area, but excluding HLS situated on apron areas or beyond the sight of the tower controller; and

e) aircraft on the manoeuvring area and obstructions on this area.

12.1.1.2 Thrust stream turbulence

Consider hazards caused by thrust stream turbulence when issuing instructions and clearances on the movement area. Issue a caution to other aircraft, vehicles and personnel when thrust stream turbulence hazards may not be obvious.

12.1.1.3 Serviceability of movement area

Where doubt exists as to the safety or serviceability of the movement area:

a) immediately advise the aerodrome proprietor delegate or FLTCDR;
b) request an inspection of the suspect area; and

c) if necessary, close the aerodrome.

See MATS 4.3.9 Airfield closure
12.2 Runway selection and aerodrome information

12.2.1 Selection of runway in use

12.2.1.1 Nomination
The tower controller nominates the runway(s) or direction to be used after coordination with approach. Runway nomination may be via ATIS/CATIS/DATIS or verbally to individual aircraft. Either form of nomination must be in accordance with Clause 12.2.1.3. This does not preclude ATC from approving a runway, at pilot request, where the tailwind or crosswind criteria are not met. See MATS 12.2.1.3 Crosswind/tailwind limitations

12.2.1.2 Considerations
Take into consideration:

a) type of aircraft;
b) effective length of runway(s) or direction;
c) wind velocity;
d) weather phenomena, including wind gradient, wind shear, wake turbulence effects and position of the sun;
e) in near minima conditions, availability of approach aids;
f) disposition of other traffic;
g) taxiing distances;
h) braking conditions; and
i) if workload and/or traffic conditions permit, implement 'preferred runway' systems in certain wind conditions to:
   i) provide the optimum traffic management configuration; and
   ii) comply with noise abatement procedures.

12.2.1.3 Crosswind/tailwind limitations
Do not nominate a runway for use when:

<table>
<thead>
<tr>
<th>Runway conditions</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely dry</td>
<td>Crosswind exceeds 20 kt including gusts</td>
</tr>
<tr>
<td></td>
<td>Tailwind exceeds 5 kt including gusts</td>
</tr>
<tr>
<td>Not completely dry</td>
<td>Crosswind exceeds 20 kt including gusts</td>
</tr>
<tr>
<td></td>
<td>There is a tailwind component</td>
</tr>
</tbody>
</table>
12.2.1.3.1 Wind in excess of criteria
Except during LAHSO, you may nominate a runway when crosswind or tailwind exceeds the specifications of Clause 12.2.1.3 if:
   a) required by noise abatement legislation;
   b) an alternative runway does not exist; or
   c) a take-off or landing, as applicable, is not possible on an alternative runway.
See MATS 12.2.1.3 Crosswind/tailwind limitations.

12.2.1.4 Use most suitable runway
Confine operations to the runway most suitable for the majority of traffic.

12.2.1.4.1 Exception
You may use more than one runway:
   a) to avoid undue delay to aircraft;
   b) to satisfy particular operational requirements; or
   c) when LAHSO are in progress.

12.2.1.5 Operationally-required runway
When a pilot advises requirement for an alternate runway for operational reasons, using the phrase 'REQUIRE RUNWAY (number)', provide an alternate runway without loss of priority subject to the following conditions:
   a) if departing:
      i) when requesting a clearance where a discrete frequency is available; or
      ii) prior to taxiing;
   b) if arriving - wholly within controlled airspace:
      i) prior to 80 NM (120 NM for jet aircraft) from a destination capital city aerodrome (including Essendon); or
      ii) at 30 NM from other primary controlled aerodromes; and
   c) if arriving - entering controlled airspace, on first contact with ATC within:
      i) the distances specified above in point b);
      ii) a control area step; or
      iii) a CTR.
12.2.2 Aerodrome information

12.2.2.1 Essential aerodrome information

Ensure all aircraft under your control are given the appropriate details when essential aerodrome information has not been fully covered by NOTAM.

12.2.2.1.1 Includes

Essential aerodrome information includes:

a) construction or maintenance work on, or immediately adjacent to, the movement area;
b) rough or broken surfaces on the movement area whether marked or not;
c) slipper conditions on the movement area;
d) water on a runway including its extent, and when available, braking characteristics as reported by other aircraft;
e) aircraft parked close to the manoeuvring area;
f) birds on the ground or in the air;
g) full or partial failure or irregular operation of the aerodrome lighting system, approach aids or emergency equipment; and
h) any other pertinent information including changes to traffic management initiatives such as LAHSO.

12.2.2 Water on runways

Use the following descriptive terms to describe water on a runway:

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAMP</td>
<td>The surface shows a change of colour due to moisture</td>
</tr>
<tr>
<td>WET</td>
<td>The surface is soaked but there is no standing water</td>
</tr>
<tr>
<td>WATER PATCHES</td>
<td>Patches of standing water are visible</td>
</tr>
<tr>
<td>FLOODED</td>
<td>Extensive standing water is visible</td>
</tr>
</tbody>
</table>

12.2.2.3 Pilot reports

When the runway conditions are damp or wet, request pilot reports on braking characteristics at intervals dependent on factors such as the drainage characteristics of the runway and the intensity of the rain.
12.2.2.4 Braking characteristics

Use the following descriptive terms to describe braking characteristics experienced:

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD</td>
<td>Pilots should not expect to find the conditions as good as when operating on a dry runway but should not experience any directional control or braking difficulties because of runway conditions</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>Braking action may be such that the achievement of a satisfactory landing or accelerate stop performance, taking into account the prevailing circumstances, depends on precise handling techniques</td>
</tr>
<tr>
<td>POOR</td>
<td>There may be a significant deterioration both in braking performance and directional control</td>
</tr>
</tbody>
</table>

12.2.2.4.1 Braking assessments

Braking assessments from smaller aircraft may not be valid for larger aircraft. Pass on these reports for pilot interpretation.
12.3 Movement area

12.3.1 Taxi and pre-taxi instructions

12.3.1.1 Clearance delivery
ACD issues the:

a) airways clearance;
b) transponder code; and
c) DEP or other airborne frequency, as necessary.

12.3.1.2 Start approval
You may regulate air traffic flow by requiring pilots to obtain start approval.

12.3.1.2.1 ATIS
You may broadcast the start approval requirement on the ATIS.

12.3.1.3 Push-back
Issue push-back approvals, when requested.

12.3.1.3.1 Apron operations
When issuing push-back approval and taxi instructions, provide traffic information on other aircraft entering, leaving or moving on the same apron.

12.3.1.4 Taxi instructions
Provide concise taxi instructions that:

a) give adequate information to assist pilots in determining correct taxi routes and avoid collision with other aircraft or obstructions; and

b) regulate entry to and movement on taxiways.

**Note 1:** Taxi instructions do not relate to movement on apron areas.

**Note 2:** Aircraft are required to obtain a taxi instruction when vacating the runway strip after landing.

See MATS 10.9.9.1 Responsibilities

12.3.1.4.1 Sectional TWY lighting
If sectional TWY lighting is available, you may activate section by section progressively, providing a clear indication of the desired route.
12.3.1.4.2 Vehicle authorisations
Provide vehicle authorisations in the same manner as for aircraft taxi instructions.

Note: Vehicle authorisations substitute the word 'PROCEED' for the word 'TAXI'.
See AIP

12.3.1.5 Time check
At pilot request issue a time check to the nearest half minute.

12.3.1.6 Visiting aircraft
When providing taxi instructions to visiting aircraft:
   a) specify route progressively; and
   b) avoid local terminology.

12.3.1.6.1 Frequency details
Advise all international aircraft of the next tower frequency and when to make the change to that frequency.

12.3.1.7 Jet aircraft
Avoid stopping a jet aircraft while it is taxiing, due to the probability of high breakaway thrust levels.

12.3.1.8 Taxiing on grassed areas
For aircraft taxiing on grassed areas other than defined taxiing and landing areas, restrict anti-collision services to providing traffic information and visual signals.

12.3.1.9 Taxiing on the runway
Do not permit aircraft to taxi on runways in use unless an alternate route is unavailable and, if radio communication is not available, only after pre-flight arrangement.

12.3.1.10 Taxiing across runways
When surface traffic is required to hold short of a runway intersecting the taxi route, issue a taxi instruction limit of the runway-holding position associated with the intersecting runway.

12.3.1.10.1 Intermediate holding positions
Do not include positions beyond the required intermediate holding position in taxi instructions.
12.3.1.11 **Cross runway instruction**

Include a 'CROSS RUNWAY (number)' instruction where a taxi instruction contains a taxi limit beyond the runway.

12.3.1.11.1 **Previously held**

Issue departing and arriving aircraft with instructions to 'CROSS RUNWAY (number)' if they were previously issued with:

a) a taxi instruction limit of the runway-holding position of a runway intersecting the taxi route; or

b) an instruction to 'HOLD SHORT' of a runway.

12.3.1.12 **Crossing runways**

Where a runway crossing clearance is required, visually check for approaching and departing aircraft before coordinating with the ADC.

12.3.1.13 **Point of crossing**

Include the point of crossing when authorising surface traffic to cross a Runway in Use.

12.3.1.13.1 **Point of entry**

Include the point of entry when authorising surface traffic to enter a Runway in Use, except when issued to a departing aircraft in conjunction with a clearance to line-up or enter the Operational Readiness Platform.

12.3.1.13.2 **Point of exit**

Include the exit point with the runway crossing instruction when the exit route is not obvious or could be confused with other close proximity exit routes.

See MATS 12.3.1.4 Taxi instructions

12.3.1.14 **Stop bars**

When issuing a clearance to cross or enter a runway, switch off the stop bar to indicate that traffic may proceed.

12.3.1.14.1 **Switching off stop bars**

Do not switch off the stop bar until the aircraft is approaching the runway-holding position to cross the runway.
12.3.1.15 Stop bar switching faults

When a fault occurs which prevents stop bars from being switched off:

a) commence fault reporting action; and
b) do not implement stop bar contingency procedures in the first 15 minutes following recognition of the fault.

Note: Disabling power to stop bars is preferable to implementing contingency procedures.

12.3.1.16 Stop bar contingency advice

If stop bar lighting cannot be switched off:

1) Advise affected aircraft and update the ATIS using the phrase:
   'STOP BAR SWITCHING [AT HOLDING POINT(S) (name of runway-holding position(s))] UNSERVICEABLE, STOP BAR CONTINGENCY PROCEDURES IN FORCE';

2) For aircraft not in receipt of the updated ATIS, issue individual advice. Do not use an 'all stations' broadcast; and

3) Authorise entry to the runway using the phrase:
   'AT (runway-holding position), CROSS THE ILLUMINATED STOP BAR, LINE UP (or CLEARED FOR TAKE-OFF or ENTER or CROSS) RUNWAY (number)'.

12.3.1.16.1 Stop bar contingency procedures

Apply the following during stop bar contingency:

a) Only issue clearances to cross an illuminated stop bar at runway-holding positions that are visible to the tower;

b) Use a suitable alternate runway-holding position with a serviceable or deactivated stop bar in preference to crossing an illuminated stop bar;

c) As far as practicable, avoid the simultaneous use of multiple runway-holding positions for departure;

d) Do not issue conditional clearances to cross an illuminated stop bar; and

e) Do not apply stop bar contingency procedures when the RVR is less than 550 m.

Note: (for point a)) This requirement may be satisfied by use of AGSS.

12.3.1.16.2 ARFF and airport arrangements

Detail procedures for ARFF and the airport authority in local instructions.
12.3.2 Runway and take-off instructions

12.3.2.1 Line up clearances
You may instruct an aircraft to line up when a take-off clearance cannot be given immediately.
See MATS 12.3.2.4 Line up and wait - runway occupied

12.3.2.2 Multiple line up clearances
When aircraft are authorised to line up on the same or intersecting runways simultaneously, provide mutual traffic information and include the following in the line up clearance:
   a) runway number;
   b) intersection (if applicable); and
   c) number in the departure sequence.

12.3.2.2.1 Use same ADC frequency
Issue line up instructions on the same aerodrome control frequency.

12.3.2.2.2 Continuous visual reference (pilots)
When utilising the same runway for departure, or simultaneous backtracking, flight crew must be able to maintain visual reference to any other aircraft they are following.

12.3.2.2.3 Continuous visual reference (ATC)
Do not issue multiple line up or simultaneous backtrack instructions unless the controller can continuously observe all relevant aircraft.

12.3.2.2.4 Delayed by traffic
When aircraft are delayed by the traffic situation, issue traffic information if appropriate followed by any of:
   a) an instruction to hold position off the runway;
   b) a conditional line up clearance; or
   c) an instruction to line up and wait.

12.3.2.2.5 Any other restrictions
Local instructions must detail any restrictions relating to size of aircraft, MTOW or position on runway where a multiple line up may occur.
12.3.2.3 **Conditional clearance**

For movements affecting a runway, only issue a conditional clearance to aircraft or approved vehicles:

a) when you, the pilot and/or the vehicle driver can see all aircraft or vehicles concerned;

b) when you can visually monitor this traffic until the condition no longer applies;

c) when the aircraft or vehicle causing the condition is the first to pass in front of the other traffic; and

d) if applicable, after the take-off or landing clearance has been issued to the conditional traffic, to avoid confusion with traffic operating on the runway prior to the conditional traffic.

12.3.2.3.1 **Exception - stop bars**

Do not issue a conditional clearance to an aircraft or approved vehicle at runway-holding positions with installed and operating stop bars.

12.3.2.3.2 **Approved vehicles for conditional clearances**

Specify approved vehicles in local instructions.

12.3.2.3.3 **Order of information**

In all cases, give a conditional clearance in the following order:

1) Identification – callsign;

2) The condition – including position of the subject of the condition;

3) The clearance; and

4) Brief reiteration of the condition.

12.3.2.3.4 **Expand position information**

Where the position of the traffic causing the condition is not readily apparent, expand the position information.

12.3.2.4 **Line up and wait - runway occupied**

Issue a WAIT instruction when a pilot is instructed to line up while the runway is/will be occupied by a preceding, arriving or departing aircraft or other obstruction.

See MATS 12.3.1.14 Stop bars

12.3.2.4.1 **Exception**

Where it is expected that the preceding, arriving or departing aircraft or other obstruction will have vacated the runway prior to the departure requiring to stop in the lined up position, a 'WAIT' instruction need not be issued.

See MATS 12.3.2.5 Line up and wait - departure instruction issued

12.3.2.4.2 **Reason for delay**

Advise the pilot of the nature of the obstruction if it is not apparent.
12.3.2.5 **Line up and wait - departure instruction issued**

When an instruction to line up does not include a take-off clearance and is issued with the departure instructions, issue the departure instructions at the beginning of the instruction and give the appropriate holding instruction at the end e.g. 'ASSIGNED HEADING RIGHT 050, LINE UP RUNWAY 01 AND WAIT'.

See MATS 12.3.1.14 Stop bars

12.3.2.6 **Departure instructions, Radar SIDS or headings**

Do not issue Radar SID departure instructions or assigned headings to an aircraft unless in association with any of:

a) an instruction to line up and wait;
b) a 'HOLD SHORT' instruction; or
c) a take-off clearance.

12.3.2.7 **Runway number in line up clearance**

Include the runway number in the line up clearance whenever more than one runway is in use or when aircraft are authorised to line up on the same runway.

12.3.2.7.1 **Runway number not required**

Class D aerodromes, operating two or more ADC positions with discrete frequencies, need not specify the runway number for parallel runway operations.

12.3.2.8 **Backtrack clearance**

When the pilot has requested backtrack with the 'READY' or 'REQUEST LINE UP' report, give the instruction to 'BACKTRACK RUNWAY (number)' before the line up instruction.

*Note:* An ATC clearance to line up does not authorise the pilot to backtrack on the runway.

See MATS 12.3.1.14 Stop bars

12.3.2.8.1 **Cross runway or hold short**

When a backtrack on the runway will involve crossing an intersecting runway, include either a 'CROSS RUNWAY (number)' instruction or an instruction to 'HOLD SHORT' of that runway in the backtrack instruction.

12.3.2.9 **Ascertain pilot intentions**

When entry to the runway will be from a position that is not adjacent to the runway threshold and a pilot reports 'READY' without requesting or accepting an intersection departure, or requesting backtrack, ascertain the pilot's intentions prior to authorising entry to the runway.
12.3.2.10  Intersection departure

When a pilot is offered an intersection departure, include the take-off distance remaining if this information is not readily available to the pilot.

12.3.2.11  Take-off clearances

Issue a take-off clearance when:

a) the aircraft is at or approaching the runway in use;
b) the traffic situation permits;
c) the aircraft has reported 'READY';
d) a visual check of the take-off path has been completed;
e) no obstructions or collision risk exists; and
f) there is reasonable assurance that the prescribed separation standard will exist when the aircraft commences take-off.

12.3.2.11.1  Repeat visual check

Visually check the take-off path again immediately before the take-off commences.

12.3.2.11.2  Runway number

Whenever more than one runway is in use, include the runway number in the take-off clearance.

12.3.2.11.3  Runway number not required

Class D aerodromes, operating two or more ADC positions with discrete frequencies, need not specify the runway number for parallel runway operations.

12.3.2.12  Take-off

Use the words 'TAKE-OFF' only for clearing an aircraft for take-off or when cancelling a take-off clearance.

12.3.2.12.1  Order of instructions

Use the words 'TAKE-OFF' as the last words of the take-off clearance, except when the following information must be added:

a) an instruction specifying a turn or circuit direction; or
b) when required, the state of the arrestor system.

12.3.2.12.2  Arrestor system position

Where installed, the position of the arrestor system must be included with the take-off clearance when:

a) it is not in the normal operating position for that aircraft type; or
b) requested by the pilot.
12.3.2.13 Initial turn

Do not vary the initial turn after take-off from that specified except:

a) in an emergency; or
b) after prior agreement.

12.3.2.14 SID or route name cancelled

When a SID and/or route name is cancelled, issue the new tracking instructions and any altitude restrictions and/or requirements separately from the take-off clearance.

12.3.2.15 Clearance for immediate take-off

You may issue a clearance for immediate take-off to an aircraft before it enters the runway.

12.3.2.16 Cancelling take-off clearances

Only cancel a take-off clearance once an aircraft has commenced take-off roll in circumstances where an aircraft is in imminent danger e.g. 'STOP IMMEDIATELY (repeat aircraft callsign) STOP IMMEDIATELY (reason)'. Accompany any instruction to cancel take-off with a description of the nature of the emergency.

Note:  The decision to reject take-off remains with the pilot.

12.3.2.17 Military aircraft

Where you believe a formation take-off may impair safety, you may issue control instructions to individual aircraft.

Note: Military aircraft engaged in operations or operational training exercises may require a multiple aircraft take-off.

12.3.2.17.1 Fighter scrambles

Grant priority for take-off to aircraft involved in fighter scrambles, and keep other traffic clear of their take-off path and first heading.
12.4 Departing aircraft

12.4.1 Coordinating departing aircraft

12.4.1.1 Next call
When a departing aircraft approaches the runway-holding position and is anticipated to be airborne within 2 minutes, advise the departures controller using a Next call.

12.4.1.2 Departures instruction
The Departures Controller issues appropriate instructions.

12.4.1.3 Transfer of SAR responsibility
The transfer of SAR responsibility from ADC to departures occurs with the frequency change due two minutes after the NEXT call plus any coordinated delay, or as defined in local instructions for auto releases.

12.4.1.3.1 Delay in departure
Where the aircraft is not anticipated to be airborne within 2 minutes, coordinate the extent of expected delay.

12.4.1.3.2 Coordinated SAR responsibility
The transfer of SAR responsibility from ADC to departures occurs with the frequency change due at the coordinated airborne time.

12.4.1.3.3 Coordinated airborne time
Alternatively, where there is an agreed pre-coordinated airborne time between TWR and TCU/approach, confirm the anticipated airborne time with the NEXT call.

12.4.1.3.4 Advise departures controller
Advise the departures controller whenever it becomes apparent that the aircraft will not make either the anticipated or pre-coordinated airborne time.
12.5 Arriving aircraft

12.5.1 Information for inbound traffic

12.5.1.1 Instructions to arriving aircraft

Issue the following information and instructions, as applicable, when a pilot requests clearance to enter the aerodrome traffic circuit:

a) The altitude at which to enter the circuit;
b) Route instructions/clearance limit;
c) Landing information;
d) Significant traffic information;
e) Essential aerodrome information; and
f) A position at which the aircraft pilot is to report for further instructions.

12.5.1.1.1 Circuit entry instructions

Include the discrete runway designator when issuing circuit entry instructions.

12.5.2 Reciprocal Runway Operations (RRO)

12.5.2.1 Standard tracking arrangements

Detail standard tracking arrangements in TWR/TCU/Approach agreements for each unit which facilitate separation assurance activities and the particular arrangements for the holding of low level arrivals for an RRO.

12.5.2.2 Approval

For other than operational requirements, only approve the use of a reciprocal runway when:

a) aircraft using the duty runway will not be delayed;
b) with mutual agreement between TWR and TCU/Approach where applicable; and

and
c) the non-duty, reciprocal runway is equal to or higher in the order of preferred runways specified in AIP DAP, when the use of the preferred runways is applicable.

12.5.2.3 Auto-release

Do not use auto-release procedures during RRO.
12.5.2.4 Traffic information

Provide timely traffic information to affected aircraft to ensure that situational awareness is maintained when RRO are in progress, but not on the ATIS.

12.5.3 Issuing landing clearances

12.5.3.1 Landing clearance

Only issue a clearance to land after:

a) the aircraft has commenced final approach of a straight-in instrument approach or has been sighted by the tower controller:
   i) on the late downwind leg of the circuit pattern;
   ii) on base leg; or
   iii) on final in the case of a straight-in visual approach;

b) a visual check of the landing path has been completed; and

c) no obstructions or collision risk exists.

Note: A clearance to land authorises a pilot to go-around or carry out a missed approach.

See MATS 12.5.4 Go-around or missed approach

12.5.3.1.1 Runway occupied - preceding aircraft

When the runway is occupied by a preceding aircraft landing or taking-off, you may clear an aircraft to land only if there is reasonable assurance that the prescribed separation standard will exist when the aircraft crosses the threshold to land.

12.5.3.1.2 Use of radar

Observation by radar satisfies the sighting requirement in Clause 12.5.3.1 a).

See MATS 12.5.3.1 Landing clearance

12.5.3.1.3 Repeat visual check

Visually check the landing path again immediately before the aircraft crosses the runway threshold to land.

12.5.3.1.4 Arrestor system position

Where installed, the position of the arrestor system must be included with the landing clearance when:

a) it is not in the normal operating position for that aircraft type; or

b) requested by the pilot.
12.5.3.2 **Landing area occupied or obstructed**

When the landing area is occupied by another aircraft or is obstructed, you may issue arriving aircraft with a clearance to:

a) continue approach if there is no immediate assurance that the landing areas will become available; or

b) go-around, or orbit if in a position to do so, should the landing area not be available. When required, issue a clearance to commence a second approach or hold following these instructions.

12.5.3.2.1 **Advise pilots**

Advise pilots of the nature of the obstruction if it is not apparent.

12.5.3.3 **Change of runway**

Do not offer a change of runway to an aircraft below 500 FT on final.

12.5.3.3.1 **Pilot request**

You may approve a pilot request for change of runway for an aircraft established on final.

12.5.3.4 **Not in sight**

If an arriving aircraft reports at a position where it should normally have been seen but has not been sighted, advise the aircraft that it is not in sight when clearing it to land.

12.5.3.5 **Denied or cancelled clearance**

If denying an aircraft a clearance to land or cancelling a landing clearance, give an instruction to go-around before the aircraft is committed to a landing.

12.5.3.6 **Multiple runway operations**

Whenever more than one runway is in use, include the runway number in the landing clearance.

12.5.3.6.1 **Runway number not required**

Class D aerodromes, operating two or more ADC positions with discrete frequencies, need not specify the runway number for parallel runway operations.
12.5.4  Go-around or missed approach

12.5.4.1  Missed approach
Subject to terrain clearance requirements, you may direct that a pilot conduct other than the published instrument missed approach procedure.

12.5.4.1.1  Onwards clearance
Issue an onwards clearance prior to the aircraft reaching the end of the missed approach procedure.

12.5.4.2  Visual approach in VMC
In the event of go-around from a visual approach, issue an onwards clearance as soon as practicable.

*Note 1:* The pilot will be remaining visual and awaiting ATC instructions.

*Note 2:* Due to individual airline SOP and certain location specific requirements, a go-around from a visual approach may have to be conducted in accordance with the published instrument missed approach procedure for the primary instrument approach for the runway the aircraft is using.

12.5.5  Gear checks, formations and military aircraft

12.5.5.1  Undercarriage status
Confirm that an aircraft’s undercarriage is down when:

a)  doubt exists as to whether an aircraft’s gear is fully extended;

b)  issuing a landing clearance to a general aviation aircraft with retractable undercarriage that has experienced abnormal operation; or

c)  for a military aircraft, the pilot indicates the undercarriage is down and locked, when issuing the clearance to go-around or for any type of landing.

*Note:* Military pilots normally respond with a landing system tone or landing light indication e.g. 'THREE GREENS'. When in formation, each pilot will reply in turn.

12.5.5.1.1  Transmit callsign
When all elements of a formation have reported landing gear down, acknowledge satisfactory compliance of the check by transmitting the formation callsign.
12.5.5.2  **Military formation - circuit entry and landings**

When military aircraft land in formation, allocate one landing sequence number to the formation. For the provision of sequence numbers to subsequent aircraft, count each aircraft in the formation separately.

**Note 1:** The leader of a formation is required to obtain permission to join the traffic circuit, provide a positive position report and to obtain a landing clearance on behalf of the whole formation. All pilots in the formation are required to maintain a listening watch on the tower frequency.

**Note 2:** A formation landing may involve a stream landing where aircraft land on the same runway in quick succession, a pair’s straight-in approach or an in-trail straight-in approach.

12.5.5.2.1  **Stream landing circuit**

You may provide clearance for formations to conduct a stream landing circuit.

**Note:** Military pilots intending to land at airfields where the standard circuit is in force and wishing to carry out a stream landing circuit, are required to comply with standard procedures unless specifically cleared to carry out the stream landing circuit.

See MATS 12.5.7.2 Military stream landing circuit

12.5.5.2.2  **Individual control instructions**

Maintain a close watch on multiple aircraft landings. You may, in the interest of safety, issue control instructions to individual aircraft.

12.5.5.3  **Formation broken**

Consider the formation broken and process aircraft individually when the formation aircraft:

a) elect to carry out touch-and-go landings;

b) are required to go-around; or

c) elect to carry out individual activities.

12.5.5.4  **Military full-stop**

At Defence aerodromes, do not instruct a military aircraft to make a full-stop landing, however, a pilot may be requested to make a full-stop landing due to traffic.

12.5.6  **Circuit operations**

12.5.6.1  **Expedite traffic flow**

You may expedite traffic flow by approving or requiring aircraft to enter the traffic circuit at a point which affords the shortest circuit entry to the runway being used.
12.5.6.2  **Landing sequence considerations**

When spacing aircraft during a landing sequence, consider differing speeds and circuit requirements.

12.5.6.2.1  **Smooth landing flow**

To achieve a smooth landing flow you may instruct aircraft to:

a) extend via a circuit leg e.g. 'EXTEND DOWNWIND';

b) make a wide (or close) circuit;

c) make a long approach; or

d) make a short approach.

12.5.6.3  **Military aerodromes**

If military aircraft request landing clearance when another aircraft is ahead:

a) allot a landing sequence number to the following aircraft; and

b) issue all subsequent aircraft in the sequence with similar instructions.

See MATS 12.5.5.2 Military formation - circuit entry and landings

12.5.6.4  **Asymmetric training approval**

Dependent upon other operations and priorities, provide approval to pilots requesting to conduct asymmetric training within 5 NM of a controlled aerodrome.

12.5.6.5  **Authorisation - low level flights over aerodromes**

Do not authorise civil low level flights over aerodromes, for publicity and demonstration purposes, at levels below the normal circuit altitude for the type of aircraft concerned.

12.5.6.5.1  **Exception**

You may grant approval in exceptional circumstances, but only following prior agreement with local authorities.

12.5.6.6  **Tower fly pasts**

Do not initiate tower fly pasts.

12.5.6.6.1  **Enable visual assessments**

On pilot request, you may approve tower fly pasts to enable visual assessments when there is suspected damage to, or malfunction of, undercarriage or other components.
12.5.6.7 Training approaches

You may approve an aircraft making a training approach to overfly an aircraft, vehicle or pedestrian within the runway strip at a controlled aerodrome provided:

a) the training aircraft is in VMC or a military aircraft in IMC at a military aerodrome;

b) you instruct the training aircraft not to descend below:
   i) 300 FT AGL or the relevant minimum altitude for the approach if higher;
   or
   ii) 300 FT AGL in the case of a practice visual approach; and

c) you pass traffic information to:
   i) the other aircraft before it enters the relevant runway strip; and
   ii) vehicles and pedestrians operating within the relevant runway strip.

See MATS 9.4.2.1 Issuing levels below LSALT

12.5.6.7.1 Exception

You need not pass traffic information:

a) to the vehicles and/or pedestrians operating within the works area associated with a displaced threshold; or

b) if the aircraft on the training approach will not descend below:
   i) 500 FT AGL, if it is 7000 kg MTOW or less; or
   ii) 1000 FT AGL.

12.5.6.7.2 Military aircraft operating in IMC

When a military aircraft is conducting an instrument approach in IMC at a military aerodrome and is unlikely to become visual with the landing environment, ATC should avoid clearing large tailed aircraft or civilian aircraft to enter the runway strip.
12.5.7 Circuit patterns

12.5.7.1 Standard circuit pattern

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1</td>
<td>Aircraft initiates call to taxi for departing flight. Cleared to runway holding position.</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Line-up or Take-off clearance issued here. Details of Air Traffic Clearance passed when necessary.</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Take-off clearance issued if not at position 2.</td>
<td>6</td>
</tr>
</tbody>
</table>

Dead Side

- Downwind Leg
- Crosswind Leg
- Base Leg
- Final Leg
12.5.7.2 Military stream landing circuit

1. First call on run-in to Initial Point.
2. Commence Initial.
3. First aircraft pitches out no call made.
4. Second aircraft in section pitches out and positions Downwind behind the first aircraft - no call.
5. Third aircraft in section pitches out and positions Downwind behind second aircraft - no call.
6. Aircraft call Base Leg - landing clearance given here.

12.5.7.3 Circuit direction considerations

When selecting circuit direction, consider traffic separation and non-operational matters such as noise abatement.
12.5.7.4 High volume VFR aerodrome

Use the following diagram to determine the circuit pattern at Archerfield, Bankstown, Camden, Jandakot, Moorabbin and Parafield:

1. Aircraft initiates call to taxi - clearance provided
2. Aircraft vacating the bay give way to aircraft on the taxiway
3. Line up or take-off clearance issued here
4. Take-off clearance issued if not issued at position 3
5. Crosswind leg
6. Downwind leg
7. Base leg
8. Final (joining upwind) leg - Landing clearance issued here unless issued on downwind/base leg
9. Taxi instructions, if required
10. Parking information issued if necessary
12.6 Helicopters

12.6.1 Clearance procedures

12.6.1.1 Rotor wash effect

When issuing taxi, take-off or landing clearances to a helicopter, take into account the turbulence associated with helicopter rotor wash and its effect on other aircraft, vehicles and personnel operating within the affected area.

*Note:* When hovering or air taxiing, a helicopter directs a forceful blast of air downwards which then rolls out in all directions. This downwash and associated turbulence can drift a substantial distance downwind and may affect an adjacent runway or taxiway.

12.6.1.1.1 Downwash caution

Issue a downwash caution to light aircraft that operate in an area comprising three times the rotor diameter of a helicopter that is hover taxiing or in a stationary hover.

12.6.1.1.1 Wheeled helicopters

Encourage wheeled helicopters to ground taxi on prepared surfaces to minimise rotor wash and its effects.

12.6.1.2 Take-off in lieu of taxiing

Whenever possible, issue take-off clearances in lieu of extended air taxiing or air transit operations.
12.6.1.3 Helicopter relocations
Authorise helicopter to relocate from one position to another by using the appropriate phrase:
   a) ‘AIR TAXI’;
   b) ‘AIR TRANSIT’; or
   c) ‘GROUND TAXI’.

12.6.1.4 Tailwind limits
Unless requested by the pilot, do not issue a take-off or landing clearance to a helicopter when the tailwind exceeds 5 kt.

12.6.1.5 Take-off and landing clearances
At locations within controlled airspace, issue a take-off or landing clearance to a helicopter operating on a runway or any HLS visible to the tower and located on a manoeuvring area subject to ATC and assessed by the pilot as being suitable as a HLS.

12.6.1.5.1 HLS not visible or subject to ATC
   Where a HLS is not visible from the tower or not on the manoeuvring area provide instruction to report airborne or on the ground.

12.6.1.6 Circuit patterns
Helicopters are not always required to comply with standard circuit pattern.

12.6.1.7 Helicopter access corridors
The tower controller is the controlling authority for helicopter access corridors associated with controlled aerodromes.

   Note 1: Helicopter traffic normally complies with the procedures detailed in AIP ENR 1.1. However, the use of specific routes and/or altitudes may be available to direct helicopters to gates prior to circuit entry/arrival to expedite traffic flow. When gates are established, procedures for their use are promulgated in ERSA.

   Note 2: The optimum location for a helicopter gate is ½ NM abeam the mid-point of the Runway in Use. Arriving and departing helicopters are required to enter or exit the ‘gate’ on a track at 90 degrees to the centre line of the nominated runway and at the altitude specified.

12.6.1.8 Single-pilot helicopters
Whenever possible, avoid issuing frequency changes to single-pilot helicopters during taxiing, hovering or low level flight.
12.7 Control of manoeuvring area

12.7.1 Clearance procedures

12.7.1.1 Issue clearances
Where applicable, issue clearances to pedestrians or vehicles to enter runway strips, and include:
   a) instructions to cross an intersecting runway; or
   b) clearance limits that are clear of intersecting runways.

12.7.1.1.1 Stop bars
When issuing a clearance to cross or enter a runway, switch off the stop bar to indicate that traffic may proceed.

12.7.1.2 Control of runway in use
Retain under the control of the ADC, the entire serviceable length of the runway when any portion is being used by an aircraft for take-off or landing.

12.7.1.3 Runway release and resumption
When the ADC resumes control of a runway released to the SMC, the SMC verbally acknowledges the resumption by using either phrase 'RWY (number) NO TRAFFIC', or 'RWY (number) TRAFFIC IS ... (aircraft, vehicles, pedestrians)'.

12.7.2 Aerodrome works

12.7.2.1 Facilitation
During rostered hours of duty of ATC, the ADC facilitates the performance of time-limited works during normal aircraft operations, and any works carried out under a Method of Working Plan (MOWP).

   Note: After consultation with ATS, the aerodrome operator or delegate may close all or part of a runway strip on which work is required if aircraft operations will cause unacceptable delays or inconvenience to the work.

12.7.2.2 Current MOWP
Ensure you are familiar with the safety precautions and/or operating procedures applicable to any aerodrome works or MOWP current during your rostered hours of duty.
12.7.2.3 Works inside the runway strip

By day, you may approve workers using hand tools only to carry out minor maintenance works within the runway strip up to the runway side stripe marking, or runway edge where no side stripe marking exists, during aircraft operations provided:

a) a Works Safety Officer (WSO) has control of the works and maintains continuous voice contact with ATC on the nominated frequency;

b) the maximum crosswind component does not exceed 20 kt;

c) the visibility is equal to or greater than 5000 m, the ceiling is equal to or greater than 1000 FT and the working party can be visually monitored at all times;

d) the runway surface is dry;

[e) advice of the works is provided to pilots; and]

f) if the works are within 23 m of the runway:
   i) the WSO will remain at the site at all times;
   ii) work will take place on one side of the runway only; and
   iii) work will not continue during Super or Heavy aircraft operations on the runway.

Note: Works required to take place outside the requirements of the above paragraphs, e.g. in a number of locations on different sides of a runway, must be subject to a MOWP agreed to by ATC and the aerodrome operator.

12.7.2.3.1 Varying requirements

During periods when there are no expected aircraft movements, the requirements of Clause 12.7.2.3 and may be varied when agreed to by ATC and the aerodrome operator.

See MATS 12.7.2.3 Works inside the runway strip
**12.7.3** Signals for controlling aircraft aerodrome traffic

**12.7.3.1 Radio or light signals**
Control airborne operations and ground movements by radio or light signals.

**12.7.3.1.1 Light signals to aircraft**

<table>
<thead>
<tr>
<th>Light signal</th>
<th>Meaning in flight</th>
<th>Meaning on aerodrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady Green</td>
<td>Authorised to land if pilot satisfied no collision risk exists</td>
<td>Authorised to take-off if pilot satisfied no collision risk exists</td>
</tr>
<tr>
<td>Steady Red</td>
<td>Give way to other aircraft and continue circling</td>
<td>Stop</td>
</tr>
<tr>
<td>Green Flashes</td>
<td>Return for landing</td>
<td>Authorised to taxi if pilot satisfied that no collision risk exists</td>
</tr>
<tr>
<td>Red Flashes</td>
<td>Aerodrome unsafe - do <em>not</em> land</td>
<td>Taxi clear of landing area in use</td>
</tr>
<tr>
<td>White Flashes</td>
<td>No significance</td>
<td>Return to starting point on aerodrome</td>
</tr>
</tbody>
</table>

**12.7.3.1.2 Light signals to vehicles and pedestrians**

<table>
<thead>
<tr>
<th>Light signal</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Flashes</td>
<td>Permission to cross landing area or to move onto taxiway</td>
</tr>
<tr>
<td>Steady Red</td>
<td>Stop</td>
</tr>
<tr>
<td>Red Flashes</td>
<td>Move off the landing area or taxiway and watch out for aircraft</td>
</tr>
<tr>
<td>White Flashes</td>
<td>Vacate the manoeuvring area in accordance with local instructions</td>
</tr>
<tr>
<td>Flashing runway or taxiway lighting</td>
<td>Vacate the runway or taxiway and observe the Tower for light signal. Used in emergency conditions or if the above signals are not observed.</td>
</tr>
</tbody>
</table>
12.8 Low Visibility Procedures

12.8.1 Applying Low Visibility Procedures

12.8.1.1 Initiating LVP

When the visibility on any part of the manoeuvring area is insufficient for ATC to exercise control on the basis of visual surveillance, initiate measures in accordance with the aerodrome's low visibility procedures.

12.8.1.2 Implementing LVP

Ensure low visibility procedures are fully implemented when:

a) an instrument approach operation will take place when the ceiling or visibility is less than the precision approach CAT I minima for the runway being used;

b) a take-off operation will take place when the RV/RVR is less than 550 m for the runway being used; or

c) for a runway without a precision approach:
   i) the RV/RVR is 800 m or less; or
   ii) the ceiling is 200 FT or less.

*Note:* In order to continue unrestricted operations for as long as possible whilst weather conditions deteriorate and to minimise delay when weather reaches the LVP criteria a staged implementation process may be used.

12.8.1.2.1 Aerodrome operator notification

Notify the aerodrome operator when LVP measures are to be initiated.

12.8.1.2.2 Aerodrome operator requirement

Do not declare LVP in force until the aerodrome operator has advised that preparations necessary for the management of ground activities are completed.

12.8.1.3 LVP notification

Notify pilots and approach control when low visibility procedures are in force using the phrase 'LOW VISIBILITY PROCEDURES IN FORCE'.

*Note:* Notification of LVP to pilots indicates that the relevant critical and sensitive area protections are in place.
12.8.1.4 Procedure to protect landing and arriving aircraft

Do not permit aircraft to land or take-off unless the position of vehicles and other aircraft with a specific ATC clearance is positively established clear of the runway to be used.

12.8.1.4.1 Establishing clear

Establish vehicles and other aircraft clear of the runway by:
   a) visual means;
   b) surveillance; or
   c) a report from the driver or pilot.

12.8.1.4.2 Restrict vehicles

Cancel blanket clearances. Vehicles and persons operating on the manoeuvring area should be restricted to the essential minimum.

12.8.1.5 Separation on taxiways

Apply procedures for separation on taxiways as specified in local instructions.

12.8.1.5.1 Taxiway intersections

Do not permit an aircraft or vehicle at the intersection of taxiways to hold closer to the other taxiway than the holding position limit.

12.8.1.6 Procedure when visibility is less than 550 m

Do not allow more than one aircraft at a time on the manoeuvring area when visibility is less than 550 m.

12.8.1.6.1 Exception - more than one aircraft allowed

More than one aircraft is allowed on the manoeuvring area when:
   a) stop bar lighting is available; or
   b) if the visibility is 350 m or more, appropriate aids and procedures designed to prevent the inadvertent incursion of aircraft or vehicles onto the runway are in force.

12.8.1.6.2 Stop bar non-availability

When visibility is 350 m or more and installed stop bars are not available to protect the runway, detail AGSS procedures for processing multiple aircraft in local instructions.
12.8.1.7 **Critical and sensitive area protection**
Protect critical and sensitive areas by the control of traffic on the manoeuvring area and, at CAT II/III or SA CAT I/II locations, by the application of minimum sequencing intervals between:

a) arriving and a departing aircraft; and
b) successive approaching aircraft.

See MATS 12.12.1 Protection of ILS critical and sensitive areas

12.8.1.7.1 **Sequencing intervals**
Detail applicable minimum sequencing intervals in local instructions.

12.8.2 **Runway Visual Range and Runway Visibility**

12.8.2.1 **RVR/RV advice**
Advise pilots of the RVR/RV by ATIS broadcast.

12.8.2.2 **ATIS RVR/RV revision**
Maintain the ATIS RVR/RV as accurately as practicable.

12.8.2.2.1 **RVR**
Ensure the ATIS RVR is amended when reported RVR changes to or passes values corresponding to applicable approach minima.

12.8.2.3 **Instruments RVR pilot update**
Update pilots of arriving aircraft of the instrumented RVR on first contact with the tower.

12.8.2.4 **RVR BoM approval**
Detail in local instructions any BoM approval conditions for the use of RVR data derived from transmissometers.

12.8.2.5 **RVR averaging**
Ensure the averaging period for RVR values is one minute.
12.8.2.6  **RVR reporting scale**

Report RVR increments in accordance with the following table:

<table>
<thead>
<tr>
<th>RVR (metres)</th>
<th>Step (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;800</td>
<td>100</td>
</tr>
<tr>
<td>800 - 400</td>
<td>50</td>
</tr>
<tr>
<td>400 - 50</td>
<td>25</td>
</tr>
</tbody>
</table>

12.8.2.6.1  **Rounding**

Round down an RVR value to the nearest step in the scale.

12.8.2.6.2  **RVR less than 50 metres**

Report RVR as 'less than 50 metres'.

12.8.2.7  **RVR/RV not assessed**

Advise pilots when RVR/RV has not been assessed on the take-off or landing runway.

12.8.2.8  **Information not available**

If RVR/RV information on any one position is not available, include this in the appropriate sequence.

12.8.2.8.1  **RVR/RV example phraseologies**

<table>
<thead>
<tr>
<th>Use</th>
<th>ATC phraseology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Including the runway number indicates that the RVR/RV has been assessed in the direction for take-offs and/or landings, on that runway, at the touchdown zone</td>
<td>(RVR or RUNWAY VISIBILITY) RUNWAY <em>(number)</em> <em>(distance)</em> METRES</td>
</tr>
<tr>
<td>Advice to pilots when RVR/RV has not been assessed on the take-off or landing runway</td>
<td>(RVR or RUNWAY VISIBILITY) RUNWAY <em>(number)</em> NOT REPORTED</td>
</tr>
<tr>
<td>Multiple RVR/RV observations always represent the TDZ, MID and END. Where reports for three locations are given, the indication of these locations may be omitted, provided the reports are passed in the order of TDZ, MID and END</td>
<td>(RVR or RUNWAY VISIBILITY) [RUNWAY <em>(number)</em>] <em>(first position)</em> <em>(distance)</em> METRES, <em>(second position)</em> <em>(distance)</em> METRES, <em>(third position)</em> <em>(distance)</em> METRES</td>
</tr>
<tr>
<td>When RVR/RV information on any one position is not available, include this in the appropriate sequence</td>
<td>(RVR or RUNWAY VISIBILITY) [RUNWAY <em>(number)</em>] <em>(first position)</em> <em>(distance)</em> METRES, <em>(second position)</em> <em>(distance)</em> METRES, <em>(third position)</em> <em>(distance)</em> METRES NOT AVAILABLE</td>
</tr>
</tbody>
</table>
12.8.3 Low Visibility Operations at Defence aerodromes

12.8.3.1 Report RVR/RV <1500 m
You should report RVR/RV when either horizontal visibility or RVR/RV is observed to be less than 1500 m.

12.8.3.1.1 RVR/RV <800 m
You must report RVR/RV when either horizontal visibility or RVR/RV is observed to be less than 800 m.

12.8.3.2 Aerodrome manoeuvring area
When applying low visibility procedures, ensure that the position of all aircraft or vehicles manoeuvring on the aerodrome manoeuvring area can be positively determined to ensure there is no increased risk of collision.
12.9  Use of surveillance equipment

12.9.1  Surveillance equipment and aerodrome control

12.9.1.1  Use

Only use the ATS surveillance system as detailed in this chapter, unless otherwise specified.

*Note 1:* The ATS surveillance system is an aid available to Aerodrome Controllers in meeting their responsibilities for the provision of aerodrome control services.

*Note 2:* Tower ATS surveillance services do not meet the requirements for the full provision of ATS surveillance services.

12.9.1.2  Primary function

Maintain a visual observation of operations on and in the vicinity of the aerodrome.

12.9.1.2.1  Restriction

Do not allow Tower use of the ATS surveillance system to impinge upon this primary function.

12.9.1.2.2  Correlate with visual

Correlate ATS surveillance system-derived decisions in relation to the control of circuit traffic with visual observation whenever possible.

12.9.1.3  Identification advice

Do not advise aircraft when identification is established unless vectoring.

12.9.1.3.1  Termination of control

Where an aircraft that has not been advised of identification exits controlled airspace, advise the pilot 'CONTROL SERVICES TERMINATED'.
12.9.1.4 Use of situation display

Tower Controllers may use the situation display to:

a) determine aircraft identification, location or spatial relationship to other aircraft;

b) assist in the assessment of traffic in the provision of:
   i) aerodrome control;
   ii) traffic information;
   iii) sequencing; and
   iv) information and assistance to aircraft during emergencies;

c) determine the altitude, position or tracking of aircraft to establish or monitor separation; and

d) vector when necessary.

12.9.1.5 Direction, suggested heading or tracking

Provide a direction, suggested heading or tracking:

a) as an advisory aid to navigation; and

b) to effect aerodrome control.

12.9.2 Aerodrome Ground Surveillance System

12.9.2.1 Augment visual observation

You may use AGSS to augment visual observation of traffic on the manoeuvring area and to provide surveillance of traffic on those parts of the manoeuvring area that cannot be observed visually.

*Note:* Use of AGSS does not change existing pilot and ATC responsibilities for separation on the manoeuvring area.
12.9.2.2 Application

You may use information displayed on an AGSS to assist in:

a) monitoring of aircraft and vehicles on the manoeuvring area for compliance with clearances and instructions;
b) determining that a runway is clear of traffic prior to a landing or take-off;
c) providing information on essential traffic on or near the manoeuvring area;
d) determining the location of aircraft on the movement area and vehicles on the manoeuvring area;
e) providing directional taxi information to aircraft when requested by the pilot or deemed necessary by the controller; and
f) providing assistance and advice to emergency vehicles.

12.9.2.2.1 Exception to point e)

Except under special circumstances e.g. emergencies, do not issue such information in the form of specific heading instructions.

12.9.2.3 Taxi guidance instructions

Provide the same taxi guidance instructions as those used for visual control.

12.9.2.4 Ensure identification

Ensure:

a) correct aircraft identification when using AGSS information for the guidance of aircraft; and
b) surface traffic numbers are compatible with the maintenance of target identification.

12.9.2.5 Identification methods

Establish identification by one of the following methods:

a) Correlate the position of a visually observed target to an AGSS position symbol;
b) Correlate an identified radar position symbol to an AGSS position symbol;
c) Correlate an AGSS position symbol complying with an ATC instruction for a specific manoeuvre;
d) Correlate the displayed target to an aircraft or vehicle position:
   i) entering a runway or taxiway intersection;
   ii) abeam a building or airfield feature depicted on the situation display; or
   iii) on a taxiway or runway, provided that there are no other unidentified vehicles or aircraft on that runway or taxiway segment;
e) Correlate an alpha-numeric label with an aircraft’s AGSS position symbol provided the correlation is consistent with the aircraft’s expected position; or
f) Observe compliance with an instruction to change to a specific code.

12.9.2.5.1 Identification advice

Do not advise aircraft or vehicles when identification is established.
12.9.3 Tower Situational Awareness Display (TSAD)

12.9.3.1 TSAD use

To assist in meeting their responsibilities for the provision of procedural aerodrome and/or approach control services, tower controllers may use TSAD to:

a) determine or confirm an aircraft’s:
   i) identification;
   ii) location;
   iii) spatial relationship to other aircraft;
   iv) position outside an area of conflict in accordance with Clause 12.9.3.2; and
   v) position outside controlled airspace in accordance with Clause 12.9.3.3; and

b) assist in the situational awareness of traffic in the provision of:
   i) aerodrome control;
   ii) traffic information;
   iii) traffic sequencing; and
   iv) information and assistance to aircraft during emergency.

See MATS 12.9.3.2 Outside area of conflict - TSAD and 12.9.3.3 Outside controlled airspace

12.9.3.2 Outside area of conflict - TSAD

Consider lateral separation to exist when a TSAD position symbol is observed beyond an area of conflict exit point based on a DME/GNSS lateral separation point displayed on the screen provided the aircraft is:

a) identified;

b) tracking in accordance with the navigation method referenced in the construction of the area of conflict; and

c) moving away from the area of conflict.

12.9.3.2.1 Eligible tolerances

Only apply this procedure to an area of conflict based on navaid or area navigation tolerances.

12.9.3.3 Outside controlled airspace

A TSAD position symbol at least 1 NM beyond a controlled airspace boundary displayed on the ASD is confirmation that the aircraft has positively left controlled airspace provided the aircraft:

a) is identified; and

b) moving away from the airspace boundary.
12.9.3.4 **Not for surveillance separation**

Unless approved in local instructions do not use TSAD to provide ATS surveillance system separation services.

12.9.3.5 **Primary functions**

Maintain a visual observation of operations on and in the vicinity of the aerodrome and apply procedural standards and procedures.

12.9.3.5.1 **Restrictions**

Do not allow use of the TSAD to impinge upon these primary functions.

12.9.3.6 **Correlate with visual observation**

Correlate TSAD-derived decisions in relation to the control of circuit traffic with visual observation.

12.9.3.7 **Aircraft identification**

Only use the following methods to identify aircraft with TSAD:

a) Correlate a full alpha-numeric label with an aircraft’s TSAD position symbol, provided the correlation is consistent with the aircraft’s expected position;

b) Observe compliance with an instruction to change to a specific, discrete code or Code 0100. Do not initiate a change in code to an aircraft displaying a full numeric label that has been assigned by another unit;

c) When operating in Bypass mode, observe compliance with an instruction to operate the SPI. Avoid nearly simultaneous requests for SPI transmissions from aircraft in close proximity to reduce the likelihood of possible misidentification; or

d) Correlate a particular TSAD position symbol to the position of an aircraft observed visually.

12.9.3.7.1 **Do not advise**

Do not advise aircraft that they are identified.
12.9.4 Vectoring - tower controllers

12.9.4.1 Permit self-navigation
Whenever possible, permit aircraft to self-navigate and achieve requirements by instruction based on visual and flight path monitoring.

12.9.4.2 VMC by day only
You may provide an IFR or VFR aircraft with a vector in VMC by day to ensure separation or assist with traffic management, when necessary.
See MATS 9.7.11.3 Approving pilot terrain clearance
See MATS 9.4.2.1 Issuing levels below LSALT

12.9.4.3 Considerations prior to vectoring
Prior to vectoring an aircraft, ensure that the commitment to provide a vectoring service will not be detrimental to other responsibilities and requirements. Consider:
   a) disposition of other aerodrome traffic;
   b) current and expected traffic levels; and
   c) the extent of the vector.

12.9.4.4 Uncoordinated vector
Provide, if necessary, an uncoordinated vector to an aircraft to initiate separation and traffic management prior to the transfer of aircraft to the approach controller e.g. go-around, missed approach.
12.10 Tower Flight Progress Strips

12.10.1 Data entry procedure

12.10.1.1 Times
Enter times on strips immediately after aircraft:

a) taxi;
b) take-off; and
c) land.

12.10.1.2 Aerodrome control reports
Enter the following aerodrome control reports on receipt:

a) The time of transfer of control and, if the report is at other than the standard transfer point, an abbreviation for the position at transfer;
b) Departure time;
c) The time the aircraft began final approach;
d) Reports made at scheduled reporting times; and
e) Other reports which are considered necessary to record.

12.10.1.3 Aerodrome control instructions and clearances
Record the following aerodrome control instructions and clearances when issued:

a) runway;
b) time aircraft cleared for final approach, or when aircraft will begin final approach;
c) instructions relating to changes of levels (if required); and
d) other instructions which are considered necessary to record e.g. restriction of area of operation or altitude limitations imposed on a local flight.
12.11 Operation of aerodrome lighting

12.11.1 Operation of lighting procedures

12.11.1.1 Aerodrome lighting
Operate aerodrome lighting:

a) during the hours of darkness; and

b) at any other time when their use, based on meteorological conditions, is considered desirable for the safety of air traffic.

12.11.1.1.1 Exception - aerodrome lighting
Runway and approach lighting may be extinguished at pilot request to facilitate NVG operations.

12.11.1.2 Runway lighting
Only operate runway lighting for a runway not nominated on the ATIS/CATIS/DATIS for the purposes of:

a) landing, take-off or taxiing;

b) circuit operations;

c) runway inspections or maintenance;

d) assistance in the navigation of airborne aircraft; or

e) assistance to ground based operations.

12.11.1.2 Minimum period runway lighting operation

<table>
<thead>
<tr>
<th>Situation</th>
<th>Switch on</th>
<th>Switch off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departure</td>
<td>Prior to aircraft entering the runway</td>
<td>5 min after departure</td>
</tr>
<tr>
<td>Arrival</td>
<td>10 min before ETA</td>
<td>Once aircraft has taxied clear of the landing surface</td>
</tr>
</tbody>
</table>

12.11.1.3 Stop bar operation
Operate stop bars continuously at all holding positions associated with a runway in use.

12.11.1.3.1 Exception - multiple stop bars
Where both CAT I and CAT II/III stop bars are available on the same taxi route, you may switch off stop bars at CAT II/III holding positions when low visibility procedures are not in force.
12.11.1.4 Taxiway lights
Operate taxiway lights as required for the guidance of taxiing aircraft.

12.11.1.5 Aerodrome beacon
Operate the aerodrome beacon as warranted by traffic density:
   a) at night; and
   b) by day, during conditions of reduced visibility.

12.11.1.5.1 Time before ETA
Operate the beacon 20 minutes before ETA if not continuously displayed.

12.11.1.6 HIAL and HIRL
Operate HIAL and HIRL as follows:
   a) select initial intensity in accordance with the table below;
   b) vary settings in accordance with pilot requests; and
   c) advise pilots when equipment is operating in visibility of 5000 m or less.

12.11.1.6.1 Initial intensity for HIAL and HIRL

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Intensity stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Day</td>
</tr>
<tr>
<td>Not greater than 2000 m</td>
<td>6</td>
</tr>
<tr>
<td>Greater than 2000 m, but not greater than 4000 m</td>
<td>5</td>
</tr>
<tr>
<td>Greater than 4000 m, but not greater than 5000 m</td>
<td>4</td>
</tr>
<tr>
<td>Greater than 5000 m</td>
<td>-</td>
</tr>
</tbody>
</table>

12.11.1.7 VASIS systems
Operate the visual approach slope indicator systems (VASIS):
   a) whenever RWY lights are activated;
   b) by day, for all approaching RPT, jet and military aircraft and for all other approaching aircraft on request;
   c) in accordance with the table below; and
   d) by varying settings in accordance with pilot requests.

Note 1: In the event of a failure of the VASIS, the decision to make an approach rests with the pilot.

Note 2: Some ATC procedures (e.g. straight-in approach navaid unserviceable) require the VASIS to be operational.
12.11.1.7.1 Initial intensity stages for VASIS

<table>
<thead>
<tr>
<th>Condition</th>
<th>Intensity stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bright clear day</td>
<td>6</td>
</tr>
<tr>
<td>Bright day - cloudy</td>
<td>5</td>
</tr>
<tr>
<td>Fine day - overcast</td>
<td>4</td>
</tr>
<tr>
<td>Clear day - twilight</td>
<td>4</td>
</tr>
<tr>
<td>Clear night - moonlight</td>
<td>3+</td>
</tr>
<tr>
<td>Fine night - overcast</td>
<td>2+</td>
</tr>
<tr>
<td>Fine night - overcast, little or no extraneous lighting</td>
<td>1+</td>
</tr>
</tbody>
</table>

The stages specified should be increased by one when the visibility is less than 8 KM, or when any other unusual light condition occurs e.g. an approach into a setting or rising sun.

12.11.2 Portable lighting

12.11.2.1 Responsibility

List officers responsible for laying portable lighting in local instructions.

12.11.2.2 Advise responsible officer

When portable lighting is required, advise the responsible officer of the:

a) runway direction for night operations;
b) type of portable lighting to be laid;
c) requirements for lighting taxiways and taxi paths;
d) time by which the laying of the portable lighting and associated lighting must be completed;
e) time at which the portable lighting and associated lighting may be removed; and
f) any aspect of the lighting which is unsatisfactory.

12.11.2.3 Portable and emergency light timings

<table>
<thead>
<tr>
<th>Situation</th>
<th>Switch on</th>
<th>Switch off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departure</td>
<td>10 mins prior to departure</td>
<td>A minimum of 30 minutes after departure</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Planned departure time may not always be notified or available to ATC</td>
<td></td>
</tr>
<tr>
<td>Arrival</td>
<td>30 minutes before ETA</td>
<td>Until aircraft closed down</td>
</tr>
</tbody>
</table>
12.11.3 Aerodrome lighting inspection

12.11.3.1 Inspect aerodrome lighting

Inspect the appropriate aerodrome lights:

a) when switching on;

b) when laying portable lighting;

c) preceding isolated night landings/take-offs;

d) in time to permit corrective maintenance – under normal conditions; and

e) after a period of hazardous weather phenomena e.g. thunderstorm activity.

12.11.3.2 Interleaved circuitry lighting failure

When one electrical circuit fails on a runway equipped with interleaved circuitry lighting, notify pilots that the space between the runway edge lights has doubled.
12.12 ILS signal interference

12.12.1 Protection of ILS critical and sensitive areas

12.12.1.1 Causes of ILS signal disturbances
Disturbances to ILS localiser and glide slope courses may occur when vehicles or aircraft are operated near the localiser or glide slope antennas. To prevent these disturbances, ILS critical areas are established near each localiser and glide slope antenna. These areas are known as the Glide Path Critical Area, Localiser Critical Area and the Vehicle Critical Area. For CAT II/III and SA CAT I/II capable ILS installations, an ILS sensitive area is also established.

12.12.1.2 GBAS signal interference
Disturbances of GBAS signals are unlikely to occur in the normal course of operations.
12.12.1.3 Vehicle critical area protection

Protect the following generic vehicle critical area at all times you are notified that the ILS signal is being utilised by aircraft.

Note: The ILS critical infringement area for vehicles is a volume of airspace encompassing the lateral dimensions of the defined ‘vehicle critical area’ from ground level up to a height of 100 FT AGL.

12.12.1.3.1 Location specific vehicle critical areas

Location specific vehicle critical areas approved by the technical authority may be used in lieu of generic vehicle areas. Detail location specific vehicle critical areas in local instructions.
12.12.1.3.2 Safety vehicle exception

When the meteorological conditions do not require protection of the Glide Path or Localiser critical areas a safety vehicle may enter the vehicle critical area to complete a safety related task. Advise aircraft that the critical area is infringed.

See MATS 12.12.1.5 Critical area protection

12.12.1.4 Glide path and localiser critical areas

Protect the following generic glide path and localiser critical areas in accordance with Clause 12.12.1.5:

Image of glide path and localiser critical areas diagram

**Note 1:** The glide path critical area is a volume of airspace encompassing the lateral dimensions of the defined critical area from ground level up to a height of 100 FT AGL.

**Note 2:** The localiser critical area is that area bounded by the runway strip within 1 NM of localiser antennas on or over the runway strip of the appropriate runway extended to include the localiser antennas.

See MATS 12.12.1.5 Critical area protection
12.12.1.4.1 Location specific critical areas

Location specific critical areas approved by the technical authority may be used in lieu of generic critical areas. Detail location specific critical areas in local instructions.

12.12.1.5 Critical area protection

When the ceiling is at or below 600 FT or the visibility is 2000 m or less, ensure no aircraft enter the glide path or localiser critical areas when an arriving aircraft is within:

a) the OM; or
b) 4 NM from the threshold if no OM exists.

12.12.1.5.1 Protection exceptions

During CAT I ILS operations, when an arriving aircraft is within the distance specified in 12.12.1.5 you may allow a preceding aircraft on the same or another runway to infringe the glide path or localiser critical areas when:

a) landing or exiting the runway, provided a warning is issued to the arriving aircraft e.g. 'ILS CRITICAL AREA(S) INFRINGED, FALSE INDICATIONS POSSIBLE'; or
b) departing or making a missed approach.

See MATS 12.12.1.5 Critical area protection.

12.12.1.6 CAT II/III and Special Authorisation (SA) CAT I/II critical and sensitive areas

At locations conducting CAT II/III or SA CAT I/II precision approach procedures or localiser guided take-offs, specify procedures to protect ILS critical and sensitive areas in local instructions.

12.12.1.6.1 Location specific critical and sensitive areas

Detail location specific critical and sensitive areas, approved by the technical authority, in local instructions.

12.12.1.7 CAT II/III and Special Authorisation (SA) CAT I/II critical and sensitive areas protection

At CAT II/III and SA CAT I/II capable locations when the ceiling or visibility is below the CAT I minima and/or LVP has been notified, ensure aircraft and vehicles do not enter:

a) the relevant ILS critical areas — once an arriving aircraft has passed the ILS outer marker or, if an outer marker is not available, is within 4 NM of the landing runway threshold; and
b) the ILS sensitive areas — once an arriving aircraft is within 2 NM of the landing runway threshold.
12.12.1.7.1 **Sensitive area protection - arrivals**

Only protect that portion of the ILS localiser sensitive area ahead of the landing aircraft. Consider a preceding departing aircraft to be clear of the sensitive area when it has passed over the localiser antenna.

12.12.1.7.2 **Critical and sensitive area infringement**

If an aircraft or vehicle penetrates the critical and/or sensitive areas, advise the arriving aircraft: 'ILS CRITICAL AREA AND SENSITIVE AREA(S) INFRINGED FALSE INDICATIONS POSSIBLE'.

*Note:* Decision to continue is at pilot discretion.

12.12.1.8 **Critical and sensitive areas protection for guided take-off**

When the visibility is less than 550 m and a pilot notifies a requirement to conduct a localiser guided take-off, ensure the applicable ILS localiser critical and sensitive areas are protected. Do not allow aircraft or vehicles into the applicable ILS localiser critical and sensitive areas from the time of issuing the take-off clearance until the take-off is complete.

12.12.1.8.1 **Sensitive area protection - guided take-off**

Only protect that portion of the ILS localiser sensitive area ahead of the aircraft conducting a guided take-off. Consider a preceding departing aircraft to be clear of the sensitive area when it has passed over the localiser antenna.

12.12.1.9 **ILS category downgrade**

Notify pilots of any degradation to the available ILS category e.g.:

'ILS APPROACH RWY (number) DOWNGRADED [TO (category)] DUE TO (reason)'.

12.12.1.9.1 **ILS downgrade effect**

Detail downgrade effect due to equipment malfunction in local instructions.

12.12.1.10 **ILS critical and sensitive areas not protected**

When conditions are such that ATC is not protecting the ILS critical and sensitive areas, inform aircraft of possible disturbances to the ILS signal when conducting:

a) an 'Autoland' approach;
b) an approach with minima less than Category 1 during non-LVP; or
c) a localiser-guided take-off.

12.12.1.10.1 **Example ILS critical and sensitive areas**

Use the following phrase to advise when ILS critical and sensitive areas are not protected: 'ILS CRITICAL [AND SENSITIVE] AREAS NOT PROTECTED'.
12.13 Operation of standby generating plant

12.13.1 Standby power plant facility

12.13.1.1 Facility specification

Where the facility to activate standby power plant is directly available to the tower controller, specify the following details in local instructions:

a) Unit;
b) Facility activated by each switch;
c) Circumstances requiring operation of each switch; and
d) The delay in provision of airport standby power where it exceeds 15 seconds.

12.13.1.1.1 Conditions

Where the delay in provision of standby power exceeds 15 seconds, activate standby power plant serving precision approach aids and runway lighting prior to aircraft operations:

a) whenever the cloud base reaches 200 FT above the minima specified for the precision approach procedure or the visibility reduces below 2000 m;
b) during periods of known or anticipated hazardous weather phenomena likely to affect airport operations e.g. thunderstorm activity; or
c) during such other circumstances that warrant the activation of standby power plant e.g. planned interruptions to power supply.

12.13.1.1.2 Restricted visibility operations

Where the delay in the provision of standby power exceeds 1 second, activate standby power serving precision approach aids, stop bars and runway lighting when the following operations are intended:

a) CAT II/III or SA CAT I/II precision approach procedures; or
b) Take-off in RVR/RV conditions less than a value of 800 m.
13  Forms

13.1  SAR forms ......................................................... 580
      13.1.1  Urgent SAR message ....................................... 580
      13.1.2  Distress Beacon Signal Report Form ......................... 582
      13.1.3  International ALR Message Form .............................. 584

13.2  Flight plan forms .................................................. 586
      13.2.1  Supplementary Flight Plan Message Format .................. 586
      13.2.2  ICAO Flight Plan ........................................... 588

13.3  MATS forms ......................................................... 590
      13.3.1  Request for Change Form .................................... 590
13.1 SAR forms

13.1.1 Urgent SAR message

13.1.1.1 Urgent SAR message

See overleaf for form.
URGENT SAR MESSAGE

SS YSARYCYX rccaus@amsa.gov.au

To: JRCC Australia Fax No: 02 6230 6868 or 1800 622 153 From (originator)

<table>
<thead>
<tr>
<th>Phase</th>
<th>INCERFA</th>
<th>ALERFA</th>
<th>DETRESFA</th>
<th>Declared @</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(UTC)</td>
</tr>
</tbody>
</table>

Nature of Emergency

Callign | Registration | ACFT Type
-------|--------------|------------

Rules: I V O Type of Operation: S N O G M X O COM: V H U J

EQUIP: ILS ADF VOR DME WX Radar TAC 1INS2 GPS SSR ADS-B ADS-C

Last DEP Pt ATD DEST ETA

Via Route

Last Report (UTC) Received By (unit) FREQ

Last Known Position @ (UTC) LEVEL HDG TAS GS

ENDCE POB ELT 121.5 243 406

SARTIME For arrival at To

Action taken by reporting unit

Destination Checked Yes No by: (person or title)

Replay Audio Yes No Phone No:

Radar Yes No Copy of Action Log attached Yes No

Replay File Attached Yes No Flight Plan attached Yes No

Attention JRCC Australia

1. Acknowledge receipt by telephone to Originator.
2. Advise the Originator when the phase is cancelled.

Authorised by: DTG:

Telephone No: Fax No:

Phase cancelled at (DTG):

Copy to be retained on the Originator’s Handover File until phase cancelled.
13.1.2 Distress Beacon Signal Report Form

13.1.2.1 Distress Beacon Signal Report Form
See overleaf for form.
### DISTRESS BEACON SIGNAL REPORT FORM

**To:** JRCC Australia  
Fax No: 02 6230 6868 or 1800 622 153  
OR AFTN SS YSARYCYX OR email rccaus@amsa.gov.au

**From:** ML BN TCU/Tower MIL ATC

<table>
<thead>
<tr>
<th>CALLSIGN:</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
</table>

**FIRST HEARD**
- [ ] tick
- [ ] FADE IN
- [ ] tick
- [ ] ABRUPT
- [ ] tick

**NIL HEARD**
- [ ] tick

**TIME**

<table>
<thead>
<tr>
<th>UTC</th>
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</table>

**POSITION**

<table>
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<tr>
<th>S</th>
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**FL / ALT**

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**LAST HEARD**
- [ ] tick
- [ ] FADE OUT
- [ ] tick
- [ ] ABRUPT
- [ ] tick

**TIME**

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<tr>
<th>UTC</th>
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**POSITION**

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**FL / ALT**

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**NOTE** – On receipt of an initial high level distress beacon signal report, to assist in localising the source, attempt to obtain low level reports from other aircraft.

**NOTE** – Where Eurocat is not available, or a latitude and longitude cannot easily be established, then a reference to a route identifier, location or bearing and distance may be used.

**REMARKS**
13.1.3 International ALR Message Form

13.1.3.1 International ALR Message Form
See overleaf for form.
<table>
<thead>
<tr>
<th>Priority indicator</th>
<th>Addressee(s)</th>
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</thead>
<tbody>
<tr>
<td>SS</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Filing time</th>
<th>Originator indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Message type</th>
<th>5. Phase</th>
<th>Originator</th>
<th>Nature of emergency</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ALR ___ / ___ / ___)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Aircraft ident and SSR mode and code</th>
<th>8. Flight rules and type of flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Type of aircraft and WTC</th>
<th>10. Equipment and capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
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</table>

<table>
<thead>
<tr>
<th>13. Departure aerodrome and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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</table>

<table>
<thead>
<tr>
<th>15. Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>16. Destination aerodrome and total time, destination alternate aerodrome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18. Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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</table>

<table>
<thead>
<tr>
<th>19. Supplementary information</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Fuel endurance</th>
<th>Persons on board</th>
<th>Frequencies</th>
<th>Survival equipment</th>
<th>Life jackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
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<table>
<thead>
<tr>
<th>Dinghies</th>
<th>Colour/markings</th>
<th>Other survival equipment</th>
<th>Pilot in command</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>20. Alerting SAR information (any item not available should be shown as NIL or NOT KNOWN)</th>
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<table>
<thead>
<tr>
<th>Operator</th>
<th>Unit which made last contact</th>
<th>Time of last contact</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
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</table>

<table>
<thead>
<tr>
<th>Last reported position</th>
<th>How determined</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Action taken by reporting unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other pertinent information</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
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</table>

<table>
<thead>
<tr>
<th>Date/time originated</th>
<th>Authorised by</th>
<th>Branch</th>
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</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>
13.2 Flight plan forms

13.2.1 Supplementary Flight Plan Message Format

13.2.1.1 Supplementary Flight Plan Message Format

See overleaf for form.
### SUPPLEMENTARY FLIGHT PLAN MESSAGE FORMAT

<table>
<thead>
<tr>
<th>Priority Indicator</th>
<th>Addressee(s)</th>
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<tbody>
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<td>&lt;&lt;Ξ</td>
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<table>
<thead>
<tr>
<th>Filing time</th>
<th>Originator indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;&lt;Ξ</td>
</tr>
</tbody>
</table>

3. Description  
7. Aircraft identification and SSR mode and code  
13. Departure aerodrome and time  
(SPL | — | — | <<Ξ |

16. Aerodrome of destination and time  
Alternate aerodrome(s)  
— | — | <<Ξ |

18. Other information (See note 1.)  
— | <<Ξ |

19. Supplementary information (See note 2.)  
Endurance | Persons on board | Emergency and survival equipment  
E / | — | P / | — | R / |

Equipment | Life jackets | Dinghies  
S / | — | J / | — | D / |

Aircraft | Other | Pilot  
A / | — | N / | — | C / |

Date/time originated | Authorised by | Branch  

NOTES:  
1. Other information should include all items contained in field 18 of the FPL  
2. Includes as per the SUPPLEMENTARY INFORMATION section on the field Plan.
13.2.2 ICAO Flight Plan

13.2.2.1 ICAO Flight Plan

See overleaf for form.
**ICAO FLIGHT PLAN**

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
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<tbody>
<tr>
<td>Priority</td>
<td>FF</td>
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<tr>
<td>Addressee(s)</td>
<td></td>
</tr>
<tr>
<td>Filling time</td>
<td></td>
</tr>
<tr>
<td>Originator</td>
<td></td>
</tr>
<tr>
<td>Specific identification of addressee(s) and/or originator</td>
<td></td>
</tr>
<tr>
<td>3. Message type</td>
<td>FPL</td>
</tr>
<tr>
<td>7. Aircraft identification</td>
<td></td>
</tr>
<tr>
<td>8. Flight rules</td>
<td></td>
</tr>
<tr>
<td>10. Equipment</td>
<td></td>
</tr>
<tr>
<td>9. Number</td>
<td></td>
</tr>
<tr>
<td>13. Departure aerodrome</td>
<td></td>
</tr>
<tr>
<td>15. Cruising speed</td>
<td></td>
</tr>
<tr>
<td>16. Destination Aerodrome</td>
<td></td>
</tr>
<tr>
<td>18. Other information</td>
<td></td>
</tr>
<tr>
<td>Total EET</td>
<td></td>
</tr>
<tr>
<td>19. Endurance</td>
<td></td>
</tr>
<tr>
<td>21. Emergency Radio</td>
<td></td>
</tr>
<tr>
<td>22. Survival Equipment</td>
<td></td>
</tr>
<tr>
<td>23. Aircraft colour and marking</td>
<td></td>
</tr>
<tr>
<td>24. Remarks</td>
<td></td>
</tr>
<tr>
<td>Filed by</td>
<td></td>
</tr>
<tr>
<td>Space reserved for additional requirements</td>
<td></td>
</tr>
</tbody>
</table>

**SUPPLEMENTARY INFORMATION (not to be transmitted in FPL messages)**

- Endurance
- Persons on board
- Emergency Radio
- Survival Equipment
- Polar
- Desert
- Maritime
- Jungle
- Jackets
- Light
- Fluores
- UHF
- VHF
- Dinghies
- Number
- Capacity
- Cover
- Colour
- Aircraft colour and marking
- A
- Remarks
- Pilot in command
- C

---

ATS-FORM-0023  Version 1: 03 Jun 2010
13.3 MATS forms

13.3.1 Request for Change Form

13.3.1.1 Request for Change Form

See overleaf for form.
## Request for Change Form

### Select Type

<table>
<thead>
<tr>
<th>Title:</th>
<th>Date:</th>
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</table>

| NRFC/Paper Number: | RM8 Record No: |
| (if available) | (CASA use only) |

<table>
<thead>
<tr>
<th>Proposed AIRAC effective date:</th>
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</table>

<table>
<thead>
<tr>
<th>Amendment Record</th>
<th>Use issue numbers to track changes.</th>
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</thead>
<tbody>
<tr>
<td>Number:</td>
<td>Amendment summary:</td>
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<tr>
<td>0.1</td>
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<table>
<thead>
<tr>
<th>Proponent:</th>
<th>Unit:</th>
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<tbody>
<tr>
<td>Email:</td>
<td>Phone:</td>
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</table>

<table>
<thead>
<tr>
<th>Sponsor (if required):</th>
<th>Unit:</th>
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</thead>
<tbody>
<tr>
<td>Email:</td>
<td>Phone:</td>
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</table>

<table>
<thead>
<tr>
<th>Change summary:</th>
<th>A short description of the change to be included in the document change summary.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reason for change:</th>
<th>A comprehensive description of the change including the Issue (including a problem statement), a Discussion and a Recommendation. If a working or discussion paper, the body of the paper would appear here.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Amended document references:</th>
<th>List the document references being amended by this change e.g. AIP ENR 1.1 para 8.5, NAPM 2.1.1.4.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Related document references:</th>
<th>ICAO Documents, MOS, MATS, AIP, ERSA, DAP, NAPM, NAAM etc.</th>
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</table>

<table>
<thead>
<tr>
<th>Other affected parties:</th>
<th>Include organisations, units, systems, functional areas (e.g. Airservices/Eurocat/INTAS/Data/ADF/DASA/CASA/BoM/DIRDC).</th>
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</thead>
</table>
For AIP changes - Part 175 Data Originator

<table>
<thead>
<tr>
<th>Clause(s)</th>
<th>Principle responsibility</th>
<th>Consultation</th>
<th>Secondary responsibility</th>
<th>Consultation</th>
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</thead>
<tbody>
<tr>
<td>Select</td>
<td>Select</td>
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<td>Select</td>
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</tbody>
</table>

Consultation:
Where appropriate, detail consultation undertaken, attach copies of emails, documents, agreements, etc.

Nature of change: □ Editorial □ Minor □ Major

Published notification:
Attach copy (e.g. NOTAM, AIC, NIC, GC) and/or provide description.

Controller/pilot education:
Attach evidence and/or provide description.

Urgency of Change: Include any deadlines and consequences of delay.

Safety assessment:
Indicate required or completed safety work. CASA Users: Leave blank if not required.

Provide any additional comments or details regarding the safety assessment.

Safety assessment: □ SEFT □ SCARD □ Safety Statement

□ Safety Assessment Report □ Safety Case

Proposed wording: After copying existing text, turn on TRACK CHANGES to highlight changes.