PART 2 - EN ROUTE (ENR)

ENR 0.

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ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.1 GENERAL RULES

1. INTRODUCTION

The air traffic rules and procedures applicable to air traffic in Australia and its Territories conform to *CASR Part 91* and the *Part 91 MOS*, and *CASR Part 172* and the *Part 172 MOS*. Differences to Annexes 2 and 11 to the Convention on International Civil Aviation are listed in *GEN 1.7.*

2. OPERATIONS IN CONTROLLED AIRSPACE

2.1 Separation

Note: Separation between aircraft is provided in accordance with ENR 1.4 Section 4.

2.2 Air Traffic Control Clearances and Instructions

2.2.1 A pilot in command of an aircraft must not enter a control zone or a control area that is Class A, B, C, D or E airspace without ATC clearance unless it is a VFR flight entering Class E airspace.

Note 1: An ATC clearance is valid:

a. for a flight wholly contained in controlled airspace – to the specified destination or clearance limit;

b. for a flight that is partly contained in controlled airspace – to the point where the aircraft first leaves controlled airspace; or

c. only if the flight enters controlled airspace in accordance with the clearance at or before the clearance expiry time, if issued.

Note 2: To request access to Restricted or Military Operating Areas contact the relevant controlling or administering authority - refer ENR 5.1.

2.2.2 A pilot must advise ATC immediately if issued a clearance with which the pilot cannot comply. If considered necessary, a pilot should request a different clearance from that issued.

2.2.3 When clearance has been issued to deviate from the cleared route the pilot must advise ATC when the deviation:

a. is no longer required; or

b. has been completed and the aircraft is established back on its cleared route.

2.2.4 If unable to obtain a clearance for a deviation and the pilot considers there is no safer alternative course of action:

1) select code 7700;
2) broadcast an urgency message specifying details of the deviation on the appropriate ATC and emergency frequencies; and
3) repeat the urgency message at regular intervals.

Note 1: Aircraft proceed at their own risk when entering an active Restricted or Military Operating Area without a clearance or approval.

Note 2: ATC will terminate control services and continue to provide flight information and alerting services.

2.2.4.1 Pilots must obtain a clearance to re-enter controlled airspace before exiting the Restricted or Military Operating Area.

2.2.5 Except for instructions related to SID and STAR operations when ATC issues a level clearance to an aircraft, any level restriction issued with an earlier clearance is automatically cancelled. ATC will issue (or re-issue) any required level restrictions with new level clearances by:

a. restating all restrictions; or
b. prefixing the subsequent instruction with “FURTHER RESTRICTION”.

2.2.6 **Entering Controlled Airspace**

2.2.6.1 When communication facilities permit, clearances will be passed direct to pilots by ATC. When direct communication on the published frequency is not possible the pilot should request a clearance through the ATS unit providing services in the preceding non-controlled airspace.

2.2.6.2 If proposing to fly into a control area from an aerodrome located so close to the entry point that making a full position report before entry is not practicable, the pilot should request a clearance:

a. prior to entering the runway, where direct communication is available;
b. after take-off, provided that the aircraft does not enter control area until cleared; or

c. prior to landing, when intending to depart for controlled airspace shortly after landing.

2.2.6.3 Where the en route LSALT is in controlled airspace, the pilot should request clearance prior to departure and include an estimated airborne time.

2.2.6.4 Excluding Class D airspace, when requesting clearance and flight details have not been provided, pilots must wait for ATC to respond with their call sign before providing the flight details.

2.2.6.5 When making first contact with Approach Control, the following apply:

a. Not Identified – report:
   (i) DME or GNSS distance from aerodrome, if available;
   (ii) VOR radial, GNSS track or compass quadrant from the aerodrome, or if issued a STAR clearance, the STAR designator;
   (iii) assigned level;
   (iv) flight conditions, if appropriate; and
   (v) receipt of ATIS (code);

b. Identified – report:
   (i) assigned level;
   (ii) flight conditions, if appropriate; and
   (iii) receipt of ATIS (code).

2.2.7 **Operations in Class D Airspace**

2.2.7.1 Within a Class D CTR, a clearance to take-off is a clearance to operate within or depart the CTR into Class G airspace in accordance with the ready report.

2.2.7.2 Two-way communications established between a pilot and ATC constitutes a clearance for the aircraft to enter Class D airspace.To establish two-way communications the pilot must:

a. initiate communications and advise current position, altitude, intention, ATIS received and any request(s); and

b. establish communications with ATC as follows in order to enter Class D airspace:

ATC Response	Communications Established	Pilot Action
(aircraft call sign)	Yes	– Fly the track, level and intentions stated when initiating two-way communications. – Comply with any subsequent ATC instructions. – When no level instruction is issued, descend as necessary to join the aerodrome traffic circuit.
(aircraft call sign) (instructions)	Yes	– Comply with ATC instructions. – When no level instruction is issued, descend as necessary to join the aerodrome traffic circuit.
Responds to the initial radio call without using the aircraft call sign, e.g. AIRCRAFT CALLING ARCHER TOWER, STANDBY, or AIRCRAFT CALLING ROCKY TOWER, SAY AGAIN	No	Remain outside Class D airspace

Note: See GEN 3.4 for generic phraseology used by ATC when a clearance is not immediately available.

2.2.8 **RNP AR Departures**

2.2.8.1 Pilots of aircraft that have included PBN/T1 in Field 18 of the flight notification form should request an RNP AR departure at clearance delivery unless there is a standing agreement between the Operator and the ATS provider to automatically assign RNP AR departures for eligible flights.

2.2.9 Pre-departure Clearance (PDC)

2.2.9.1 Use of PDC is limited to operations authorised by Airservices Australia. Operators wishing to participate in PDC should submit a request to Airservices Australia. Participating operators must not delete any component of the PDC message nor amend the order of the text.

2.2.9.2 When departing an airport participating in PDC, pilots must obtain the PDC, via ACARS or hard copy message, no later than 15 minutes prior to EOBT. If the PDC is not available by 15 minutes prior to EOBT, pilots must contact the ACD frequency for a verbal airways clearance.

Note: ATC will not send amended route clearances via PDC.

2.2.9.3 Pilots must readback the following items on the ACD frequency, or on the SMC frequency if ACD is not established, prior to a pushback or taxi request:

a. The SID, including runway and/or transition (if issued);

b. Transponder code;

c. Additional requirements specified in the PDC; and

d. Current parking position/bay.

2.2.10 Flying Training Clearances

2.2.10.1 Pilots of multi-engined aircraft must obtain ATC approval before conducting asymmetric training within 5NM of a controlled aerodrome.

2.2.11 Clearances for operations at night or in IMC below published LSALT

2.2.11.1 Some flights are specially authorised to operate below the published LSALT at night or in IMC (e.g. using NVIS). The pilot in command is solely responsible for avoiding terrain in such cases. Associated clearance requests must be expressly initiated by the pilot in command and should inform ATC about the nature of the operation (e.g. NVIS, OWN TERRAIN CLEARANCE, etc.).

2.3 Ground Movement

2.3.1 Pushback

2.3.1.1 The pilot in command must obtain an approval to pushback where this manoeuvre is necessary prior to taxiing. Information about other aircraft moving on the same apron will be provided by the apron service.

Note: See ENR 1.9 for engine start requirements at aerodromes that have implemented Airport Collaborative Decision Making.

2.3.2 Taxi Clearance

2.3.2.1 When operating from a controlled aerodrome where ATIS is in operation, a pilot in command must obtain the ATIS prior to taxi, and advise ATC of the ATIS code when requesting taxi clearance.

2.3.2.2 For IFR flights other than Australian air transport operations the pilot in command must provide ATC with the number of POB when requesting taxi clearance.

2.3.2.3 Pilots of civil VFR training flights should advise DUAL or SOLO, as appropriate, when requesting clearance.

2.3.2.4 The pilot in command must obtain a taxi clearance either prior to moving on the manoeuvring area, or in the case of *para 2.3.1*, at the completion of the pushback manoeuvre.

2.3.2.5 Avoidance of collision on apron areas is a joint responsibility of the pilot in command and any assisting company ground personnel.

2.3.2.6 VFR flights wishing to depart without submitting flight notification should provide the following information on first contact with ATC:

a. aircraft call sign and “FLIGHT DETAILS FOR DEPARTURE” (wait for a response from ATC);

b. destination and first tracking point;

c. preferred level; and

d. identification of ATIS code received.

2.3.3 Circuit Direction

A pilot in command must use the word “REQUIRE” to notify ATC if a particular turn or circuit is essential to the safe operation of the aircraft.

2.3.4 Stop Bar Procedures

2.3.4.1 At a controlled aerodrome, all runways are considered available for use unless aerodrome users are notified otherwise (*see para 2.3.5*). Where installed, stop bars are operated at all times to prevent entry onto a runway. Pilots must stop and hold at all illuminated stop bars and may only proceed when a verbal ATC clearance to enter or cross the runway has been received and the stop bar lights have been switched off.

2.3.5 Closed Runways Local Procedures

2.3.5.1 Closed runways are excluded from standardised stop bar procedures and are subject to local arrangements between the aerodrome operator, ATC and runway users (refer to *AIC/SUP, NOTAM* or the aerodrome operator).

2.3.6 Stop Bar Contingency Procedures

2.3.6.1 If stop bar lighting cannot be deselected, the activation of stop bar contingency procedures will be notified via voice or the ATIS. ATC may instruct pilots and drivers to cross an illuminated stop bar when stop bar contingency procedures are in force.

2.4 Take-off

2.4.1 Tower Frequency and Information Transfer

2.4.1.1 Domestic aircraft should change to tower frequency:

a. in the holding bay; or

b. close to, or at, the runway-holding position of the nominated runway, when ready for take-off.

2.4.1.2 At Class D aerodromes, pilots must include the following information when reporting ready:

a. The departure runway when parallel runway operations are in progress;

b. Their intentions when operating wholly within a Class D CTR; and

c. Their tracking details when departing the Class D CTR and not in receipt of an airways clearance.

2.4.2 Runway Entry

2.4.2.1 When a backtrack on the runway nominated for take-off is required, the pilot must obtain a clearance to backtrack prior to entering the runway.

2.4.2.2 Aircraft issued a conditional clearance to enter or cross a runway must identify the vehicle or aircraft causing the conditional clearance.

2.4.3 Holding on Runway

2.4.3.1 The pilot in command must obtain a clearance before holding on the runway in use.

2.5 Visual Departure - IFR Flights

2.5.1 By day in VMC, the pilot of an IFR flight may request a visual departure, or ATC may issue a visual departure.

2.5.2 ATC Responsibilities

2.5.2.1 ATC will only issue a visual departure to an IFR flight when the cloud base is such that the pilot can maintain flight in VMC below the MVA (ATS surveillance services) or the MSA/LSALT.

2.5.2.2 When an IFR aircraft is issued heading instructions and/or required to maintain a level below the MVA or MSA/LSALT during a visual departure, “VISUAL” will be appended to the departure instruction.

2.5.3 Pilot Responsibilities

2.5.3.1 The requirements of this section are the visual departure procedures applicable to IFR flights under *CASR 91.305(3)(b)(i).*

2.5.3.2 A pilot of an IFR flight may only request a visual departure when the cloud base will allow the aircraft to climb in VMC to the MSA/LSALT applicable to the departure. Additionally, if the intended cruising level is lower than route LSALT, the cloud base must permit flight in VMC at that level.

2.5.3.3 During the conduct of a visual departure, a pilot must:

a. maintain the track(s)/heading(s) authorised by ATC;

b. remain not less than 500FT above the lower limit of the CTA; and

c. visually maintain obstacle clearance.

2.6 VFR Departure by an Aircraft Planned IFR

2.6.1 The pilot of an IFR flight departing a Class D aerodrome may request a VFR departure with the expectation of obtaining an IFR clearance en route.

2.6.2 The pilot of an IFR flight conducting a VFR departure:

a. must comply with the VFR.

b. is responsible for separation with other aircraft within the Class D airspace.

c. must obtain ATC clearance prior to entering Class A or C airspace.

d. must obtain ATC clearance to resume IFR in Class A, C, D or E airspace.

e. must notify ATC when reverting to IFR once in Class G airspace.

2.6.3 When an IFR aircraft conducts a VFR departure, ATC will treat the aircraft as:

a. VFR for separation services in Classes C, D and 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 an SIS in Class E or G airspace for traffic information.

c. IFR for all other services, such as SAR, weather and NOTAM information, in all classes of airspace.

2.7 **After Take-off**

2.7.1 **Airborne Report in airspace with ATS Surveillance**

In Class C and Class D control zones where an ATS surveillance service is provided, on first contact with Centre, Approach or Departures, a pilot must report:

a. if assigned an initial heading - the direction of turn and assigned heading;

b. the altitude passing, to nearest 100FT; and

c. the last assigned level.

2.7.2 **Departure Report - certain Class D aerodromes**

2.7.2.1 At certain Class D aerodromes where the tower also provides a procedural approach control service (see *ERSA*), a pilot must report on the TWR frequency after take-off:

a. tracking information; and

b. the last assigned altitude

However, this report is not required:

a. for VFR aircraft departing the control zone directly into Class G airspace; or

b. for aircraft that have been instructed to contact Centre, Approach or Departures once airborne - in which case an airborne report will be made on the relevant frequency.

2.7.2.2 Tracking information must confirm the track established with reference to the appropriate navigation aid or, if tracking via a SID, confirm the SID designator.

2.7.3 **Establishment on Track**

Unless tracking via a SID or otherwise instructed by ATC, a pilot in command must remain within 5NM of the departure aerodrome to establish flight on the departure track as soon as practicable after take-off.

2.7.4 **Frequency Change**

2.7.4.1 When frequency change instructions are issued immediately preceding the take-off clearance, pilots must transfer automatically from Tower as soon as practicable after take-off, preferably within one mile of becoming airborne.

2.7.4.2 In all other situations, pilots of departing aircraft are required to remain on Tower frequency until specific frequency change instructions are issued. Pilots can generally expect an instruction to contact Departures Control prior to reaching 2,000FT and should, when advised, effect the change as soon as possible.

2.7.4.3 When contacting Area Control, pilots must advise the last assigned level and, if not maintaining the assigned level, the level maintaining or last vacated level.

Note: The "last vacated level" may be omitted by identified aircraft squawking pressure altitude derived level information.

2.8 **VFR Climb and Descent - IFR Flights**

2.8.1 **General**

2.8.1.1 A pilot of an IFR flight, operating in VMC, in classes D and E airspace, may request to climb/descend VFR.

2.8.1.2 When, in the controller's judgement, there is reason to believe that flight in VMC may become impracticable, the controller will issue an alternative clearance that ensures separation from all other aircraft for which they have separation responsibility.

2.8.1.3 The pilot of an IFR flight cleared to "Climb/Descend VFR" will receive a service in accordance with *para 2.8.3.2*.

2.8.1.4 An appropriate clearance must be obtained prior to entering a different class of controlled airspace.

2.8.2 **Pilot Procedures**

2.8.2.1 The pilot of an IFR flight requires a clearance to conduct a VFR climb/descent in VMC.

2.8.2.2 When operating in VMC with an ATC clearance to “Climb/ Descend VFR”, pilots of IFR flights must:

a. comply with the VFR visibility and distance from cloud criteria stipulated in *ENR 1.2 Section 2.*;

b. comply with instrument flight rules that are applicable to the flight; i.e. position reporting, radio communications, cleared route, adherence to ATC clearance, etc; and

c. visually maintain obstacle clearance.

2.8.2.3 The pilot of an IFR flight operating VFR climb/descent must maintain vigilance so as to see and avoid other aircraft. Additionally, the pilot accepts the responsibility for wake turbulence separation.

2.8.3 **ATC Procedures**

2.8.3.1 On receiving a request for VFR climb/descent, ATC may instruct the pilot to “Climb/Descend VFR” for a specified portion of the flight.

2.8.3.2 When the pilot is cleared to “Climb/Descend VFR”, ATC will provide:

a. mutual traffic information service on IFR flights;

b. traffic information service on known VFR flights as far as practicable; and

c. a flight information service.

Note: IFR separation is not provided.

2.9 **VFR-On-Top - IFR Flights**

2.9.1 **General**

2.9.1.1 In Class E airspace, a pilot of an IFR flight may request VFR-on-top in lieu of an assigned altitude. This permits a pilot to select a VFR altitude or flight level of their choice subject to any ATC restrictions.

2.9.1.2 Pilots desiring to climb through cloud, haze, smoke, or other meteorological formation may request a climb to VFR-on-top.

2.9.1.3 ATC clearance to “Maintain VFR-on-top” is not intended to restrict pilots so that they must operate only above an obscuring meteorological formation (layer). Instead, the clearance permits operation above, below, between layers, or in areas where there is no meteorological obscuration.

2.9.1.4 When, in the controller’s judgement, there is reason to believe that flight in VMC may become impracticable, the controller must issue an alternative clearance that ensures separation from all other aircraft for which they have separation responsibility.

2.9.1.5 The pilot of an IFR flight cleared to “Maintain VFR-on-top” will receive a service in accordance with *para 2.9.3.2*.

2.9.1.6 An appropriate clearance must be obtained prior to entering a different class of controlled airspace.

2.9.1.7 ATC resumes separation responsibility when the aircraft is re-cleared to maintain an IFR level.

2.9.2 **Pilot Procedures**

2.9.2.1 The pilot of an IFR flight requires a clearance to operate VFR-on-top.

2.9.2.2 When operating with an ATC clearance to “Maintain VFR-on-top”, pilots on IFR flight plans must:

a. fly at the appropriate VFR levels as prescribed in *ENR 1.7 Section 5.*;

b. comply with the VFR visibility and distance from cloud criteria stipulated in *ENR 1.2 Section 2.*;

c. comply with instrument flight rules that are applicable to the flight; i.e. minimum IFR altitudes, position reporting, radio communications, cleared route, adherence to ATC clearance, etc; and

d. advise ATC prior to any altitude change to ensure the exchange of accurate traffic information.

2.9.2.3 The pilot of an aircraft operating VFR-on-top must maintain vigilance so as to see and avoid other aircraft. Additionally, the pilot accepts the responsibility for wake turbulence separation.

2.9.3 **ATC Procedures**

2.9.3.1 On receiving a request for VFR-on-top, ATC may instruct the pilot to climb to "VFR-on-top". This instruction will include:

a. if required, a clearance limit, routing, and an alternative clearance if VFR-on-top is not reached by a specified altitude;

b. the requirement to report reaching VFR-on-top; and

c. the reported height of the tops or that no tops reports are available.

2.9.3.2 When the pilot reports reaching VFR-on-top, ATC re-clears the aircraft to "Maintain VFR-on-top" and will provide:

a. mutual traffic information service on IFR flights,

b. traffic information service on known VFR flights as far as practicable, and

c. a flight information service.

Note: IFR separation is not provided.

2.9.3.3 ATC will 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.

2.10 **En Route**

2.10.1 All levels flown in classes A, C and D airspace, and IFR levels flown in Class E airspace, must be assigned by ATC. Levels flown by VFR aircraft or IFR flights maintaining VFR-on-top in Class E airspace must be in accordance with the VFR Table of Cruising Levels.

2.10.2 Except when identified, position reports are required for all aircraft in classes A, C and D airspace, and for IFR flights or flights using the IFR Pick-up procedure after initial contact with ATC in classes E and G airspace.

2.10.3 **Reports**

2.10.3.1 The position report format appears in *APPENDIX 1*. *Section 2* of the report should only be transmitted when required by the operator or when deemed necessary by the pilot. *Section 3* of the report is required for the situations described in *APPENDIX 1*.

2.10.3.2 Aircraft operating area-type flights and nominating scheduled reporting times may limit the report to “level” and the “present position” or the sector of the survey area in which the aircraft is currently operating.

2.10.3.3 Pilots must give ATS notice of an impending position report by use of the word “POSITION”; e.g. “MELBOURNE CENTRE (call sign) POSITION”. Pilots must wait for the ATS instruction before reporting position.

2.10.3.4 Pilots must report maintaining an assigned level, unless ATC has advised IDENTIFIED. An IFR flight operating VFR-on-top or requesting IFR Pick-up must advise level maintaining.

2.10.3.5 After any frequency change, pilots must advise the last assigned level and, if not maintaining the assigned level, the level maintaining or last vacated level.

Note: The “last vacated level” may be omitted by identified aircraft squawking pressure altitude derived level information.

2.10.3.6 Pilots should normally report ETA at the place of intended landing when at the last position report.

2.11 Descent and Approach

2.11.1 General

2.11.1.1 Most companies operating jet aircraft have agreed to a standard descent profile which may be specified in the operator’s operational document suite. Pilots must adhere to this profile unless operational reasons require, or ATC instructs or approves, otherwise. A sustained speed variation of more than ±10KT IAS or ±M0.02 must be advised to ATC.

2.11.1.2 Pilots are not required to nominate a descent point if identified.

2.11.1.3 Pilots of IFR flights leaving classes A, C, D or E airspace should, before entering Class G airspace, contact the ATS unit providing services in that airspace.

2.11.2 Instrument Approach

2.11.2.1 **ATC Authorisation.** Unless authorised to make a visual approach, an IFR flight must conform to the published instrument approach procedure nominated by ATC.

2.11.2.2 A pilot request to conduct a specific approach should be made prior to STAR clearance issue, or prior to top of descent for arriving aircraft not on a STAR eligible route.

2.11.2.3 Authorisation for final approach will be in the form of a clearance for the type of approach as shown on the approach chart title. If visual at the minima, the nominated runway then becomes the clearance limit subject to any further ATC instructions and a clearance to land. In the event that the aircraft is unable to land from the instrument approach or loses visual reference whilst circling, the aircraft is cleared to carry out the published missed approach unless ATC directs otherwise. The pilot in command must seek further ATC instructions prior to reaching the end of the missed approach procedure.

2.11.2.4 Where an instrument approach results in the aircraft leaving controlled airspace, the clearance for the approach also provides clearance for the aircraft to re-enter overlying controlled airspace, Restricted or Military Operating Area in the event of a missed approach. ATC should be advised as soon as possible on the missed approach.

2.11.2.5 The chart title for an instrument approach procedure is used for all radiotelephony relating to the procedure (including entry procedures), subject to the following:

a. The word ‘APPROACH’ is included between ‘type of approach’ (VOR, ILS, RNP etc. including any procedure suffix) and the runway designator (RUNWAY 01, RWY 33 etc).

b. If multiple approach procedures are on the same chart, e.g. ‘NDB-A and VOR-A’, only the approach procedure being conducted should be referred to.

c. If the chart title has a parenthetical suffix, e.g. (LNAV/VNAV ONLY), (AR), the text in the parentheses is not included in radiotelephony.

d. A runway designator shown as optional in a radiotelephony phrase (e.g. [RUNWAY (number)]) should only be omitted when there is no possibility of confusion.

e. Other than for circling approaches, a procedure suffix (X, Y, etc.) may be omitted if there is no possibility of confusion.

2.11.2.6 Aircraft may be instructed to track via an instrument approach procedure and a level restriction assigned, if the aircraft is:

a. in VMC conducting instrument approach training; or

b. a military aircraft:

(1) conducting a non-precision approach; or

(2) conducting an approach procedure with vertical guidance or a precision approach provided that clearance for the approach is issued in sufficient time for the aircraft to maintain the required descent rate in accordance with the published procedure.

2.11.3 **Visual Approach (rules related to ATC)**

2.11.3.1 **ATC Authorisation.** Except as detailed in *para 2.11.3.2,* the criteria under which visual approaches may be authorised by ATC are as follows:

a. For an IFR flight:

(1) By day when:

– the aircraft is within 30NM of the aerodrome; and

– the pilot has established and can continue flight to the aerodrome with continuous visual reference to the ground or water; and

– visibility along the flight path is not less than 5,000M, or for helicopters 800M, or the aerodrome is in sight.

(2) By night when:

– the pilot has established and can continue flight to the aerodrome with continuous visual reference to the ground or water; and

– visibility along the flight path is not less than 5,000M; and

– the aircraft is within 30NM of the aerodrome; or

– if being vectored, the flight has been assigned the MVA and given heading or tracking instructions to intercept final or to position the aircraft within the circling area of the aerodrome.

b. For a VFR flight by day and night, the aircraft is within 30NM of the aerodrome.

2.11.3.2 In addition to the requirements of *para 2.11.3.1*, with the exception of Australian and New Zealand operators and aircraft conducting independent visual approaches at Sydney, Super or Heavy jet aircraft will only be assigned a visual approach when:

a. specifically requested by the pilot, and the pilot has reported the landing runway in sight; or

b. the straight-in approach aid is unserviceable.

2.11.3.3 In the case of *sub-para 2.11.3.2b*. above, the aircraft will be:

a. vectored to intercept final no closer than 8NM from the runway threshold, at an altitude not less than 2,500FT Above Aerodrome Level (AAL); and

b. assigned a straight-in visual approach when:

(1) established on final or on a heading to intercept final course at an angle of not more than 30 degrees; and

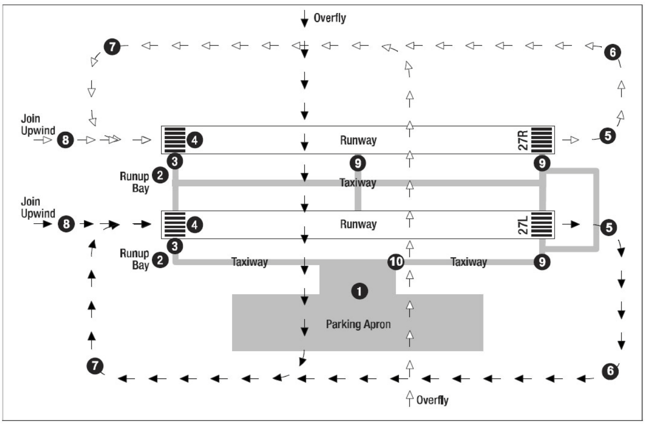
(2) visual glideslope guidance (VASIS/PAPI) is available; and

(3) the pilot has reported the landing runway in sight.

2.11.3.4 **Circuit Joining.** ATC may issue an instruction to join on a leg of the circuit or via:

a. Upwind, which directs circuit entry tracking upwind over the nominated runway centreline at the specified altitude; or

b. Overfly, which directs circuit entry into the opposing circuit by overflying the nominated runway at the specified altitude.



Decode information for the above diagram:

1 Aircraft initiates call to taxi - clearance provided

2 Aircraft vacating the bay give way to aircraft on 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

2.11.3.5 A pilot reporting VISUAL, may initially be given a clearance below the LSALT to a specific altitude in the following terms:

a. by day, “DESCEND TO (level) VISUAL”; or

b. by night, “WHEN ESTABLISHED IN THE CIRCLING AREA, DESCEND TO (level) VISUAL”.

Note: The requirements for pilots and operators relating to the conduct of, or making a request to conduct a visual approach are contained in ENR 1.5 Section 1.14.

2.12 Landing

2.12.1 Provision of Operational Information

ATC will supply the following information for landing operations:

a. runway or direction;

b. wind direction and speed, QNH and, if required, temperature and/or dew point;

c. known significant weather information, including low cloud and visibility or runway visual range;

d. the crosswind component on the runway to be used, if this equals or exceeds 8KT for single-engined aircraft or 12KT for multi-engined aircraft;

e. the tailwind component

f. aerodrome surface conditions significant to the operation including maintenance work within 23M of the runway side stripe marking;

g. birds or other hazards to aircraft; and

h. cautionary advice of wake turbulence.

2.12.2 **Selection of Landing Direction**

The pilot in command must ensure that the nominated runway or direction is operationally suitable. If the nominated runway or direction is not suitable then ATC must be advised using the phrase “REQUIRE RUNWAY (number)”. Such a request will not result in loss of priority provided it is made:

a. before reaching 80NM (120NM for jets) from a capital city aerodrome (including Essendon) or 30NM from other controlled aerodromes, for arriving aircraft wholly within controlled airspace; or

b. on first contact with ATC for arriving aircraft entering controlled airspace within the distance specified above or a control area step or a control zone.

The decision to land rests solely with the pilot in command.

2.12.3 **Selection of Circuit Direction**

A pilot in command must notify ATC if a particular turn or circuit is essential to the safe operation of the aircraft. The word REQUIRE must be used to enable ATC to identify the safety requirement.

2.12.4 **Downwind Report to Tower**

Unless otherwise instructed by ATC, the pilot of an arriving or circuit training aircraft must report DOWNWIND when starting or entering the downwind leg of the traffic circuit.

If frequency congestion prevents the call being made when starting the downwind leg, the pilot must report MID-DOWNWIND or LATE-DOWNWIND as appropriate.

2.12.5 **Clearances**

A pilot in command must not land unless the specific clearance “CLEARED TO LAND” has been received.

Note: ATC approval must be obtained if asymmetric training is to be carried out within 5NM of a controlled aerodrome (see Section 2.2.10).

2.12.6 **Separation Minima for Landing**

2.12.6.1 The appropriate wake turbulence separation standard will be applied by ATC between landing aircraft, except when a pilot has been assigned responsibility to maintain separation with another aircraft.

2.12.6.2 A landing aircraft will not be permitted to cross the threshold of the runway on its final approach until:

a. a preceding departing aircraft using the same runway:

(1) is airborne, and

– has commenced a turn; or

– 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 manoeuvre safely in the event of a missed approach;

(2) is at least 1,000M from the runway threshold, and

– has commenced the take-off run, and

– in the opinion of the controller, no collision risk exists, and

– the aircraft taking off has a MTOW of 7,000KG or less, and

– the landing aircraft is performance Category A and has a MTOW below 3,000KG.

b. a preceding landing aircraft using the same runway:

(1) has vacated it and is taxiing away from the runway; or

(2) has landed and has passed a point at least 1,000M from the threshold of the runway and will vacate the runway without backtracking, and

– in the opinion of the tower controller, no collision risk exists, and

– the preceding landing aircraft has a MTOW of 7,000KG or less, and

– the following landing aircraft is performance Category A and has a MTOW below 3,000KG; or

(3) has landed and has passed a point at least 600M from the threshold of the runway, is in motion and will vacate the runway without backtracking; and

– the preceding landing aircraft has a MTOW of less than 7,000KG, and

– the following landing aircraft has a MTOW of 2,000KG or less, or

(4) in the case where the following landing aircraft is a helicopter, the preceding landing aircraft is at least 300M down the runway from the threshold and ATC is satisfied that no collision risk exists.

c. a preceding aircraft, using a different runway, has crossed or stopped short of the landing aircraft's runway.

In the above situations, a landing clearance may be issued if ATC expect that the required runway separation standard will exist.

2.12.6.3 Other than as specified in *para 7.5.1,* exceptions to separation minima are:

a. aircraft landing in formation with respect to each other; and

b. aircraft operating in different areas or lanes on aerodromes with runways or facilities suitable for simultaneous landings.

2.13 Circuit Operations

2.13.1 Sequencing

2.13.1.1 When appropriate, ATC will issue a sequencing instruction.

2.13.1.2 In sequencing aircraft ATC will indicate the position of the preceding aircraft by reference to a leg of the circuit or as a clock bearing, and describe it either as a specific type or in general terms (e.g. Cessna or Twin).

2.13.1.3 ATC may issue a sequence number. Sequence numbers specify the landing sequence position of an aircraft with respect to any preceding traffic.

2.13.1.4 When issued with a sequencing instruction, a pilot must follow the preceding aircraft *and continue to do so unless otherwise instructed by ATC.*

2.13.1.5 The instruction FOLLOW requires the pilot to sight the preceding aircraft, and regulate circuit speed and approach path to achieve longitudinal separation. If the preceding aircraft cannot be sighted and identified, the pilot must advise ATC.

2.13.2 Non-Standard Circuit Operations

2.13.2.1 Pilots must advise ATC of non-standard circuit operations, e.g. glide and flapless circuits, normally with the DOWNWIND report. This advice will also alert other circuit traffic. ATC must also be advised of single engined aircraft conducting simulated engine failures at the earliest opportunity.

2.13.2.2 Where appropriate, an ATC sequencing instruction will indicate that there are no traffic restrictions precluding the manoeuvre. Subject to traffic, ATC may deny, or apply parameters to such operations for traffic management purposes.

2.13.3 Parallel Runway Operations at Class D Aerodromes

2.13.3.1 Where a Class D aerodrome is equipped with parallel runways, ATC may sequence aircraft for simultaneous contra-circuits and may conduct these operations using separate Tower frequencies for each runway. Operations will be regulated independently in each circuit, with an ATC clearance required to enter the opposite circuit or airspace.

2.14 Go Around and Missed Approach Procedure in VMC

2.14.1 Except as specified in ERSA for specific locations, an aircraft that is required to go around from a visual approach in VMC must initially climb on runway track, remain visual and await instructions from ATC. If the aircraft can not clear obstacles on runway track, the aircraft may turn.

2.14.2 In the event that an aircraft is unable, or does not wish, to land from an instrument approach in VMC, the aircraft must carry out the published instrument missed approach procedure for the instrument approach being flown, unless ATC directs otherwise.

2.14.3 At Class D aerodromes with parallel runways where contra-rotating circuit operations are in progress, if ATC instructs, or a pilot initiates a go around, the pilot must:

a. commence climb to circuit altitude;

b. position the aircraft on the active side and parallel to the nominated duty runway, while maintaining separation from other aircraft; and

c. follow ATC instructions or re-enter the circuit from upwind.

2.15 Taxiing After Landing

2.15.1 A pilot in command must not hold on the runway in use unless ATC has so authorised.

2.15.2 After landing, unless specified otherwise by ATC, an aircraft must comply with the following:

a. Promptly vacate the runway without backtracking.

b. Change from the tower frequency to the ground frequency (where established) when vacating the runway strip, and obtain an ATC taxi instruction.

c. Not cross any runway that intersects the taxi route unless in receipt of a taxi instruction and a “CROSS RUNWAY (number)” instruction from ATC.

d. Taxi to the destination via the most direct taxiway(s) available.

e. Where an apron service is provided on a discrete frequency (see *ERSA*), change to that frequency on entering the apron.

2.15.3 A taxi instruction which contains a taxi limit beyond a runway must include a “CROSS RUNWAY (number)” instruction to cross that runway. When an aircraft is required to hold short of a runway intersecting the taxi route, ATC will issue a taxi instruction limit of the runway-holding position associated with the intersecting runway.

2.15.4 An aircraft which has been issued with a taxi instruction limit of the runway-holding position of a runway intersecting the taxi route, or which has been issued with an instruction to “HOLD SHORT” of that runway, must subsequently be issued with an instruction to “CROSS RUNWAY (number)”.

2.15.5 Aircraft required to hold short of a runway must hold at the appropriate runway-holding position for that runway, or the runway strip edge at the intersection of a crossing runway.

2.15.6 When separate frequencies for aerodrome control and surface movement control are in use, the pilot in command, on landing, must change from the aerodrome control frequency to the SMC frequency on vacating the runway strip, and then transmit the aircraft call sign and, if applicable, parking bay number. A pilot in command may “**REQUEST DETAILED TAXI INSTRUCTIONS TO (location)”.**

2.15.7 The taxi clearance regulates movement on the manoeuvring area. The separation of aircraft taxiing on the manoeuvring area is a joint pilot and controller responsibility. Taxi clearance shall contain concise instructions and adequate information so as to assist flight crew to follow the correct taxi routes, to avoid collision with other aircraft and objects and to minimise the potential for the aircraft inadvertently entering a runway.

2.15.8 A taxi clearance will not relate to movement on the apron areas. However, available essential information referring to other aircraft entering or leaving the same apron area will be provided.

2.15.9 Radio watch must be maintained on the SMC or tower frequency (where no SMC frequency is provided) until parked.

3. OPERATIONS IN CLASS E AIRSPACE

3.1 ATC Traffic Services

3.1.1 In Class E airspace, IFR and VFR flights are permitted. IFR flights are provided with an ATC service, are separated from other IFR flights, and receive traffic information on VFR flights as far as is practicable. VFR flights receive a Surveillance Information Service (SIS), where available, on request.

3.1.2 Traffic information services provided by ATC do not relieve pilots of their responsibilities for continued vigilance to see-and-avoid other aircraft.

3.1.3 When vectors are provided to IFR flights in Class E airspace, terrain clearance will be provided by ATC. However, in VMC by day, pilots may be assigned responsibility for terrain clearance by use of the phrase “DESCEND TO (level) / CLIMB TO (level)/ TURN RIGHT / TURN LEFT (degrees) VISUAL”.

3.1.4 In Class E airspace, the following also apply:

a. Hazard Alerts will be directed to pilots of IFR flights, and to pilots of known VFR flights.

b. Unless operationally required by a pilot, ATC will only assign IFR levels.

3.2 VFR Flights in Class E Airspace

3.2.1 VFR flights entering Class E airspace do not require a clearance, but may receive a Surveillance Information Service (SIS), where available, on request (see *GEN 3.3 section 3.3*).

3.2.2 VFR flights entering and operating in Class E airspace should:

a. avoid published IFR routes, where possible;

b. monitor the appropriate Class E frequency and announce if in potential conflict; and

c. take appropriate action to avoid potential conflict.

3.2.3 Pilots of VFR flights should avoid IFR holding patterns.

4. NAVIGATION REQUIREMENTS

4.1 Flight under the IFR

4.1.1 An aircraft operating under the IFR must be navigated by:

a. an approved area navigation system that meets performance requirements of the intended airspace or route; or

b. use of a radio navigation system or systems on routes where, after making allowance for possible tracking errors of ±9° from the last positive fix, the aircraft will come within the rated coverage of a radio aid which can be used to fix the position of the aircraft. The maximum time interval between positive fixes must not exceed two (2) hours; or

c. visual reference to the ground or water by day, on route segments where suitable en route radio navigation aids are not available, provided that weather conditions permit flight in VMC and the visual position fixing requirements of *para 4.2.1b*. are able to be met.

4.2 Flight under the VFR

4.2.1 The following apply in respect of flight under the VFR:

a. The pilot in command must navigate the aircraft by visual reference to the ground or water, or by using any of the methods specified in *para 4.1.1*.

b. When navigating by visual reference to the ground or water, the pilot in command must positively fix the aircraft's position by visual reference to features shown on topographical charts at intervals not exceeding 30 minutes. When flying over the sea, visual reference features may include rocks and reefs and fixed man-made objects which are marked on suitable charts and are readily identifiable from the air.

Note: Flight above more than SCT cloud, or over featureless land areas, or over the sea, may preclude visual position fixing at the required intervals and may therefore make visual navigation impracticable.

c. When navigating by visual reference in controlled airspace the pilot must notify ATC if the aircraft's track diverges by more than one (1) nautical mile from the track approved by ATC, or, if navigating by reference to radio navigation aids, by more than the tolerances given in *para 4.6*.

d. VFR flight on top of more than SCT cloud is available provided that:

(1) VMC can be maintained during the entire flight, including climb, cruise and descent.

(2) For VFR flight on top of more than SCT cloud, the visual position fixing requirements of *sub-para b.*, or the other navigational requirements of *section 4.1* must be met.

(3) Prior to conducting a VFR flight on top of more than SCT cloud, the pilot in command must ensure that current forecasts and observations (including those available in-flight observations) indicate that conditions in the area of, and during the period of, the planned descent below the cloud layer will permit the descent to be conducted in VMC.

(4) The position at which descent below cloud is planned to occur must be such as to enable continuation of the flight to the destination and, if required, an alternate aerodrome in VMC (see *Note)*.

e. When navigating by reference to radio navigation aids or GNSS, the pilot in command must obtain positive radio fixes at the intervals and by the methods prescribed in *paras 4.1 and 4.5*.

f. The pilot in command of a VFR flight wishing to navigate by means of radio navigation systems or any other means must indicate in the flight notification only those radio navigation aids with which the aircraft is equipped and the pilot is competent to use under *CASR 61.385.*

Note: Pilots should not initiate VFR flight on top of more than SCT cloud when weather conditions are marginal. Before committing to operate VFR flight on top of more than SCT cloud, pilots should be confident that meteorological information used is reliable and current, and clearly indicates that the entire flight will be able to be conducted in VMC.

4.3 Time

4.3.1 During flight, pilots must maintain a time reference accurate to within ± 30 seconds.

4.4 Track Keeping

4.4.1 Tolerances are applied to tracks to assess containment areas for the purposes of ensuring navigational integrity, separation from other aircraft, terrain and obstacle clearance, and avoidance of specified airspaces. Although allowing for the errors inherent in the navigation systems used, these tolerances are based on the assumption that the pilot will maintain track as closely as possible.

4.4.2 The pilot in command must, at all times, take positive action to regain track as soon as a deviation from the correct track is recognised.

4.4.3 Aircraft must be navigated by the most precise means of track guidance with which the aircraft is equipped and the pilot is qualified to use.
The order of precision is Localiser, GNSS, VOR, then NDB.

4.5 Position Fixing

4.5.1 A positive fix is one determined by:

a. the passage of the aircraft over an NDB, VOR, TACAN, marker beacon or a DME site; or

b. the intersection of two or more position lines which intersect with angles of not less than 45° and which are obtained from NDB, VOR, localisers or DME in any combination. For the purpose of this paragraph, a position line must be within the rated coverage of the aid with the exception that if a fix is determined entirely by position lines from NDB, the position lines must be within a range of 30NM from each of the NDB; or

c. GNSS meeting the equipment requirements of *GEN 1.5 Section 2.*

4.6 Aircraft Deviations in Controlled Airspace - Advice to ATC D

4.6.1 In controlled airspace, separation standards are based on the pilot maintaining route or track as closely as possible at all times. Corrective action must be taken to regain route or track as soon as any deviation is observed.

4.6.2 Additionally, the pilot must immediately notify ATC for any of the deviations described below:

a. where route or track guidance is provided by a localiser or VOR - half scale deflection or more of the Course Deviation Indicator (CDI);
b. where route or track guidance is provided by NDB - ±5° or more from the specified bearing;
c. where route or track guidance is provided by DME - ±2NM or more from the required arc;
d. where route or track guidance is provided by an area navigation system - when the aircraft cannot be maintained on the desired track plus/minus the prescribed RNP/RNAV value; and
e. when navigating by visual reference to the ground or water - more than 1NM from the cleared track.

Note: The values given above must not be interpreted as defining a sector within which the pilot is permitted to navigate or tolerances within which deviations from route or track without clearance are permitted.

4.7 Long Over-Water Flights

4.7.1 If an aircraft on a long over-water flight operating in oceanic Class A airspace has inadvertently deviated from the route specified in its ATC clearance, the pilot must take action to regain the cleared route within 200NM from the position at which the deviation was observed.

4.8 GNSS - Operations Without RAIM

4.8.1 ATS services, in particular aircraft separation, are predicated on accurate aircraft navigation and position fixing. If GNSS integrity is not assured, due to loss of RAIM or RAIM ALERT, the navigation system does not meet the required standard for navigation or the application of area navigation based separation standards. When GNSS integrity is not assured, the following procedures must be adopted:

a. Aircraft tracking must be closely monitored against other on-board navigation systems.

b. The pilot in command of an aircraft must advise ATS if any of the following occurs:

(1) during an en route phase of flight — there is RAIM loss or loss of GNSS integrity for more than 5 minutes;

(2) during a terminal phase of flight — there is RAIM loss or loss of GNSS integrity;

(3) when ATS requests the provision of GNSS-derived information — RAIM or GNSS integrity is not available;

(4) when ATS grants a clearance or imposes a requirement based on GNSS-derived information — RAIM or GNSS integrity is not available;

(5) the GNSS receiver is in dead-reckoning mode, or experiences loss of its navigation function, for more than 1 minute.

c. If valid position information is lost, or non- RAIM operation exceeds 5 minutes, the GNSS information is to be considered unreliable and another means of navigation should be used until RAIM is restored and the aircraft is re-established on track.

d. Following re-establishment of RAIM, the appropriate ATS unit should be notified of RAIM restoration prior to using GNSS information. This will allow ATC to reassess the appropriate separation standards.

5. AIR ROUTE SPECIFICATIONS

5.1 Unless otherwise authorised by ATC, when proposing to operate under the IFR on any route segments, or proposing flight in controlled airspace, the pilot in command must plan and conduct a flight in accordance with the:

a. route specifications published in *GEN 3.2* including the relevant en route chart; and

b. applicable flight planning requirements published in ERSA GEN; and

c. published accessibility of airspace.

5.1.1 The pilot in command is responsible for ensuring that the requirements of *Section 4.* can be met. D

5.1.2 Where no route specification has been published in the relevant en route chart, a route determined by the pilot in command, and, if in controlled airspace, approved by ATC, will be planned.

5.1.3 Prior ATC approval is required for area navigation tracking on routes other than those published in AIP and the Airservices *"Off Air Route Planning (OARP) Manual"*. Information and rules regarding OARP are available at:
www.airservicesaustralia.com/industry-info/flight-briefing/off-air-route-flight-planning-options/

5.1.4 The position reporting points for a route should be separated by a distance approximately 30 minutes or 200NM apart, whichever is least, and, when practicable, should be selected from those shown on en route charts. Otherwise, the position reporting points should be places named on VTC or WAC, and identifiable by radio or visual means. To minimise confusion, when a position is reported over a town which has a nearby aerodrome of the same name, the word 'township' must be used after the name in the text of the report.

5.1.5 For an area-type flight as distinct from route flying, the pilot of an IFR flight or VFR flight in those circumstances identified in *ENR 1.10* may nominate scheduled reporting times. These should be at half-hourly intervals. The pilot must specify the area's boundaries by means of a map provided with the flight notification details.

5.1.6 A pilot in command must make sure, by reference to the forecast, that the route selected for a VFR flight will enable the aircraft to be flown with visual reference to the ground or water for significant portions of the route, and in the vicinity of the destination aerodrome.

6. RADIO COMMUNICATION AND NAVIGATION REQUIREMENTS

6.1 Summary of Report and Broadcast Requirements

6.1.1 In this section:

a. 'Report' means a mandatory radio report from an aircraft to the appropriate ATS unit.

b. 'Broadcast' means a radio broadcast from an aircraft on the appropriate frequency to provide advisory traffic information to other aircraft.

6.1.2 Except in special circumstances (e.g. descent from CTA, formation flights, SAR, police/security), pilots of aircraft are required to comply with the radio communication requirements appropriate for the 'Classes of Airspace - Services and Requirements' table included in *ENR 1.4 Section 4.*

6.1.3 In special circumstances, a pilot may request to change frequency to meet operational report, broadcast, or communication requirements. ATC will facilitate a pilot request for approval to leave a control frequency to make such reports or broadcasts.

When impracticable to approve the frequency change at the time requested due to control requirements, ATC will accommodate the request as soon as possible. In determining when to make reports and broadcasts, pilots should consider the possibility of delays in being released from the ATC frequency.

Requests for frequency change should specify the expected duration when the change required is not permanent.

6.1.4 After any ATS directed frequency change, pilots must advise the last assigned level and, if not maintaining the assigned level, the level maintaining or last vacated level; e.g. "MELBOURNE CENTRE (call sign) CLEARED FLIGHT LEVEL TWO ONE ZERO, LEAVING FLIGHT LEVEL TWO NINER ZERO".

Note: The "last vacated level" may be omitted by identified aircraft squawking pressure altitude derived level information.

6.1.5 Whenever flight rules are changed during flight (i.e. VFR to IFR or IFR to VFR), the pilot must report to ATS at the time the change takes place.

6.1.6 All aircraft departing, arriving or transiting an AFIS broadcast area during AFIS HRS must make broadcasts prior to or as soon as possible after entering the broadcast area.

6.1.7 Pilots of aircraft engaged in parachute operations must:

a. obtain a clearance to drop when the operation is conducted in, or parachutists will enter, a Restricted or Military Operating Area or Classes A, C or D airspace. The drop clearance request must be made at least five (5) minutes before the proposed exit; and

b. in all cases, broadcast intentions on the appropriate area VHF, and/or CTAF, two (2) minutes prior to parachutists exiting the aircraft.

6.1.8 Unless otherwise authorised, gliding operations in controlled airspace (including Class E) must be conducted using the appropriate ATC frequency.

6.1.9 Pilots of IFR flights operating outside controlled airspace who desire to establish communication with a non-ATS station and who will not be able to maintain a listening watch on the ATS frequency must advise ATS of their further SAR requirements before making the frequency change.

6.1.10 Broadcast procedures when ATS is temporarily unavailable is addressed in *Section 11.*

Aircraft in Class A, B, C or D airspace, or IFR aircraft in Class E airspace – prescribed reports	
Situation	**Report**
Ready to Taxi	Report the situation
Airborne	Report the situation
Departure	Report the situation
Position report when required by the ATC service or the route reporting requirements in the authorised aeronautical information	Report the situation
Previously reported position estimate is more than 2 minutes in error	Corrected position estimate
Sustained variation of more than 10KT or Mach 0.02 from any previously notified speed or any standard descent profile agreed between the aircraft operator and ATS	Report the situation
Aircraft performance degraded below: a. the level required for the airspace in which it is operating; or b. the capability of the aircraft reported in the aircraft's flight notification	Report the situation
Leaving a level or reaching an assigned level	Report the situation
Unable to comply with ATC clearances or instructions	Report the situation
Before leaving controlled airspace on descent	Report the situation
Arrival	If cancelling SARWATCH — report cancellation, see *para 10.2.1.*

IFR aircraft in Class G airspace – prescribed reports	
Situation	**Report**
Taxiing	Report the situation
Departure	Report the situation
Reaching cruising level	Report the situation
Position report when required by the ATC service or by the route reporting requirements of the authorised aeronautical information	Report the situation
Previously reported position estimate is more than 2 minutes in error	Report the situation
Before changing level	Report the situation
Before changing frequency	Report the situation
Requiring clearance into controlled airspace	Report the situation
Before changing to CTAF and not monitoring ATS frequency on second COM system	Report the situation
After landing	If cancelling SARWATCH at this time — report the cancellation

VFR aircraft in Class E or G airspace — prescribed reports	
Situation	**Report**
Requiring clearance into controlled airspace	Report the situation
Before, and on completion of, over water stage	Report in accordance with SAR reporting schedules if arranged before the over water stage

Aircraft operating in a mandatory broadcast area – mandatory broadcasts	
Situation	**Broadcast**
Prior to, or immediately after entering an MBA	The pilot's intended use of the MBA
Joining a circuit	Broadcast the situation, and indicate the leg on which the aircraft will join
Conducting a straight-in approach	No later than 3NM from the runway threshold – Broadcast the situation
Passing the final approach fix of an instrument approach procedure	Broadcast the situation
Commencing a missed approach	Broadcast the situation
After landing and clear of the active runway(s)	Broadcast the situation
Starting to taxi	Broadcast the situation and the following information: if the flight is to be conducted under the IFR – this information; either the: (i) planned destination aerodrome for the flight; or (ii) direction in which the pilot intends to fly from the aerodrome; or (iii) nature of operation (e.g. circuits); and the runway proposed to be used for take-off.
Immediately before entering the runway to be used for take-off	Broadcast the following: a statement that the aircraft is entering the runway; and the runway identifier.

Aircraft operating in a mandatory broadcast area - mandatory broadcasts when an SFIS is active	
Situation	**Broadcast**
Taking off from an aerodrome in the MBA Immediately before, or during taxiing: *Note: ATS will issue an SSR code to IFR departures on first contact. Airways clearance may be issued by SFIS where aircraft performance and traffic disposition allow.*	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •if the proposed flight is to be conducted under the IFR a statement to that effect; and •the name of the aerodrome, and a. the proposed flight's intended destination; or b. the direction in which the pilot intends to fly from the aerodrome; or c. airwork intentions (e.g. circuits); and •the runway proposed to be used for take-off. (Aerodrome)
Entering the runway Immediately before entering the runway:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •[BACKTRACKING] and/or (LINING UP) RUNWAY (number). (Aerodrome)

Situation	Broadcast
IFR aircraft departing the aerodrome IFR departure report (non-controlled aerodromes surveillance):	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •*(location reference departure aerodrome)* PASSING ***(current level)*** CLIMBING TO *(intended level)* [ESTIMATING *(first reporting point)* AT *(time)*]. (Aerodrome)
VFR aircraft departing the aerodrome VFR departure report:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •*(location reference departure aerodrome)* PASSING *(current level)* CLIMBING TO *(intended level)*. (Aerodrome)
Changing intentions/track/level When the pilot intends to alter track and/or level given in a previous broadcast of intentions:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •the aircraft's position; and •the aircraft's present level; and •the pilot's intentions in relation to the flight. (Aerodrome)

Situation	Broadcast
Flying through an MBA where SFIS is active without landing The pilot in command of an aircraft intending to fly through the area without landing must, prior to or as soon as possible after the aircraft enters the MBA, make a broadcast that includes the following information:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •the aircraft's position; and •the aircraft's present level; and •the pilot's intentions in relation to the flight. (Aerodrome)
Landing at an aerodrome in the MBA The pilot in command of an aircraft intending to land at an aerodrome in the MBA, must prior to or as soon as possible after the aircraft enters the MBA, make a broadcast that includes the following information:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •the aircraft's radial, bearing or quadrant from, and distance from, the aerodrome at which the pilot proposes to land; and •the aircraft's altitude; and •the pilot's intentions in relation to the flight. (Aerodrome)

Situation	Broadcast
Entering the circuit If and when the aircraft joining the circuit, make a broadcast that consists of:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's type and call sign; and •a statement that the aircraft is joining the circuit; and •the leg on which the aircraft is joining the circuit; or if the pilot intends to make a straight in approach to the landing runway, make a prior broadcast of that intention. (Aerodrome)
Vacating the runway The aircraft is clear of the active runway(s): *Note: For IFR aircraft, this would normally be accompanied with request to cancel SARWATCH.*	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's call sign; and •broadcast and report to ATS once established outside the runway strip using the radio telephony 'RUNWAY [number] VACATED'. (Aerodrome)
Operations complete For operations that are not associated with or restricted to runways, when operations within the MBA are complete:	(Aerodrome) INFORMATION AND TRAFFIC •the aircraft's call sign; and •OPERATIONS COMPLETE. (Aerodrome)

6.2 **Inoperative Radio and No Radio Procedures**

6.2.1 *CASR Parts 91, 103* and *131* permit some flights to be conducted without a radio.

6.2.2 A non-radio aircraft may fly in Class G airspace in VMC by day at or below 5,000FT AMSL.

6.2.3 If total or partial failure of the required radio communications equipment occurs before flight commences and repair facilities are available, repairs must be made before the flight proceeds.

6.2.3.1 Where repair facilities are not available, flight to the nearest appropriate repair facility may proceed in Class G airspace in VMC only. If flight to the nearest appropriate repair facility entails flight in controlled airspace, the flight may proceed provided that ATS is advised of the radio failure and a clearance for the flight is obtained from ATC.

6.2.3.2 When arriving at a non-controlled aerodrome where the carriage of radio is required, if a radio failure occurs either en route to or in the circuit of the aerodrome, the pilot may continue to land at that aerodrome provided:

a. where equipped - the aircraft displays its external lights, and its transponder is turned on; and

b. if en route - the pilot uses the overfly joining procedure (*Refer to the graphic at para 9.12.6*).

6.2.3.3 A pilot may depart the aerodrome with an unserviceable radio and fly to another aerodrome for repairs, provided that the aircraft - where equipped - displays its external lights and its transponder turned on.

6.2.3.4 To maximise the safety of commercial passenger transport operations, during a flight to or from an aerodrome for radio repairs, it is requested that pilots plan to avoid arriving or departing from an aerodrome during the known hours of scheduled air transport operations. For aerodromes where there is a UNICOM or CA/GRS, pilots should by alternative means where possible make contact and advise their intentions before conducting operations.

6.2.3.5 An aircraft not equipped with an operative radio may operate at, or in the vicinity of a non-controlled certified or military aerodrome provided that:

a. The aircraft is operated in VMC by day; and

b. The aircraft arrives or departs in the company of another radio-equipped aircraft that is flown by a radio-qualified pilot which will allow the latter to make radio calls on behalf of both aircraft.

Note: The radio-equipped aircraft should be manoeuvred to keep the no radio aircraft at a safe distance and in sight at all times in order to accurately report its position.

6.2.4 Procedures to be adopted when total loss of radio occurs whilst in-flight and within Australian Domestic airspace are contained in *ERSA EMERG*. (For radio failure or no radio procedures at all non-controlled aerodromes refer *ERSA INTRO*).

6.2.5 Procedures to be adopted when total loss of radio occurs whilst in-flight and within Australian administered Oceanic airspace are as follows:

6.2.6 In the event of total loss of communication, an aircraft shall:

a. try to re-establish communication by all other means;

b. if all attempts to re-establish communication with ATC are unsuccessful:

(1) Squawk 7600;

(2) If able, broadcast in the blind at suitable intervals: aircraft identification, flight level, aircraft position (including the ATS route designator or the track code), and intentions on the frequency in use, as well as on frequency 121.5MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45MHz);

(3) Watch for conflicting traffic both visually and by reference to airborne collision avoidance systems or traffic displays (if equipped);

(4) Turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

(5) Maintain the last assigned speed and level for a period of 60 minutes following the aircraft's failure to report its position over a compulsory reporting point (including ADS-C flights), and thereafter adjust speed and altitude in accordance with the filed flight plan;

Note: In OCA, aircraft experiencing communication failure may also initiate Strategic Lateral Offset Procedures (SLOP) in accordance with ENR 2.2 Section 2.2, including an offset of up to 2NM right of track.

(6) Upon exiting OCA, conform to the relevant State procedures and regulations.

6.2.7 In the event of lost communication, ATC shall maintain separation between the aircraft having the communication failure and other aircraft, based on the assumption that the aircraft having the communication failure will operate in accordance with the procedures in *6.2.6.*

6.3 GNSS Reporting Requirements and Procedures

6.3.1 GNSS systems used to provide distance information to ATS units by pilot reports must meet one of the GNSS equipment specifications mentioned in *GEN 1.5 section 2.*

6.3.2 ATC may apply some DME-based separation standards to approved aircraft providing GNSS distance information. Pilots must be familiar with and comply with GNSS reporting requirements and procedures.

6.3.3 When a DME distance is not specifically requested, or when the provision of a DME distance is not possible, distance information based on GNSS-derived information may be provided. When responding to ATC requests for distance information, pilots should:

a. provide either a DME distance or a GNSS distance unless RAIM is currently not available, and has been unavailable for the previous 5 minutes; and

b. include the source and point of reference; e.g. 115 GNSS Melbourne, 79 DME Newman, 257 GNSS BEEZA, etc.

6.3.4 Notwithstanding *para 6.3.3*, if an ATC unit has issued a clearance or restriction based upon GNSS distance (e.g. a restriction to reach a certain level by a GNSS distance), pilots must inform ATC if RAIM is not available.

6.3.5 If a GNSS distance is provided to an ATC unit, and RAIM is not currently available, but has been available in the preceding 5 minutes, the distance report should be suffixed “NEGATIVE RAIM” - e.g. 26 GNSS LT VOR, NEGATIVE RAIM.

6.3.6 Databases sometimes contain waypoint information which is not shown on published AIP charts and maps. Distance information must only be provided in relation to published waypoints unless specifically requested by an ATS unit.

6.3.7 Where GNSS distance is requested or provided from an NDB, VOR, DME, or published waypoint, the geographical coordinates of the navigation aid or waypoint must be derived from a validated database which cannot be modified by the operator or crew.

7. LAND AND HOLD SHORT OPERATIONS (LAHSO)

7.1 Introduction

7.1.1 Notwithstanding the provisions of *paras 2.12.6.2 and 2.12.6.3*, operations by an aircraft landing on one runway and another aircraft either taking off or landing simultaneously on a crossing runway may be permitted subject to the provisions of this section.

7.2 Locations Where LAHSO are Used

7.2.1 LAHSO can be implemented at aerodromes controlled by ATC that have suitable runway configurations, together with taxi markings, signs, runway markings, and lights in accordance with the standards in the *Part 139 MOS.*

7.2.2 LAHSO aerodromes are indicated in *ERSA Aerodrome and Facilities* section and/or *Runway Distance Supplement (RDS)* section by the inclusion in the aerodrome information of a table titled “LDA FOR LAHSO”.

7.3 A Dependent Procedures

7.3.1 LAHSO are to be considered dependent procedures, 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.

7.4 **Participation**

7.4.1 Active participation in LAHSO is available to pilots in each of the following categories:

a. pilots of Australian registered aircraft of performance categories A, B or C engaged in operations conducted under a training and checking organisation, subject to the operator providing information in their operational document suite and certifying participating pilots for LAHSO;

b. pilots of Australian registered aircraft of performance category A, B or C where the pilot has been assessed as competent to conduct LAHSO by a person authorised to conduct LAHSO training;

c. ATC will consider all Australian registered aircraft, operating on a flight number call sign, to be approved active participants, unless advised to ATS as not able to be an active and/or passive participant;

d. pilots of Australian military aircraft in performance categories A, B or C; and

e. pilots of foreign military aircraft in performance categories A, B or C subject to a Letter of Agreement between the relevant military authority and the ATS provider.

7.4.2 Passive participation in LAHSO is available to pilots in each of the following categories:

a. pilots of Australian civil and military aircraft categories A, B and C at pilot discretion;

b. pilots of other civil aircraft, including foreign operators, as approved by CASA;

c. pilots of RAAF Hawk, FA18 and other Australian military aircraft as by the relevant Operational Airworthiness Authority;

d. pilots of foreign military aircraft approved by Defence, operating at Defence aerodromes, subject to a Letter of Agreement; and

e. pilots of 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).

7.4.3 Notwithstanding the provisions of *sub-paras 7.4.1a and 7.4.2a* above, pilots of foreign registered civil aircraft and of Australian registered aircraft operating under foreign air carriers' flight number call sign are precluded from participation in either active or passive mode regardless of performance category.

7.4.4 A pilot must not accept a requirement to "HOLD SHORT" unless they are qualified, has situation awareness, and has determined that the LDA is adequate for the prevailing conditions and the status of the aircraft.

7.4.5 Operators of aircraft in any category may elect not to allow their pilots to participate in LAHSO. In these cases, ATS should be advised in writing, specifying the company's withdrawal from active, passive, or both modes of participation.

Note: This notification should be emailed to Airservices: satss@airservicesaustralia.com and/or 44WG: hqsrga7.anspstand@defence.gov.au.

7.5 **Conditions for LAHSO**

7.5.1 LAHSO may be conducted subject to the following conditions:

a. The wind for either the active or passive runway, including gusts, does not exceed:

(1) 20KT crosswind;

(2) 5KT tailwind on a dry runway;

(3) no tailwind when the runway is not dry.

b. A simultaneous take-off and landing is permitted by day only.

c. Simultaneous landings are permitted by day and night.

d. The ceiling is not less than the minimum vectoring altitude (MVA) for the location where LAHSO are being conducted and visibility is not less than 8KM.

e. Visibility may be reduced to 5,000M where ATC are assured of sighting the aircraft prior to a loss of the surveillance standard.

f. Advice to the departing aircraft may be given separately from the take-off clearance.

g. Instructions are issued to prevent a landing aircraft from crossing the Hold-Short Line when the intersecting runway is being used by another aircraft.

h. The distance from the landing threshold to the Hold-Short Line of the intersecting runway is adequate for the performance category of the aircraft being held short.

i. ERSA Aerodromes and Facilities (FAC) and/or Runway Distance Supplement (RDS) show “LDA for LAHSO” information. Pilots must ensure that the aircraft can land safely within the LDA for LAHSO.

j. If a runway is reported as WET, the braking characteristics must have been assessed as GOOD by the pilot of an aircraft in the same performance category prior to the landing aircraft being instructed to hold short. ATC will request pilot assessments of the braking characteristics hourly where weather conditions are deteriorating or remain unchanged.

k. The landing aircraft will not be instructed to hold short when low level wind shear is reported.

l. For active participants ground based visual or electronic glide slope guidance must be available and utilised.

m. After landing, the pilot must inform ATC immediately of any difficulty in complying with the ATC requirement to hold short of a crossing runway strip.

Note to l) above: This requirement does not apply to performance category A and B non-jet aircraft of less than 5,700KG MTOW landing Runway 36 at Darwin.

7.6 Pilot Advise of LAHSO Approval

7.6.1 ATC will not intentionally issue, and a pilot must not accept, a clearance for a hold-short landing unless the pilot is LAHSO approved. Pilots who elect to participate actively in LAHSO must obtain the ATIS broadcast as early as possible and if within 200NM of a destination where LAHSO is in progress, immediately advise ATC “LAHSO APPROVED”.

e.g. “MELBOURNE CENTRE, (call sign) DESCENDING TO FLIGHT LEVEL TWO FIVE ZERO, LAHSO APPROVED”.

7.6.2 Pilots of civil aircraft operating under a flight number call sign as advised in flight notification, and pilots of Australian military aircraft, may omit the words "LAHSO APPROVED". Aircraft of operators who have advised in writing an intention not to participate will not be intentionally sequenced for LAHSO.

Where an aircraft or crew that would normally participate actively or passively in LAHSO does not meet the criteria for participation, this must be communicated to ATC at the earliest opportunity.

7.6.3 Pilots of aircraft not operating under a flight number call sign who will be entering controlled airspace within 120NM of destination must advise ATC "LAHSO APPROVED".

7.6.4 When crews experience wind shear early advice to ATC is essential to ensure timely information is passed to subsequent aircraft.

7.7 **ATIS Broadcast**

7.7.1 Pilots will be alerted that LAHSO are in progress by a statement on the ATIS;

e.g. "DARWIN TERMINAL INFORMATION BRAVO, RUNWAYS 29 AND 36, LAND AND HOLD SHORT OPERATIONS IN PROGRESS, (wind, temperature, etc)"

7.7.2 Both the active and passive runways will be nominated on the ATIS to aid in crew situational awareness.

Note: The acronym LAHSO may be used at ATC discretion.

7.8 **Directed Traffic Information**

7.8.1 ATC is required to issue directed traffic information to both aircraft participating in LAHSO.

7.9 **Readback Requirements**

7.9.1 In all cases, pilots must readback an ATC-issued requirement to hold short.

7.10 Landing Distance Assessments

7.10.1 ATC will normally sequence an aircraft for a runway which requires LAHSO only when the landing distance available for the aircraft is likely to be adequate in accordance with aircraft landing category criteria held by ATC.

7.10.2 ATC may sequence non-jet Category B aircraft below 5,700KG MTOW for LAHSO using the landing distance available from *ERSA*. ATC may sequence an aircraft for LAHSO regardless of category of aircraft where the pilot in command has advised “LAHSO APPROVED”. The pilot alone is responsible for ensuring that the LDA is equal to, or better than, that required for the prevailing circumstances.

7.10.3 Pilots should check the *ERSA* entry or ask ATC for landing distance available, and assess their landing distance requirements based on the landing weight and ambient weather conditions. The pilot must ensure that the LDA for LAHSO value for the runway meets or exceeds the relevant landing distance required for their particular flight and operation.

7.11 Go Around During LAHSO

7.11.1 It is important for pilots to plan for action in the event of a go around. If a go around does occur, pilots must maintain safe separation from other aircraft, as it may be impractical for ATC to provide standard separation. Nevertheless, ATC will issue traffic information and, if appropriate - based on the relative position of aircraft, instructions for avoiding other aircraft.

7.11.2 When issued with avoiding action instructions, pilots should fly the specified heading without delay.

7.11.3 Regardless of any avoiding action instructions, pilots should always defer to any TCAS RA.

8. VERTICAL SEPARATION IN THE AUSTRALIAN FIR

8.1 Reduced Vertical Separation Minimum (RVSM)

8.1.1 Application of RVSM

8.1.1.1 Australia applies a 1,000FT reduced vertical separation minimum between approved aircraft operating between FL290 and FL410 inclusive.

8.1.1.2 RVSM does not apply to formation flights and civil formation flights will not be issued clearance to operate between FL290 and FL410 inclusive.

8.2 **RVSM Operations**

8.2.1 Aircraft transiting from adjacent FIR into Australian FIR between FL290 and FL410 inclusive must plan from the waypoint on the FIR boundary using the table of cruising levels at *ENR 1.7 Section 5.*

8.2.2 Aircraft transiting from Australian FIR between FL290 and FL410 inclusive to adjacent FIR must plan until the waypoint on the FIR boundary using the table of cruising levels at *ENR 1.7 Section 5.*

8.2.3 Aircraft that will cross latitude 80°S between FL290 and FL410 inclusive must plan using the table of cruising levels at *ENR 1.7 Section 5.* for operations north of 80°S, and the table of cruising levels at *ENR 1.7 Section 6.* for operations south of 80°S.

8.2.4 To have RVSM applied to their aircraft, operators must be approved by the State of Registry or State of the Operator.

8.2.5 Approved operators must ensure that height-keeping monitoring is under taken at least every two years or within intervals of 1,000 flight hours per aircraft, whichever period is longer, in accordance with the aircraft categories as presented in the current version of the ICAO RVSM Minimum Monitoring Requirements table. The table and further information on monitoring can be obtained from the Australian Airspace Monitoring Agency (AAMA) at www.airservicesaustralia.com/organisations/aama/.

8.2.6 Pilots of aircraft that are not RVSM-approved may plan within the RVSM flight level band (FL290 to FL410 inclusive). However, clearance at RVSM levels is subject to disposition of traffic and RVSM aircraft priority. The conventional vertical separation minimum will be applied between aircraft that are not RVSM-approved and all other aircraft.

8.2.7 Pilots of non RVSM-approved State aircraft will be afforded equal priority with RVSM-approved aircraft. Pilots planning to operate non-RVSM within the RVSM level band must flight plan in accordance with *ENR 1.10.*

8.2.8 Pilots of aircraft that are not RVSM-approved must report “NEGATIVE RVSM” in accordance with the requirements of *GEN 3.4 Sub-section 6.6 Item 2.q*.

8.3 **Operational Procedures Before Entering the RVSM Flight Level Band - RVSM Approved Aircraft**

8.3.1 On each flight before entering the RVSM flight level band, pilots of RVSM-approved aircraft must check to ensure that all of the following minimum mandatory equipment is operating normally:

a. two independent primary altimetry systems,

b. a Mode C-capable SSR transponder,

c. an altitude alert system, and

d. an autopilot with height lock.

8.3.2 If any item of the minimum mandatory equipment listed in *para 8.3.1* is not operating normally, a pilot must notify ATC before entering the RVSM flight level band using the phraseology "NEGATIVE RVSM" (see *GEN 3.4 Sub-section 6.6 Item 2.q.*).

8.4 **Operational Procedures After Entering the RVSM Flight Level Band – RVSM Approved Aircraft**

8.4.1 During changes of level, an aircraft must not overshoot or undershoot its Cleared Flight Level (CFL) by more than 150FT (45M).

8.4.2 **Failure of One Primary Altimetry System.** If one of the primary altimetry systems fails, but the remaining altimetry system is functioning normally, the pilot must:

a. couple that system to the autopilot with height lock;

b. maintain increased vigilance of altitude-keeping; and

c. notify ATC of the failure using the phraseology, "FOR INFORMATION, OPERATING ON ONE PRIMARY ALTIMETER ONLY".

8.4.3 **Failure of All Primary Altimetry Systems.** If all primary altimetry systems fail, or are considered unreliable, the pilot must:

a. maintain the flight level indicated on the standby altimeter (if the aircraft is so equipped) at the time of failure or when considered unreliable;

b. alert nearby aircraft by turning on all exterior lights and, if not in VHF contact with ATC, by broadcasting advice of the failure, position, flight level, and intentions on 121.5MHz;

c. notify ATC of the failure using the phraseology "NEGATIVE RVSM" (see *GEN 3.4 Sub-section 6.6 Item 2.q.*) and the intended course of action.

8.4.4 **In Oceanic Class A Airspace.** If unable to obtain ATC clearance in a timely manner following a failure of all primary altimetry systems in oceanic Class A airspace, the pilot must proceed as follows:

a. If operationally feasible to do so, leave the assigned route or track by turning at least 45° right or left, whenever this is possible, taking account of adjacent routes and descend below FL290.

b. If not operationally feasible to execute this contingency procedure, continue to alert nearby aircraft and coordinate with ATC.

8.4.5 **Divergence in Primary Altimetry Systems' Indication**. If the primary altimeters diverge by more than 200FT, the pilot must proceed as follows:

a. Attempt to determine the defective system through established "trouble shooting" procedures and/or comparing the primary altimeter displays to the standby altimeter (as corrected by correction card, if required).

b. If the defective system can be determined, couple the functioning altimetry system to the autopilot with height lock and proceed as in *para 8.4.2.*

c. If the defective system cannot be determined, proceed as in *para 8.4.3*.

8.4.6 **Failure of the Mode C-capable SSR Transponder.** If the mode C-capable transponder fails, the pilot must notify ATC of the failure using the phraseology "NEGATIVE RVSM" (see *GEN 3.4 Sub-section 6.6 Item 2.q.)*.

8.4.7 **Failure of the Altitude Alert System.** If the altitude alert system fails, the pilot must notify ATC of the failure using the phraseology "NEGATIVE RVSM" (see *GEN 3.4 Sub-section 6.6 Item 2.q*).

8.4.8 **Failure of the Autopilot with Height Lock.** If the autopilot with height lock fails, the pilot must initiate the following actions sequentially:

a. Maintain CFL.

b. Evaluate the aircraft's capability to maintain altitude through manual control.

c. Assess the situation regarding possible conflicting traffic.

d. Alert nearby aircraft by turning on all exterior lights and, if not in VHF contact with ATC, broadcast advice of failure, position, flight level, and intentions on 121.5MHz.

e. Notify ATC of the failure using the phraseology "NEGATIVE RVSM" (see *GEN 3.4 Sub-section 6.6* Item 2.q.) and the intended course of action.

8.4.9 **In Oceanic Class A Airspace.** Possible courses of action for the pilot following a failure of the autopilot with height lock in oceanic Class A airspace include the following:

a. Provided that the aircraft can maintain CFL, continue at that level.

b. If the aircraft cannot maintain CFL and is unable to obtain a revised ATC clearance, leave the assigned route or track by turning 90° right or left, whenever this is possible, taking account of adjacent routes.

8.5 **ATC Responsibilities**

8.5.1 ATC will apply alternative separation to any aircraft that has reported "NEGATIVE RVSM" in accordance with requirements specified in this Section.

8.6 **Weather and Wake Turbulence and System Alerts**

8.6.1 The pilot of an aircraft operating within the RVSM flight level band that encounters weather turbulence that affects aircraft capability to maintain CFL, or wake turbulence, or experiences distracting aircraft system alerts, must notify ATC and request a revised clearance before deviating from track or CFL.

8.6.2 **Oceanic Control Area (OCA) Only.** If a revised clearance is not possible or practicable, the pilot of an aircraft operating in OCA may initiate the following temporary lateral offset procedure with the intention of returning to the cleared route as soon as possible:

a. If possible, establish contact with other aircraft on the VHF inter-pilot air-to-air frequency 123.45MHz.

b. Initiate a lateral offset (one or both aircraft may initiate) not to exceed 2NM from the cleared route or track, provided that:

(1) as soon as practicable, the pilot(s) of the offsetting aircraft notify ATC that temporary lateral offset action has been taken and the reason for doing so; and

(2) the pilot(s) of the offsetting aircraft notify ATC when the aircraft is re-established on the assigned route(s) or tracks(s).

8.7 Flight Level Deviation Reporting

8.7.1 For operations in the Australian FIR, flight crews must report all flight level deviations of 300FT or more from the aircraft's assigned level, irrespective of the cause of the deviation.

8.7.2 In reporting, crews must provide the information in the format detailed in *para 8.7.4*. Reports must be submitted as soon as possible after the occurrence and in writing to:

Australian Airspace Monitoring Agency (AAMA)
Airservices Australia
GPO Box 367
CANBERRA ACT 2601
AUSTRALIA
Fax: +61 2 6268 5695
Email: aama@airservicesaustralia.com

8.7.3 Flight crew may send reports through the airline/operator using its normal reporting procedures.

8.7.4 A report of altitude deviations of 300FT or more, including those due to Traffic Alert and Collision Avoidance System (TCAS), turbulence, and contingency events must use the following format:

1. Reporting Agency:
2. Date and Time:
3. Location of Deviation: (Lat/Long) and indication of the area (e.g. Australian South Pacific airspace/Australian Continental airspace/Australian Indian Ocean airspace)
4. Aircraft Identification and Type:
5. Flight Level Assigned:
6. Observed/Reported (indicate one) Final Flight Level: and indicate whether controller or pilot report
7. Duration at Flight Level:
8. Cause of Deviation:
9. Other Traffic:
10. Crew Comments: (if provided)
11. Remarks: (If the event necessitated contingency action, indicate whether AIP contingency procedures were followed)

9. OPERATIONS IN CLASS G AIRSPACE

9.1 Communications

9.1.1 The pilot in command of an IFR aircraft in Class G airspace must attempt to contact ATS on VHF or HF when taxiing. If the pilot is unable to make contact with the air traffic service in relation to the report required by item 1 of Table 21.06 (1) of the *Part 91 MOS*, the flight may taxi and take-off provided contact is established as soon as possible after take-off and the following conditions are complied with:

a. where the operator of the flight is an AOC holder, aerial work certificate holder or *Part 141* certificate holder — the pilot is assured of radio contact with their operator, or a representative of their operator who has immediate access to a serviceable telephone, until contact is made with the air traffic service; or

b. except for *Part 121* operations conducted using aircraft with a MOPSC greater than 19 seats - a SARTIME for departure, that is a maximum of 30 minutes after commencing to taxi has been established with air traffic services.

Note: Pilots are reminded of their obligations to see and avoid other aircraft and their responsibility for collision avoidance in the vicinity of non-controlled aerodromes using 'see-and-avoid' (CASR 91.325).

9.1.2 The pilot of an IFR flight departing from a non-controlled aerodrome must report "IFR" when making first contact with ATS.

9.1.3 A pilot operating in accordance with *para 9.1.1(b)* may nominate a SARTIME for departure either as part of the arrival report or when submitting flight notification by the phrase "SARTIME FOR DEPARTURE". SAR alerting action will be initiated if a report is not received by the nominated SARTIME for departure.

9.1.4 To achieve the greatest degree of safety *section 21.04* of the *Part 91 MOS* requires pilots of aircraft carrying a serviceable radio which they are qualified to use, to make a broadcast whenever it is reasonably necessary to do so to avoid a collision, or the risk of a collision with another aircraft at a non-controlled aerodrome.

Note: Pilots are reminded of their obligations to see and avoid other aircraft and their responsibility for collision avoidance in the vicinity of non-controlled aerodromes using 'see-and-avoid'.

9.1.5 In Class G airspace, pilots of radio-equipped VFR aircraft should monitor the appropriate VHF frequency and announce if in potential conflict. Pilots intercepting broadcasts from aircraft which are considered to be in potential conflict must acknowledge by transmitting own call sign and, as appropriate, aircraft type, position, actual level and intentions.

9.1.6 For *para 9.1.5*, the appropriate VHF frequency is:

a. when operating in the vicinity of an aerodrome published on aeronautical charts - the CTAF (126.7MHz or the discrete frequency as published); or

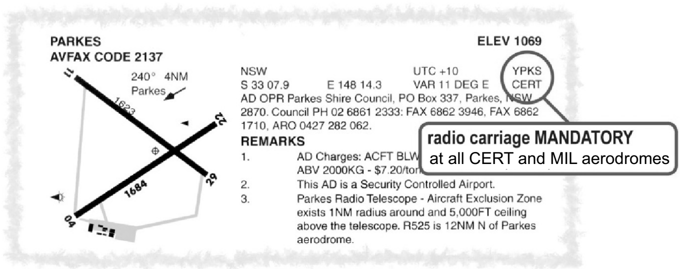
b. when operating within a Broadcast Area - the Broadcast Area CTAF.

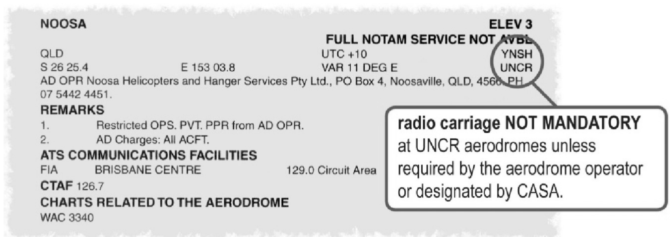
Otherwise, it is recommended pilots use the Area VHF. This frequency may provide the best means of gaining assistance from ATC or other pilots in the event of an emergency.

9.1.7 In the vicinity of uncharted aerodromes, pilots have discretion to use the most appropriate frequency that ensures safe operation. This may be 126.7MHz. However, pilots should be aware that transiting aircraft will be monitoring Area VHF. To ensure mutual traffic awareness, it is recommended that pilots using an alternative frequency also monitor Area VHF.

9.1.8 It is required (unless operating in accordance with procedures in the *Part 103 MOS)* that gliders operating above 5,000FT in Class G airspace monitor the Area VHF.

9.1.9 An aircraft is considered in the vicinity of a non-controlled aerodrome if it is within 10NM of the aerodrome and at a height above the aerodrome that could result in conflict with operations at the aerodrome.





9.1.10 Pilots of aircraft transiting in the vicinity of a non-controlled aerodrome should avoid flying over the aerodrome at an altitude that could conflict with operations in the vicinity of the aerodrome.

9.1.11 When a report from an IFR aircraft is made to FLIGHTWATCH on HF, a broadcast on the appropriate CTAF or Area VHF is also required.

9.1.12 If calls are not made clearly and concisely using the standard phraseology, confusion can arise at aerodromes in close proximity that share the same CTAF.

9.1.13 The standard broadcast format is:

a. {Location} Traffic

b. {Aircraft type}

c. {call sign}

d. {Position/level/intentions}

e. {Location}

9.1.14 The following tables provide a summary of recommended broadcasts to be made when operating or arriving at, or departing from, a non-controlled aerodrome. Pilots should also observe local and published noise abatement procedures and curfews.

RECOMMENDED CALLS IN ALL CIRCUMSTANCES	
SITUATION	**BROADCAST**
The pilot intends to take-off	Immediately before, or during taxiing
The pilot is inbound to an aerodrome	10NM from the aerodrome, or earlier, commensurate with aeroplane performance and pilot workload, with an estimated time of arrival (ETA) for the aerodrome
The pilot intends to fly through the vicinity of, but not land at, a non-controlled aerodrome	10NM from the aerodrome, or earlier, commensurate with aeroplane performance and pilot workload, with an estimated time of arrival

RECOMMENDED CALLS DEPENDENT ON TRAFFIC	
SITUATION	**BROADCAST**
The pilot intends to enter a runway	Immediately before entering a runway
The pilot is ready to join the circuit	Immediately before joining the circuit
The pilot intends to make a straight-in approach	On final approach at not less than 3NM from the threshold (see note)
The pilot intends to join on base leg	Prior to joining on base
RECOMMENDED CALLS DEPENDENT ON TRAFFIC	
SITUATION	**BROADCAST**
During an Instrument Approach when: a. departing FAF or established on final approach segment inbound b. terminating the approach, commencing the missed approach	Including details of position and intentions that are clear to all pilots (both IFR and VFR)
The aircraft is clear of the active runway(s)	Once established outside the runway strip

Note: Some distances above refer to the runway threshold and others to the ARP. Pilots should be aware that a GNSS indication of 3NM from an aerodrome may not be 3NM to the runway threshold.

9.2 **Circuit Information**

9.2.1 Pilots should fly a circuit commensurate with the aircraft type they are operating. However the use of any circuit procedure does not alter the responsibility of each pilot to see and avoid other aircraft. Pilots operating in the circuit should manoeuvre to follow traffic ahead of them in the circuit.

9.2.2 Left-hand circuits is the standard traffic circuit that must normally be made. Right-hand circuit requirements are listed in *ERSA*.

9.2.3 Aircraft should not be operated in the circuit at an indicated airspeed of more than 200KT.

9.2.4 During the initial climb-out the turn onto crosswind should be made appropriate to the performance of the aircraft, but in any case not less than 500FT so as to be at circuit height when turning downwind.

Note: CASR 91.390(1)(b) - outlines exceptions in this requirement.

9.2.5 Pilots may vary the size of the circuit depending on:

a. the performance of the aircraft;

b. safety reasons; or

c. in accordance with the Aircraft Flight Manual, Pilot's Operating Handbook, or company Standard Operating Procedures.

9.2.6 Pilots are encouraged to turn on aircraft landing lights, anti-collision lights and strobe lights, where fitted, when in the vicinity of a non-controlled aerodrome, until the aircraft has landed.

9.2.7 Transponders can be detected by aircraft equipped with ACAS (TCAS), allowing them to 'see' other aircraft and take evasive action. Pilots of transponder-equipped aircraft should at all times ensure their transponder is switched to ON/ALT (Mode C), including when operating in the vicinity of a non-controlled aerodrome. In the event of a radio failure it is important that pilots select 7600 on their transponder and continue squawking.

9.2.8 So as not to impede commercial aviation, pilots flying recreational or sport aircraft for their own enjoyment, or pilots flying GA aircraft for their own leisure, should consider giving way to aircraft being used for "commerce" provided that the inconvenience to their own operation is not great and it can be done safely. Operators of commercial aircraft should never expect a give way offer to be assumed or automatic. Any offer to give way must be explicit and its acceptance acknowledged.

9.3 Separation Minima for Take-off

9.3.1 An aircraft must not commence take-off until:

a. a preceding departing aircraft using the same runway has:

(1) crossed the upwind end of the runway; or

(2) commenced a turn; or

(3) if the runway is longer than 1,800M, become airborne and is at least 1,800M ahead; or

(4) if both aircraft have a MTOW below 2,000KG, the preceding aircraft is airborne and is at least 600M ahead;

b. a preceding landing aircraft using the same runway, has vacated it and is taxiing away from the runway; or

c. a preceding aircraft, using another runway, has crossed or stopped short of the take-off aircraft's runway.

9.3.2 At aerodromes where gliders operate to a common circuit pattern from a parallel strip outside the runway strip, the above separation minima shall apply to aircraft landing or taking off on either runway as if they were a single runway, but aircraft taxiing or stationary on the runway must not affect operations on the other.

9.3.3 Where gliders and glider tugs operate to a contra-circuit, simultaneous operations are permitted.

9.4 **Circuit Height**

9.4.1 When operating at non controlled aerodromes, the following circuit heights are recommended:

a. High performance - includes jets and many turbo-prop aircraft, above approximately 150KT, 1,500FT AGL;

b. Medium performance - includes most piston engine aircraft, between approximately 55KT and 150KT, 1,000FT AGL;

c. Low performance - ultralights and rotary wing with a maximum speed of approximately 55KT, 500FT AGL (*Refer to diagram at 9.12.6*).

9.4.2 Circuit heights for aerodromes which have specific requirements are published in *ERSA*.

9.5 **Taxiing**

9.5.1 Pilots of IFR flights operating from non-controlled aerodromes must report to ATC on taxiing. If unable to establish contact, proceed in accordance with *para 9.1.1*.

9.5.2 Taxiing reports for IFR flights must include the following information:

a. aircraft type;

b. POB (for flights other than air transport operations);

c. IFR;

d. location;

e. destination or departure quadrant or intentions; and

f. runway to be used.

9.5.3 Following the taxi report, a pilot of an IFR flight must report to ATC if changing to a CTAF or Broadcast Area CTAF when the ATS frequency will not, or cannot, be monitored. This report must include the aerodrome location and frequency.

9.6 Departure Information

9.6.1 Pilots of departing aircraft should depart by extending one of the standard circuit legs. An aircraft should not execute a turn opposite to the circuit direction unless the aircraft is well outside the circuit area and no traffic conflict exists. This will normally be at least 3NM from the departure end of the runway. The distance may be less for aircraft with high climb performance. The distance should be based on pilots being aware of traffic and the ability of the aircraft to climb above and clear of the circuit area.

Note: Pilots of departing aircraft should be aware of traffic intending to join the circuit by the recommended overfly procedure, as they can be 2,000FT or higher above aerodrome elevation.

9.6.2 A pilot in command of an IFR flight must establish flight on the departure track as soon as practicable after take-off and within 5NM of the aerodrome, except that, at aerodromes which have published standard instrument departure procedures, an IFR aircraft may depart in accordance with those procedures. When established on the departure track, and clear of the circuit traffic, the pilot in command must report departure to ATC unless instructed otherwise.

9.6.3 This report must include the following information:

Non-surveillance	Surveillance
Departure time	Current position
Outbound track in degrees magnetic	Present level
Intended cruising level	Intended cruising level
Estimate for the first en route reporting point	Estimate for the first en route reporting point

9.6.3.1 The departure time must be reported as follows:

a. current time minus an adjustment for the distance from the aerodrome; or

b. when over or abeam the aerodrome.

9.6.4 If the pilot transmits the departure report before intercepting the departure track the report must include advice that the aircraft is manoeuvring to intercept departure track.

9.6.5 When circumstances dictate that flight notification details be submitted in-flight, the above items must be combined with the appropriate items of the flight notification, and prefixed with the words “FLIGHT PLAN”.

9.7 Climb and Cruise Procedures

9.7.1 The pilot in command of an IFR flight must notify the intention to amend route, deviate from track or change level in sufficient time for ATS to advise traffic. When a position estimate changes by more than two (2) minutes, the pilot must advise ATS.

9.7.2 Pilots must give ATS notice of an impending position report by use of the word “POSITION”;
e.g. “MELBOURNE CENTRE (call sign) POSITION”.
Pilots must wait for the ATS instruction before reporting position.

9.7.3 Pilots must report maintaining an assigned level.

9.7.4 After any en route frequency change, a pilot in command of an IFR flight must advise present level. If the aircraft is not at its planned cruising level, the pilot must also provide advice of the level to which the aircraft is being climbed.

9.7.5 When operating in Class G airspace in proximity to a controlled aerodrome, pilots should consider monitoring the TWR frequency to enhance situational awareness of traffic entering and leaving the CTR.

9.7.6 A pilot of a flight intending to operate in the vicinity of a non-controlled aerodrome at altitudes used by arriving and departing aircraft should:

a. monitor the appropriate VHF, and broadcast by 10NM or earlier from the aerodrome commensurate with aircraft performance and pilot workload with an ETA (unless otherwise specified in ERSA); and

b. where possible, avoid the circuit area and arrival and departure tracks.

9.8 Position Reports

9.8.1 Except when identified, position reporting is mandatory when operating under the IFR and must normally be made at the positions or times notified on the flight notification
(See *ENR 1.10 para 3.5.2* for flight notification requirements).

9.8.2 The position report format is identified at *APPENDIX 1*.

9.8.3 When an aircraft is holding due weather, ATS will nominate scheduled reporting times which will normally be at 15 minute intervals.

9.8.4 IFR aircraft operating area-type flights and nominating schedules reporting times may limit the report to level and the present position or the sector of the survey area in which the aircraft is currently operating.

9.9 Descent from Controlled Airspace

9.9.1 Before descending from controlled into Class G airspace and before separation with any aircraft operating near the base of controlled airspace can be compromised, the pilot in command of an IFR flight must report position, level, intentions and estimate for next position/destination to the ATS unit providing services in Class G airspace. If the report is made using HF radio, a broadcast must be made on the appropriate area VHF frequency.

9.10 Arrival Information

9.10.1 A pilot of an IFR flight must report when changing to the CTAF when the ATS frequency will not, or cannot be monitored. This report must include the aerodrome location and frequency.

9.10.2 Pilots of IFR flights conducting local training, an instrument approach, or a holding pattern, may extend their SARWATCH by an “OPERATIONS NORMAL” call at scheduled times.

9.11 **Landing Manoeuvres**

9.11.1 Prior to entering the circuit at non-controlled aerodrome, aircraft should avoid the flow of traffic until established in the circuit. The 'standard aerodrome traffic circuit' facilitates the orderly flow of traffic and is normally a left circuit pattern with all turns to the left, unless published in the AIP (*CASR 91.385 (1)(b)*). Landings should be accomplished on the operational runway most closely aligned to the wind.
Wind and landing direction indicators can be checked while at an altitude of +500FT above the circuit height.

Note: If jet, turbo prop or high performance piston aircraft operate at the aerodrome, 2,000FT AGL is a safer height to remain clear of all circuit traffic.

9.11.2 An aircraft approaching a non-controlled aerodrome for a landing should join the circuit in accordance with *para 9.12* unless it is:

a. following an instrument approach procedure in IMC; or

b. conducting a visual circling procedure after completion of an instrument approach procedure in IMC; or

c. conducting a straight-in approach in accordance with *para 9.13*.

9.11.3 The runway to be used for landing should be:

a. the most closely aligned into-wind runway; or

b. when operational reasons justify, any other available landing direction provided the nominated circuit is executed without conflict to landing or take-off traffic using the most into wind runway; and

c. serviceable, and cleared of ground maintenance equipment and personnel.

9.11.4 Aircraft approaching a non-controlled aerodrome for landing must make all turns to the left except:

a. where right hand circuits are specified for the aerodrome; or

b. when entering the upwind, crosswind or downwind leg; or

c. when following an instrument approach procedure in IMC; or

d. when conducting a visual circling procedure after completion of an instrument approach procedure in IMC.

9.12 **Circuit Entry**

9.12.1 Where a pilot is unfamiliar with the aerodrome layout, or when its serviceability, wind direction, wind speed, or circuit direction cannot be ascertained without prior arrival, the overfly procedure should be used. The pilot should overfly or circle the aircraft at least 500FT above the circuit altitude, usually 2,000FT or more above the aerodrome elevation. When the circuit direction has been determined, the pilot should position the aircraft to a point well clear (normally the non-active side of the circuit) before descending to the circuit altitude that equates to the aircraft's performance. Pilots should not descend into the traffic circuit from directly above the aerodrome. Refer *AC 91.10*.

9.12.2 For low performance ultralight aircraft and rotorcraft with a maximum speed of approximately 55KT, it is recommended that the aircraft overfly midfield at 500FT above aerodrome elevation. This will minimise the risk of conflict with higher or faster traffic.

Note: Ultralight aircraft pilots who choose to use the overfly join procedure above the circuit altitude should be aware:

a. Faster larger aircraft may not be able to see you easily.

b. Faster larger aircraft can create significant wake turbulence.

c. Faster larger aircraft will not be able to slow to the speeds of an ultralight aircraft and follow.

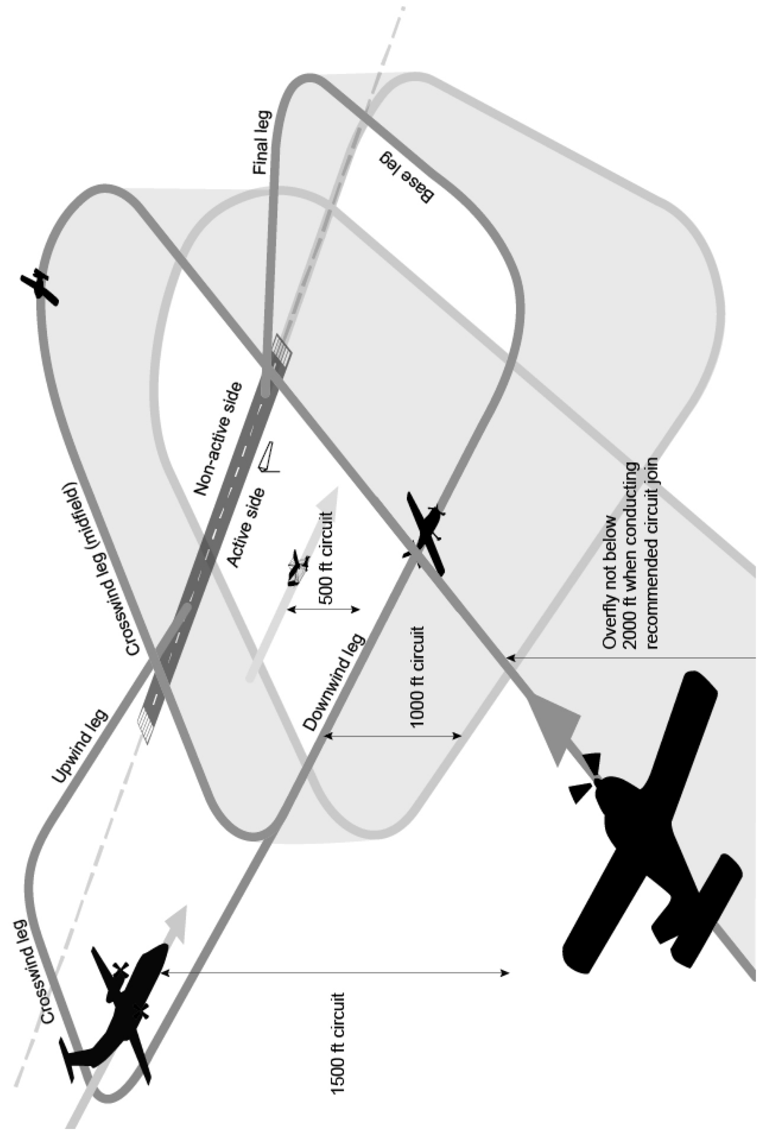
d. Faster larger aircraft - prior to arriving in the circuit and when below 10,000FT - can be at speeds up to 250KT. Therefore although aircraft should be at 200KT maximum in the circuit, an aircraft reporting at 20NM from the aerodrome could be in the vicinity of the circuit within 5 minutes.

9.12.3 For aircraft arriving and intending to join the circuit from overhead, the aircraft should descend on the non-active side of the circuit and be established at its circuit altitude as it crosses the runway centreline on crosswind, at between midfield and the departure end of the runway.

9.12.4 When arriving on the live side, the recommended method is to arrive at the circuit altitude entering midfield at approximately 45 degrees to the downwind leg while giving way to the aircraft already established in the circuit.

9.12.5 On downwind the applicable circuit altitude should be maintained until commencement of the base leg turn. The base leg position is normally when the aircraft is approximately 45 degrees from the reciprocal of the final approach path, measured from the runway threshold. Along the base leg continue to lookout and maintain traffic separation.

9.12.6 When on the final leg, confirm the runway is clear for landing. The turn onto final approach should be completed by a distance and height that is common to the operations at the particular aerodrome and commensurate with the speed flown in the circuit for the aircraft type. In any case, the turn onto final should be completed by not less than 500FT above aerodrome elevation. This should allow sufficient time for pilots to ensure the runway is clear for landing. It will also allow for the majority of aircraft to be stabilised for the approach and landing.


Final leg
Base leg
Non-active side
Active side
Crosswind leg (midfield)
500 ft circuit
Overfly not below
2000 ft when conducting
recommended circuit join
Upwind leg
Downwind leg
1000 ft circuit
Crosswind leg
1500 ft circuit

9.13 Straight-in Approach

9.13.1 Straight-in approaches are not a recommended standard procedure. *CASR 91.395* allows pilots to conduct straight-in approaches provided certain conditions are met. Pilots who choose to adopt a straight-in approach should only do so when it does not disrupt or conflict with the flow of circuit traffic. *CASR 91.395 (2)(b)* requires that the pilot conducting a straight-in approach give way to any other aircraft established and flying in the circuit pattern at the aerodrome.

9.13.2 *CASR 91.395 (2)(a)* requires pilots, before commencing a straight-in approach, to determine the wind direction and speed and the runway in use at the aerodrome.

9.13.3 There are several ways to determine the wind direction, speed and runway in use:

a. AWS, AWIS, AAIS, CA/GRS or UNICOM,

b. Radio contact with a ground-based radio communication service, company agent, or aircraft operating at the aerodrome; or

c. Visual indications - if the information cannot be determined by the above means.

9.13.4 When conducting a straight-in approach, the aircraft must be established on final at not less than 3NM from the landing runway's threshold *CASR 91.395 (2)(c)*.

9.13.5 Pilots of aircraft conducting a straight-in approach at a non-controlled aerodrome should observe the following procedures:

a. The pilot in command should not commence a straight-in approach to a runway when the reciprocal runway direction is being used by aircraft already established in the circuit.

b. All manoeuvring to establish the aircraft on final approach must be conducted outside a 3NM radius from the intended landing runway threshold.

Note: Within 3NM, pilots are expected to make only minor corrections to line up accurately on final approach. This will enable pilots conforming to the aerodrome traffic pattern to optimise their visual scan for traffic along the final approach path.

c. The aircraft's transponder should be squawking and its external lights, where fitted, should be illuminated when on final approach. They should remain on until the aircraft has landed and is clear of all runways.

d. An aircraft established on base leg or final approach for any runway has priority over an aircraft carrying out a straight-in approach.

9.14 **Joining on Base**

9.14.1 Joining on base leg, whilst not prohibited, is not a recommended standard procedure. CASA recommends pilots join the circuit on either the crosswind or downwind leg. However, pilots who choose to join on base leg should only do so if they:

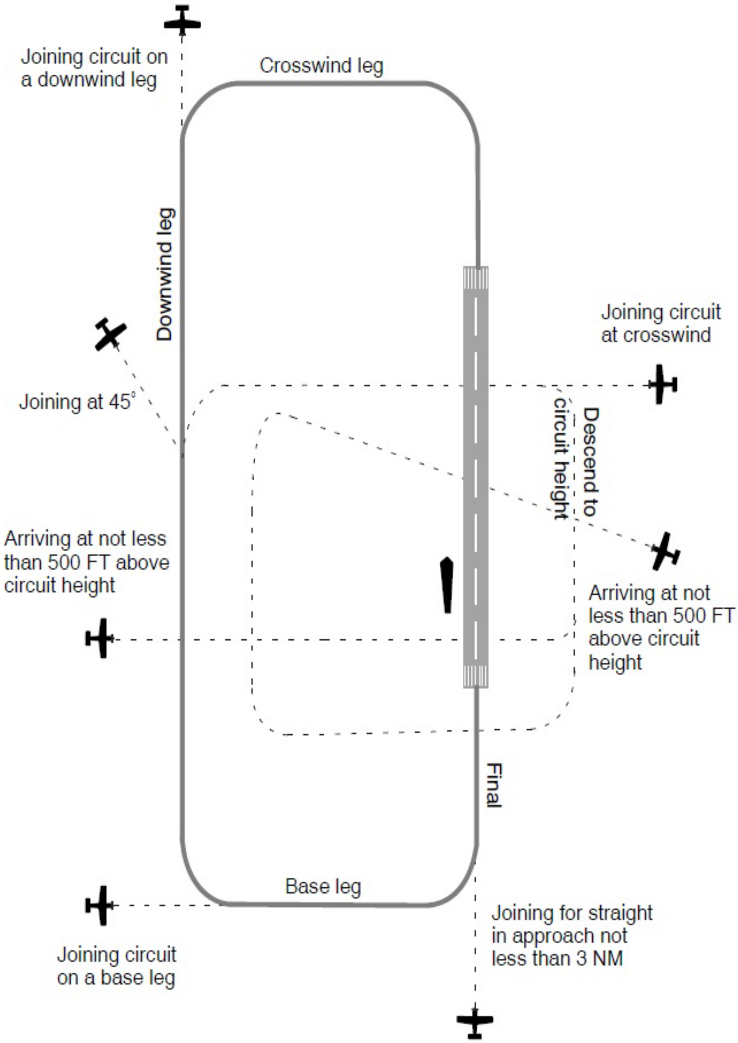
a. have determined the wind direction and speed;

b. have determined the runway in use;

c. give way to other circuit traffic and ensure the aircraft can safely (no traffic conflict likely) join the base leg applicable to the circuit direction in use at the standard height; and

d. broadcast their intentions.

Aerodrome traffic circuit



9.15 Military Initial and Pitch Circuit Procedures

9.15.1 For Military fast jet and training aircraft the preferred method of joining the circuit is via a procedure known as Initial and Pitch. The aircraft (or formation) will track to the Initial Point, a point at 5NM downwind of the runway in use displaced to the dead side, and track inbound at high speeds (see diagram below – not to scale).

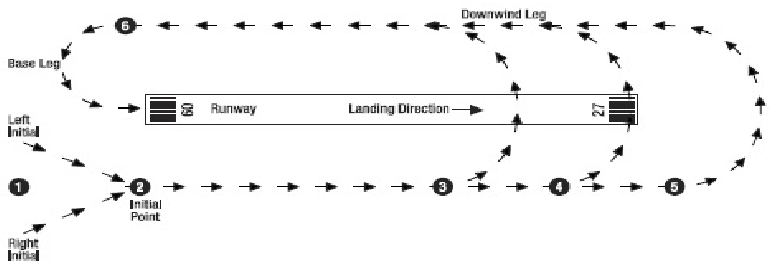
9.15.2 Traffic permitting, Initial and Pitch procedures may be conducted at military, joint user, controlled and non controlled aerodromes. At controlled aerodromes military pilots must comply with ATC circuit entry instructions unless approved for an Initial and Pitch entry.

9.15.3 When conducting this procedure, the height for fast jets is normally 1,500FT AGL and 1,000FT AGL for other aircraft. Aircraft on tactical missions can conduct the initial and pitch at below normal altitudes; this is referred to as a low Initial and Pitch.

9.15.4 At any stage once abeam the threshold of the runway in use, and safe to do so, the aircraft turns ("Pitches") to join downwind and configures for landing.

9.15.5 Generally pilots conducting this manoeuvre will broadcast their position at the Initial Point and on the base turn.

Military Initial and Pitch



1. First call on run-in to Initial Point	4. Second aircraft in formation pitches out and positions Downwind behind first aircraft.
2. Commence Initial	5. Subsequent aircraft in formation pitch out and positions Downwind behind second aircraft.
3. First aircraft in formation pitches out and positions Downwind	6. First aircraft calls turning on Base leg for the entire formation. Clearances or instructions apply to entire formation. Subsequent aircraft in formation will make independent base calls.
Note: Aircraft conducting a low pitch will be at the low pitch altitude by position 3.	

9.16 **Separation Minima for Landing**

9.16.1 An aircraft must not continue its approach to land beyond the threshold of the runway until:

a. a preceding departing aircraft using the same runway is airborne and:

(1) has commenced a turn; or

(2) 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 manoeuvre safely in the event of a missed approach;

b. a preceding landing aircraft using the same runway has vacated it and is taxiing away from the runway;

c. a preceding aircraft using another runway, has crossed or stopped short of the landing aircraft's runway.

9.16.2 At aerodromes where gliders operate to a common circuit pattern from a parallel strip outside the runway strip, the above separation minima shall apply to aircraft landing or taking off on both runways as if they were a single runway, but aircraft taxiing or stationary on one runway must not affect operations on the other. Where gliders and glider tugs operate to a contra-circuit, simultaneous operations are permitted.

Note: Pilots are reminded of their obligations to see and avoid other aircraft (CASR 91.325).

9.17 **The Traffic Mix and Other Hazards at Non-Controlled Aerodromes**

9.17.1 At non-controlled aerodromes, there may be scheduled or non-scheduled air transport flight, gliders, parachutists, helicopters, gyroplanes, ultralights, balloons, general aviation aircraft, and agricultural aircraft operations.

9.17.2 Pilots should consult *AC 91-10*: 'Operations in the vicinity of non-controlled aerodromes', (in conjunction with the *AIP*) for detailed operating procedures when operating in the vicinity of non-controlled aerodromes.

9.17.3 In addition pilots should consult *AC 91-14*: 'Pilots' responsibility for collision avoidance in the vicinity of non-controlled aerodromes using see and avoid'.

9.17.4 The AC mentioned above provide guidance on a code of conduct (good airmanship) which, when followed will provide improved situational awareness and safety for all pilots when flying at, or in the vicinity of, non-controlled aerodromes.

10. OPERATIONAL REQUIREMENTS - GENERAL

10.1 **Taxiing After Landing**

10.1.1 After landing, the runway strip should be vacated as soon as practicable. Aircraft should not stop until clear of the runway strip.

10.2 **SARWATCH**

10.2.1 **Cancellation of SARWATCH other than SARTIME**

10.2.1.1 Pilots wishing to cancel SARWATCH may do so by reporting to ATS.

10.2.1.2 SARWATCH is automatically cancelled without the need to report to ATS when landing:

a. at a controlled aerodrome during tower hours; or

b. at an uncontrolled aerodrome during AFIS hours.

10.2.1.3 When cancelling SARWATCH, pilots must include:

a. the aircraft radio call sign;

b. place of arrival or point from which SARWATCH services are no longer required;

c. the words "CANCEL SARWATCH"; and

d. when communicating with a unit other than that nominated, the name of the ATS unit to which the report shall be relayed.

10.2.1.4 SARWATCH may be cancelled in combination with a pilot report of changing to the CTAF, or in the circuit area, or after landing.

10.2.1.5 When the pilot of an IFR flight elects not to report in the circuit area to cancel SARWATCH and has not reported within 10 minutes of ETA, ATS will commence communications checks to obtain a landing report or an extension of SARWATCH.

10.2.1.6 ATS will acknowledge “CANCEL SARWATCH” reports with a readback of the place of arrival, if appropriate, and the words “SARWATCH TERMINATED”.

10.2.2 **Cancellation of SARTIME**

10.2.2.1 When operating on a SARTIME, the pilot must cancel SARTIME by the time nominated and, during the contact with ATS, include the words “CANCEL SARTIME”.

10.2.2.2 ATS will acknowledge “CANCEL SARTIME” reports with a readback of the place of arrival, if appropriate, and the words “SARTIME CANCELLED”.

10.2.2.3 The preferred method to cancel a SARTIME is via telephone to CENSAR on 1800 814 931. When telephone facilities are not available you may use ATS frequencies.

10.2.2.4 For SARTIME flights, pilots of single VHF radio-equipped aircraft must cancel SARTIME before changing to the CTAF, or after landing.

10.2.3 **SARTIME for Departure**

10.2.3.1 When submitting flight notification, a pilot may nominate a SARTIME for departure for the initial departure aerodrome only. For intermediate departure, it may be nominated by telephone after landing, or as part of the arrival report associated with that aerodrome. Only one SARTIME may be current at any time.

10.2.3.2 The nomination of a SARTIME for departure does not absolve the pilot from complying with the requirements for the carriage of serviceable radio equipment, nor from making the prescribed reports.

10.2.3.3 An IFR departure report is not sufficient to cancel a SARTIME for Departure. Pilots who have nominated a SARTIME for Departure must use the phrase ‘CANCEL SARTIME’ with the departure report.

10.3 **Radio Telephony Requirements Outside Controlled Airspace**

10.3.1 The call sign of the station or service being called must be included at the beginning of each exchange on VHF and HF.

Note: The requirement of para 9.1.11 applies when reporting on HF.

10.3.2 All transmissions between aircraft or when broadcasting intentions must be prefixed with the aircraft call sign.

10.3.3 When requesting operational information on FIS frequencies, the pilot must use the service call sign "**FLIGHTWATCH**" and, when on HF, include the frequency on which they are calling.

10.3.4 Use of the collective "ALL STATIONS" must precede a general information broadcast.

10.4 **Diversion to an Alternate Aerodrome**

10.4.1 The pilot in command is responsible for taking appropriate diversion action based on information received. The pilot must provide the latest diversion time from the destination or from a point en route and, if required, the time interval.

10.5 **Operating Requirements for Transponders**

10.5.1 Pilots of aircraft fitted with a serviceable Mode 3A or Mode S transponder must activate the transponder at all times during flight, and if the Mode 3A transponder is Mode C capable, that mode must also be operated continuously.

10.5.2 Aircraft equipped with a Mode S transponder having an aircraft identification feature shall transmit the aircraft identification as specified in Item 7 of the flight notification or, when no flight notification has been filed, the aircraft registration.

10.5.3 For further information on the operation of transponders, including normal and emergency codes, see *ENR 1.6 Section 7.*

10.6 **Operating Requirements for ADS-B Transmitters**

10.6.1 Pilots of aircraft fitted with a serviceable ADS-B transmitter which has been confirmed suitable to receive ADS-B derived ATS surveillance services in Australia should activate the transmitter at all times during flight.

Note 1: Some ADS-B installations may share controls with the SSR transponder, meaning that independent operation of the two systems is not possible.

Note 2: If it is not possible to comply with a particular instruction the pilot must advise ATC and request alternative instructions.

10.6.2 Aircraft equipped with ADS-B having an aircraft identification feature shall transmit the aircraft identification as specified in the flight notification or, when no flight notification has been filed, the aircraft registration.

10.6.3 For further information on the operation of ADS-B transmitters, including normal and emergency codes, see *ENR 1.6 Section 6.5*.

10.7 **Alternate Aerodromes**

10.7.1 **General**

10.7.1.1 Except for *Part 121* operations, a pilot in command must make provision for flight to a destination alternate aerodrome, when required, in accordance with the paragraphs of this section (i.e. all of *Section 10.7*).

Note: The requirements related to Part 121 alternate aerodromes are contained in Chapter 4 of the Part 121 MOS, with interlinkages to Chapters 2 and 7 of the Part 121 MOS.

10.7.1.2 When a flight is required to provide for a destination alternate aerodrome, any aerodrome may be so nominated for that flight provided:

a. it is suitable as a destination for that flight; and

b. is not an aerodrome for which that flight would require to provide for an alternate aerodrome; and

c. is not a helideck.

10.7.1.3 When the forecasts required by *Section 7.02* of the *Part 91 MOS* for an aerodrome are not available, the pilot in command must make provision for a suitable destination alternate that has the required forecast.

10.7.2 **Weather Conditions**

10.7.2.1 Except when operating an aircraft under the VFR by day within 50NM of the point of departure, the pilot in command must provide for a suitable alternate aerodrome when arrival at the destination will be during the currency of, or up to 30 minutes prior to the forecast commencement of, the following weather conditions:

a. cloud - more than SCT below the alternate minimum (see *paras 10.7.2.10 and 10.7.2.11*); or

Note: In determining requirements for alternate aerodromes, forecast amounts of cloud below the alternate minima are cumulative. For determining requirements, the cumulative cloud amount is interpreted as follows:

FEW plus FEW is equivalent to SCT,

FEW plus SCT is equivalent to BKN,

SCT plus SCT is equivalent to BKN or OVC.

b. visibility - less than the alternate minimum; or

c. visibility - greater than the alternate minimum, but the forecast is endorsed with at least a 30% percentage probability of fog, mist, dust or any other phenomenon restricting visibility below the alternate minimum; or

d. a thunderstorm or associated severe turbulence, or a forecast of at least a 30% probability of such an event; or

e. wind - a crosswind or tailwind component more than the maximum for the aircraft.

Note: Wind gusts must be considered.

10.7.2.2 When operating a helicopter under the VFR, and the use of helicopter VMC is permissible at the destination, the pilot in command must provide for a suitable alternate aerodrome when either of the following conditions is forecast at the destination:

a. cloud - more than SCT below a ceiling of 1,000FT; or

b. visibility - less than 3,000M.

10.7.2.3 When weather conditions at the destination are forecast to be as specified at *para 10.7.2.1*, but are expected to improve at a specific time, provision for an alternate aerodrome need not be made if sufficient fuel is carried to allow the aircraft to hold until that specified time plus 30 minutes.

10.7.2.4 When weather conditions at the destination are forecast to be above the values specified at *para 10.7.2.1*, but, additionally, intermittent or temporary deteriorations in the weather below the values are forecast, provision of an alternate need not be made if sufficient fuel is carried to allow the aircraft to hold for:

a. 30 minutes for intermittent deterioration (INTER); and

b. 60 minutes for temporary deterioration (TEMPO).

10.7.2.5 When thunderstorms or their associated severe turbulence or their probability is forecast at the destination, sufficient fuel must be carried to permit the aircraft to proceed to a suitable alternate or to hold for:

a. 30 minutes when the forecast is endorsed INTER; or

b. 60 minutes when the forecast is endorsed TEMPO.

10.7.2.6 When a forecast has multiple INTER or TEMPO deteriorations and holding fuel will be carried, fuel must be carried to hold for only the most limiting requirement. INTER and TEMPO holding fuel requirements are not cumulative.

10.7.2.7 When TAFs include a FM or a BECMG, causing an operational requirement to either become effective or be removed, the timing for the change in operational requirement is as follows:

a. When the weather following the FM or BECMG is forecast to create an operational requirement, that operational requirement will become effective 30 minutes before the start of the FM time, or 30 minutes before the start of the BECMG period.

b. When the weather following the FM or BECMG is forecast to remove an operational requirement, that operational requirement will remain effective until 30 minutes after the FM time or 30 minutes after the end of the BECMG period.

10.7.2.8 The fuel required by *paras 10.7.2.4* or *10.7.2.5* must be carried when the ETA of the aircraft at its destination or alternate falls within the period 30 minutes before the forecast commencement time to 30 minutes after the expected time of cessation of these deteriorations. If the holding time required by *paras 10.7.2.4* or *10.7.2.5* extends past 30 minutes after the forecast cessation of these deteriorations, the aircraft need only carry sufficient fuel to hold until 30 minutes after the forecast cessation time.

10.7.2.9 At aerodromes receiving a TAF3 service, and only during the first 3 hours of the TAF3 validity, not beyond the end time for the TAF3 service if such a time is specified, the following do not apply:

a. 30 minute buffers required by *paras 10.7.2.7* and *10.7.2.8,*

b. the alternate or holding fuel required by:

(i) *para 10.7.2.1* (c) for reduction in visibility, or

(ii) *para 10.7.2.5* for any PROB30 or PROB40 for TS or associated severe turbulence.

10.7.2.10 For IFR flights, the alternate minima are as follows:

a. For aerodromes with an Instrument Approach Procedure (IAP) that the pilot is able to conduct, the alternate minima published on the chart (see *ENR 1.5, Section 6.*).

b. By day only - for aerodromes without an IAP, or that has an IAP but the pilot is unable to conduct that procedure, the alternate minima is the lowest safe altitude for the final route segment plus 500FT and a visibility of 8KM.

Note: Alternate minima based on weather for night IFR operations is only para (a) above. If the planned destination aerodrome for an IFR flight by night does not have any IAP, or any IAP that the pilot can conduct, then due to para 10.7.3.1, the flight must plan for a destination alternate aerodrome. By virtue of para 10.7.1.2, the destination alternate aerodrome must have an IAP that the pilot is able to conduct, which would then result in para (a) being the applicable alternate weather minima.

10.7.2.11 For flight by aeroplanes under the VFR (day or night) and helicopters operating under the VFR at night, the alternate minima are a ceiling of 1,500FT and a visibility of 8KM.

10.7.2.12 For VFR helicopter operations by day, the alternate minima are the same as for night unless the additional conditions specified in *Section 2.07* of the *Part 91 MOS* are met. When these additional conditions are met, the alternate minima requirements are as shown in *para 10.7.2.2*.

10.7.3 **Radio Navigation Aids**

10.7.3.1 A destination alternate aerodrome must be planned for an IFR flight by night to a planned destination aerodrome that is:

a. not served by an instrument approach procedure; or

b. is served by 1 or more instrument approach procedures, none of which the pilot is able to conduct.

10.7.3.2 A flight operating under the VFR at night (see *ENR 1.2 Section 1.1*) must provide an alternate aerodrome within one (1) hour flight time of the destination unless:

a. the destination is served by a ground based radio navigation aid (NDB/VOR) and the aircraft is fitted with the appropriate radio navigation system capable of using the aid, and the pilot is competent in using the aid, or

b. the aircraft is fitted with an approved GNSS (as defined in the relevant *MOS* for the kind of operation being conducted) and the pilot is competent in using the GNSS.

10.7.3.3 If aircraft navigation is to be conducted using a GNSS receiver certified only to (E)TSO C-129, navigation to a destination alternate aerodrome must be planned using a navigation system other than GNSS.

10.7.4 **Runway Lighting**

10.7.4.1 **Portable Lighting.** When a flight is planned to land at night at an aerodrome where the runway lighting is portable, provision must be made for flight to an alternate aerodrome unless arrangements are made for a responsible person to be in attendance during the period specified in *para 10.8.1.1 (note c),* to ensure that the runway lights are available during that period.

10.7.4.2 **Standby Power.** When a flight is planned to land at night at an aerodrome with electric runway lighting, whether pilot activated or otherwise, but without standby power, provision must be made for flight to an alternate aerodrome unless portable runway lights are available and arrangements have been made for a responsible person to be in attendance during the period specified in *para 10.8.1.1 (note c)*, to display the portable lights in the event of a failure of the primary lighting.

10.7.4.3 **PAL.** When a flight is planned to land at night at an aerodrome with PAL and standby power, provision must be made for a flight to an alternate aerodrome equipped with runway lighting unless a responsible person is in attendance to manually switch on the aerodrome lighting.

10.7.4.4 **Alternate Aerodromes - PAL**. An aerodrome served by PAL may be nominated as an alternate aerodrome.

There is no requirement for a responsible person on the ground to be in attendance, but the aircraft must be equipped with:

a. dual VHF; or

b. single VHF and HF communications and carries 30 minutes holding fuel to allow for the alerting of ground staff in the event of a failure of the aircraft's VHF communication.

10.7.4.5 The alternate requirements of *paras 10.7.4.1 to 10.7.4.4* inclusive need not be applied if the aircraft carries holding fuel for first light plus 10 minutes at the destination.

10.7.4.6 An alternate aerodrome nominated in accordance with the requirements in *paras 10.7.4.2 and 10.7.4.3* need not have standby power or standby portable runway lighting.

10.7.4.7 A responsible person under *para 10.7.4.2* is one who has been instructed in, and is competent to display, the standard runway lighting with portable lights.

10.8 Suitability of Aerodromes

10.8.1 General

10.8.1.1 The following procedures are an acceptable means of compliance with the requirements of *CASR 91.055* in relation to the suitability of an aerodrome:

a. Pilots should verify that the intended aerodrome meets the requirements of *CASR 91.410* as regards to its suitability for the intended operation. Additionally, pilots should confirm with the aerodrome operator that the pavement strength of the aerodrome meets the standards required by the aircraft being operated. Pilots should also be aware that *CASR Parts 121, 133, 135,* and *138* may place additional aerodrome requirements for a particular flight or type of operation.

b. Pilots should ensure that runway edge lighting, threshold lighting, illuminated wind direction indicator, and any obstacle lighting (if required) is serviceable for any planned night operations. Additional lighting may be required for particular operations – refer to the applicable regulation.

c. When aerodrome lighting is required and PAL is not being used, the pilot in command or operator should ensure that arrangements have been made for the runway, obstacle and taxiway lighting to be operating during the following periods:

(i) departure: from at least 10 minutes before departure to at least 30 minutes after take-off;

(ii) arrival: from at least 30 minutes before ETA to the time landing and taxiing has been completed.

Note 1: An operator planning a flight by an aircraft with tyre pressures and/or weight in excess of that permitted by the Part 139 MOS must ensure that a pavement concession is obtained.

Note 2: Emergency Landings. When safety is involved, the nearest aerodrome which will permit a landing without danger to the aircraft may be used, irrespective of the damage that may be caused to the pavement.

Note 3: Aerodrome lighting at an aerodrome where a control tower is operating will be activated by ATC as necessary. Pilots requiring aerodrome lighting outside the control tower's published hours should use PAL, if available, or make appropriate arrangements with ATC. If ATC has already ceased duty, requests should be directed to the local aerodrome operator. Confirmation should be obtained that requests for lighting will be satisfied.

Note 4: A pilot having made arrangements with ATS for night lighting must notify any change in requirements.

Note 5: Additional details on acceptable means of compliance refer to are contained in the Part 91 AMC/GM document entries related to CASR 91.410, and, for Part 121 operations, the Part 121 AMC/GM document entry related to CASR 121.205.

10.8.2 **Runway Width**

10.8.2.1 Specific limitations apply to all *Part 121* operations and certain *Part 135* operations. Refer to *CASR Parts 121* and *135*, and any applicable directions or exemptions.

10.9 Fuel Requirements

10.9.1 General

10.9.1.1 Refer to the relevant *CASR Part 91, 121 133* and *135* rules relating to fuel carriage. *AC 91-15* provides guidance material for these requirements.

10.9.2 Minimum Fuel

10.9.2.1 The pilot in command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot in command calculates that any change to the existing clearance to that aerodrome may result in landing with less than final reserve fuel.

Note 1: 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 final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

Note 2: Pilots should not expect any form of priority handling as a result of a "MINIMUM FUEL" declaration. ATC will, however, advise the flight crew of any additional expected delays as well as coordinate when transferring control of the aircraft to ensure other ATC units are aware of the flight's fuel state.

10.9.3 Emergency Fuel

10.9.3.1 The pilot in command must declare a situation of emergency fuel by broadcasting MAYDAY MAYDAY MAYDAY FUEL, 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 final reserve fuel.

Note 1: MAYDAY FUEL declaration is a distress message.

Note 2: In circumstances where a normal approach and landing is expected and the pilot assesses there is no requirement for emergency services, ATS should be so advised as early as possible e.g. "EXPECTING NORMAL APPROACH AND LANDING, EMERGENCY SERVICES NOT REQUIRED".

10.10 **Information by Pilots**

10.10.1 A pilot in command becoming aware of any irregularity of operation of any navigational or communications facility or service or other hazard to navigation must report the details as soon as practicable. Reports must be made to the appropriate ATS unit, except that defects, or hazards on a landing area must be reported to the person or authority granting use of the area.

10.10.2 Pilots are requested to advise ATS about any deterioration or improvement of reported runway surface conditions, deceleration, and/or directional control. See *APPENDIX 1* (AIREP) and *AD 1.2 Section 3* for details about Runway Condition Reports (RCR) and reporting deceleration and directional control.

10.10.3 During a bush fire danger period, pilots in command of aircraft should notify the nearest ATS unit promptly of any evidence of bush fires observed which they believe have not been reported previously.

10.10.4 Australian Customs and Border Protection (Customs) is the government civil surveillance organisation which coordinates aerial patrols of border and off-shore areas to detect breaches of Customs, Fisheries, Quarantine and Immigration legislation.

10.10.5 Pilots are invited to assist Customs by reporting activities which appear to warrant recording or investigation. Reports should be made to the in-contact ATS unit. Observations warranting a report include:

a. observed marine pollution (including oil slicks);

b. shipping abnormalities;

c. other unusual activities within approximately 300NM of the coastline;

d. suspicious activities of unidentified itinerant aircraft, especially if there is a suggestion that they are travelling from or to an overseas destination;

e. aircraft signalling the ground or dropping objects;

f. aircraft operating at night without navigation lights;

g. aircraft operating from non-aerodrome sites, or unexplained or unusual activity at aerodromes or remote strips;

h. possible illegal fishing within the 200NM fishing zone;

i. possible smuggling of drugs or other prohibited goods;

j. possible illegal immigrants entering Australia;

k. unauthorised landings by sea or air;

l. threats to the well being of the Great Barrier Reef or other environmentally significant areas; and

m. unusual activities in remote areas.

10.10.5.1 Such reports should be elaborated on at debriefing.

10.10.6 Observed volcanic activity must be included in AIREP.

10.10.7 All air crews are to report immediately by radio to the appropriate ATC facility, any incidents of unauthorised laser illumination. Reports should include event position, altitude, colour of laser beam(s), originating direction and position, and any other relevant information deemed necessary for ATC and law enforcement action.

10.10.8 Air crews flying in Class G airspace are also requested to immediately broadcast a general laser illumination caution on the appropriate CTAF. This general caution should include the following elements:
Phrase "UNAUTHORISED LASER ILLUMINATION EVENT(s) HAS/HAVE BEEN REPORTED" (general positional information including location and altitude).

10.11 Flights Over Water

10.11.1 There are specific over water flight notification requirements (refer to *CASR 91.240* and the *Part 91 MOS Chapter 9).*

Note: Pilots are reminded of the requirement to not operate an aircraft in a manner which creates a hazard to a person or property (CASR 91.055).

10.11.2 Requirements related to flight over water can be found in the CASR Part relevant to the operation being conducted.

10.11.3 Helicopters must be fitted with an approved emergency flotation system on a *Part 133* AOC operation in accordance with *Chapter 11* of the *Part 133 MOS.*

10.12 Procedures for Ground Operations of Turbo-Jet Aircraft

10.12.1 Whenever an engine, other than the APU, of a turbo-jet aircraft is operating on the ground, the aircraft's anti-collision light(s) must be displayed, thereby indicating to pilots of other aircraft to exercise caution. Military turbo-jet aircraft should always be treated with caution as their anti-collision light may not be displayed even though an engine is running.

10.13 Clearances - Pilot Responsibility

10.13.1 A clearance issued by an ATS unit is only an authorisation for the pilot in command to proceed in accordance with the terms of the clearance. The clearance is not an authorisation for a pilot to deviate from any regulation, order, operating standard or procedure, or minimum altitude, nor to conduct unsafe operations in their aircraft. Further, the issuance and acceptance of a clearance in no way abrogates or transfers to an ATS unit the responsibilities of the pilot in command.

10.14 Special Requirements

10.14.1 Special Standby of Fire Services

10.14.1.1 A pilot conducting training in take-offs and landings with a multi engined aircraft may request the airport RFFS to stand by on the field. The request must be made through ATS or direct to the responsible Fire Officer.

10.14.2 Aeroplane and rotorcraft simulated failures

10.14.2.1 *CASR 91.730* through to *91.750* contain specific rules relating to certain aeroplane training and checking activities. *CASR 91.755* through to *91.775* contain specific rules relating to certain rotorcraft training and checking activities.

10.14.2.2 For *CASR 91.750(2)(g)*, and for *CASR 91.775(2)(f)(i)*, the circling area mentioned is either:

a. prescribed IFR circling area for the aerodrome associated with an authorised instrument approach procedure, or

b. if there is no prescribed IFR circling area of this kind for the aerodrome, within 3NM of the aerodrome reference point, but only for an aeroplane with MTOW less than or equal to 5,700KG.

Note: The information provided by spot heights on IAL charts must be treated with caution, as they do not necessarily indicate the highest terrain or all obstacles in the circling area. Pilots in command of flights involving simulated engine failures should risk assess their intended flight path options versus aircraft performance capability in this operational configuration.

10.14.3 **Ab Initio Flying Training at an Aerodrome**

10.14.3.1 It is recommended that aerodromes at which ab initio flight training is conducted have the following characteristics:

a. The TODA and LDA for the runway are at least 120% of the distance required by the Aircraft Flight Manual or performance chart;

b. In the case of aeroplanes for which there is no Aircraft Flight Manual or performance chart, the TODA and LDA for the runway are at least 120% of the distance specified in the aeroplane's certificate of airworthiness;

c. There are obstacle-clear approach and take-off slopes of no more than 3.33% to a distance of 1,600M from each end of the runway.

10.14.4 **Fuel Dumping in Flight**

10.14.4.1 Release of fuel from an aircraft is not permitted except in an emergency or non-normal situation.

10.14.4.2 When fuel dumping is required, the pilot in command should request authority from ATC before commencing a fuel dump, and must:

a. notify ATC immediately after an emergency fuel dump;

b. take reasonable precautions to ensure the safety of persons or property in the air and on the ground; and

c. where possible, conduct a controlled dump in clear air above 6,000FT and in an area nominated by ATC.

10.14.4.3 The pilot should advise ATC if radio silence is required during the fuel dumping operation.

10.14.5 Areas Having Limitations on Access

10.14.5.1 Although not involving a potential hazard to aircraft, operations over certain areas have limitations placed on them for environmental reasons. Refer to *ERSA GEN* for details.

10.14.6 Aerial Photography and Survey Operations

10.14.6.1 Pilots and operators intending to conduct aerial photography or survey operations in controlled airspace should liaise with the ATC unit responsible for the area(s) concerned prior to submitting flight plans. ATC clearance limitations and restrictions on times, tracks and/or levels, which could inhibit the proposed operation(s), may apply in the desired airspace. Preflight approval will enable pilots to plan tasks accordingly, thus minimising disruption to programs.

10.14.7 Aerial Photography of Military Installations

10.14.7.1 Pilots or operators intending to photograph military installations or areas which include military installations must contact the appropriate military authority as such photography may require prior approval or not be permissible.

10.14.8 Police Operations

10.14.8.1 An aircraft operated by police authorities which requires priority in situations where life is threatened must use the call sign “POLAIR RED” or “FEDPOL RED”. Police must call “POLAIR/FEDPOL RED PRIORITY” on first contact.

10.14.9 Military Authority Assumes Responsibility for Separation of Aircraft (MARSA)

10.14.9.1 MARSA is a procedure which authorises pilots of military aircraft to assume responsibility for separation between their aircraft and other nominated military aircraft, or military contract civil aircraft, in controlled airspace. MARSA can only be used between participating aircraft using the same flight level or altitude, or manoeuvring within the same block of airspace.

10.14.9.2 Operators of foreign military aircraft wishing to participate in MARSA must refer to *RAAF AIP - Flight Information Handbook Australia (FIHA)* for details of the procedure.

10.14.10 “Due Regard” Operations

10.14.10.1 Certain operations by State aircraft (usually military), referred to as “Due Regard” operations, cannot be conducted in compliance with normal air traffic rules and procedures. Where these operations are necessary, Article 3 of the *Chicago Convention (1944)* requires contracting States to “have due regard for the safety of navigation of civil aircraft”. Safety mitigators may include operations in VMC and/or use of surface and airborne radar.

10.14.11 Security Awareness

10.14.11.1 All members of the aviation industry, should be particularly vigilant with regard to any suspicious activity relating to the use, training in, or acquisition of dangerous chemicals, including threats, unusual purchases, and/or unusual contacts with the public.

10.14.11.2 Any suspicious circumstances or unusual behaviour should be immediately reported to the police and the relevant aircraft, airline, or airport operator.

10.14.12 Fire Operations

An aircraft operated by fire authorities which requires priority should notify the flight as Fire or Flood Relief (FFR) and use the appropriate special task call sign as per *GEN 3.4 para 5.21*.

10.14.13 Requirements for Community Service Flights (CSF)

In addition to any other relevant requirements of the civil aviation legislation, the flight must meet the CSF definition at *GEN 2.2* and satisfy the following requirements (where applicable).

Part 61 licence	PPL (not RPL)	CPL/ATPL
Aeronautical experience, recency and medical	400 hours total aeronautical experience	N/A
	250 hours pilot in command	N/A
	Current Class 1or Class 2 medical (not Basic Class 2)	
	1 landing in the same aircraft class (or type, if type rated aircraft) in the past 30 days	
	25 hours on multi-engine aircraft (if flying multi-engine)	
Flight rules requirements and experience	IFR - 20 hours on aircraft type VFR -10 hours on aircraft type A CSF at night must be conducted under the IFR. NVFR not permitted	
Aircraft	VH-registered aeroplane or helicopter	
	Not amateur built, limited category or experimental certificate	
	Not more than 100 hours or 12 months since last periodic maintenance inspection for those aircraft using the CASA system of maintenance (Schedule 5)	
Passengers	No more than 5 passengers	
	Passengers must be either patients being transported for the purpose of receiving non-emergency medical treatment or services, or persons accompanying the patient to provide support and assistance to the patient	
Flight notification	Full flight notification (IFR or VFR); or SARTIME (VFR)	
	RMK/CSF noted in Item 18 of domestic flight notification	
Record keeping	Flight annotated as CSF in pilot logbook	

Note: The flight notification requirements are also contained in ENR 1.10 section 2.- FLIGHT NOTIFICATION.

10.15 Helicopter Operations - At Aerodromes and Helicopter Access Corridors and Lanes

10.15.1 General

10.15.1.1 The procedures in this section apply to all helicopters operating in the vicinity of aerodromes and in helicopter access corridors and lanes, in accordance with the provisions of C*ASR 91.055, 91.265, 91.267, 91.360* and *91.410.*

10.15.2 Taxiing

10.15.2.1 For all helicopters, maximum use of the “air transit” procedure should be made to expedite traffic movement and flow about an aerodrome.

10.15.2.2 All helicopters may use “air taxiing” procedures as required. However, wheeled helicopters, where practicable, are encouraged to “ground taxi” on prepared surfaces to minimise rotor wash and its effects.

10.15.2.3 At night a helicopter should not taxi via routes which do not meet the physical dimensions and lighting requirements specified in *AC 139.R-01*.

10.15.3 Take-off/Departure

10.15.3.1 <u>At locations within controlled airspace</u>, helicopters may be granted a take-off clearance or instructed to report airborne, as appropriate, from any area nominated by ATC or the pilot, and assessed by the pilot as being suitable as a HLS.

10.15.3.2 Helicopters taking off/departing must proceed in accordance with ATC instructions.

10.15.3.3 Subject to clearance, a turn after take-off may be commenced when the pilot considers that the helicopter is at a safe height to do so.

10.15.3.4 Unless requested by the pilot, a take-off clearance will not be issued for a helicopter if the tailwind component exceeds 5KT.

10.15.3.5 Prescribed exit “gates” and associated standard routes and/or altitudes may be provided to facilitate the flow of helicopter traffic. Procedures for their use will be promulgated in *ERSA*. Use of these “gates” is <u>not</u> mandatory. Helicopters may, subject to an ATC clearance, revert to the standard traffic procedures applicable to aeroplanes. This option may be more appropriate when operating larger helicopters.

10.15.3.6 At night a helicopter should not take-off from other than a site which conforms with the requirements specified in *AC 139.R-01.* Any illuminated runway or illuminated taxiway of dimensions commensurate with the size of the helicopter landing site applicable to the helicopter, in accordance with *AC 139.R-01*, is considered to meet the requirements of *AC 139.R-01*.

10.15.3.7 <u>At a non-controlled aerodrome</u> a pilot may take-off from any area which is assessed as being suitable as a HLS.

10.15.3.8 When the pilot elects to conduct the take-off from outside the flight strip of the runway in use by aeroplanes, the helicopter take-off path must be outside that flight strip.

10.15.3.9 Before take-off, the helicopter is to be positioned to the appropriate side of the runway in use so that the turn after take-off does not cross the extended centre line of that runway. The pre-take-off positioning of the helicopter will be by air transit or by taxiing as appropriate.

10.15.3.10 The turn after take-off onto the desired departure track may be commenced when the pilot considers that the helicopter is at a safe height to do so. If the resultant departure track conflicts with the aeroplane traffic pattern, the helicopter should remain at 500FT above the surface until clear of that circuit pattern. Where this procedure is not practicable on environmental grounds, the helicopter is to adopt the standard departure procedure applicable to aeroplanes.

10.15.3.11 Pilots of radio equipped helicopters must broadcast intentions on the appropriate frequency before take-off.

10.15.4 **Helicopter Access Corridors and Lanes**

10.15.4.1 The following procedures for operations within promulgated helicopter access corridors and lanes apply:

a. maximum IAS of 120KT;

b. helicopters must operate under VFR, usually not below 500FT above the surface by day, subject to flight over populous area restrictions and the limitations published in *ERSA* for authorised corridors by night;

c. “see and avoid” procedures must be used;

d. formation flights are restricted to line astern with the lead aircraft responsible for maintaining separation from other traffic in accordance with *sub-para c.*;

e. a traffic advisory service is available in access corridors;

f. an ATS Surveillance System advisory service may be given at designated aerodromes;

g. a continuous listening watch on the appropriate ATS frequency in access corridors or broadcast frequency in lanes is mandatory;

h. two-way operations are conducted with all traffic keeping to the right of the central geographical/topographical feature(s) as detailed in *ERSA*;

i. the pilot in command has the responsibility to ensure that operations are confined within the boundaries of the corridor or lane;

j. the limits of corridors and lanes must be adhered to, with any transitional altitude requirements maintained within an accuracy of ±100FT;

k. a helicopter not confining its operations to an access corridor will require ATC clearance and, while outside the corridor, will be subject to separation standards as applied by ATC.

Note: Subject to environmental noise considerations, the imposition of limitations on those types of helicopters which exceed the noise limits specified in ICAO Annex 16 Vol 1 may be necessary.

10.15.5 **Arrivals**

10.15.5.1 At a controlled aerodrome, prescribed entry “gates” and associated standard routes and/or altitudes may be provided to facilitate the flow of helicopter traffic. Procedures for their use will be promulgated in *ERSA*.

Use of these “gates” is not mandatory. Subject to the receipt of an ATC clearance, helicopters may, if required, conform to the standard traffic procedures applicable to aeroplanes. This option may be more appropriate when operating larger helicopters.

10.15.5.2 At locations within controlled airspace, helicopters may be granted a landing clearance or be instructed to report on the ground, as appropriate, at any area nominated by ATC or the pilot, and assessed by the pilot as being suitable as a HLS.

10.15.5.3 Unless requested by the pilot, a landing clearance will not be issued for a helicopter if the tailwind component exceeds 5KT.

10.15.5.4 At night a helicopter should not land at a site other than one which conforms with the requirements specified in the latest issue of *AC 139.R-01.* Any illuminated runway or illuminated taxiway of dimensions commensurate with the size of the helicopter landing site applicable to the helicopter, in accordance with *AC 139.R-01*, is considered to meet the requirements of *AC 139.R-01*.

10.15.5.5 At a non-controlled aerodrome in VMC by day applicable to the aircraft category, helicopters need not join the circuit via standard aeroplane entry procedures, at the pilots discretion.

As an alternative, under such conditions, helicopters may join the circuit area at 500FT above the surface from any direction subject to the normal restrictions of flight over populous areas. Helicopters must avoid other circuit traffic and descend to land at any location assessed by the pilot as being suitable for use as a HLS, provided:

a. the intended landing point is located outside the flight strip of the runway in use;

b. the final approach is clear of the extended centreline of the runway in use;

c. post-landing positioning of the helicopter is by air transit or by taxiing as appropriate.

10.15.5.6 Pilots of radio equipped helicopters must broadcast intentions on the appropriate frequency as specified in *Section 10.3.*

10.15.6 **Circuit Procedures**

10.15.6.1 At controlled aerodromes any specific operating procedures applicable to the helicopter traffic pattern will be detailed in *ERSA*. The following generally applies:

a. where possible, helicopter circuit traffic will be separated from the aeroplane traffic pattern by the use of contra-direction circuits, outside of and parallel to the flight strip of the runway in use, and at a lower altitude than other traffic, but not below 500FT above the aerodrome elevation; or

b. when separate circuit patterns are not practicable, helicopters may utilise the same traffic pattern direction as other traffic, and will normally operate inside and at a lower altitude than that traffic, but not below 500FT above the aerodrome elevation.

10.15.6.2 At non-controlled aerodromes the following circuit operating procedures apply:

a. helicopters may be operated on contra-direction circuits and parallel to the aeroplane traffic pattern at a lower altitude than that traffic, but not below 500FT above the aerodrome elevation. The landing site associated with the helicopter circuit is to be positioned outside the flight strip of the runway in use so that helicopter circuit traffic does not cross the extended centre line of that runway;

b. if the procedure outlined in *sub-para 10.15.6.2a*. is not practicable, the helicopter circuit patterns should be flown inside and parallel to the aeroplane traffic and at lower altitudes, but not below 500FT above the aerodrome elevation. The landing site associated with the helicopter circuit must be positioned outside the flight strip of the runway in use so that helicopter circuit traffic does not cross the extended centre line of that runway; or

c. the helicopter must follow the standard aeroplane traffic pattern and, in this case, may use the flight strip area of the runway in use;

d. the pilots of radio equipped helicopters must broadcast their intentions and listen out for other traffic on the appropriate frequency.

11. PROCEDURES WHEN ATS TEMPORARILY NOT AVAILABLE

11.1 Traffic Information Broadcast by Aircraft (TIBA)

11.1.1 TIBA procedures

11.1.1.2 TIBA procedures are intended to permit reports and relevant supplementary information of an advisory nature to be transmitted by pilots for the information of pilots of other aircraft in the vicinity.

11.1.2 Frequency

11.1.2.2 Aircraft must maintain a listening watch on the appropriate TIBA frequency. Where VHF is used for air-ground communications with ATS and an aircraft has two serviceable VHF sets, one must be tuned to the appropriate ATS frequency and the other to the TIBA frequency.

11.1.2.2 The appropriate TIBA frequencies are:

Flight Profile	TIBA Frequency
At or above FL200	128.95 MHz
Below FL200	
– In continental Class G airspace	Relevant Area VHF
– Otherwise	126.35 MHz

11.2 **Listening Watch**

11.2.1 A listening watch must be maintained on the TIBA frequency 10 minutes before entering the designated airspace until leaving this airspace. For an aircraft taking off from an aerodrome located within 10 minutes flying time of that airspace, listening watch must start as soon as practicable after take-off.

11.3 **Time of Broadcasts**

11.3.1 Broadcasts must be made:

a. 10 minutes before entering the designated airspace or, for an aircraft taking off from an aerodrome located with 10 minutes flying time of the airspace, as soon as practicable after take-off;

b. 10 minutes prior to crossing a reporting point;

c. 10 minutes prior to crossing or joining an ATS contingency route;

d. at 20-minute intervals between distant reporting points;

e. 2 to 5 minutes, where possible, before a change in flight level;

f. at the time of a change in flight level; and

g. at any other time considered necessary by the pilot.

11.4 **Acknowledgment of Broadcasts**

11.4.1 Broadcasts should not be acknowledged unless a potential collision risk exists.

11.5 **Changes of Cruising Level**

11.5.1 Cruising level changes should not be made within the designated airspace, unless considered necessary by pilots to avoid traffic conflicts, for weather avoidance or for other valid operational reasons.

11.5.2 When changes to cruising level are unavoidable, all available aircraft lighting which would improve the visual detection of the aircraft must be displayed while changing levels.

11.5.3 When a change of level is anticipated or initiated, a change of level report must be made. When the new level is reached, a report advising that the aircraft is maintaining the new level must be made.

11.6 Collision Avoidance

11.6.1 If, on receipt of a traffic information broadcast from another aircraft, a pilot decides that immediate action is necessary to avoid an imminent collision risk to the aircraft, and this cannot be achieved in accordance with the right of way provisions or TCAS resolution, the pilot should:

a. unless an alternative manoeuvre appears more appropriate, immediately descend 1,000FT if above FL410, or 500FT if at or below FL410;

b. display all available aircraft lighting which would improve the visual detection of the aircraft;

c. as soon as possible, reply to the broadcast advising action being taken;

d. notify the action taken on the appropriate TIBA frequency; and

e. as soon as practicable, resume normal flight level, notifying the action on the appropriate TIBA frequency.

11.7 Position Reporting

11.7.1 Normal position reporting procedures should be continued at all times, regardless of any action taken to initiate or acknowledge a traffic information broadcast.

11.7.2 A position report must be made on the next CTA/Area VHF 15 minutes prior to leaving airspace in which TIBA procedures apply to obtain a clearance or re-establish SARWATCH on the appropriate ATS frequency.

12. MANDATORY BROADCAST PROCEDURES (ATS TEMPORARILY NOT AVAILABLE)

12.1 When ATS is temporarily not available, mandatory broadcast procedures may be specified in addition to TIBA broadcasts.

12.2 When arriving or departing from an aerodrome where mandatory broadcast procedures apply, pilots must monitor the appropriate mandatory broadcast frequency. Broadcasts must be made as follows:

Situation	Phrase
1. Broadcasts When a pilot broadcasts intentions.	**ALL STATIONS (location) (appropriate information)**
2. Taxi Taxiing at an aerodrome.	**(aircraft type) TAXIING (location) RUNWAY (number) FOR (destination, or departure quadrant or intention)**
3. About to Commence Take-off	**LINING UP/ROLLING (runway number) TURNING (left/right) TRACKING (quadrant) CLIMBING TO (level)**
4. Departing	**DEPARTED (location) TRACKING (degrees magnetic) CLIMBING TO (level) FOR (destination)**
5. Inbound When inbound - before crossing the boundary of the area in which mandatory broadcasts apply.	**(Aircraft type) (position reported as either the radial, bearing or quadrant from the aerodrome) (level) (intentions)**
6. Joining the Circuit	**(Aircraft type) JOINING (position in circuit) RUNWAY (number)**

12.3 Pilot discretion should be used in making other than the prescribed calls to assist other traffic; e.g. executing a missed approach, or position in the circuit area, or leaving levels designated on TMA routes.

APPENDIX 1

POSITION REPORTS, AIREP SPECIAL, AND VOLCANIC ASH REPORTS

1. Position reports

Refer to *FORM 1: ROUTINE POSITION AND AIREP SPECIAL REPORTS*.

Section 1 is obligatory.

Section 2 must be added only when requested by the operator or deemed necessary by the pilot in command.

In the en route phase, section 3 (other than braking action) should be added:

a. by AMDAR equipped aircraft only — at designated compulsory MET reporting points, and

b. when requested by ATC or MET.

At a controlled aerodrome, section 3 (braking action) should be reported when encountered runway braking action is not as good as reported.

2. AIREP Special

To be made whenever any of the phenomena listed under item 9 are observed or encountered. Items 1-4 and the appropriate phenomena specified in item 9 are the minimum required.

3. Detailed reporting instructions for selected items

Item 1: Use aircraft call sign as per flight plan or as requested by ATC.

Item 3: Time must be the actual time of the aircraft at the position, not the time of the message. Time shall be expressed in hours and minutes UTC.

Item 4: Aircraft on a block level, or climb, or descent clearance are to report actual flight level or altitude at the position plus level climbing/descending to.

Item 5: 'Next position' shall only be a compulsory reporting point or waypoint, unless ATC requests an estimate for a different place. Time shall be expressed in hours and minutes UTC.

Item 6: 'Ensuing significant point' shall be the next compulsory or non-compulsory reporting point or waypoint after the 'Next position'. This item is only required if requested or necessary to confirm route to be followed.

Item 9:

- Turbulence: The following specifications apply:
  - Moderate: Changes to accelerometer readings of between 0.5 g and 1.0 g at the aircraft's centre of gravity. Moderate changes to aircraft attitude and/or altitude may occur but aircraft remains under positive control. Usually small changes in airspeed. Difficulty in walking. Loose objects move about.
  - Severe: Changes to accelerometer readings greater than 1.0 g at the aircraft's centre of gravity. Abrupt changes to aircraft attitude and/or altitude may occur; aircraft may be out of control for short periods. Usually large changes of airspeed. Loose objects tossed about.
- Icing: The following specifications apply:
  - Moderate: Conditions in which a change of heading and/or altitude may be considered desirable.
  - Severe: Conditions in which immediate change of heading and/or altitude is considered essential.
- MOUNTAINWAVE SEVERE means conditions in which the downdraft is 600FT/MIN or more and/or severe turbulence is encountered.
- Thunderstorms: Only report those thunderstorms which are:
  - obscured in haze; or
  - embedded in cloud; or
  - widespread; or
  - forming a squall-line.

- Pre-eruption volcanic activity: In an AIREP, this means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

Note: In case of volcanic ash cloud, pre-eruption volcanic activity or volcanic eruption, a post-flight report shall also be made on the special air-report of volcanic activity form (Model VAR - see example in FORM 2: VOLCANIC ACTIVITY FORM (MODEL VAR)).

- Braking action: The following specifications apply:
  - GOOD — Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.
  - GOOD TO MEDIUM — Braking deceleration OR directional control is between Good and Medium.
  - MEDIUM — Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.
  - MEDIUM TO POOR — Braking deceleration OR directional control is between Medium and Poor.
  - POOR — Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.
  - LESS THAN POOR — Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.

4. **Volcanic Ash Reports**

Refer to *FORM 2: VOLCANIC ACTIVITY FORM (MODEL VAR)*.

AIREP are critically important for assessing the hazards of volcanic ash cloud to aircraft operations. Information recorded on the volcanic activity reporting form (Model VAR) is not for transmission by RTF but, on arrival at an aerodrome, is to be delivered without delay by the operator or a flight crew member to the aerodrome meteorological office. If such an office is not easily accessible, the completed form shall be delivered in accordance with local arrangements made between the meteorological and ATS authorities and the operator.

FORM 1: ROUTINE POSITION AND AIREP SPECIAL REPORTS

	ITEM	PARAMETER	TRANSMIT IN TELEPHONY as appropriate
		Message-type designator: – Routine position-report – Special air-report	 (call sign) POSITION [AIREP] SPECIAL
Section 1	1	Aircraft identification	*(aircraft identification)*
	2	Position	POSITION *(latitude and longitude)* OVER *(significant point)** ABEAM *(significant point)* *(significant point) (bearing) (distance)*
	3	Time	*(time)*
	4	Level	FLIGHT LEVEL *(number)* or *(number)* FEET* CLIMBING TO FLIGHT LEVEL *(number)* or *(number)* FEET* DESCENDING TO FLIGHT LEVEL *(number)* or *(number)* FEET*
	5	Next position and estimated time over	*(position) (time)*
	6	Ensuing significant point (only if requested or necessary to confirm route to be followed	*(position)* NEXT
Section 2	7	Estimated time of arrival	*(aerodrome) (time)*
	8	Endurance	ENDURANCE *(hours and minutes)*

	ITEM	PARAMETER	TRANSMIT IN TELEPHONY as appropriate
Section 3	9	Phenomenon encountered or observed, prompting a special air-report:	
		– Moderate turbulence	TURBULENCE MODERATE
		– Severe turbulence	TURBULENCE SEVERE
		– Moderate icing	ICING MODERATE
		– Severe icing	ICING SEVERE
		– Severe mountain wave	MOUNTAINWAVE SEVERE
		– Thunderstorms without hail	THUNDERSTORMS
		– Thunderstorms with hail	THUNDERSTORMS WITH HAIL
		– Heavy dust/sandstorm	DUSTSTORM *or* SANDSTORM HEAVY
		– Volcanic ash cloud	VOLCANIC ASH CLOUD
		– Pre-eruption volcanic activity or volcanic eruption	PRE-ERUPTION VOLCANIC ACTIVITY *or* VOLCANIC ERUPTION
		– On climb out or approach:	(Plain language description)
		– Cloud - unexpected significant variations to amount, base or tops (by reference to QNH);	
		– Visibility - reduced due fog, mist, hail, rain, snow or dust, or improvement observed;	
		– Wind - significant variation to forecast;	
		– Other Phenomena - incidence of severe or moderate turbulence, thunderstorms, moderate or severe icing, hail, line squalls, standing waves or winds of 40KT or more within 2,000FT of ground level.	

Section 3	9	Runway braking action:	BRAKING ACTION:
		– Good	– GOOD
		– Good to Medium	– GOOD TO MEDIUM
		– Medium	– MEDIUM
		– Medium to Poor	– MEDIUM TO POOR
		– Poor	– POOR
		– Less than Poor	– LESS THAN POOR

*In Australian domestic airspace, the words “OVER” and “FEET” may be omitted.

FORM 2: VOLCANIC ACTIVITY FORM (MODEL VAR)

OPERATOR:	ACFT IDENTIFICATION: (per flight plan)	PIC:
DEP FROM:	DATE:	TIME (UTC):
ARR AT:	DATE:	TIME (UTC):
ADDRESSEE:		AIREP SPECIAL:

Items 1-8 are to be reported immediately to the ATS unit that you are in contact with.

1) Aircraft identification:	2) Position:
3) Time:	4) FL or ALT:
5) VOLCANIC ACTIVITY OBSERVED AT: (Position or bearing, estimated level of ash cloud and distance from aircraft)	
6) AIR TEMPERATURE:	7) SPOT WIND:

8) SUPPLEMENTARY INFORMATION:

(Brief description of activity especially vertical and lateral extent of ash cloud and, where possible, horizontal movement, rate of growth, etc.)

SO2 detected	Yes ☐	No ☐
Ash encountered	Yes ☐	No ☐

After landing complete items 9-16, then deliver to the aerodrome meteorological office or deliver in accordance with local arrangements made between the Meteorological, ATS authorities and the operator.

9) Density of ash cloud:	(a) Wispy ☐	(b) Moderate dense ☐	(c) Very dense ☐
10) Colour of ash cloud:	(a) White ☐ (d) Black ☐	(b) Light grey ☐ (e) Other ☐	(c) Dark grey ☐
11) Eruption:	(a) Continuous ☐	(b) Intermittent ☐	(c) Not visible ☐
12) Position of activity:	(a) Summit ☐ (d) Multiple ☐	(b) Side ☐ (e) Not observed ☐	(c) Single ☐
13) Other observed features of eruption:	(a) Lightning ☐ (d) Ash fallout ☐	(b) Glow ☐ (e) Mushroom cloud ☐	(c) Large rocks ☐ (f) All ☐
14) Effect on aircraft:	(a) Communication ☐ (d) Pitot static ☐	(b) Navigation systems ☐ (e) Windscreen ☐	(c) Engines ☐ (f) Windows ☐
15) Other effects:	(a) Turbulence ☐	(b) St. Elmo's Fire ☐	(c) Other fumes ☐
16) Other information: (Any information considered useful)			

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ENR 1.2 VISUAL FLIGHT RULES

1. FLIGHT RULES

1.1 The Visual Flight Rules (VFR)

1.1.1 A VFR flight may only be conducted:

a. in VMC;

b. provided that, when not navigating by visual reference to the ground or water, the pilot in command must comply with the requirements of *Chapter 14* of the *Part 91 MOS*, as if the flight were an IFR flight;

c. at sub-sonic speeds; and

d. in accordance with the airspace speed limitations specified in *ENR 1.4.*

1.1.2 Unless the pilot in command is authorised under *CASR Part 61* to conduct a flight under the IFR or at night under the VFR and the aircraft is appropriately equipped for flight at night or under the IFR, a VFR flight must not be conducted at night.

1.1.3 For pilots not authorised to fly at night, it is recommended that they plan to arrive at the later of the destination aerodrome or alternate aerodrome at least 10 minutes before last light (allowing for any required holding).

1.2 Special VFR

1.2.1 By day, when VMC do not exist, the ATC unit responsible for a CTR or CTA may issue, at pilot request, and provided an IFR flight will not be unduly delayed, a Special VFR clearance for flight:

a. in the CTR; or

b. in a CTA next to the CTR for the purpose of entering or leaving the CTR.

1.2.2 When operating under a Special VFR clearance, pilots are responsible for ensuring that:

a. the flight is conducted clear of cloud;

b. the visibility is not less than:

(1) for aeroplanes, 1,600M;

(2) for helicopters, 800M; or

(3) for balloons, 100M below 500FT AGL and 1,600M at and above 500FT AGL;

c. a helicopter is operated at such a speed that the pilot has adequate opportunity to observe any obstructions or other traffic in sufficient time to avoid a collision; and

D

1.2.3 Special VFR is not permitted in Class E airspace.

2. VISUAL METEOROLOGICAL CONDITIONS (VMC) - TAKE-OFF, EN ROUTE AND LANDING

2.1 The cloud and visibility criteria for VMC, including specific additional requirements, are contained in *section 2.07* of the *Part 91 MOS*.

D

ENR 1.3 INSTRUMENT FLIGHT RULES

1. THE INSTRUMENT FLIGHT RULES (IFR)

1.1 The IFR must be used by flights conducted in circumstances other than those specified in *ENR 1.2 Section 1.1*.

1.2 IFR flights must be conducted in accordance with the airspace speed limitations specified in *ENR 1.4*.

2. FLIGHT RULES NOMINATION

2.1 The nomination of a flight as IFR or VFR determines:

a. the flight notification requirements;

b. separation requirements in Classes A, C and D airspace;

c. separation requirements for aircraft in receipt of an airways clearance in Class E airspace; and

d. traffic information requirements in classes E and G airspace.

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ENR 1.4 ATS AIRSPACE CLASSIFICATION

1. CONTROLLED AIRSPACE

1.1 General

1.1.1 Controlled airspace is defined as "airspace of defined dimensions within which ATC services are provided to IFR flights and to VFR flights in accordance with the airspace classification".

1.1.2 Controlled airspace is a generic term which, in Australia, covers ATS airspace classes A, C, D and E.

1.1.3 Controlled airspace is established generally on the basis of the kinds of operations and considerations of flight procedures used. Such airspace does not necessarily cover routes to alternate aerodromes.

1.1.4 Controlled airspace within the Brisbane and Melbourne FIR is generally established as follows:

Class of Airspace	Application
Class A	• within radar coverage - lower limit above FL180 and upper limit FL600; • outside radar coverage - lower limit FL245 and upper limit FL600; • an area extending from 90NM south of Melbourne to Launceston and Hobart, lower limit FL180 and upper limit FL600.
Class C	• within radar coverage south of Sydney, lower limit FL125 and upper limit FL180 under Class A airspace; • in the control area steps associated with controlled aerodromes, excluding control area steps classified as Class D airspace; • in control zones of defined dimensions.
Class D	Control zones of defined dimensions, and associated control area steps, upper limit 4,500FT.

Class of Airspace	Application
Class E	• within radar coverage:

	– south of Sydney, lower limit 8,500FT and upper limit FL125 under Class C airspace;
	– north of Sydney, lower limit 8,500FT and upper limit FL125;
	• in the vicinity of Williamtown: coincident with the lateral limits of R578A-E above A045 - when R578 is not active;
	• continental Australia, lower limit FL125 and upper limit FL245 under Class A airspace;
	• in the control area steps associated with Class D controlled aerodromes excluding Class D or C airspace:
	  • Karratha Class E lower limit 5,500FT to upper limit FL125
	  • Broome Class E lower limit 1,200FT AGL to upper limit FL125
	  • Avalon Class E lower limit 700FT AGL to upper limit 4,500FT;
	• in the control area steps associated with Class C controlled aerodromes excluding Class C airspace:
	  • Perth Class E lower limit 8,500FT to upper limit FL125.

1.1.5 Operations in control areas and control zones must be conducted in accordance with the published procedures and requirements for that specific airspace and air traffic clearances. Special procedures may also be specified for an aerodrome within a control zone.

1.1.6 The extent of controlled airspace is promulgated in Airservices *Aeronautical Charts, NOTAM, AIP SUP* and *DAH*.

1.1.7 The hierarchy of airspace from most restrictive to least restrictive is as follows:

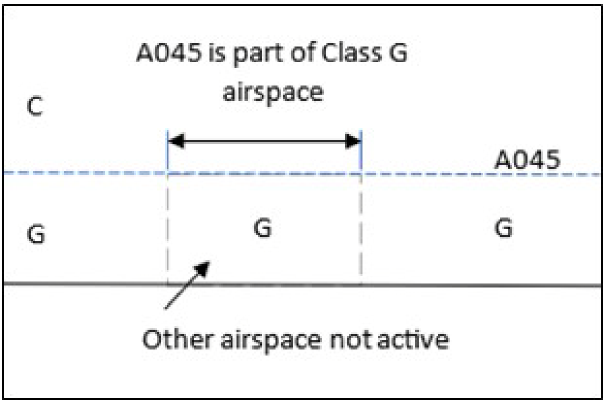
a. Prohibited, Restricted or Military Operating Areas;
b. Class A airspace;
c. Class C airspace;
d. Class D airspace;
e. Class E airspace;
f. Class G airspace.

1.1.7.1 When airspaces adjoin vertically (one above the other), flight at the common level must comply with the requirements of and will be provided the services applicable to, the less restrictive class of airspace.

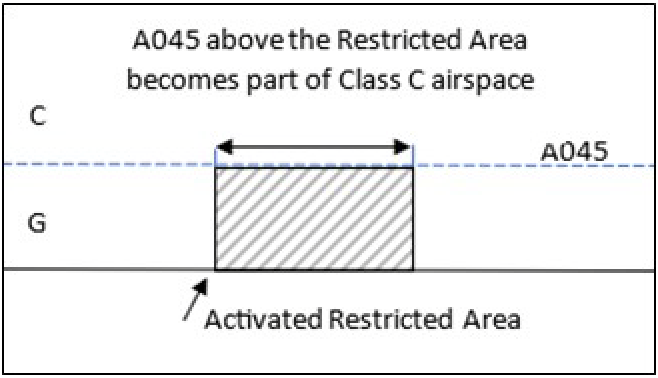
1.1.7.2 Where a non-continuous airspace vertically adjoins controlled airspace (one above the other), the common level between airspaces becomes part of controlled airspace upon activation and is subject to an ATC clearance.

Airspace examples:

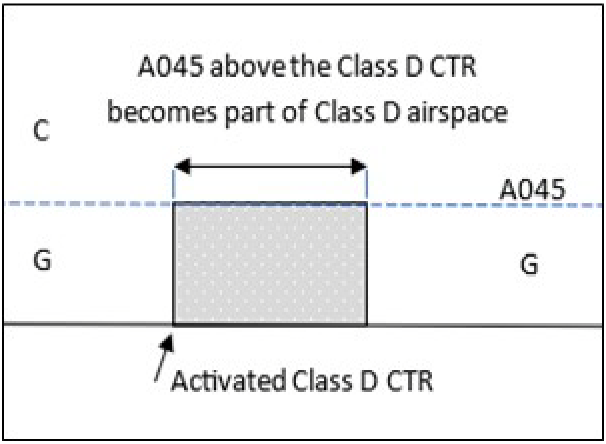
a. When a Restricted Area or Class D control zone is not active, the common boundary at A045, between Class C and Class G airspace, is part of Class G airspace (the less restrictive airspace) and receives a Class G service (clearance not required):



b. When a Restricted Area becomes active below Class C airspace, the common boundary at A045, between the Restricted Area and Class C airspace, becomes part of Class C airspace (the less restrictive airspace), and receives Class C services (clearance required):



c. When a Class D control zone becomes active below Class C airspace, the common boundary at A045, between Class C and Class D airspace, becomes Class D airspace (the less restrictive airspace) with a Class D service (clearance required):

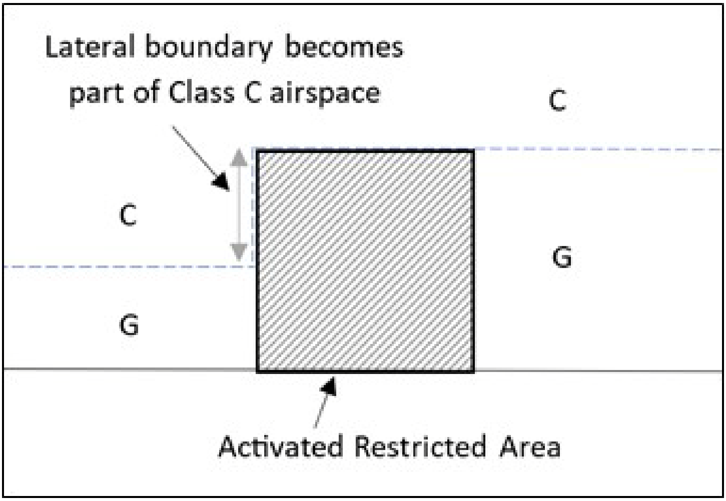


1.1.7.3 When airspaces adjoin laterally (one beside the other), flights at the common boundary must comply with, and will be provided the services applicable to, the less restrictive class of airspace.

1.1.7.4 Where a non-continuous airspace laterally adjoins controlled airspace, the common side boundary between airspaces becomes part of controlled airspace upon activation and is subject to an ATC clearance.

Airspace example:

When a Restricted Area activates adjacent to a control area step, the common boundary between the Restricted Area and Class C airspace, becomes Class C airspace (the less restrictive airspace) with a Class C service (clearance required):



1.2 Control Areas

1.2.1 A control area (CTA) is defined as “a controlled airspace extending upwards from a specified limit above the earth.” Control areas normally operate continuously. Areas identified by the word NOTAM may be activated, or additional areas may be established to meet temporary requirements, by the issuance of a NOTAM or SUP.

1.3 **Control Zone**

1.3.1 A control zone (CTR) is defined as “a controlled airspace extending upwards from the surface of the earth to a specified upper limit.” CTR surround controlled aerodromes and are designated as follows:

a. **Civil CTR**: A CTR administered by a civil air navigation service provider, other than a military CTR. Class C or Class D procedures and services apply.

b. **Military CTR**: A CTR administered by the Australian Defence Force. Class C procedures and services apply to civil flights.

1.3.2 CTR are active during the hours of the operation of the control tower as published in *ERSA* or as varied by NOTAM.

Note: MIL CTR may be activated at short notice. Pilots should plan their operations on the basis that CTR are active unless advised to the contrary.

1.4 **Airspace Reservation**

1.4.1 A designated airspace or portion thereof under the control of another authority may be reserved to allow the following:

a. flights of special military significance requiring the use of controlled airspace, which would be subject to unacceptable restrictions if normal procedures applied;

b. civil flights requiring passage through a military airspace when weather conditions or other factors make flight on the normal air route inadvisable, or impossible, and when other routes are unavailable, or the use of such routes would impose severe economic penalties on the operation of the aircraft.

1.4.2 There are two types of airspace reservations: fixed defined areas and “mobile” (e.g. aerial refuelling, en route formation flights, etc). Such reservations are normally only applied during limited periods. A designated airspace or portion thereof under the control of a Military ATC may also be reserved to confine particular activities. In such airspace, Military ATC is responsible for the separation of transiting civil or military aircraft from areas reserved or restricted for air defence operations.

1.4.3 Airspace reservations do not alter the underlying established airspace classification or the level of ATS. In controlled airspace or military airspace, the reservation provides assurance that ATC will accommodate the activity for the published duration.

1.5 Authorisation of Civil Flights in Military Airspace

1.5.1 Civil flights in military airspace may be authorised subject to military activity, weather and any special procedures for the control of civil aircraft which have been published.

1.5.2 Unless otherwise specified, civil aircraft operating in military airspace will receive the following level of service:

Airspace	Level of service for civil flight
Military airspace controlled/ administered by Military ATC	Approved aircraft - equivalent to Class A and/or Class C airspace, as applicable
Restricted Areas and Military Operating Areas controlled/ administered by other military units e.g. Navy or Army	No ATS *Note: ATC may provide limited FIS and SAR services in accordance with ENR 1.1 Section 2.2*
Note: Military ATC areas are identified in DAH as controlled/ administered by 452SQN or 453SQN. See ENR 1.1 Section 2.2.4	

1.6 Release of Control Areas, Control Zones, Restricted or Military Operating Areas

1.6.1 The responsibility for a Control Area or Control Zone (civil or military), either wholly or in part, may be released to another ATS unit (civil or military). The airspace remains active and a clearance is required to enter.

1.6.2 The responsibility for a Restricted or Military Operating Area, either wholly or in part, may be transferred to an ATS unit. The released airspace remains active and a clearance or approval, as appropriate, is required to enter.

1.6.3 The service provided to aircraft within released airspace will be:

a. for Restricted or Military Operating Areas - in accordance with the established airspace classification depicted on *AIP MAP or in DAH* (i.e. the airspace classification when the area is not active).

b. For control areas or control zones - in accordance with the airspace classification for the airspace when it is active.

1.6.4 ATC will advise pilots of the level of service they will receive when granting approval or clearance to enter a released area from Class E or G airspace, or if the level of service will be in accordance with Class E or G within the released area.

1.7 Deactivation of Control Zones or Special Use Airspace

1.7.1 The published cessation time of a control zone or SUA may be amended:

a. without issue of a NOTAM provided the new cessation time is within 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.

1.7.2 Any amendments to the published cessation time of a control zone or SUA will be notified to affected pilots in accordance with *GEN 3.3 Section 3.3*.

1.7.3 Non-controlled aerodrome procedures apply to all military towered aerodromes when the CTR is deactivated.

2. PROVISION OF SEPARATION IN CONTROLLED AIRSPACE

2.1 General

2.1.1 In Class A airspace, IFR flights only are permitted. All flights are provided with an ATC service and are separated from each other.

2.1.2 In Class C airspace, IFR and VFR flights are permitted. All flights are provided with an ATC service and IFR flights are separated from other IFR, Special VFR, and VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights. Special VFR flights are separated from other Special VFR flights when visibility is less than VMC.

2.1.3 In Class D airspace, IFR and VFR flights are permitted and all flights are provided with an ATC service. IFR flights are separated from other IFR and Special VFR flights, and receive traffic information in respect of VFR flights. VFR flights receive traffic information in respect of all other flights. Special VFR flights are separated from other Special VFR flights when visibility is less than VMC.

2.1.4 In Class E airspace, IFR and VFR flights are permitted. IFR flights are provided with an ATC service, are separated from other IFR flights, and receive traffic information on VFR flights as far as is practicable. VFR flights receive a Surveillance Information Service (SIS) on request.

2.1.5 At controlled aerodromes, ATC provides runway separation to all aircraft.

2.2 **Special Provisions**

2.2.1 Not withstanding the general provisions of *section 2.1,* the following also apply:

a. The separation of aircraft taxiing on the manoeuvring area (which does not include apron and parking areas) is a joint pilot and controller responsibility. The pilot must maintain separation while complying with clearances and instructions.

b. In the traffic circuit, pilots are required to position their aircraft in such a manner that, while complying with clearances and instructions from ATC, they maintain the necessary separation from other traffic.

c. Separation is not normally provided within a training area in controlled airspace.

d. Under certain conditions, the pilot of one aircraft may be given the responsibility for separation with other aircraft. In this circumstance:

(1) the pilot is also responsible for the provision of wake turbulence separation;

(2) the pilot must advise ATC when they are unable to maintain, or have lost, sight of the other aircraft;

(3) where an aircraft has been instructed to maintain own separation from an IFR aircraft, ATC will issue traffic information to the pilot of the IFR aircraft, including advice that responsibility for separation has been assigned to the other aircraft; and

(4) aircraft flying in formation will not be provided with separation with respect to other aircraft of the same formation, including for take-off and landing.

(5) aircraft flying as part of an in-company flight will not be provided with separation with respect to other aircraft of the same in-company flight whilst airborne. Runway separation will continue to be provided.

e. ATC will consider a formation of aircraft broken and will therefore process aircraft individually from the time the formation aircraft are:

(1) cleared to carry out touch-and-go landings;

(2) required to go around; or

(3) cleared to carry out individual activities.

Note: A group of civil aircraft conducting the same flight (e.g. an air safari), which require the aircraft to operate at separation distances greater than those specified for formation flights will be considered to be separate aircraft when applying separation.

2.3 **Performance Based Navigation (PBN) for separation**

All Australian administered airspace is designated PBN airspace, generally to facilitate the use of ICAO RNP-based aircraft separation. A specific PBN capability is not required unless a particular route or procedure specifies a particular RNP or RNAV value (e.g. RNP 10, 4, 2, 1 etc). However, an aircraft flight planning its full PBN capability may benefit from more efficient ATC separation.

2.4 Wake Turbulence Separation

2.4.1 ATC is not required to apply wake turbulence separation in the following situations:

a. when a MEDIUM fixed-wing aircraft of less than 25,000KG MTOW precedes a LIGHT aircraft;

b. when an aircraft is landing behind another aircraft that is taking off on the same runway;

c. subject to *para 2.4.2*, if a pilot has initiated a waiver of the relevant departure wake turbulence separation minimum;

d. when a VFR aircraft is in flight and is:

   (1) operating directly behind a preceding HEAVY or MEDIUM aircraft; or

   (2) landing on the same runway as a preceding HEAVY or MEDIUM aircraft; or

   (3) landing on a parallel runway separated by less than 760M from the runway of a preceding HEAVY or MEDIUM aircraft;

e. when an IFR aircraft is in flight and the pilot has:

   (1) reported the preceding aircraft in sight; and

   (2) accepted responsibility to follow, or maintain their own separation with that aircraft.

Note 1: For paragraphs (d) and (e), the pilot in command of the aircraft is responsible for ensuring that the spacing from a preceding aircraft of a heavier wake turbulence category is acceptable. If it is determined that additional spacing is required, the flight crew may inform ATC accordingly, stating their requirements.

Note 2: Super, Heavy or Medium Wake Turbulence category aircraft may be operating near the base or boundaries of controlled airspace. Aircraft operating in Class G airspace in the vicinity of controlled airspace may be affected by wake turbulence from aircraft operating within controlled airspace.

2.4.2 Pilot-initiated waiver of wake turbulence separation

The pilot of a departing aircraft may ask ATC to waive the application of wake turbulence separation with a preceding aircraft. A waiver can only be requested in VMC by day. A pilot requesting the waiver must be keenly aware that this makes the requesting pilot responsible for avoiding or mitigating the effects of wake turbulence from preceding aircraft.

Note 1: ATC will not waive wake turbulence separation if the preceding aircraft is a heavy or super wake turbulence category aircraft (e.g. Airbus A330 or larger).

Note 2: More information about wake turbulence can be found in Advisory Circular (AC) 91-16, available on the CASA website.

3. CLASS G AIRSPACE

3.1 Flight Information Areas

3.1.1 Non-controlled airspace in the Brisbane FIR and Melbourne FIR is classified as Class G airspace.

3.1.2 North of 65° South, Class G airspace is divided into designated Flight Information Areas (FIAs) within which a Flight Information Service (FIS) and SAR alerting services are provided by an ATS unit.

3.1.3 On and north of 65° South, in Class G airspace, IFR and VFR flights are permitted. IFR flights receive traffic information and a flight information service. VFR flights receive a flight information service and may receive a surveillance information service if requested (ATC workload permitting).

3.1.4 South of 65° South, in Class G airspace, IFR and VFR flights are permitted and all flights receive a flight information service on request.

3.2 Broadcast Areas

3.2.1 Broadcast Areas are defined airspace volumes that form part of a Flight Information Area and have a discrete frequency (CTAF).

Note: The conditions described at paras 3.1.2 and 3.1.3 apply.

3.2.2 The vertical boundaries of a Broadcast Area are:

a. Surface to 5,000FT AMSL (default); or

b. Surface to the base of CTA if 8,500FT or less; or

c. Surface to a nominated level.

3.2.3 The lateral and vertical boundaries are defined in *AIP DAH*.

3.2.4 Broadcast Areas may be subject to mandatory broadcast requirements, these requirements are defined in the *ERSA.*

4. CLASSES OF AIRSPACE-SERVICES AND REQUIREMENTS

4.1 The following table summarises the services and requirements for the various classes of airspace used in Australian FIR.

Class	Type of Flight	Separation Provided	Service Provided	Airspace Speed Limitation	Radio COM RQMNTS	SUBJ ATC CLR
A	IFR	All aircraft	ATC service	N/A	Continuous two-way	Yes
	VFR not permitted					
C	IFR	IFR from IFR, IFR from VFR IFR from Special VFR	ATC service	N/A	Continuous two-way	Yes
	VFR	VFR from IFR	1. ATC service for separation from IFR 2. VFR/VFR traffic INFO (and traffic avoidance advice on request).	250KT IAS below 10,000FT AMSL	Continuous two-way	Yes
	Special VFR	Special VFR from Special VFR, when VIS does not meet VMC	ATC service		Continuous two-way	Yes
D	IFR	IFR from IFR IFR from Special VFR	ATC service, traffic information about VFR flights.	200KT IAS at or below 2,500FT AAL within 4NM of the primary Class D aerodrome (Note 3) 250KT IAS - in the remaining Class D airspace	Continuous two-way	Yes
	VFR	Nil	ATC service, traffic INFO on all other flights.		Continuous two-way	Yes
	Special VFR	Special VFR from Special VFR when visibility is less than VMC	ATC service		Continuous two-way	Yes

Class	Type of Flight	Separation Provided	Service Provided	Airspace Speed Limitation	Radio COM RQMNTS	SUBJ ATC CLR
E	IFR	IFR from IFR	ATC service and traffic info on VFR flights as far as is practicable	250KT IAS below 10,000FT AMSL.	Continuous two-way	Yes
	VFR	Nil	FIS SIS - flight following O/R, (ATC workload permit)	250KT IAS below 10,000FT AMSL.	Continuous two-way	No
G On & North of 65° South	IFR	Nil	FIS	250KT IAS below 10,000FT AMSL.	Continuous two-way	No
	VFR	Nil	FIS SIS - flight following O/R, (ATC workload permit)	250KT IAS below 10,000FT AMSL.	VHF radio required for OPS above 5,000FT AMSL and at aerodromes where carriage and use of radio is required.	No
				250KT IAS below 10,000FT AMSL.	VHF radio required for OPS in reduced VMC.	No
G South of 65° South	IFR	Nil	FIS O/R	250KT IAS below 10,000FT AMSL.	Continuous two-way	No
	VFR	Nil	FIS O/R	250KT IAS below 10,000FT AMSL.	Nil	No

Note 1: Pilots must comply with airspace speed limitation unless specifically cancelled by ATC.

Note 2: Speed limitations are not applicable to military aircraft, except as specified in ERSA.

Note 3: If traffic conditions permit, ATC may approve a pilot's request to exceed the 200KT speed limit to a maximum limit of 250KT unless the pilot informs ATC a higher minimum speed is required.

Note 4: VMC minima are detailed in Section 2.07 of the Part 91 MOS.

4.2 Separation is not provided between aircraft within controlled airspace and any aircraft in close proximity but remaining outside controlled airspace.

Note: Aircraft within controlled airspace or SUA may be operating up to the lateral boundary of the airspace.

5. LANES OF ENTRY (LOE)

5.1 Lanes of entry are established to permit passage to and from specified Class D CTR without entering an adjacent civil or military controlled airspace. The vertical limits of the LOE provide separation from overlying control areas and military airspace.

5.1.1 When using these lanes, pilots must:

a. operate under the VFR;

b. conform with the general flight rules regarding terrain clearance, flight over populous areas, and low level restricted areas;

c. operate not higher than the altitude specified as the upper limit in the section being flown; and

d. keep to the right.

6. REGULATION OF FLIGHT - ASSESSMENT OF PRIORITIES

6.1 Subject to the duty to facilitate and maintain the safe, orderly and expeditious flow of air traffic, ATC will apply priorities in the following order:

a. An aircraft in an emergency, including being subjected to unlawful interference, will be given priority in all circumstances.

b. A multi-engined aircraft which has suffered the loss of an engine and has not been subject to a SAR phase, or has not been considered under the provision of *sub-para a*. above, shall be granted priority for landing.

c. An aircraft which has suffered radio communications failure will be granted priority for landing.

d. An aircraft participating in a Search and Rescue (SAR), Medical (MEDEVAC), or Fire and Flood Relief (FFR) flights shall be granted priority as necessary.

e. An aircraft operating under police call sign “POLAIR RED” or “FEDPOL RED” engaged in operations where life is at risk.

f. An aircraft engaged in the personal transport of Heads of State or of Government, or other selected dignitaries on official visits to Australia, or the personal transport of the Governor-General or the Prime Minister.

g. State aircraft special requirements flights where clearance has been prearranged.

h. Aircraft directed by Defence to participate in significant aerial displays.

i. Navaid and instrument flight procedure checks where prior arrangement has been made for aircraft engaged in these activities.

6.2 Subject to the priorities of *para 6.1*, an aircraft first able to use the manoeuvring area or desired airspace in the normal course of its operations will be given priority except:

a. an aircraft landing or taking off will be given priority over taxiing aircraft;

b. a landing aircraft will have priority over a departing aircraft if the latter cannot take-off with prescribed separation standards;

c. aircraft operating to an approach minima where a successful landing can be achieved will be prioritised over aircraft unable to make a successful approach based on the weather conditions at the time.

d. for flights in Class C terminal control areas associated with Brisbane, Melbourne, Perth and Sydney, ATC will apply priorities in the following order;

(i) long haul flights from the Americas or Europe and the United Kingdom will be offered priority where practical when holding exceeds 10 minutes;

(ii) with equal priority, flights compliant with their ATFM requirements, flights exempt from ATFM measures and Medical Aircraft (HOSP) operations; and

(iii) flights not compliant with their ATFM requirements;

(iv) all other aircraft.

Note: Further information about ATFM procedures at Australian airports is available at ENR 1.9.

e. for flights in other Class C terminal control areas, ATC will apply priorities in the following order:

(i) with equal priority flights with a Calculated Off Blocks Time (COBT), scheduled air transport operations, State aircraft (other than training flights) and Medical Aircraft (HOSP) operations; and

(ii) all other aircraft

f. RVSM-approved aircraft will be given priority for level requests between FL290 and FL410 inclusive over aircraft not RVSM-approved;

g. within ATS surveillance system coverage, identified aircraft may be given priority over non-identified aircraft;

h. inside military airspace surrounding a military aerodrome, priorities will be determined by the controlling or administrating authority published in DAH. Military aerodromes do not include Darwin or Townsville;

i. for training flights;

(i) training flights operating in the traffic pattern in general use will be given priority over other training flights desiring to operate in conflicting patterns for training purposes; and

(ii) when a training instrument approach is approved, priority will be given to that aircraft from the time it commences its final approach until the approach is completed.

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ENR 1.5 HOLDING, APPROACH AND DEPARTURE PROCEDURES

1. HOLDING AND APPROACH TO LAND PROCEDURES

1.1 General

1.1.1 Unless otherwise specified, the provisions of this section apply to aircraft operating under the IFR.

1.1.2 The arrival, holding, approach and departure procedures are developed in accordance with the criteria contained in *ICAO DOC 8168: Procedures for Air Navigation Services - Operations (PANS-OPS), ICAO DOC 9905: Required Navigation Performance Authorization Required (RNP AR) Procedure Design Manual*, and the *Part 173 MOS* and other design criteria as approved by CASA under *CASR Part 173*.

1.2 Aircraft Performance Category

1.2.1 The following categories, based upon V_{at} (except for CAT H), determine landing minima for aircraft:

CAT: A speeds up to 90KT IAS.

B speeds from 91KT to 120KT IAS.

C speeds from 121KT to 140KT IAS.

D speeds from 141KT to 165KT IAS.

E speeds from 166KT to 210KT IAS.

H (helicopters) see *section 1.3*.

Note: V_{at} is the indicated airspeed at the threshold which is equal to the stalling speed V_{so} multiplied by 1.3 or the stalling speed V_{s1g} multiplied by 1.23. Both V_{so} and V_{s1g} apply to aircraft in the landing configuration at the maximum certificated landing weight. If both V_{so} and V_{s1g} are available for an aircraft, the higher resulting V_{at} must be used.

1.2.2 An aircraft must fit into and be operated in accordance with the requirements of only one category. An aircraft:

a. may not reduce category because of reduced operating weight, but

b. must increase category when actual handling speeds are in-excess of those for category (based on V_{at}) detailed at *section 1.17*.

1.2.3 Provided an aircraft can be operated within the limits of the handling speeds (detailed at *section 1.16*) for a lower category than the category determined by V_{at}, and subject to approval by CASA under *CASR 91.320*, an aircraft type may be operated at the lower category.

1.3 **Helicopters**

1.3.1 The following criteria apply to helicopter-specific instrument approach procedures and operations:

a. the stall speed method of calculating aircraft category does not apply to helicopters;

b. where helicopters are operated similarly to aeroplanes, they may be classified as CAT A;

c. procedures developed for the specific use of helicopters are:

(1) designated “CAT H”, and

(2) promulgated on separate charts; i.e. they are not included on charts containing procedures for other aircraft categories.

1.4 **Minimum Route Altitudes**

Except when complying with the requirements for a visual approach, when conforming to a published DME or GNSS Arrival Procedure, or when identified and assigned an altitude by ATC, an aircraft approaching an aerodrome must not descend below the LSALT or the MSA for the route segment being flown (see *para 2.3*) until it has arrived over the IAF or facility.

1.5 **Procedure Entry**

Having arrived over the IAF or facility, and except as provided for in *para 2.5*, further descent must be made in accordance with the entry and holding procedures to the specified altitude for commencing the approach and, subsequently, in accordance with the approved instrument approach procedure.

1.6 **Circling Approaches and Visual Circling**

1.6.1 A circling area is defined to facilitate a circling approach which provides for visual circling of the aerodrome, to align with the runway prior to landing. The lateral boundary of the circling area determines the geographical area subject to obstacle assessment.

1.6.2 A circling approach is an extension of an instrument approach to the published circling approach minima with the intent or requirement to visually manoeuvre the aircraft to align with the runway for a landing. Each circling situation is different due to variations in runway layout, final approach track, wind velocity and meteorological conditions. Therefore, there can be no single procedure designed that will cater for the conduct of a circling approach in every situation.

1.6.3 The circling approach minima is specifically designed to ensure a safe approach and landing when conducting circling manoeuvres. Pilots should always exercise caution and undertake thorough preparation before conducting a circling approach, especially for unfamiliar locations. While spot heights on approach charts provide valuable information, they may not encompass all potential obstacles including the highest points in the relevant circling area. As such, the information provided by spot heights on instrument approach procedure charts must be treated with caution.

1.6.4 The lateral dimensions for circling area obstacle assessment areas are developed by procedure designers in accordance with the criteria contained in *ICAO DOC 8168: Procedures for Air Navigation Services – Operations (PANS-OPS) Vol II*. The circling area is determined by drawing an arc centred on the threshold of each usable runway and joining these arcs by tangents, see *Figure 1.1* for an example of obstacle assessment areas within the circling area at an aerodrome. Pilots must be fully aware of the maximum circling IAS for each aircraft category when performing a circling approach. The maximum IAS values are provided in *paragraph 1.17.1, Table 1.2*. The radius includes the following parameters:

a. the aircraft TAS at maximum IAS for circling for an aircraft performance category, calculated at 1000FT above the aerodrome elevation (therefore AD ELEV + 1000FT),

b. a tail wind of 25KT throughout the turn,

c. 20° average achieved bank angle or the bank angle producing a turn rate of 3° per second, whichever is the lesser bank angle, and

d. ISA +15°.

1.6.5 Australia has no aerodromes with an elevation below sea level and therefore the smallest circling area radii in Australia are for aerodromes at sea level. Aerodromes at higher elevations will have larger circling areas due to increased TAS, bank angles and turn radius parameters. The larger circling areas ensure adequate obstacle clearance during the visual manoeuvre, approach and landing phases. Pilots must be mindful of these factors and adjust their manoeuvres accordingly to ensure safety during flight operations in such environments. The table below (*Table 1.1*) presents example radius values for circling areas for reference only. These values should not be interpolated. Pilots are reminded to maintain visual reference with the runway environment and to remain within or as close as possible to the circuit area, ensuring the aircraft does not approach the circling area boundary:

AD ELEVATION	CIRCLING ALTITUDE	CAT A	CAT B	CAT C	CAT D
0FT	1000FT	1.67NM	2.59NM	4.11NM	5.15NM
1000FT	2000FT	1.69NM	2.65NM	4.21NM	5.28NM
2000FT	3000FT	1.70NM	2.71NM	4.31NM	5.40NM
3000FT	4000FT	1.74NM	2.77NM	4.41NM	5.54NM
4000FT	5000FT	1.77NM	2.83NM	4.52NM	5.67NM
5000FT	6000FT	1.81NM	2.90NM	4.63NM	5.82NM

Table 1.1 Example radius values for circling areas

1.6.6 Published circling approach minima include the necessary minimum obstacle clearance for conducting a circling approach at a particular aerodrome. These minima are based on various factors such as the surrounding terrain, obstacles, elevation of the aerodrome, the category of the aircraft and the relevant parameters mentioned in *paragraph 1.6.4*. Therefore, visual circling conducted at or above the published circling approach minima will provide protection from obstacles within the circling area, reduce the likelihood of Controlled Flight Into Terrain (CFIT) accidents and enhance overall flight safety.

The minimum obstacle clearance required above the highest obstacle within the circling area is listed below. These values are rounded for simplicity and may differ from those calculated by the procedure designer:
Categories A and B - 300FT
Categories C and D - 400FT

1.6.7 Restrictions on Visual Circling

1.6.7.1 The runway environment includes features such as the runway threshold or approach lighting aids or other markings identifiable with the runway. Refer to *Figure 1.2* for the recommended typical procedure for executing the visual circling circuit manoeuvre for landing on the opposite runway.

1.6.7.2 After establishing visual contact, the pilot should manoeuvre the aircraft to remain within the circling area and in such way that visual contact with the runway of intended landing or runway environment is maintained at all times. During visual circling, descent below the promulgated circling approach minima should not be made until:

a. required visual reference has been established and can be maintained throughout the manoeuvre;

b. the pilot has the landing threshold in sight; and

c. the required obstacle clearance can be maintained and the aircraft is in a position to carry out a landing using normal rates of descent and angles of bank.

1.6.7.3 Once descent is initiated below the circling approach minima, the obstacle protection offered by visual circling at the circling minima ends and pilots are responsible for ensuring the required clearance from obstacles is maintained visually.

1.6.7.4 Where a prominent obstacle or obstacles within the circling area prevent visual circling the sector in which the obstacles are located may be eliminated from the visual circling area. Sectors which have been eliminated from the visual circling area are annotated No Circling (*see Figure 1.3*).

1.6.7.5 Visual circling is prohibited in No Circling sectors.

1.6.7.6 Obstacle clearance is assured in those cases where the published final approach track overflies the no circling area while tracking to the MAPt and/or the MAPt is inside the No Circling area, provided the published tracks and altitudes are being complied with. Deviating from the published procedure can compromise obstacle clearance and safety during the circling approach.

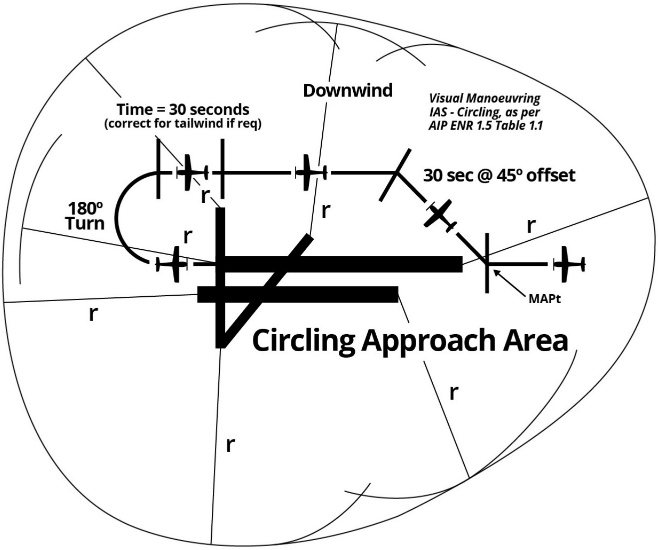


Figure 1.1 - Example Visual Circling Obstacle Assessment Area

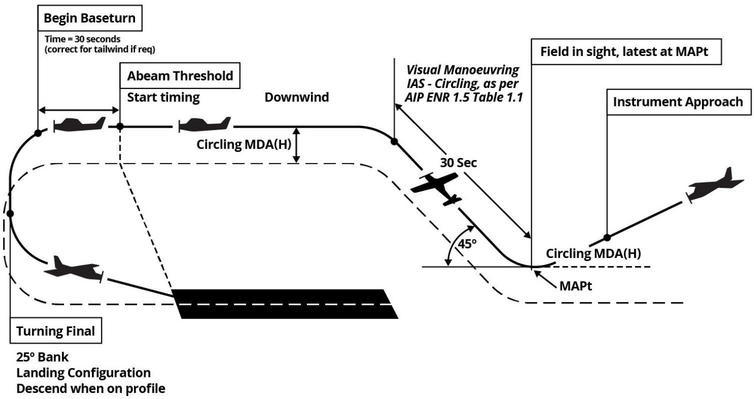


Figure 1.2 - Recommended Typical Visual Circling Circuit Manoeuvre

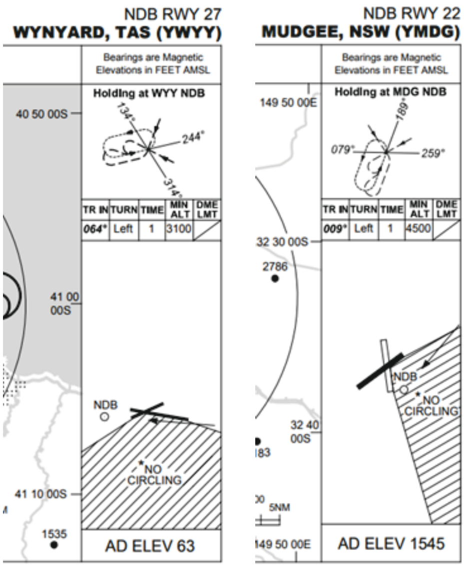


Figure 1.3 - Examples of No Circling Areas

1.7 **Visual Manoeuvring (non-Circling) Subsequent to Non-Precision Approaches (NPA) and Approaches with Vertical Guidance (APV)**

1.7.1 Straight-in NPA and APV do not normally require visual circling. In those circumstances where the NPA or APV does not serve the landing runway, the provisions of *para 1.6* apply.

1.7.2 **Descent Below the Straight-in MDA.** Descent below the straight-in MDA or continuation of the approach below the DA during APVs, may only occur when:

- visual reference can be maintained;
- all elements of the meteorological minima are equal to or greater than those published for the aircraft performance category (see *para 5.1.1*); and
- the aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal flight manoeuvres that will allow touchdown to occur within the touchdown zone of the runway of intended landing.

1.7.3 **NPA and APV Alignment.** APV are aligned with the runway centreline. Straight-in NPA may be aligned with the runway centreline or may be offset by up to 15°(Category C & D) or 30° (Category A & B) see Note 1.

1.7.4 **Alignment with the Runway Centreline.** Manoeuvring to align the aircraft with the runway centreline can be undertaken when:

- within the circling area,
- visual reference can be maintained,
- continuously in sight of ground or water.

Note 1: Procedures with offset angles greater than 5° are designed such that aircraft cross the runway centreline no closer than 1,400M to the threshold.

For offset angles equal to or less than 5°, the final approach track is designed to be within 150 metres of the runway centreline at 1,400M. Some older procedures may use 900M in place of 1,400M.

Note 2: For the purpose of this section ‘visual reference’ means the runway threshold, or approach lights or other markings identifiable with the landing runway clearly visible to the pilot and a flight visibility not less than that specified for the procedure.

1.8 Visual Approach Area - Helicopter

1.8.1 Helicopter GNSS instrument approach procedures may include a Visual Approach Area–Helicopter (VAA–H). These procedures are annotated in the minima box with the term ‘VAA’. The VAA-H extends from the Missed Approach Waypoint (MAWP) to the Helicopter Landing Site (HLS). Obstacle clearance at MDA is assured within a VAA–H.

1.8.2 The VAA–H comprises a 1NM wide corridor centred on the track from the MAWP to the HLS, plus the area beyond the HLS contained within a 0.5NM radius centred on the HLS.

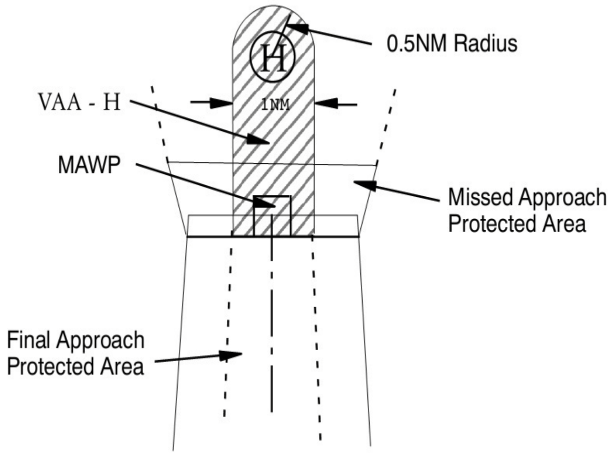


Figure 1.4 Visual Approach Area - Helicopter

1.8.3 Flight within a VAA–H is a visual flight manoeuvre. After visual contact is established, and after passing the MAWP, the helicopter is manoeuvred within the VAA–H, at an altitude not below the MDA, utilising key lead-in points until the HLS is sighted.

1.8.4 Descent below MDA may only occur when the pilot:

a. maintains the helicopter within the VAA–H; and

b. maintains visibility along the intended flight path:

(1) by day, not less than that specified for helicopter VMC, and

(2) at night, not less than the published minimum visibility for the procedure; and

c. maintains visual contact with key lead-in points (i.e. lighting or other prominent identifiable features) or the HLS; and

d. while complying with a, b, and c, intercepts a normal approach path to the HLS for the particular helicopter and a landing is assured.

D 1.9 **Missed Approach - Standard Procedures**

1.9.1 A missed approach must be executed if:

a. during the final segment of an instrument approach, the aircraft is not maintained within the applicable navigation tolerance for the aid in use; or

b. during an instrument approach and below MSA (as specified on the IAL chart) the performance of the radio aid becomes suspect, or the radio aid fails; or

c. visual reference is not established at or before reaching the MAPT or DA/RA Height from which the missed approach procedure commences; or

d. a landing cannot be effected from a runway approach, unless a circling approach can be conducted in weather conditions equal to or better than those specified for circling; or

e. visual reference is lost while circling to land from an instrument approach.

Note 1: For the purpose of this paragraph “visual reference” means the runway threshold, or approach lights or other markings identifiable with the landing runway clearly visible to the pilot, and either:

a. for circling approaches, clear of cloud, in sight of the ground or water and with a flight visibility not less than the minimum specified for circling; or

b. for runway approaches, a flight visibility not less than that specified for the procedure.

Note 2: In IAL procedures, the missed approach is designed to provide a minimum obstacle clearance of 100FT to an aircraft climbing along the specified missed approach path at a gradient of 2.5% (152FT/NM) from the MAPT or DA/RA Height from which the missed approach procedure commences. If this missed approach climb gradient cannot be achieved the DA, MDA or RA Height should be increased, or other action taken to achieve the required obstacle clearance along the specified missed approach flight path.

1.9.2 In executing a missed approach, pilots must follow the missed approach procedure specified for the instrument approach flown. In the event that a missed approach is initiated prior to arriving at the MAPT, pilots must fly the aircraft to the MAPT and then follow the missed approach procedure. The MAPT in a procedure may be:

a. the point of intersection of an electronic glide path with the applicable DA; or

b. a navigation facility; or

c. a fix; or

d. a specified distance from the Final Approach Fix (FAF).

1.9.3 When a missed approach is required from visual circling, the expectation is that the pilot will make an initial climbing turn toward the landing runway and overhead the aerodrome where the pilot will establish the aircraft climbing on the missed approach track. In as much as the circling manoeuvre may be accomplished in more than one direction, different patterns will be required to establish the aircraft on the prescribed missed approach course depending on its position at the time visual reference is lost.

1.10 **Missed Approach Tracking**

1.10.1 A missed approach procedure may, or may not, specify lateral guidance. In either situation the expectations of the pilot will vary as follows depending whether the procedure is based on a radio navaid or GNSS.

a. When lateral guidance is specified with reference to a radio navaid (i.e. a VOR radial, an NDB bearing) the expectation is that the pilot will intercept the nominated track. Where an intercept is required it will be both stated in the missed approach procedure's text and shown in the plan view on the procedure plate. The text will take the form of: *"At the NDB (or VOR), Turn Left (or Right) to intercept xxx° (ZZ NDB or VOR). Climb to..."*

b. When lateral guidance is specified based on GNSS the expectation of the pilot will take one of two forms:

   - For a straight missed approach or a turn at the MAPt, the pilot is expected to follow the GNSS navigation commands to the next waypoint. The text will take the form of: *'Turn Left (or Right), Track DCT XXXXX. Climb to...'*
   - For a turn after the MAPt where there is not a subsequent waypoint the pilot is expected to make-good the nominated track on the chart using the GNSS for navigation. The text will take the form of: *'Turn Left (or Right), Track xxx°. Climb to...'*

c. When the instrument procedure is based on a radio navaid but the missed approach does not specify lateral guidance the expectation is that the pilot will use DR to achieve the nominated track. Allowance for wind must be made to make-good this nominated track. The radio navaid may be used to supplement track keeping during the missed approach when it is a straight continuation of the final track, however guidance is not mandatory. The missed approach procedure's text will take the form of: *'Turn Left (or Right), Track xxx°. Climb to...'*

1.11 Missed Approach Requirements - GNSS

1.11.1 If a loss of RAIM or RAIM warning is indicated at any time after passing the Initial Approach Fix, the pilot must immediately carry out a missed approach in accordance with published procedures.

1.11.2 Provided the RAIM warning ceases when the missed approach is selected on the GNSS equipment, it may be used for missed approach guidance.

1.11.3 Should the RAIM warning remain when the missed approach is selected, or should there be any doubt about the accuracy of the GNSS, then an alternative means of guidance or dead reckoning must be used to fly the missed approach.

1.12 Missed Approach - Helicopter Procedures

1.12.1 Pilots flying a helicopter instrument approach procedure, or flying visually within a VAA–H, must execute a missed approach if:

a. during the instrument approach and below MSA (as specified on the IAL chart) the performance of the navigation aid becomes suspect, or the navigation aid fails; or

b. visual reference is not established at or before reaching the MAWP from which the published missed approach procedure commences; or

c. visual reference is lost within the VAA–H; or

d. a landing at the HLS is not assured.

Note 1: For the purpose of this paragraph "visual reference" means:

a. the key lead-in points or HLS are clearly visible to the pilot; and

b. clear of cloud, in sight of ground or water and with a flight visibility:

(1) by day, not less than that specified for Helicopter VMC, and

(2) at night, not less than the published minimum visibility for the procedure.

Note 2: The missed approach is designed to provide a minimum obstacle clearance of 100FT to a helicopter climbing at a gradient of 4.2% (255FT/NM) from the MDA at, or before, the MAWP or from any point within the VAA–H, to the Missed Approach Turning Waypoint (MATWP) or Missed Approach Holding Waypoint (MAHWP), as applicable. If this missed approach climb gradient cannot be achieved, the MDA should be increased, or other action taken, to achieve the required obstacle clearance along the missed approach flight path.

1.12.2 If executing a missed approach from within the VAA–H of a helicopter GNSS approach, pilots must immediately track towards the MATWP or the MAHWP, as required by the particular procedure.

1.13 **Visual Segments**

When an instrument approach procedure specifies a visual segment from the point where the MDA is reached to the circling area of the aerodrome, a missed approach shall be executed unless the visual segment can be flown clear of cloud and in sight of the ground or water in accordance with the altitude and visibility specified for circling.

1.14 **Visual approach requirements for all flights**

1.14.1 A pilot conducting a visual approach in controlled airspace may be assigned the responsibility to follow another arriving aircraft which they have reported sighting. When assigned this responsibility, the pilot must maintain separation from and not overtake that aircraft. In this circumstance, the pilot is also responsible for providing their own wake turbulence separation. If sighting is subsequently lost, advise ATC immediately.

1.14.2 A pilot who is unable to continue a visual approach which has been authorised by ATC must immediately advise ATC.

1.14.3 When conducting a visual approach in controlled airspace, a pilot in command must not climb above an altitude reported to ATC as having been reached or left, unless authorised to do so.

1.15 **Visual approach requirements for IFR flights**

1.15.1 The requirements of this section are the visual approach procedures applicable to IFR flights under *CASR 91.305(3)(b)(i)*.

1.15.2 A pilot in command operating under the IFR in controlled airspace must be satisfied that the visual approach requirements of *para 1.15.3* can be met before requesting a visual approach from ATC. The pilot must report 'VISUAL' to signify that these requirements can be met and maintained as part of any request to ATC for a visual approach.

1.15.3 Subject to the requirements of *paras 1.6, 1.9 and 1.13*, the pilot need not commence or may discontinue the approved instrument approach procedure to that aerodrome when:

a. **By Day.** Within 30NM of that aerodrome at an altitude not below the LSALT/MSA for the route segment, the appropriate step of the DME or GNSS Arrival Procedure, or the MDA for the procedure being flown, the aircraft is established;

(1) clear of cloud;

(2) in sight of ground or water;

(3) with a flight visibility not less than 5,000M or, in the case of a helicopter, is able to proceed under helicopter VMC, or the aerodrome is in sight; and

(4) subsequently can maintain (1), (2) and (3) at an altitude not less than

(i) if in controlled airspace – 500FT above the lower limit of the CTA unless a clearance is received from ATC to depart and re-enter controlled airspace during the descent; and

(ii) the minimum height prescribed by *CASR 91.265* or *91.267* as relevant to the location of the aircraft.

b. **By Night.** At an altitude not below the LSALT/MSA for the route segment, the appropriate step of the DME or GNSS Arrival Procedure, or the MDA for the procedure being flown, the aircraft is established:

(1) clear of cloud;

(2) in sight of ground or water;

(3) with a flight visibility not less than 5,000M; and

(4) subsequently can maintain (1), (2) and (3) at an altitude not less than:

(i) in controlled airspace – 500FT above the lower limit of the CTA unless a clearance is received from ATC to depart and re-enter controlled airspace during descent; and

(ii) one of the following:

– route segment LSALT/MSA; or

– the appropriate step of the DME/GNSS Arrival Procedure; or

– if being vectored – the last assigned altitude;

(5) until the aircraft is:

– for an aerodrome with an authorised instrument approach procedure that the flight crew members of the aircraft are capable of using – within the prescribed circling area for the category of aircraft or a higher category, where the limitations of the higher category are complied with, or VAA–H, as applicable and the aerodrome is in sight; or

– for an aerodrome without an authorised instrument approach procedure that the flight crew members of the aircraft are capable of using – within 3NM of the aerodrome reference point, and the aerodrome is in sight; or

– within 5NM (7NM for a runway equipped with an ILS/GLS) of the aerodrome, aligned with the runway centreline and established not below “on slope” on the T-VASIS or PAPI; or

– within 10NM (14NM for Runways 16L and 34L at Sydney) of the aerodrome, established not below the ILS/GLS glide path with less than full scale azimuth deflection.

Note: Reference to circling area in this section includes the circling area for the category of aircraft or a higher category where the limitations of the higher category are complied with.

c. If in controlled airspace:

(1) a clearance is received from ATC to conduct a visual approach; and

(2) when tracking via a STAR and subsequently cleared for visual approach, the pilot continues to follow the lateral profile of the STAR, including any visual or instrument termination route; and

(3) except when on a STAR, the pilot maintains track/heading on the route progressively authorised by ATC until:

(i) by day, within 5NM of the aerodrome; or

(ii) by night, the aerodrome is in sight and the aircraft is within the prescribed circling area for an IFR flight;

Note: ATC will provide directions to the aircraft regarding how to join the circuit for the nominated runway from these positions.

1.16 **Visual approach requirements for VFR flights**

1.16.1 If in controlled airspace and a clearance is received from ATC to conduct a visual approach, the pilot in command of an aircraft operating under the VFR must:

a. maintain a level 500FT above the lower limit of CTA unless a clearance is received from ATC to depart and re-enter controlled airspace;

b. maintain track/heading on the route progressively authorised by ATC until

(i) by day, within 5NM of the aerodrome; or

(ii) by night, the aerodrome is in sight and the aircraft is within 3NM of the aerodrome reference point.

Note: ATC will provide directions to the aircraft regarding how to join the circuit for the nominated runway from these positions.

1.17 **Handling Speeds**

1.17.1 The handling speeds for aircraft categories during IAL procedures are as follows:

SPEEDS FOR PROCEDURE IN KNOTS IAS					
ACFT CAT	V_{at}	**Range of Speeds for Initial and Intermediate Approach**	**Range of Final Approach Speeds**	**Max Speeds for Visual Manoeuvring (Circling)**	**Max Speeds for Missed Approach**
A	< 91	90 – 150 (110*)	70 – 100	100	110
B	91 – 120	120 – 180 (140*)	85 – 130	135	150
C	121 – 140	160 – 240	115 –160	180	240
D	141 – 165	185 – 250	130 – 185	205	265
E	166 – 210	185 – 250	155 – 230	240	275
H	N/A	70 – 120	60 – 90	N/A	90
* Max speed for reversal procedures					

Table 1.2

Note 1: On reversal procedures (see section 2.8) for which a FAF is not published, final approach speed should be obtained before descending on the inbound track.

Note 2: Speed reduction below the initial segment speed range is permitted to enable the final approach speed to be achieved prior to the commencement of the final segment.

1.18 **Speed Restrictions**

1.18.1 IAL charts may have speed restrictions identified on the chart when:

a. handling speeds, below the maximum values specified in *Table 1.2* above, are required to contain the aircraft within the procedure design area; or

b. the speeds are used for ATC flow management (ATC APCH speeds).

1.18.2 Where ATC APCH speeds do not align with the IAL procedure handling speeds, either at *Table 1.2* or published on the chart, pilots must comply with the IAL procedure handling speeds. Notification to ATC is not required.

1.18.3 The following may amend the ATC APCH speed depicted on a STAR or IAL chart without approval or notification to ATC:

a. Performance Category B aircraft may cross 5NM from THR at 145-160KT; or

b. Performance Category A and H aircraft may fly lower speeds if required.

1.19 Obstacle Clearance Altitude (OCA)

1.19.1 Obstacle clearance altitude is:

a. in a precision approach procedure, the lowest altitude at which a missed approach must be initiated to ensure compliance with the appropriate obstacle clearance criteria; or

b. in a non-precision runway approach procedure, the lowest altitude below which the aircraft can not descend without infringing the appropriate obstacle clearance criteria; or

c. in a visual (circling) procedure, the lowest altitude above the aerodrome elevation in accordance with obstacle clearance criteria.

1.20 Aerodrome Operating Minima (AOM)

1.20.1 Landing minima are published on Australian approach charts as MDA/H or DA/H. Obstacle Clearance Altitude/Height is not published. Landing minima are the basis for determining AOM.

1.20.2 Operators must establish AOM for each aerodrome to be used for operations. After consideration of the factors listed below, operators may determine that their AOM should be higher than the published landing minima:

a. The type, performance and handling characteristics of the aeroplane.

b. The composition, experience and competence of the flight crew.

c. The means used to determine and report meteorological conditions.

1.20.3 **Partial Runway Lighting Failure**. At a controlled aerodrome, in the event of failure of one electrical circuit on a runway equipped with interleaved circuitry lighting, pilots will be notified of a doubled spacing of runway edge lights; i.e. from 60M to 120M spacing. When such a failure occurs at night, pilots must apply the following requirements to an approach to land:

a. In VMC:

No restriction.

b. In Less Than VMC:

The prevailing visibility must be equal to, or greater than, the published minimum for the instrument approach procedure being used for an aircraft's arrival multiplied by a factor of 1.5.

1.21 **Descent Gradients**

1.21.1 Procedures are designed with the following descent gradients:

SEGMENT	GRADIENT	
	NORMAL	MAXIMUM
Arrival	As required	As required
Initial	4%	8%
Intermediate	Level	5%
Final: non-precision	5.2%	6.5%
precision	3°	Not applicable

Table 1.3

Note 1: The chart will indicate when other than a normal gradient is used in the final segment.

Note 2: For procedures published with a distance/altitude scale, a 3° glideslope is used in calculating the descent data.

1.21.2 Aircraft may commence a segment in excess of the specified commencement altitude provided that any upper altitude limitation is observed. However, rate of descent after the FAF should not normally exceed 1,000FT per minute.

1.22 **Descent**

1.22.1 For a straight approach (no reversal procedure), the aircraft must:

a. for a radio navaid-based approach, cross the fix or facility, or

b. for an area navigation-based approach, pass the waypoint, and when established on the specified track, descend to not below the specified altitude.

1.22.2 For an approach which incorporates a reversal procedure, if an outbound descent is specified, the descent to the specified altitude may be commenced after the aircraft has crossed the fix or facility and is established on the specified track or has turned to a heading to intercept the specified outbound track. The reversal procedure must be completed, again descending to any lower altitude specified. Further descent, after the reversal procedure, must not be started until established on the inbound track. For approaches without a FAF, the final segment commences at the completion of the reversal procedure.

Note: "Established" means being within half full scale deflection for the ILS, VOR and GNSS, within ±5° of the required bearing for the NDB, or within ±2NM of the DME arc.

1.23 **Wind Effect**

1.23.1 For all flights, during any holding or IAPs, allowance should be made in heading and timing to compensate for the effects of wind. Full use should be made of indications available from the aid and estimated or known winds.

1.24 **Bank Angle**

1.24.1 Procedures are based on a bank angle of 25°, or a bank angle which will produce a Rate One turn, whichever is less.

2. APPROACH PROCEDURES

2.1 Operations On Parallel Runways At Class C Aerodromes

2.1.1 Parallel runways may be used for the following simultaneous operations:

a. dependent parallel approaches;

b. independent parallel approaches;

c. dependent visual approaches;

d. independent visual approaches;

e. segregated parallel operations; or

f. Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS).

2.1.2 Refer to the relevant section of *AIP DAP* for location-specific procedures and guidance.

2.2 Use of Navigation Aids

2.2.1 Instrument approach procedures are based on specific navigation aids, with the applicable navigation tolerances associated with the aids being used in the development of the procedure’s obstacle protection surfaces. The navigation aid, or aids, upon which the procedure is based is/are identified on each instrument approach chart. Only the navigation aid, or aids, included in the chart title or identified on the instrument approach chart as suitable may be used to fly the procedure. Use of a non-specified aid (e.g. another DME located on the aerodrome) is prohibited as it may jeopardise the integrity of the instrument approach procedure.

2.3 Minimum Sector Altitude

2.3.1 The 25NM and 10NM MSA provide 1,000FT obstacle clearance. An aircraft within the applicable 25NM Sector MSA or 10NM MSA of the nominated significant point, the ARP or the HRP may use the applicable MSA, and deviation from the track being flown is permitted to facilitate entry to the instrument approach. In instances where the 25NM MSA has been divided into sectors, and the appropriate 25NM Sector MSA is lower than the 10NM MSA (as a result of the 10NM MSA not being sectorised), then the 25NM Sector MSA may be used for tracking to the nominated significant point, ARP or HRP provided aircraft tracking can be maintained within the sector.

2.4 Approach Design Concept

2.4.1 **Definitions.** "Segment Minimum Safe Altitude" and "Procedure Altitude" are defined at *GEN 2.2 - Definitions and Abbreviations.*

2.4.2 Approach procedures are designed to facilitate descent from a Procedure Altitude to an altitude from which either a straight-in landing or a circling procedure can be conducted. Approach procedures are classified as PA, APV or NPA. NPA fall into two categories: those with distance measuring information (e.g. VOR/DME, LOC/DME, GNSS) and those without (e.g. NDB and VOR).

2.4.3 **Vertical Profile - NPA <u>with</u> Distance Measuring.** NPAs with distance measurement are designed to provide a Constant Descent Final Approach (CDFA) path from the procedure altitude to a point 50FT above the threshold (or to the circling altitude for circling-only procedures). The CDFA path is shown on the profile diagram with the descent angle annotated in degrees and an altitude/distance scale. At each fix on approach, an advisory crossing altitude is shown on the profile diagram to assist in maintaining the descent path.

Each segment of an NPA also specifies a Segment Minimum Safe Altitude identified by shading on the profile diagram. In conducting a CDFA, the pilot should follow the descent profile but must always ensure that the aircraft remains at or above each Segment Minimum Safe Altitude. Descent below the CDFA profile to the Segment Minimum Safe Altitude (sometimes called "dive and drive") is permitted at pilot's discretion, but is not recommended.

2.4.4 **NPA as a 2D or 3D operation.** An NPA procedure flown using the charted altitude/distance scale to determine the aircraft's rate of descent is considered a 2D instrument approach operation. Where the advisory vertical guidance is calculated and provided by on-board navigation equipment, the approach can be flown as a 3D instrument approach operation. Advisory vertical guidance is generated by aircraft navigation systems to assist pilots in managing vertical navigation but provides no assurance of compliance with the descent limitations specified for the NPA procedure. Accordingly, it is vital that pilots conform with Segment Minimum Safe Altitude and MDA requirements regardless of any advisory vertical guidance information provided by the aircraft's system. NPA procedures using advisory vertical guidance will not be charted as VNAV capable.

When flying an NPA as a 3D operation (e.g. CDFA), pilots should initiate any missed approach at an altitude above the MDA to ensure the aircraft does not descend below the published MDA.

2.4.5 **Vertical Profile - NPA <u>Without</u> Distance Measuring.** As these types of procedures are time based, a 3° profile cannot be published. Accordingly, a Procedure Altitude will be published to establish the top of descent at the beginning of the inbound leg. This altitude will provide the necessary obstacle clearance in addition to keeping the outbound and inbound rates of descent within the PANS-OPS limits.

2.5 Procedure Entry

2.5.1 An aircraft which is not required to hold or to lose height in a holding pattern may commence the approach without entering the holding pattern if:

a. in controlled airspace, ATC has cleared the aircraft for the approach;

b. in any airspace, for procedures using navaids:

   (1) the reversal procedure entry requirements of *para 2.8* are satisfied; or

   (2) the DME arc entry requirements of *para 2.9* are satisfied; or

   (3) the en route track to the procedure's commencement fix or facility is within 30° either side of the first track of the procedure.

c. for procedures using GNSS:

(1) in any airspace, the aircraft is tracking to an initial approach waypoint from within the capture region (see *Figure 2.1 and Figure 2.2)* for that waypoint; or

(2) in controlled airspace, the aircraft is being vectored to intercept the initial approach segment or is tracking direct to the intermediate fix.

Note to c.(1): The first track of a GNSS procedure must be joined using the tracking guidance provided by the GNSS receiver.

Note to c.(2): "direct to" clearances may be requested to the intermediate fix (IF) provided that the resultant track change at the IF does not exceed 45°.

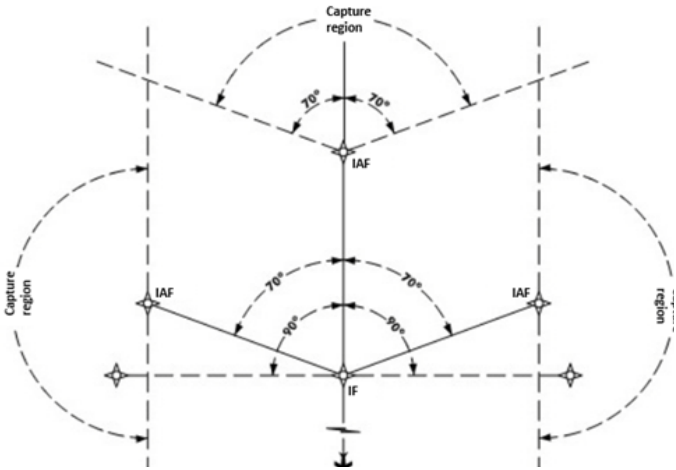


Figure 2.1 - RNAV GNSS (or RNP APCH) Approach Capture Regions (Three Initial Approach Fixes)

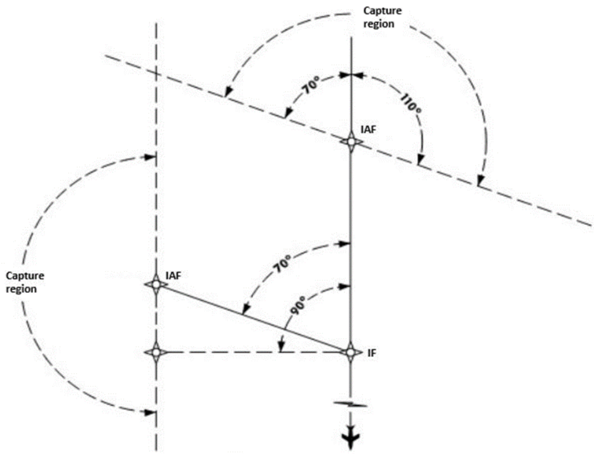


Figure 2.2 - RNAV GNSS (or RNP APCH) Capture Regions (Two Initial Approach Fixes)

2.6 **Approach Segments and Fixes**

2.6.1 Fixes associated with segments occur at the beginning of their segment. The initial, final and missed approach fixes are shown. In addition, an area for circling the aerodrome in visual conditions is considered.

2.6.2 **Segment Parameters.** Segment parameters are defined in *ICAO PANS OPS.* Parameters significant to flight handling are as follows:

SEGMENT	**PARAMETER**	**VALUE/COMMENT**
Arrival	**As for en route flight**	**Nil**
Initial Intermediate Final	Descent Gradient and Rate	See *para 1.21*
	Bank Angle	See *para 1.24*
	Speed Navigation Aid Tracking	See *Table 1.2* See *para 1.22*
Missed Approach	Nominal Path Gradient	2.5%
	Average Achieved Bank Angle	15°
	Speed	See *Table 1.2*

Table 2.1

2.7 Missed Approach Procedure

2.7.1 The MAPT in a procedure may be:

a. the point of intersection of an electronic glide path with the applicable DA/RA Height; or

b. a navigational facility; or

c. a fix; or

d. a specified distance from the FAF, or

e. a waypoint.

Note: If the MAPT is defined by distance, a distance/groundspeed/time table will be provided to enable pilots to establish the MAPT by DR from the FAF.

2.7.2 If on reaching the MAPT, the required visual reference is not established, the pilot must immediately initiate the published missed approach procedure or, where applicable, comply with alternative ATC instructions. The phrase ‘or as directed by ATC’ is included in published missed approach instructions for applicable instrument approach procedures.

2.7.3 A published missed approach procedure must not be flown unless commenced at the MAPT. If a missed approach climb is initiated before the MAPT, the aircraft must track to the MAPT before commencing the missed approach procedure.

2.8 Reversal Procedures

2.8.1 **General.** Reversal procedures are used to establish the aircraft inbound on an intermediate or final approach track at the desired altitude. A reversal procedure consists of an outbound track followed by a turning manoeuvre in order to reverse direction onto the inbound track. The procedure can be a procedure turn or a base turn.

2.8.2 **Types.** Reversal procedures are illustrated at *Figure 2.3* and described below:

a. **Procedure Turn** (45°/180°), consisting of a specified outbound track and timing from the facility or fix, a 45° turn away from the outbound track for 1 minute from the start of turn for categories A and B aircraft (1 minute 15 seconds from the start of turn for categories C, D and E aircraft), followed by a 180° turn in the opposite direction to intercept the inbound track [see *Figure 2.3* (a)]. The 45°/180° procedure turn is an alternative to the 80°/260° procedure turn [paragraph (b) below] unless specifically excluded.

Note: Some instrument approach procedures require a procedure turn after passing over a navigation aid or fix. Where this requirement exists, the turn must be initiated immediately after passing over the navigation aid or fix.

b. **Procedure Turn** (80°/260°), consisting of a specified outbound track and timing from the facility or fix, an 80° turn away from the outbound track, followed by a turn of 260° in the opposite direction to intercept the inbound track [see *Figure 2.3* (b)].The 80°/260° procedure turn is an alternative to the 45°/180° procedure turn unless specifically excluded.

Note: Some instrument approach procedures require a procedure turn after passing over a navigation aid or fix. Where this requirement exists, the turn must be initiated immediately after passing over the navigation aid or fix

c. **Base Turn**, consisting of a specified outbound track and timing or DME distance from a facility, followed by a turn to intercept the inbound track (see *Figure 2.3* (c)). The outbound track and/or time may be different for differing aircraft performance categories.

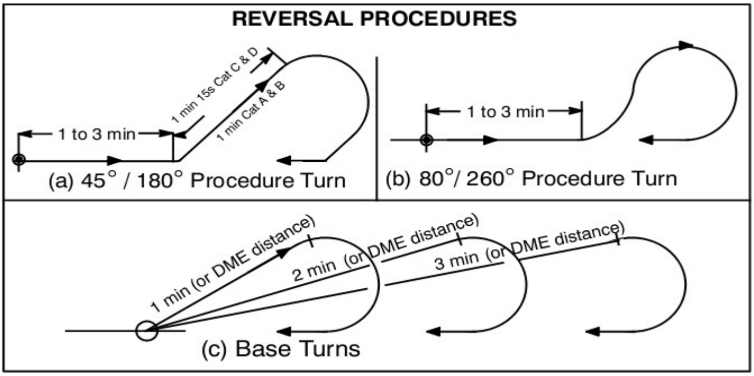


Figure 2.3

2.8.3 **Entry.** Reversal procedures must be entered from a track within ±30° of the outbound track of the reversal procedure (see Figure 2.4). However, for base turns, where the ±30° direct entry sector does not include the reciprocal of the inbound track, the entry sector is expanded to include it (see *Figure 2.5*). Where entry is required from tracks outside these limits, manoeuvring to establish the aircraft onto the outbound track must be in accordance with the entry procedures associated with the holding pattern

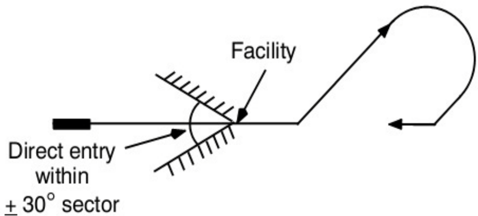


Figure 2.4 - Direct Entry to Procedure Turn

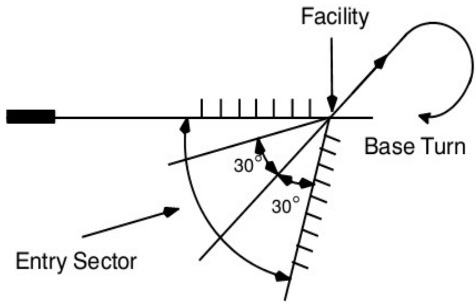


Figure 2.5 - Direct Entry to Base Turn

2.9 **DME Arcs**

2.9.1 DME arcs must be joined at or before an IAF and at an altitude not below the relevant MSA or the appropriate sector DME Arrival step.

3. HOLDING PROCEDURES

3.1 **General**

3.1.1 When holding is required in a specified pattern the procedures set out in this section must be used.

3.1.2 Shape and terminology associated with a standard holding pattern are given in *Figure 3.1*.

3.1.3 Right turns holding patterns are standard holding patterns and must be flown unless the AIP chart depicts, or ATC directs, otherwise.

3.1.4 Some area navigation systems are unable to fly non-area navigation holding patterns with strict compliance with the *PANS-OPS, Volume II,* assumptions. These systems may not be used operationally unless the operator has obtained approval in writing that CASA is satisfied that the area navigation system commands will contain the aircraft within the basic holding area defined by *PANS-OPS, Volume II*, for the environmental conditions assumed by those criteria. Where approval has been given, the pilot must verify over flight of the stipulated fixes by means of the reference facility.

3.2 **Holding in controlled airspace**

3.2.1 Pilots instructed to hold by ATC must hold at the designated location until further cleared.

3.2.2 ATC will normally assign aircraft estimated to arrive first over a holding fix, or first able to commence an approach, the lowest available level for assignment.

3.2.3 Where a delay of six minutes or more is expected, ATC will advise an expected approach time or expected landing time.

3.2.4 When operationally necessary, a pilot holding must advise ATC of the latest divert time.

3.2.5 When an aircraft is holding because weather conditions are worse than the prescribed landing minima, ATC will nominate scheduled reporting times, normally at 15 minute intervals.

3.2.6 At the time or position advised, the pilot must depart from the hold. A pilot should leave the holding fix on time, or up to one (1) minute ahead of time, and unless identified, report leaving the holding fix.

3.3 **Limitations**

3.3.1 Unless otherwise specified, holding procedures are subject to the following limitations:

a. **Speed.** Indicated speed must not exceed
   (1) up to and including FL140
      – 230KT, or
      – 170KT for holding where the approach is limited to Cat A and B aircraft only;
   (2) above FL140 up to and including FL200, 240KT; and
   (3) above FL200, 265KT.

Note: Above the highest MSA in turbulent conditions, speeds may be increased to the lesser of 280KT or M0.8 subject to ATC approval in CTA.

b. **Outbound timing** begins abeam the fix or on attaining the outbound heading, whichever comes later.

c. **Time/Distance outbound.** The outbound leg must be no longer than:
   (1) up to and including FL 140 – 1 minute or the time or distance limit specified on the chart;

(2) above FL 140 – 1.5 minutes or the time or distance limit specified on the chart.

d. **Turns.** All turns in nil wind should be at a bank angle of 25° or Rate One, whichever requires the lesser bank.

e. **Wind allowance.** Allowance should be made in heading and timing to compensate for the effects of wind to ensure the inbound track is regained before passing the holding fix inbound. Full use should be made of indications available from the aid and estimated or known winds.

f. **Exiting.** For ATC traffic management, jet aircraft in CTA must leave an en route holding pattern at 250KT IAS, unless otherwise published or advised by ATC. Pilots may request a variation to this requirement.

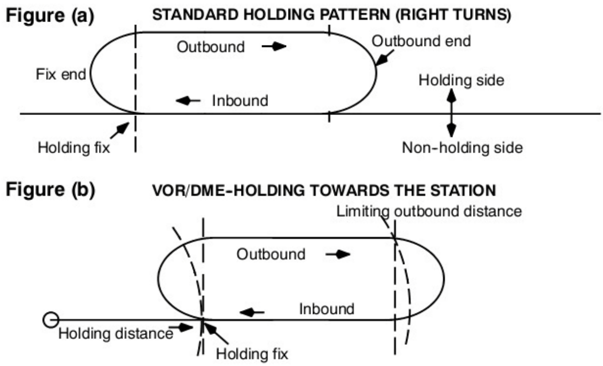


Figure 3.1 - Shape and Terminology Associated With Right Turn Holding Patterns.

3.4 Entry Into the Holding Pattern

3.4.1 The entry into the holding pattern must be according to heading in relation to the three entry sectors shown in *Figure 3.2 a and b,* recognising a zone of flexibility of 5° on either side of the sector boundaries. For holding on a VOR intersection, the entry track is limited to the radials forming the intersection. For holding on a VOR/DME fix the entry track is limited to either the VOR radial, DME arc or alternatively along the entry radial to a VOR/DME fix at the end of the outbound leg, as published.

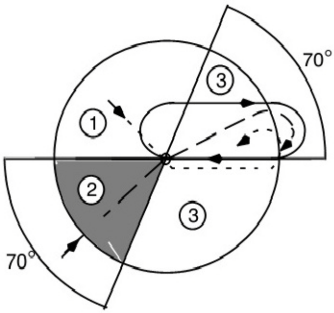


Figure 3.2 a Right Turn Holding Procedure

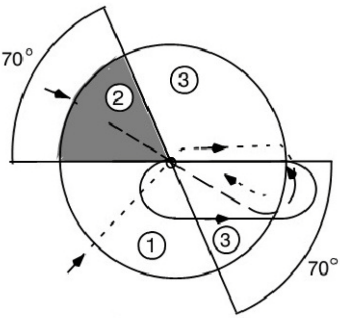


Figure 3.2 b Left Turn Holding Procedure

3.4.2 **Entry from Sector 1 (Parallel entry):**

a. On reaching the holding fix, the aircraft is turned onto an outbound heading (to track parallel with the inbound track) for the appropriate period of time (taken from over or abeam the holding fix whichever is later), or until reaching the limiting DME distance if earlier; then

b. the aircraft is turned onto the holding side to intercept the inbound track or to return to the fix; and then

c. on the second arrival over the holding fix, the aircraft is turned to follow the holding pattern.

3.4.3 **Entry from Sector 2 (Offset entry):**

a. On reaching the holding fix, the aircraft is turned onto a heading to make good a track making an angle of 30° from the reciprocal of the inbound track on the holding side; then

b. flown outbound:

(1) for the appropriate period of time from the holding fix, where timing is specified, up to a maximum of 1 minute 30 seconds; or, if earlier,

(2) until the appropriate limiting DME distance is attained, where distance is specified; then

c. the aircraft is turned in the direction of the holding pattern to intercept the inbound holding track; then

d. on second arrival over the holding fix, the aircraft is turned to follow the holding pattern.

3.4.4 **Entry from Sector 3 (Direct entry).** On reaching the holding fix, the aircraft is turned to follow the holding pattern. Outbound timing begins abeam the fix or, when the abeam position cannot be determined, from completion of the outbound turn.

3.4.5 **DME Arc Entry.** Having reached the fix, the aircraft must enter the holding pattern in accordance with either the Sector 1 or Sector 3 entry procedure.

3.5 **Standard Holding Pattern**

3.5.1 When flying the standard holding pattern, an aircraft must:

a. follow the prescribed track inbound to the holding fix;

b. execute a 180° turn in the direction specified, so as to fly outbound a track parallel to the inbound track;

c. continue outbound to the earlier of the time, or the DME limit specified; and

d. execute a 180° turn to realign the aircraft on the inbound track.

3.6 **DME limit**

3.6.1 The “DME Limit”, where prescribed for holding patterns, is the DME distance at which the outbound leg of the holding pattern must be terminated and the turn to the reciprocal track commenced.

3.7 **Shortening**

3.7.1 The pilot may shorten the holding pattern to leave the holding fix at a specified time. For prolonged holding at a level not limited by obstacles, the length of the pattern may be increased, subject to ATC approval where appropriate.

3.8 **Descent in Holding Pattern**

3.8.1 Subject to ATC approval, where appropriate, aircraft may descend as required.

4. AERODROME METEOROLOGICAL MINIMA

4.1 **Ceiling and Visibility Minima**

4.1.1 The ceiling and visibility minima prescribed in this part are the meteorological conditions under which an aircraft may take-off or land at an aerodrome. The meteorological conditions for a particular aerodrome are below the minima for the aerodrome when, in the airspace encompassing the intended flight path:

a. the total cloud amount below the ceiling minimum specified is continuously greater than SCT; or

b. the visibility is continuously below the visibility specified.

Note: MDA equals ceiling minimum plus the elevation of the aerodrome.

4.2 **Runway Visual Range and Runway Visibility**

4.2.1 In Australia, Runway Visual Range (RVR) observations are based solely on the information provided by instrumented systems such as transmissometers. RVR observations representative of the touchdown, midpoint and rollout/stop end zones are automatically displayed in the local ATC unit. At locations where RVR information is accessible to the Bureau of Meteorology, the RVR is included in METAR and SPECI reports.

4.2.2 At places not equipped with RVR sensors or where one or more RVR sensors are unserviceable, a Runway Visibility (RV) assessment may be provided instead. An RV assessment is a report on the visibility in the touchdown and midpoint zones of a runway, and is assessed by a ground observer counting visible runway lights or visibility markers.

4.2.3 An RV assessment is NOT a substitute for a required RVR observation and CANNOT be used:

a. for SA CAT I, SA CAT II, CAT II and CAT III precision approaches, or

b. for CAT I approaches when the visibility is less than 800M, or

c. for low visibility take-offs where the visibility is less than 350M.

An RV assessment is a subset of a general visibility observation and is intended to provide visibility information specific to a particular runway; which may be more useful to a pilot than the overall ground visibility.

4.2.4 Pilots will be notified by ATIS broadcast or directed transmission if RVR/RV is not available when visibility is less than 800M.

4.2.5 See *GEN 3.4 para 6.9 Meteorological Information* for the relevant RVR/RV phraseologies.

4.3 **IFR Take-off and Landing Minima**

4.3.1 See *Chapter 15* of the *Part 91 MOS* for IFR take-off and landing minima. Specifically:

- section 15.02 for definition of qualifying multi-engine aeroplane
- section 15.03 for take-off minima requirements
- section 15.04 for take-off minima for low-visibility operations
- section 15.05 for take-off minima for qualifying multi-engine aeroplanes
- section 15.06 for take-off minima for other aeroplanes
- section 15.07 for take-off minima for qualifying multi-engine rotorcraft
- section 15.08 for take-off minima for other rotorcraft
- section 15.09 for landing minima requirements
- section 15.10 for landing minima.

4.4 Correction of Instrument Procedure Minima for non-standard temperatures

Pressure altimeters are calibrated to indicate true altitude under ISA standard conditions. Any deviation from ISA will result in an erroneous altimeter reading. In cold conditions the true altitude will be lower than the indicated altitude and will reduce the obstacle clearance margins incorporated into instrument procedures. Published landing minima do not make any allowance for non-standard temperatures at the QNH source (usually the aerodrome of destination).

This effect, and various methods to address it, is discussed in *ICAO Doc 8168 (PANS-OPS), Vol III, Section 2, Chapter 4*. A correction must be added to the published MDA or DA and procedure altitudes when the temperature at the aerodrome of landing is less than ISA -15° C. Altitude corrections can be determined by charts *DAP 2-2* and 2-3 and the worked example at *DAP 1-1, para 1.5* as detailed in the *Departure and Approach Procedures (DAP)* publications.

5. APPLICATION OF AERODROME METEOROLOGICAL MINIMA

5.1 Pilot Responsibilities

5.1.1 Prior to take-off and when an aircraft reaches the DA, MDA or RA Height, the pilot in command is responsible for assessing whether the meteorological conditions are equal to or better than the minimum prescribed for take-off or landing as applicable. A pilot must not take-off or, except in an emergency, land or continue an approach below the prescribed DA, MDA or RA Height for the approach being conducted when any element of the prescribed meteorological criteria is continuously less than the minima for the aircraft performance category (*CASR 91.307*).

5.2 ATC Assessment

5.2.1 Whilst the decision to operate is solely that of the pilot in command, ATC will provide the pilot in command with an assessment of ceiling and/or visibility as follows:

a. **Take-off.** Ceiling and visibility will be assessed in the airspace enclosing the expected path of the aircraft during take-off and initial climb.

b. **Landing.** Ceiling and visibility will be assessed in the airspace enclosing the expected final approach path and runway to be used.

5.3 QNH Sources

5.3.1 In accordance with *subsection 14.03(1)* of the *Part 91 MOS* prior to passing the IAF, pilots are required to set either:

a. the actual aerodrome QNH from an approved source, or

b. the forecast Aerodrome (TAF) QNH, or

c. the forecast area QNH

5.3.2 Where instrument approach charts are identified by a shaded background to either the minima titles for IAL charts or the published minima for DME or GNSS Arrival Procedures, landing, circling and alternate minima have been calculated assuming the use of Aerodrome Forecast (TAF) QNH. These minima may be reduced by 100FT whenever an actual aerodrome QNH is set. Approved sources of actual QNH are ATC and ATIS except when the aerodrome forecast QNH is provided, AWIS and Bureau of Meteorology (BoM) accredited meteorological observers. An actual aerodrome QNH obtained from an approved source is valid for a period of 15 minutes from the time of receipt.

Note: METAR QNH does not meet this requirement.

5.3.3 When the actual aerodrome QNH is not available, ATC will report the Aerodrome Forecast (TAF) QNH on the ATIS. The ATIS will include information in the format “ACTUAL QNH NOT AVAILABLE, AERODROME FORECAST QNH...”

Note: Forecast QNH reported by ATC or on the ATIS is not an approved source of actual QNH.

5.3.4 Where the forecast area QNH is used, the minima used must be increased by 50FT.

6. ALTERNATE WEATHER MINIMA

6.1 IFR Flights

6.1.1 Each approach chart shows the ceiling and visibility minima to be compared with the meteorological forecasts and reports to determine both the need to provide for an alternate aerodrome and the suitability of an aerodrome as an alternate.

Note: Requirements for an aerodrome without an instrument approach procedure are detailed at ENR 1.1 sub-para 10.7.2.10c.

6.2 **Special Alternate Weather Minima**

6.2.1 Special alternate weather minima are available for specified approaches at some aerodromes for use by aircraft with dual ILS/VOR approach capability. Dual ILS/VOR approach capability must include:

a. duplicated LOC, and

b. duplicated GP, and

c. duplicated VOR; and

d. either:

(i) duplicated DME, or

(ii) duplicated GNSS; or

(iii) single DME and single GNSS.

6.2.2 Special alternate weather minima are identified on applicable instrument approach charts by a double asterisk adjacent to the ALTERNATE title and a note detailing the special minima.These special alternate minima will not be available (minima will revert to the standard alternate minima) during periods when:

a. local METAR/SPECI or forecasting services are not available; or

b. an aerodrome control service is not provided.

The non-availability of MET or ATS services will be notified by NOTAM.

6.2.3 Where:

a. there is a protracted unserviceability (i.e. more than seven days) of any one VHF approach aid, or

b. facilities required for the conduct of a VHF-based instrument approach and landing are unserviceable or not available,

Airservices Australia will, if necessary, advise the non-availability of, or any revision to, special alternate minima by NOTAM.

7. PRECISION APPROACH OPERATIONS

7.1 General

7.1.1 Precision approach operations involve the use of either ILS or GLS facilities.

7.1.2 An ILS supports all types of precision approach operations. The ground facilities comprise localiser equipment, glide path equipment and marker beacons, usually supported by an NDB or dedicated DME.

7.1.3 A GLS currently supports precision approach operations with minima as low as CAT I, but with the future potential for supporting CAT II and III operations. A GLS consists of a GBAS ground station located on or in the vicinity of one or more aerodromes and an aircraft subsystem. The GBAS provides data and corrections for the GNSS ranging signals over a digital VHF data broadcast to the aircraft subsystem. The aircraft subsystem translates the position signal into flight guidance similar to that provided for an ILS.

ILS Caution:

1. False courses may exist or course reversals may occur outside the sector 35° (or 20° at certain aerodromes specified in ERSA) either side of an ILS localiser course.

2. Back beam radiation of a ILS LOC can be received and displayed on aircraft navigation instrumentation. Pilots should be alert to this possibility at locations providing ILS/LOC approaches on reciprocal runways.

3. A severe and sudden pitch-up upset can occur in cases when the aircraft:

a. intercepts an ILS glidepath from above; or

b. during an ILS approach, deviates significantly above the normal glidepath angle.

Caution should be exercised in such situations particularly for autopilot coupled approaches. See AIC 14/14.

7.2 Failures

a. **NDB.** In the event of failure of an associated NDB, aircraft must join the ILS outside the outer marker as directed by NOTAM or ATC.

b. **Glide path.** For ILS operations where the glide path fails, only the localiser procedure is available.

c. **Markers.** Where marker beacons are not available, aircraft may use the ILS if the alternate fixes nominated on the IAL chart or by NOTAM are used for altimeter checks.

d. **GBAS.** If GBAS fails, GLS approaches are not available.

7.3 **Altimeter Checks and Flight Tolerances**

7.3.1 The final approach segment contains a fix at which the glide path/altimeter relationship should be verified. If the check indicates an unexplained discrepancy, the ILS/GLS approach should be discontinued. Pilots must conform to the following flight tolerances:

a. To ensure obstacle clearance, both LOC/GLS final approach course and glideslope should be maintained within half scale deflection (or equivalent on expanded scale).

b. If, at any time during the approach after the FAP, the LOC/GLS final approach or glideslope indicates full scale deflection a missed approach should be commenced.

7.4 **Protection of GLS Critical and Sensitive Areas**

7.4.1 There are no GLS critical and sensitive areas.

Note: A CAT I GLS is not required to support autoland operations. Pilots are responsible for obtaining information necessary to make operational decisions to conduct a GLS autoland.

8. STANDARD INSTRUMENT DEPARTURES

8.1 **General**

8.1.1 The pilot must advise ATC if cleared via a SID which requires the use of navigation aids not available to the aircraft.

8.1.2 SID procedures assume that pilots will not compensate for wind effects when being radar vectored, but will compensate for known or estimated wind effects when flying departure routes which are expressed as tracks.

8.1.3 SID procedures may be flown by aircraft already airborne provided that, before commencing a SID, the pilot visually positions the aircraft over the runway centre line so that all tracking and altitude restrictions can be met.

8.1.4 Each SID procedure specifies the minimum design climb gradient that ensures obstacle clearance. Where the initial required climb gradient exceeds 3.3%, the altitude at which a 3.3% climb gradient may be flown is also shown. A gradient shown in brackets specifies the climb gradient required to remain inside controlled airspace.

8.1.5 For aircraft on a radar SID, ATC will assign a departure heading (or track - *see para 8.1.6*) to be flown after the initial take-off phase. The pilot is not to commence the take-off without having obtained the assigned departure heading or track and should advise ATC if the heading or track is unacceptable.

8.1.6 Instead of assigning a departure heading, ATC may instruct an aircraft to track the extended runway centre line for departure - if the first and only track on a radar SID is aligned with the runway bearing.

8.1.7 The climb gradient shown on a radar SID chart provides obstacle clearance up to the MSA/LSALT. If a SID chart has multiple climb gradient sectors, ATC will not issue heading instructions to an airborne aircraft that would require the pilot to adopt a higher climb gradient than the gradient specified for the initial departure heading.

8.1.8 When the aircraft is above the MVA, any subsequent changes of headings are ATC vectors and ATC will issue instructions that ensure prescribed obstacle clearance will exist at all times.

8.1.9 The climb gradient requirements of a radar SID cease when the aircraft reaches the MSA/LSALT as applicable.

8.2 **SID Procedures**

8.2.1 Unless explicitly cancelled or amended by ATC, the pilot must follow the vertical and lateral profile of the SID and comply with any published speed restrictions.

8.2.2 The use of a SID designator without a cleared level does not authorise the pilot to climb on the SID vertical profile.

8.2.3 A level restriction depicted on a SID chart does not authorise a pilot to climb to meet that restriction. ATC will assign climb to permit compliance with vertical navigation restrictions. Pilots must inform ATC if a level restriction cannot be met.

8.2.4 ATC level change instructions to aircraft on a SID will indicate if published level and/or speed restrictions are to be followed or are cancelled.

8.2.5 When conducting a SID, the priority is to meet the vertical navigation restrictions of the SID. When speed restrictions do not enable the aircraft to meet a SID level restriction, the pilot must advise ATC of any speed deviation requirement at ACD stage or as soon as the situation is identified. Pilots must advise ATC when able to resume the SID speed restrictions.

8.2.6 For ATC traffic management: unless varied by ATC, DAP or ERSA, at or before 3,000FT AGL or at the completion of a noise abatement procedure, jet aircraft departing Class C aerodromes must:

a. commence acceleration to 250KT IAS; and

b. maintain 250KT until leaving 10,000FT AMSL

The pilot must advise ATC, preferably at ACD stage, if the aircraft will be unable to comply.

8.2.7 Cancellation of ‘published speed restrictions’ cancels all speeds published on the SID chart. Cancellation of ‘ATC-issued speed control instructions’ cancels any speed control instructions issued by ATC. Airspace speed limitations must be complied with unless specifically cancelled.

8.2.8 When a departing aircraft is cleared to proceed direct to a published waypoint on the SID, the speed and level restrictions associated with the bypassed waypoints are cancelled. The pilot must comply with any published SID speed and level restrictions, at and after the waypoint where the SID is rejoined. An aircraft cleared to bypass one or more waypoints on a SID will not receive a specific instruction to rejoin the SID.

8.2.9 When a departing aircraft is vectored or cleared to proceed away from the SID, all the published speed and level restrictions of the SID are cancelled. ATC will notify the pilot if there is an expectation the aircraft will subsequently rejoin the SID.

Note: Unless specifically cancelled by ATC, any ATC traffic management speed specified in ERSA will apply to aircraft when vectored or cleared away from a SID.

8.2.10 ATC instructions to rejoin a SID will specify any transition restrictions that must be complied with up to, but not including the waypoint where the SID is rejoined. The pilot must comply with any published SID speed and level restrictions, at and after the waypoint where the SID is rejoined.

8.2.11 In a surveillance environment prior to take-off, ATC may cancel a procedural SID and:

a. issue a radar SID; or

b. require the aircraft to depart on runway track using the climb gradient specified in the cancelled SID. In this case, ATC will use the phrase "CANCEL SID, TRACK EXTENDED CENTRE LINE *(three digits)* DEGREES".

Note: For the application of this procedure, the runway and radar SID tracks must be coincident up to the MVA.

8.2.12 In VMC by day, the pilot may request, or ATC may offer a visual departure.

8.2.13 When a departure report is required during a SID, the SID designator must be included in the report.

8.2.14 For a radar SID, the direction of turn and assigned heading must be advised in the airborne report.

9. NOISE ABATEMENT PROCEDURES

9.1 Application

9.1.1 Noise Abatement Procedures (NAP) normally apply to all jet-propelled aircraft and other aircraft having a MTOW exceeding 5,700KG.

Note: A subsonic jet-propelled aircraft will not be permitted to operate in Australia unless it meets the requirement of ICAO ANNEX 16, VOL 1, Chapter 3.

9.1.2 Where noise abatement procedures are prescribed, and ATC traffic management permits, the runway nomination provisions of DAP NAP will be applied. Not withstanding this, noise abatement will not be a determining factor in runway selection under the following circumstances (unless required by Noise Abatement legislation):

a. in conditions of low cloud, thunderstorms and/or poor visibility;

b. for runway conditions that are completely dry:

(1) when the crosswind component, including gusts, exceeds 20KT;

(2) when the tailwind component, including gusts, exceeds 5KT;

c. for runway conditions that are not completely dry:

(1) when the crosswind component, including gusts, exceeds 20KT;

(2) when there is a tailwind component;

d. when wind shear has been reported;

e. when, in the opinion of the pilot in command, safety would be prejudiced by runway conditions or any other operational consideration.

9.1.3 Preferred flight paths for arriving and departing aircraft have been determined for particular locations. For departing aircraft they may be in the form of a SID. Arriving aircraft must not make approaches to land below the visual or electronic glide paths for the runway in use. The requirement to follow the noise abatement flight paths shall be subject to a specific ATC clearance or instruction, and may be varied by ATC for operational reasons, e.g. weather, traffic complexity.

9.1.4 Aircraft operating outside tower hours of operation (at locations which do not have continuous tower services) must comply with relevant noise abatement procedures only where they do not conflict with circuit direction requirements detailed in the *ERSA* entry for that location.

9.1.5 Noise abatement departure procedures will be developed by the operator for each aeroplane type in accordance with the requirements of *ICAO Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS) Vol. I, Part V, Chapter 3*, and are subject to approval by CASA.

9.1.6 Noise abatement departure procedures must be used by jet-propelled aircraft from the locations and runways identified under the NAPs published in *DAP East and West*. The departure procedure to be used on a specific departure should satisfy the noise abatement objectives of the aerodrome operator in alleviating noise either close to the aerodrome or distant from the aerodrome. Examples of such procedures are given in *PANS - OPS Vol. I, Part 1, Section 7, Chapter 3 (NADP 1 and NADP 2*).

Note 1: NADP 1 and NADP 2 are EXAMPLES only. The actual procedures developed by the operator for a specific aircraft type may vary from these examples provided the minimum requirements of the procedures are met.

Note 2: The power settings to be used subsequent to the failure or shutdown of an engine or any other apparent loss of performance, at any stage in the take-off or noise abatement climb, are at the discretion of the pilot in command, and noise abatement considerations no longer apply.

9.1.7 As an alternative to the procedures detailed in *para 9.1.6*, operators of aircraft which have engines with a by-pass ratio greater than 3.5 may use the procedure detailed below:

a. climb at V_2 +10KT to V_2 +20KT – or body angle limit speed; and

b. maintain take-off power to a height above the aerodrome of 1,000FT:

c. then maintaining a positive rate of climb, accelerate to zero flap minimum safe manoeuvring speed (V_{ZF}) retracting flap on schedule;

d. then reduce to normal climb power/thrust; and

Note: For aeroplanes with slow flap retraction, reduce power/thrust at an intermediate flap setting.

e. continue climb at not greater than V_{ZF} +10KT to a height above the aerodrome of 3,000FT:

f. accelerate smoothly to en route climb speed; and

g. maintain runway heading unless required to do otherwise in accordance with a SID or specific ATC instruction.

9.2 Curfews

9.2.1 There are curfews on some operations at Adelaide, Gold Coast, Essendon and Sydney airports. For details, see *DAP East/West NAP* for those airports.

10. STANDARD INSTRUMENT ARRIVALS (STAR)

10.1 General

10.1.1 The pilot must advise ATC if cleared via a STAR which requires the use of navigation aids not available to the aircraft.

10.1.2 When a STAR includes more than one instrument termination procedure, pilots must plan to fly the procedure listed first on the chart, for that runway. If the listed termination procedure is not available, e.g. the ILS is not available, pilots must plan for the next listed procedure.

10.1.3 An operational requirement or pilot request for an alternative instrument termination procedure should be made prior to the STAR being issued.

10.1.4 Unless the pilot requests an alternative approach, flights that have included PBN/T1 in Field 18 of the flight notification form will normally be issued a STAR with an RNP AR termination (where published) or an expectation of an RNP AR approach.

Note: At some locations traffic complexity may prevent allocation.

10.1.5 When a clearance for the termination procedure is authorised e.g. visual approach, the published STAR speed restrictions still apply unless specifically cancelled.

10.2 **STAR Procedures**

10.2.1 Unless explicitly cancelled or amended by ATC, the pilot must follow the vertical and lateral profile of the STAR and comply with any published speed restrictions.

10.2.2 The use of a STAR designator without a cleared level does not authorise the pilot to descend on the STAR vertical profile.

10.2.3 A level restriction depicted on a STAR chart does not authorise a pilot to descend to meet that restriction. ATC will assign descent to permit compliance with vertical navigation restrictions. Pilots must inform ATC if a level restriction cannot be met.

10.2.4 ATC level change instructions to aircraft on a STAR will indicate if published level and/or speed restrictions are to be followed or are cancelled.

10.2.5 Cancellation of ‘published speed restrictions’ cancels all speeds published on the STAR chart. Cancellation of ‘ATC-issued speed control instruction’ cancels any speed control instructions issued by ATC. Airspace speed limitation must be complied with unless specifically cancelled.

10.2.6 When an arriving aircraft is cleared to proceed direct to a published waypoint on the STAR, the speed and level restrictions associated with the bypassed waypoints are cancelled. The pilot must comply with any published STAR speed and level restrictions at and after the waypoint where the STAR is rejoined. An aircraft cleared to bypass one or more waypoints on a STAR will not receive a specific instruction to rejoin the STAR.

10.2.7 When an arriving aircraft is vectored or cleared to proceed away from the STAR, all the published speed and level restriction of the STAR are cancelled. ATC will notify the pilot if there is an expectation the aircraft will subsequently rejoin the STAR.

Note: Unless specifically cancelled by ATC, any ATC traffic management speed specified in ERSA will apply to aircraft when vectored or cleared away from a STAR.

10.2.8 ATC instructions to rejoin a STAR will specify any transition restrictions that must be complied with up to, but not including the waypoint where the STAR is rejoined. The pilot must comply with any published STAR speed and level restrictions, at and after the waypoint where the STAR is rejoined.

10.2.9 Following holding, pilots can expect to continue the previously issued STAR. ATC will indicate if published level and/or speed restrictions are to be followed or are cancelled.

10.2.10 Where a STAR incorporates circuit legs to a runway, pilots of aircraft not equipped with a flight management system may accept the STAR clearance and request vectors when contacting Approach Control.

11. DME OR GNSS ARRIVAL PROCEDURES

11.1 General

11.1.1 The DME or GNSS Arrival Procedure is an instrument approach procedure that provides descent guidance along a specified track or sector, to the visual circling area of an aerodrome. Azimuth guidance is required from the specified radio navigation aid. The requirements of *subsections 1.6, 1.9 and 1.13* apply.

11.1.2 Descent is not permitted until the aircraft is established within the appropriate sector or on the specified inbound track.

11.1.3 If manoeuvring within a sector is required, the pilot must ensure that the aircraft is contained within the sector, at or above the appropriate segment minimum safe altitude. Manoeuvring within a sector after passing the final approach fix is prohibited.

11.2 Operations in Controlled Airspace

11.2.1 The clearance “CLEARED DME (or GNSS) ARRIVAL” constitutes a clearance for final approach and authorises an aircraft to descend to the minimum altitude specified in the appropriate DME or GNSS Arrival Procedure. ATC is not permitted to impose any altitude restriction on such a clearance.

11.2.2 When cleared for a DME or GNSS Arrival in controlled airspace an aircraft must not orbit, enter a holding pattern, or use holding pattern entry procedures. ATC will not issue a clearance for a DME or GNSS Arrival that involves the use of a holding pattern entry procedure.

11.2.3 When ATC cannot issue a clearance for an unrestricted DME or GNSS Arrival, the phrase “DESCEND TO (level) NOT BELOW DME (or GNSS) STEPS” may be used. Such an instruction authorises descent in accordance with the DME or GNSS steps only to the specified altitude.

11.2.4 ATC may clear an aircraft to intercept the final approach segment of another instrument approach procedure. When clearing an aircraft for such a procedure, ATC will use the phrase “DESCEND TO (level) NOT BELOW DME (or GNSS) STEPS” and will issue further instructions prior to the aircraft’s reaching the cleared level.

11.2.5 Nothing in these procedures absolves the pilot in command from their responsibilities to maintain the aircraft on the authorised track or within the defined sector.

Note 1: Where the track being flown is not aligned with the landing runway, a clearance for a DME or GNSS Arrival includes a clearance to manoeuvre within the circling area to position the aircraft on final for landing.

Note 2: Where possible, DME and GNSS Arrival Procedures are designed to contain the aircraft within controlled airspace and provide 500FT separation from the CTA lower limit. However, there are locations where the procedure commences in Class G airspace, or which can take aircraft into Class G airspace on descent. Pilots should check procedures to ensure that aircraft are contained in CTA where required.

12. SIGNALS FOR THE CONTROL OF AERODROME TRAFFIC

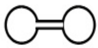
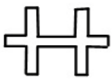
12.1 Light Signals to Aircraft

Light Signal	Meaning in Flight	Meaning on Aerodrome
Steady Green	Authorised to land if pilot satisfied no collision risk exists.	Authorised to take-off if pilot satisfied no collision risk exists.
Steady Red	Give way to other aircraft and continue circling.	Stop.
Green Flashes	Return for landing.	Authorised to taxi if pilot satisfied that no collision risk exists.
Red Flashes	Aerodrome unsafe - do **not** land.	Taxi clear of landing area in use.
White Flashes	No Significance	Return to starting point on Aerodrome.

12.2 **Light Signals to Vehicles and Pedestrians**

<table>
<tr><th>Light Signal</th><th>Meaning</th></tr>
<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 colspan="2">Note: In emergency conditions or if the above signals are not observed, the following meaning will be indicated by the use of the runway or taxiway lighting:</td></tr>
<tr><td>Flashing runway or taxiway lighting</td><td>Vacate the runway or taxiway and observe the tower for light signal.</td></tr>
</table>

12.3 Ground Signals to Aircraft

GROUND SIGNAL	DESCRIPTION	WHERE DISPLAYED	MEANING
	Horizontal white dumb-bell	Adjacent to wind direction indicator.	Use only hard surface movement areas. Where there are sealed and gravel manoeuvring areas, use only the sealed surfaces. Where there are constructed gravel and natural surface manoeuvring areas, use only the gravel surfaces. (see *ERSA FAC* for any local information relating to the dumb-bell signal).
	White Cross	(i) Adjacent to wind direction indicator. (ii) On manoeuvring area.	(i) Aerodrome completely unserviceable. (ii) An area marked by a cross or crosses with the limit delineated by markers is unfit for use by aircraft.
	White Double Cross.	Adjacent to wind direction indicator	Gliding operations in progress.

ENR 1.6 ATS SURVEILLANCE SERVICES AND PROCEDURES

1. RADIO COMMUNICATIONS PROCEDURES

1.1 Pilots requesting an ATS surveillance service should address their request to the ATS unit with which they are communicating.

1.2 Where an Area Approach Control Centre (AACC) is not established, the pilot will be advised the time or place to transfer to a control frequency.

1.3 Where an AACC is established, procedural and ATS surveillance services may be provided on a common frequency. The call sign identifies the service being provided – e.g. ...CENTRE... APPROACH...DEPARTURES.

2. IDENTIFICATION PROCEDURES

2.1 Before providing an ATS surveillance service there will be positive identification of the aircraft concerned. However, control services will not be provided until the aircraft is within controlled airspace.

3. VECTORING PROCEDURES

3.1 On receipt of heading instructions the pilot must, unless otherwise instructed, immediately commence a rate 1 turn, or the standard rate of turn for the aircraft type, and then maintain the heading given.

3.2 Aircraft will normally be vectored on routes along which the pilot can monitor navigation.

3.3 ATC are not permitted to vector Special VFR flights, unless warranted by emergency conditions.

3.4 When an aircraft is given a vector which will take it off an established route, the pilot will be advised of the reason for the vector, unless it is self-evident.

3.5 When an aircraft reports unreliable directional instruments, the pilot will be requested, prior to the issuance of manoeuvring instructions, to make all turns at an agreed rate and to carry out the instructions immediately on receipt.

3.6 When aircraft are being vectored, the controller will assign altitudes which allow for terrain clearance. However, in VMC by day, an aircraft may be permitted to arrange its own terrain clearance. In such instances, the aircraft will be instructed to [TURN LEFT (*or* RIGHT) HEADING (*heading*)] [CLIMB (or DESCEND) TO (level)] VISUAL.

3.7 Pilots being vectored will be routinely advised of their position to enable pilot navigation in the event of communication or ATS surveillance system failure.

3.8 The interval between ATC transmissions will be kept short to enable the pilot to quickly recognise a communication failure. When aircraft are on headings that could infringe terrain clearance or separation standards, the interval between transmissions will not exceed 30 seconds.

3.9 Before take-off, ATC may assign a heading for a departing aircraft to assume after take-off, followed by frequency change instructions if appropriate. Headings, other than those assigned for a radar SID, will only be issued for a visual departure by day in VMC.

3.10 Arriving aircraft may be vectored to:

a. establish for a radar or pilot-interpreted approach;

b. a position from which a visual approach can be made;

c. avoid areas of hazardous weather or severe turbulence;

d. expedite traffic flow or conform to noise abatement requirements.

3.11 For a pilot-interpreted approach, aircraft will be vectored to be established on final track at least two (2) miles prior to commencement of final approach. The final intercept heading will normally intercept the final approach track at an angle of 45 ° or less. When an aircraft is vectored for a shortened instrument approach, the final approach point is the interception of the prescribed descent profile.

3.12 Should the aircraft have to be vectored through the final approach track, the controller will advise the pilot.

3.13 When the aircraft is provided with the vector to intercept final for a pilot-interpreted approach, the pilot will be:

a. advised of range from the aerodrome, or position reference the final approach point;

b. informed that the vector is to intercept the approach aid;

c. provided with a clearance for the approach, when such a clearance has been authorised; and

d. instructed to report when established on the final approach track.

Note: When ILS/GLS is used for final approach, pilots should report when established on the localiser or final approach course and not delay this report until the glide path is intercepted.

3.14 When the pilot reports established on final, they shall be instructed when to transfer to the tower frequency.

3.15 Unless otherwise instructed, the pilot in command should change automatically to tower frequency, provided that:

a. the aircraft is established on the final approach track and has been cleared for final approach; and

b. air-ground communications congestion or failure has not allowed the pilot to report ESTABLISHED, or obtain a clearance to transfer to tower; and

c. transfer to tower shall not be prior to 4NM from touchdown.

3.16 A vectoring service will not normally be terminated until the aircraft is established within the navigation tolerance of its cleared route, except on transfer to tower. However, subject to identification, a vectoring service will be continued, if requested.

3.17 When a vectoring service is terminated, the pilot will be:

a. provided with position information including, if applicable, displacement from the nominated track; and

b. provided with a heading or track clearance to intercept the nominated track for the pilot-interpreted navigation aid; or

c. provided with a track clearance direct to a waypoint to intercept the nominated track (for an RNAV or RNP approved aircraft).

3.18 Position information will be passed to aircraft in one of the following forms:

a. a bearing and distance (using points of the compass) from the ARP, a navigation aid, or a known position;

b. a heading and distance to the appropriate reporting point, en route navigation aid, or approach aid;

c. over a well known geographical position; or

d. a distance to the runway touchdown (as track miles to run).

3.19 An aircraft under ATS surveillance service control will be advised of its position in the following circumstances:

a. on identification, unless the identification is established:

(1) based on the pilot's report of the aircraft position, or within 1NM of the runway on departure, if the observed position on the situation display is consistent with the aircraft's time of departure; or

(2) by use of ADS-B aircraft identification, SSR Mode S aircraft identification or assigned discrete SSR codes if the location of the observed position indication is consistent with the current flight plan of the aircraft; or

(3) by transfer of identification;

b. when pilot requests position information;

c. when the pilot's position or estimate differs significantly from the controller's estimate based on the observed position;

d. when the pilot is instructed to resume own navigation after vectoring, if the current instructions had diverted the aircraft from a previously assigned route;

e. immediately before termination of ATS surveillance service, if the aircraft is observed to deviate from its intended route;

f. as soon, after first contact with approach radar control, as a distance to run to touchdown becomes evident;

g. when a regular circuit pattern is used to vector on to the final approach path (at least once on each leg);

h. when a straight-in approach is provided.

4. ATC RESPONSIBILITIES IN RESPECT OF UNIDENTIFIED AIRCRAFT

4.1 ATC has no responsibility to initiate avoiding action for aircraft in controlled airspace in respect of unidentified aircraft which can reasonably be assumed to be outside controlled airspace.

4.2 If an aircraft is likely to be a hazard to controlled aircraft receiving an ATS surveillance service, the controller will take appropriate action to preserve the safety of the controlled aircraft.

4.3 Where there is an ATS surveillance service in non-controlled airspace, identified IFR aircraft and VFR aircraft receiving a SIS will be provided with traffic information about known conflicting air craft, unless it is impracticable. If requested by the pilot and if possible, a course of avoiding action will be suggested.

4.4 Traffic information in respect of an unidentified aircraft will normally take the following form:

a. relative position of the unidentified aircraft to aircraft track in terms of the 12 hour clock except that, if the identified aircraft is turning, relative position will be specified by reference to compass points;

b. distance from the unidentified aircraft in miles;

c. direction in which the unidentified aircraft appears to be proceeding.

5. SPEED CONTROL (ARRIVING AIRCRAFT)

5.1 To facilitate the provision of ATS surveillance services in controlled airspace, a pilot of a controlled flight may expect the application of speed control. ATC-issued speed control instructions refer to indicated airspeed or Mach number.

5.2 The pilot must request an alternative when an ATC-issued speed control instruction is unacceptable on operational grounds.

5.3 When the application of speed control can be foreseen, a pilot will be advised of future intentions.

5.4 An ATC-issued speed control instruction, whilst in force, explicitly cancels published speed restrictions.

Note: Airspace speed limitations still apply.

5.5 A pilot will be advised when a specific ATC-issued speed control instruction is no longer necessary. Unless otherwise stated, an ATC-issued speed control instruction applies until the aircraft reaches the point in the descent profile where the speed would normally be reduced below that assigned by ATC. Except for a STAR, a DME arrival, or unless otherwise specified, a clearance for final approach or a clearance for a visual approach terminates speed control.

6. EMERGENCY PROCEDURES

6.1 General

All possible assistance will be given to aircraft in distress.

6.2 **Radio Failure Procedure**

6.2.1 When an aircraft is being vectored the interval between radio transmission is short. Pilots should make a radio check if no transmission is heard after a reasonable interval.

6.2.2 In the event of failure of two-way communications while receiving an ATS surveillance service, the pilot must change to the alternative frequency and request instructions.

6.2.3 If unable to make contact on the alternative frequency, the pilot must comply with standard radio failure procedures.

6.2.4 If able to receive but not transmit, the pilot must remain on the assigned frequency and comply with instructions issued which are designed to establish that the aircraft is receiving. If this is established, further instructions will be issued.

6.3 **ATS Surveillance System - Failure Procedure**

In the event of ATS surveillance system failure, or loss of identification, appropriate instructions will be issued.

6.4 **SSR Emergency Codes**

6.4.1 The pilot of an aircraft encountering an emergency in flight, other than loss of two-way communications, should select code 7700 unless they have specific reason to believe that maintaining the assigned code would be the better course of action.

6.4.2 The pilot of an aircraft subject to unlawful interference should select code 7500. On receipt of this code the controller will:

a. request confirmation of the setting of the assigned code as follows: "CONFIRM SQUAWKING ASSIGNED CODE". (The absence of a reply in these circumstances shall be regarded as positive evidence of the emergency);

b. provide the aircraft with priority in all respects;

c. transmit all useful information pertinent to the conduct of the flight without expecting a reply from the aircraft;

d. avoid references to the nature of the emergency except if it is first referred to by the pilot;

e. monitor and plot the progress of the flight;

f. coordinate transfer of control, as appropriate, without requiring responses from the aircraft, unless communication remains normal; and

g. relay messages as required between the aircraft and appropriate authorities.

6.4.3 The pilot of an aircraft losing two-way communication must set the transponder to code 7600.

6.4.4 A controller observing a 7600 code shall request the pilot to operate the identification (SPI) function. If the identification signal is received, further control of the aircraft will be continued using the identification transmission to acknowledge receipt of instructions issued.

6.4.5 If the identification signal is not received, the aircraft must continue with the transponder on code 7600 and follow radio failure procedures.

6.4.6 When an RPAS experiences a lost link between the RP and the RPA, the SSR code to be selected or automatically enabled is 7400.

6.5 **ADS-B Emergency Codes**

6.5.1 Due to the ADS-B emergency processing limitations, if a generic ADS-B emergency indication is received from an aircraft outside of radar coverage and the flight crew does not verbally communicate the nature of the emergency, the controller will use the procedures detailed in *para 6.4.2 a*.

7. **AIRCRAFT TRANSPONDER**

7.1 **Operation of SSR Transponders**

7.1.1 Except as indicated below, ATS will assign a temporary discrete code for each flight sector for aircraft operating in controlled airspace, and for aircraft participating in Surveillance Information Service (SIS).

7.1.2 Unless advised otherwise by ATC, pilots of Mode 3A or Mode S transponder equipped aircraft operating in Australian airspace must activate their transponders, and where a Mode C capability is also available it must be activated simultaneously with Mode 3A.

Note: Pilots must ensure that transponders and ADS-B transmitters are activated and the altitude function is selected as:

a. primary radar coverage only exists within 50NM of major airports and the remainder of the ATS surveillance system relies on SSR transponder and ADS-B transmitter information, and *b. TCAS relies on transponder information for its pilot alerting and collision avoidance functions.*

7.1.3 Consistent with ICAO Regional (Asia & Pacific – APAC) SSR code management code continuity objectives, Australia's ATM system has been configured to maximise retention of the discrete code assigned on departure to international flights inbound to, or overflying, Australia. This retention normally relies on code assignment notified via the DEP message, and is principally enabled for departures from other APAC Region States. When a departure or other code assigned to a flight cannot be retained in Australian airspace, pilots will be assigned a new SSR code. ATC procedures may also require that pilots be asked to squawk the code being retained.

7.1.4 When operating in Australian airspace, or on reaching the Australian FIR boundary if inbound to Australia, pilots of Mode 3A transponder equipped aircraft must squawk the assigned temporary discrete code for that flight sector, or if not assigned a temporary discrete code, the appropriate non-discrete code from the following listing, unless advised otherwise by ATS:

a. Civil flights in classes A, C and D airspace, or IFR flights in Class E airspace	3000
b. Civil IFR flights in Class G airspace	2000
c. Civil VFR flights in classes E or G airspace	1200
d. Military flights in classes A, C, D or E airspace	5000
e. Military flights in Class G airspace	6000
f. Civil flights in Class G over water at a distance greater than 15NM from shore.	4000
g. Civil flights engaged in littoral surveillance	7615
h. Ground testing by aircraft maintenance staff	2100
i. Flights operating at aerodromes (in lieu of a., b., or c. when assigned by ATC)	0100
j. RPAS in all classes of airspace and when instructed to enable transponder.	7000

7.1.5 Pilots of flights that will require a SIS and/or a clearance into controlled airspace, and for which a discrete code has already been coordinated, must select that code immediately prior to making their SIS/clearance request.

7.1.6 A pilot must not operate the identification function (SPI) unless requested by ATC.

7.1.7 Flights assigned a temporary discrete SSR code by ATS must squawk that code until termination of the flight sector, unless advised otherwise by ATS. If not assigned a discrete code, the appropriate generic code must be used.

7.1.8 A pilot operating a Mode 3A/C transponder at a radar controlled aerodrome must:

a. on departure, leave the transponder selected to STANDBY until entering the departure runway; and

b. on arrival, select the transponder to STANDBY or OFF as soon as practicable after landing.

7.1.9 A pilot operating a Mode S transponder must:

a. Enter the aircraft's identification that corresponds exactly to the Aircraft Identification shown in Item 7 of the flight notification filed with ATC for the flight; for those aircraft that are capable of reporting Aircraft Identification. The ICAO defined format for entry of the Aircraft Identification shall be used except for domestic operations when VH is not to be entered on the flight notification. (e.g. VOZ123D, REX638, QFA842, VHQFO (international), FDA...)

b. On receipt of ATC clearance, or requesting the earlier of Push Back or Taxi, select TA/RA/XPDR/ON AUTO as applicable.

Note 1: If AUTO mode is not available Select ON (e.g. XPDR) and assigned Mode A code.

Note 2: Australia does not require TA/RA to be de-selected while aircraft is on ground.

c. When parked and shutting down engines, select STANDBY.

d. For Mode S equipped aircraft taxiing without flight plan, the appropriate Mode A code according to *para 7.1.4* should be selected and the aircraft identification entered exactly as the call sign used in flight.

7.1.10 Pilots must select the transponder to STANDBY before effecting an SSR code change and returning the transponder to ON/ALT.

Note: This action is required to prevent possible loss of displayed aircraft position/label information and possible misidentification of aircraft in automated Australian ATC systems due to temporary selection (while effecting the change) of a code already in use.

7.1.11 When acknowledging code setting instructions or changes to settings, the pilot must read back the code to be set.

7.1.12 To facilitate harmonisation with the air traffic management systems used in the FIRs of adjacent ICAO states (other than the Mauritius FIR), ATC will allocate civil international flights a discrete code from Australia's ICAO international reservation for use from the time of their departure.

7.1.13 Unless instructed otherwise by ATS, pilots of military international flights are required to set code 5000 before departure from an Australian airport.

ENR 1.7 ALTIMETER SETTING PROCEDURES

1. PRE-FLIGHT ALTIMETER CHECK

1.1 General

1.1.1 Whenever an accurate QNH is available and the aircraft is at a known elevation, pilots must conduct an accuracy check of the aircraft altimeter(s) at some point prior to take-off.

Note: Where the first check indicates that an altimeter is unserviceable, the pilot is permitted to conduct a further check at another location on the same airfield; for example, the first on the tarmac and the second at the runway threshold (to determine altimeter serviceability).

1.2 IFR Altimeters

1.2.1 With an accurate QNH set, the altimeter(s) should read the nominated elevation to within 60FT. If an altimeter has an error in excess of ± 75FT, the altimeter must be considered unserviceable.

1.2.2 When two altimeters are required for the category of operation, one of the altimeters must read the nominated elevation to within 60FT. When the remaining altimeter has an error between 60FT and 75FT, flight under the IFR to the first point of landing, where the accuracy of the altimeter can be re-checked, is approved. In the event that the altimeter shows an error in excess of 60FT on the second check, the altimeter must be considered unserviceable for flight under the IFR.

1.2.3 An aircraft fitted with two altimeters but requiring only one for the category of operation may continue to operate under the IFR provided one altimeter reads the nominated elevation to within 60FT. Should the remaining altimeter have an error in excess of 75FT that altimeter must be placarded unserviceable and the maintenance release appropriately endorsed.

1.2.4 When an aircraft is fitted with only one altimeter and that altimeter has an error between 60FT and 75FT, flight under the IFR to the first point of landing, where the accuracy of the altimeter can be re-checked, is approved. In the event that the altimeter shows an error in excess of 60FT on the second check the altimeter is to be considered unserviceable for flight under the IFR.

1.3 **VFR Altimeters**

1.3.1 With an accurate QNH set, a VFR altimeter(s) should read site elevation to within 100FT (110FT at test sites above 3,300FT) to be accepted as serviceable by the pilot. If an aircraft fitted with two VFR altimeters continues to fly with one altimeter reading 100FT (110FT) or more in error, the faulty altimeter must be placarded unserviceable and the error noted in the maintenance release.

1.3.2 VFR altimeters are not permitted for aeroplane operations above FL200. VFR flights operating above FL200 must be equipped with an altimeter calibrated to IFR standards.

1.4 **Accurate QNH and Site Elevation**

1.4.1 A QNH can be considered accurate only if it is provided by one of the following:

a. AAIS;

b. ATC;

c. ATIS;

d. AWIS;

e. CA/GRS; or

f. WATIR.

Note: QNH contained in an authorised weather forecast must not be used for checking the accuracy of a pressure altitude system.

1.4.2 Site elevation must be derived from aerodrome survey data that is authorised in writing by either CASA or an NAA, or supplied in writing by the relevant aerodrome operator.

2. BASIC ALTIMETER SETTING PROCEDURES

2.1 **Transition Altitude, Transition Layer and Transition Level**

2.1.1 The transition altitude in all Australian FIR is 10,000FT.

2.1.2 The system of altimetry in Australia provides a transition layer of at least 1,000FT between the transition altitude and the transition level. This means the transition level varies from FL110 to FL130 depending on QNH (see *Figure 1*).

2.1.3 Cruising within the transition layer is not permitted.

2.1.4 For an operation at or below the transition altitude, the altimeter setting must be:

a. the current local QNH (either an accurate QNH or forecast QNH) of a station along the route within 100NM of the aircraft; or

b. the current forecast Area QNH.

Note: QNH is available from a reporting station (AAIS, ATIS, AWIS, CA/GRS, VOLMET or WATIR), a TAF, the Area QNH forecast, or from ATS (ATC or FIS).

2.1.5 For an operation above the transition altitude, the altimeter setting must be 1013.2 hPa.

2.1.6 On climb, the altimeter setting must be changed from QNH to 1013.2 hPa after passing 10,000FT and before levelling off.

2.1.7 On descent, and just before passing the transition layer, the altimeter setting must be changed from 1013.2 hPa to the relevant altimeter setting stated in *para 2.1.4*.

2.2 **Area QNH**

2.2.1 Area QNH is a forecast value which is valid for a period of 3 hours and normally applies throughout an Area QNH Zone (AQZ).

2.2.2 Area QNH Zones will be subdivided, if necessary, to meet the following standards of accuracy:

a. Area QNH forecasts are to be within ± 5 hPa of the actual QNH at any low-level point (below 1,000FT AMSL) within or on, the boundary of the appropriate area during the period of validity of the forecasts.

b. Area QNH must not differ from an adjoining Area QNH by more than 5 hPa.

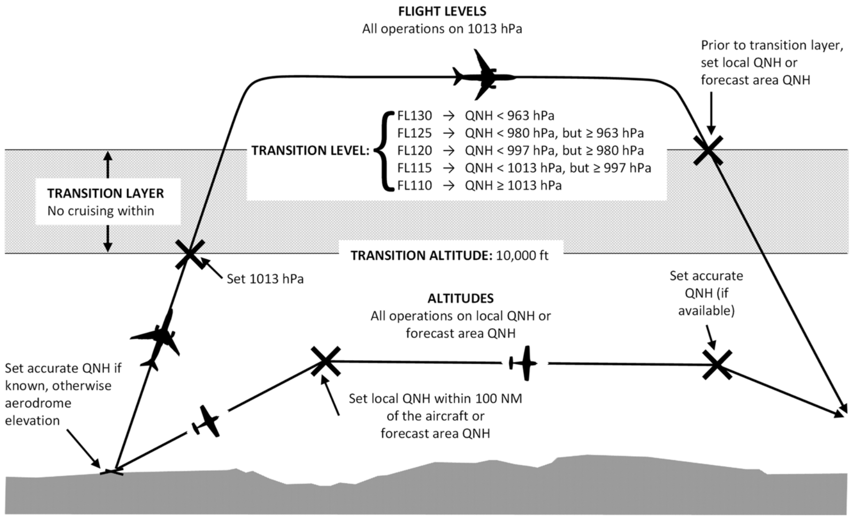


Figure 1 - Altimeter Settings

3. CRUISING LEVELS

3.1 Selection of Levels

3.1.1 Flights must be planned in accordance with levels selected from the tables at *Section 5.* Any part of a flight that will take place south of 80°S must be planned in accordance with levels selected from the tables at *Section 6.*

3.1.2 Within controlled airspace, ATC may assign and pilots may request a level that does not accord with the tables in *Section 5.*

3.1.2.1 Pilots must only request a level not conforming to the table of cruising levels when it is determined by the pilot in command to be essential to the safety of the flight and its occupants. In such circumstances, the phrase “DUE OPERATIONAL REQUIREMENT” must be included with the level change request.

3.1.3 ATC will only assign cruising levels not conforming to these tables when traffic or other operational circumstances require.

3.1.4 Subject to ATC instructions, a VFR flight must be flown at a cruising level appropriate to its magnetic track according to *Section 5. Table B* or *Section 6. Table B*:

a. whenever the flight is conducted at a height of 3,000FT AMSL or more; or

b. if the flight is conducted at a height of less than 3,000FT AMSL whenever practicable *(CASR 91.275)*.

3.2 An IFR flight must be flown:

a. within controlled airspace at a cruising level authorised for the flight by ATC; or

b. outside controlled airspace at a cruising level appropriate to its magnetic track according to *Section 5, Table A* or *Section 6, Table A (CASR 91.290)*.

3.2.1 When an IFR flight operating outside controlled airspace is unable to comply with the Table of Cruising Levels, the pilot must:

a. notify the appropriate ATS unit of the intended change in operating level, and any subsequent changes; and

b. in the event of conflict with another aircraft complying with the Table of Cruising Levels, give way to that aircraft or assume a cruising level in accordance with the Table of Cruising Levels until the aircraft with which it is in conflict is past and clear *(CASR 91.295* and *91.300).*

Note: At pilot request, ATC may assign to aircraft a level for cruise within a control area which does not provide the prescribed separation from the lower or upper limit of the control area.

3.3 **Block Levels**

3.3.1 On request from the pilot, a flight may be cleared to operate within controlled airspace within a Block Level provided that other aircraft are not denied the use of that airspace contained within that block.

3.3.2 Civil IFR flights will not be allocated block levels in Class E airspace.

3.3.3 The pilot shall have complete freedom to change levels within the block, provided that the upper and lower limits are not exceeded. However, a clearance to operate within a Block Level shall be cancelled or amended if another aircraft requests the use of a level within the block.

3.3.4 When cancelling or amending a Block Level clearance, the aircraft operating in a Block Level shall be instructed to climb or descend to an appropriate level or block level in order to provide vertical separation from the other aircraft requesting one of the levels.

3.3.5 Aircraft at standard flight levels will be afforded priority over aircraft using non-standard flight levels.

3.3.6 Mach number technique separation will not be applied to aircraft using block level clearances.

3.3.7 Aircraft operating within a block level must report the upper and lower block levels in all positions and frequency change reports.

Note: As most altitude alerting systems do not provide protection for both upper and lower assigned levels, flight crews are reminded to be vigilant in monitoring the aircraft altitude when operating within a Block Level.

4. CHANGE OF LEVELS

4.1 ATC Approval Required

4.1.1 The pilot in command must commence a change of level as soon as possible, but not later than one (1) minute after receiving that instruction from ATC, unless that instruction specifies a later time or place.

4.1.2 ATC may require that an assigned level must be reached by a specific time, distance or place. If a pilot in command doubts that the restriction can be met, ATC must be advised immediately.

4.1.3 ATS advised expectation of a level restriction does not authorise a pilot to climb or descend to meet that restriction.

4.1.4 An expectation of a level restriction is not required to be read back.

4.1.5 A requirement to report at a time or place given in the same clearance as a descent/climb instruction does not require the new level to be reached by the specified time or place.

4.1.6 The pilot in command of an aircraft, receiving an instruction from ATC to change level, must report:

a. when the aircraft has left a level at which level flight has been conducted in the course of climb, cruise or descent; and

b. when the aircraft leaves a level for which ATC has requested a report.

4.1.7 During a change of level, the pilot in command must advise ATC if they maintain an unassigned interim level.

4.1.8 ATC may provide vertical separation between two climbing aircraft, not otherwise separated, by means of a step-climb. Pilots in command, who are subjected to a step-climb, must adopt the following procedure:

a. The pilot in command of the lower aircraft must report approaching each assigned level in the sequence.

b. The pilot in command of the higher aircraft, on hearing the lower aircraft report approaching each assigned level, must report the last vacated level.

4.1.9 Step-descents reverse the above *para 4.1.8* procedure.

4.1.10 ATC may specify a rate of climb or descent. Other considerations are as follows:

a. The phrase “STANDARD RATE”, when included in a clearance, specifies a rate of climb or descent of not less than 500FT per minute, except that the last 1,000FT to an assigned level must be made at 500FT per minute.

b. In the case of a step-climb or descent, the specified rate will be applicable to all level clearances issued in the course of the step climb or descent. If unable to comply with the prescribed rate, the pilot in command must advise ATC.

4.1.11 Cruise Climb is not used in Australian administered airspace. Where possible, block level clearances will be issued upon request.

4.2 **ATC Approval Not Required**

4.2.1 In airspace where ATC approval is not required to change level, the pilot of an IFR flight must report present position and intention to ATC approximately one (1) minute prior to making any change.

5. TABLES OF CRUISING LEVELS (NORTH OF 80° S)

TABLE A - IFR				
Magnetic Tracks	**From 000° through East to 179°**		**From 180° through West to 359°**	
Cruising Altitudes (Area QNH)	3,000	7,000	2,000	8,000
	5,000	9,000	4,000	10,000
			6,000	
Cruising Flight Levels (1013HPA)	110*	290	120*	300
	130	310	140	320
	150	330	160	340
	170	350	180	360
	190	370	200	380
	210	390	220	400
	230	410	240	430
	250	450	260	470
	270	490	280	510

Note FL110 is not available for level flight when the Area QNH is less than 1013HPA.*

FL120 is not available for level flight when the Area QNH is less than 980HPA.

TABLE B - VFR				
Magnetic Tracks	**From 000° through East to 179°**		**From 180° through West to 359°**	
Cruising Altitudes (Area QNH)	1,500	7,500	2,500	8,500
	3,500	9,500	4,500	
	5,500		6,500	
Cruising Flight Levels (1013HPA)	115*	195	125*	205
	135	215	145	225
	155	235	165	245
	175		185	

Note FL115 is not available for level flight when the Area QNH is less than 997 HPA.*

FL125 is not available for level flight when the Area QNH is less than 963 HPA.

Note 1: Pilots should be aware that VFR aircraft outside controlled airspace might be operating at random levels below 3,000FT AMSL (see para 3.1.4).

6. TABLES OF CRUISING LEVELS (SOUTH OF 80° S)

TABLE A - IFR

Grid Tracks	**From 000° through East to 179°**		**From 180° through West to 359°**	
Cruising Altitudes (Area QNH)	3,000	7,000	2,000	8,000
	5,000	9,000	4,000	10,000
			6,000	
Cruising Flight Levels (1013HPA)	110*	250	120*	260
	130	270	140	280
	150	290	160	310
	170	330	180	350
	190	370	200	390
	210	410	220	430
	230	etc.	240	etc.

Note FL110 is not available for level flight when the Area QNH is less than 1013HPA.*
FL120 is not available for level flight when the Area QNH is less than 980HPA.

TABLE B - VFR

Grid Tracks	**From 000° through East to 179°**		**From 180° through West to 359°**	
Cruising Altitudes (Area QNH)	1,500	7,500	2,500	8,500
	3,500	9,500	4,500	
	5,500		6,500	
Cruising Flight Levels (1013HPA)	115*	255	125*	265
	135	275	145	285
	155	300	165	320
	175	340	185	360
	195	380	205	400
	215	420	225	440
	235	460	245	480

Note FL115 is not available for level flight when the Area QNH is less than 997HPA.*
FL125 is not available for level flight when the Area QNH is less than 963HPA.

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ENR 1.8 REGIONAL SUPPLEMENTARY PROCEDURES

1. There are no notifiable regional supplementary procedures applicable to Australia.

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ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT

1. FLOW MANAGEMENT STAGES

1.1 At major airports within Australia, Air Traffic Flow Management (ATFM) procedures are applied to manage demand and capacity at specific airports. These procedures are defined in three phases:

a. **Strategic** - Generally occurs more than one day prior to the day of operation. This is known as schedule coordination. The relevant airport operator manages this service.

b. **Pre-tactical** - Occurs on the day prior to operation through the implementation of traffic management initiatives such as a Ground Delay Program (GDP) and Airport Collaborative Decision Making (A-CDM). Airservices Australia National Operations Management Centre (NOMC) manages these services.

c. **Tactical** - Occurs on the day of operation and uses real time traffic information to sequence traffic to the destination airport. ATC manage this service.

1.2 Tactical flow management takes precedence over pre tactical air traffic flow management which in turn takes precedence over strategic air traffic flow management.

2. STRATEGIC - SCHEDULE COORDINATION

2.1 An airline has the responsibility to obtain permission to operate services from the airport owner and/or operator.

2.2 In addition, all aircraft operators (excluding emergency and state aircraft) must request time-slots (slots) in advance of the operation from the relevant slot management organisation in accordance with the following table:

Airport	Type of operation	Slot Manager
Sydney/Kingsford Smith	All arrivals and departures	Airport Coordination Limited (ACL-APAC)
Brisbane and Perth	All arrivals and departures	Capacity Optimisation Group (COG)
Adelaide and Darwin	All international and scheduled domestic flights	
Cairns, Gold Coast and Melbourne	All international flights	

2.3 Contact details are:

2.3.1 Slot Manager: Capacity Optimisation Group (COG)
MON-FRI 2200-0600 UTC

Ph: 1800 449 355

Email: slots@cog.aero

Web: www.cog.aero

2.3.2 Slot Manager: Airport Coordination Limited - Asia Pacific (ACL-APAC)
MON-FRI 2130-0600 UTC

Ph: +61 2 9667 9016

Email: slots@acl-international.com (for SRC requests) or syd@acl-international.com (non-formatted requests)

Web: www.acl-apac.com.au/airport-information/sydney

Mail or in person: Level 1, Nigel Love Building, 10 Arrivals Court, Sydney/Kingsford Smith Airport.

2.4 Notification of changes to slots allocated to existing scheduled flights should be advised to the relevant slot manager in accordance with the requirements of the appropriate traffic management scheme.

2.5 COG or ACL-APAC slots may be obtained outside office hours for short notice non-scheduled flights from the NOMC on 1800 020 626. These slots will be allocated from the available pool.

2.6 Allocated slots may be subject to change by ATFM due to operational constraints. *(See Section 3. and 5.)*

3. PRE-TACTICAL - GROUND DELAY PROGRAM

3.1 General

3.1.1 The NOMC publishes GDP for arrivals to Sydney/Kingsford Smith (YSSY), Brisbane (YBBN), Melbourne (YMML) and Perth (YPPH) Airports. D

Note: Additional operating procedures are contained in ERSA FAC for the specified airport.

3.1.2 The GDP considers all available meteorological data, network capacity and aerodrome information to forecast the available flow rate into GDP ports. GDP then uses Flight Plan ETD and Total EET information to calculate aircraft landing times and match the arrival port demand versus predicted capacity. A Calculated Off-Block Time (COBT) and a Calculated Take-Off Time (CTOT) are then formulated for the departure port to reduce any delays which may otherwise be encountered airborne.

3.1.3 Unless instructed by ATC, pilots should maintain normal or specified climb, cruise and descent profiles.

3.2 Calculated Off Blocks Time (COBT)

3.2.1 Pilots must obtain an Air Traffic Flow Management COBT for operations at a GDP airport. Pilots of scheduled flights will receive their COBT through their operator. Other flights may obtain a COBT through the NOMC by email: atfmu@airservicesaustralia.com or phone: 1800 020 626 (H24) (recorded line).

3.2.2 Unless afforded priority in accordance with *ENR 1.4 Section 6.* all aircraft are required to operate within the compliance window for their allocated COBT. The compliance window is from –5 MIN to +15 MIN of the COBT.

3.2.3 Aircraft unable to operate within the compliance window are to obtain a new COBT through their operator or the NOMC (as per *para 3.2.1*). ATC are not able to provide new or amended COBT. D

3.2.4 If a new COBT has been issued after receiving airways clearance, pilots are to advise ATC of the amended COBT when calling for a start/pushback/taxi clearance.

3.2.5 Failure to obtain a COBT and/or submit a flight plan for a flight to a GDP program airport will result in the flight being considered early non-compliant.

3.2.6 For flights with a COBT that are early non-compliant, ATC will only issue a clearance to push back or taxi for a significant ground-based operational requirement or if there is a reasonable expectation that, due to taxi or runway holding position delays, the required CTOT will be achieved.

3.2.7 Notwithstanding actions taken under *3.2.2* and *3.2.6* to achieve compliance, flights departing non-compliant can expect delays en route. Non-compliant flights will be allocated the next available slot time up to a maximum delay as follows:

a. Early non-compliant - 60 MIN; or

b. Late non-compliant - published traffic holding delay.

3.3 **Non-scheduled flights**

3.3.1 Prior to submitting a flight plan, pilots of non-scheduled flights intending to operate into a GDP airport during the hours of program operation:

a. should, if required, obtain a strategic time-slot from the relevant slot management organisation (*see section* 2.) prior to contacting the NOMC; and

b. must contact the NOMC for a COBT and, if unable to obtain prior, a strategic time-slot.

3.3.2 Where possible pilots should contact the NOMC prior to 0800 UTC the day before to ensure their flight is included in the GDP run for the following day. Operators who contact the NOMC after the GDP has been run will be allocated the next available COBT.

3.3.3 Pilots must provide the following information to the NOMC at least one hour prior to the proposed operation. Any changes must be notified to the NOMC prior to departure.

(1) Aircraft call sign

(2) Aircraft registration

(3) Aircraft type

(4) Departure aerodrome

(5) Destination aerodrome

(6) ETD (UTC time only)

(7) ETA (UTC time only)

(8) COBT notification email/mobile phone number

3.3.4 Notification of flight details to the NOMC is additional to all existing flight plan notification requirements.

3.3.5 Pilots of non-scheduled flights must check their COBT for any amendments prior to flight by:

a. being able to receive a message from the NOMC via their mobile phone/email; or

b. contacting the NOMC within one hour of the flight; or

c. where no communication facilities are available, contacting the appropriate HF frequency.

3.4 **GDP run times**

3.4.1 GDP for the following day's operations are normally run at the following times:

Location	Time (UTC)
YPPH	0845
YMML	0915
YBBN	1000
YSSY	1100

D

3.5 **GDP revision**

3.5.1 When unforeseen circumstances significantly reduce the capacity of an airport, a GDP revision may be initiated and pilots must obtain a new COBT. Tower ATC may stop departures to the GDP airport to facilitate the revision.

3.5.2 There are three levels of revision:

a. Level 1 – compliance with the new COBT will commence in 30 MIN; or

b. Level 2 – immediate compliance with the new COBT should be observed, however flights that have already manoeuvred to depart may continue; or

c. Level 3 – immediate compliance with the new COBT should be observed by all flights.

Note: Level 2 and 3 revisions will not be applied to flights departing Perth, Darwin, Karratha, Port Hedland or Broome, for Brisbane, Sydney or Melbourne.

3.5.3 The NOMC will advise pilots and operators when a revision occurs. This advice may be provided through ATS when required. When a level 2 or 3 GDP revision occurs, ATS will advise pilots subject to immediate compliance.

4. AIRPORT COLLABORATIVE DECISION MAKING (A-CDM)

4.1 General

4.1.1 A-CDM procedures apply H24 to all IFR fixed wing aircraft operating from an A-CDM airport - refer to *ERSA* for A-CDM locations. The NOMC will set departure rates, then A-CDM will generate Target Off-Block Time (TOBT) and Target Start-up Approval Time (TSAT).

4.1.2 At aerodromes where A-CDM is implemented, start-up approval is required for all aircraft with ground power. Aircraft without ground power may be started at the discretion of the pilot in command, however ATC should be advised when start-up is complete. Refer *ERSA* for the applicable frequency.

4.1.3 ATC will instruct aircraft to stand by on ground frequency once compliant with ATFM procedures. Ground will approve engine start or pushback when able.

4.2 Target Off-Block Time (TOBT) and Target Start-up Approval Time (TSAT)

4.2.1 All non-exempt aircraft must have a TOBT to depart.

4.2.2 The TOBT compliance window is from –5 MIN to +5 MIN of TOBT.

4.2.3 Aircraft must request to start engines or pushback within their TOBT compliance window. Aircraft unable to request engine start or pushback within their TOBT compliance window must contact their company or ground handling agent for a new TOBT. ATC are not able to provide a new or amended TOBT.

4.2.4 TSAT compliance window commences from TSAT –5 MIN and aircraft will receive start or pushback approvals as operations permit. A-CDM TSAT incorporates GDP CTOT requirements.

4.3 GDP and A-CDM compliance

4.3.1 For TOBT/TSAT early non-compliant flights, ATC will only issue a clearance to start engines or push back for a significant ground-based operational requirement.

4.3.2 The TSAT prevents early non-compliance with GDP CTOT. In the case of late non-compliance with GDP CTOT resulting from an operator TOBT update, operators must obtain a revised GDP CTOT which will generate a new TSAT.

Note: TSAT late non-compliance may result from traffic management or ATC operational requirements.

4.4 GDP revisions at A-CDM airports

4.4.1 When unforeseen circumstances significantly reduce the capacity of a destination airport, a GDP revision may be initiated. Tower ATC may stop departures to the GDP airport to facilitate the revision.

4.4.2 Aircraft departing from an A-CDM airport to a destination subject to a GDP revision, will be processed as follows:

a. Level 1 and 2 – TSAT compliance continues;

b. Level 3 – immediate compliance with the new TSAT should be observed by all flights. Flights that have manoeuvred to depart may be subject to ground delay.

5. TACTICAL

5.1 Aircraft sequencing near ATFM Airports

5.1.1 Due to terminal area traffic density, pilots may expect airborne traffic delays for arrival at locations adjacent to or within Class C control zones.

5.1.2 When sequencing arriving aircraft to controlled aerodromes, ATC may apply one or more of the following:

a. Enroute holding procedures;

b. Allocate a waypoint crossing time to the pilot; or

c. Tactically apply delaying action such as speed control or vectoring.

5.1.3 When ATC allocates a waypoint crossing time, aircraft must adjust speed to cross the waypoint at the specified time or up to 30 seconds early. Speed adjustment to meet a waypoint crossing time only applies to the specified waypoint. Unless otherwise published or instructed by ATC, pilots must cross the waypoint at the lesser of 250KT or profile speed.

5.1.4 Aircraft unable to meet the waypoint crossing time must inform ATC as early as possible.

ENR 1.10 FLIGHT PLANNING

1. FLIGHT PLAN PREPARATION

1.1 Before beginning a flight, a pilot in command must study all available information appropriate to the intended operation and must make a careful study of:

a. current weather reports and forecasts for the route to be flown and the aerodromes to be used;

b. the airways facilities available on the route to be flown and the condition of those facilities;

c. the condition of aerodromes to be used and their suitability for the aircraft to be used;

d. the ATC rules and procedures appertaining to the particular flight; and

e. all Head Office and FIR NOTAM applicable to the en route phase of flight, and location-specific NOTAM for aerodromes.

The pilot must then plan the flight in relation to the information obtained.

Note: Full details on the services provided by the briefing office are available through the Preflight Information and Flight Planning Manual, available online: www.airservicesaustralia.com/aip/aip.asp and www.airservicesaustralia.com/industry-info/flight-briefing/,

1.2 Forecasts

1.2.1 Forecast information must include:

a. an aerodrome forecast for the:

(i) departure

(ii) destination; and

(iii) when required, any alternate aerodromes; and

b. one of the following:

(i) a flight forecast; or

(ii) a GAF (at and below A100); or

(iii) a SIGWX forecast (above A100); and

c. a wind and temperature forecast

For a flight to a destination for which a prescribed instrument approach procedure does not exist, the minimum requirement is a GAF.

Note: A wind and temperature forecast may be obtained from Wind and Temperature Charts, Grid Point Wind and Temperature Charts, Route Sector Winds and Temperatures Forecasts, a NAIPS Wind and Temperature Profile (applicable for the flight), as well as from approved flight planning systems that derive data from the Bureau of Meteorology or the WAFS.

1.2.2 For flights for which a forecast is required and cannot be obtained, the flight is permitted to depart provided the pilot is satisfied that the weather at the departure point will permit the safe return of the flight within one hour of departure. The flight is permitted to continue provided:

a. for *Part 121* operations – the authorised weather forecasts for the route, destination and any planned alternate aerodromes, are obtained within 30 minutes after departure.

b. for all other operations - the authorised weather forecast for the destination aerodrome is obtained within 30 minutes after departure.

1.2.3 For flights to a destination for which an aerodrome forecast is required and cannot be obtained, the flight is permitted to depart provided an alternate aerodrome meeting all the requirements specified in *ENR 1.1 Section 10.7* is provided.

1.2.4 A pilot in command must ensure that the forecasts cover the period of the flight and that the aerodrome forecasts for the destination and alternate aerodromes, to be nominated in the flight plan, are valid for a period of not less than 30 minutes before and 60 minutes after the planned ETA.

1.2.5 When a flight is delayed so that the meteorological and operational information does not cover the period of flight, updates must be obtained as necessary, to allow the flight to be concluded safely.

1.2.6 A series of flights may be included on the one flight plan provided that:

a. the meteorological forecast will cover all the flights; and

b. relevant AIS information is available at flight planning.

1.2.7 When preflight briefing is obtained more than one hour prior to EOBT, pilots should obtain an update before each departure to ensure that the latest information available can be used for the flight. The update should be obtained by NAIPS pilot access, telephone, or, when this is impracticable, by radio.

1.3 GNSS Prediction Analysis - Flight in Oceanic and Remote Areas

1.3.1 A requirement for flight in oceanic and remote areas using GNSS is that an appropriate en route GNSS prediction analysis be conducted prior to each flight. For details see *ENR 2.2 Section 4.*

2. FLIGHT NOTIFICATION

2.1 Flight notification requirements are divided into two specific categories:

a. those affecting IFR flights, and

b. those affecting VFR flights.

2.2 IFR flights require the submission of comprehensive flight notification and the transmission of in-flight progress reports at regular intervals. SARWATCH is based primarily on the receipt of these reports by ATS. (See also *GEN 1.5 Section 1.*).

2.3 Pilots of VFR flights nominating a SARTIME to ATS, and those intending to operate in controlled airspace (except for VFR flights in Class E airspace) must submit flight details to ATS.

2.4 The order of preference for pilots to submit a comprehensive flight notification is:

a. via pilot access to NAIPS (via the Internet),

b. in writing,

c. by telephone, or

d. by radio to ATS.

2.5 Pilots should submit details required for flight in controlled airspace at least 30 minutes before the expected time of entry. Flight details submitted with less than the 30 minutes notification may be subject to delay.

2.6 Pilots submitting SARTIME flight notifications by fax must confirm receipt of the notification with the briefing office. Further, Airservices strongly recommends that when any flight notification is submitted by fax, the pilot or operator telephones the briefing office before departure to confirm that the fax has been received.

2.7 Abbreviated details for operations in controlled airspace may be advised by radio if the flight is to operate locally, or operations will be for a brief duration. However, prior contact with ATC may avoid delays. Pilots may submit details by radio to ATS when associated with a clearance request, or to nominate a SARTIME.

2.8 When submitting flight notification by radio, pilots should be mindful of the need to minimise frequency congestion and transmit only that information required by ATS for the current flight stage. Acceptance is subject to ATS workload and may be delayed.

2.9 Submission of comprehensive travel flight notification by radio is not a preferred method of notification and should not be used when submission by some other means is available. Flight notification by radio for travel flights requiring the submission of comprehensive details will not be accepted at controlled aerodromes.

2.10 Pilots of VFR flights wishing to operate in other than classes C or D airspace, and who wish to nominate a SARTIME, may submit details in the NAIPS SARTIME flight notification format (via the internet). If submitting the flight notification by fax or via telephone, the only form available is the Australian Domestic Flight Notification form.

2.11 Pilots conducting a Community Service Flight as defined in *GEN 2.2* are required to submit a flight notification (*see para 2.21* and *ENR 1.1 para 10.14.13*) and identify the flight as a community service flight by entering the acronym “CSF” in the remarks section of the flight notification. If the flight notification is submitted by radio, then the pilot is required to request ATS to annotate the flight as a CSF.

Note: Pilots are also required to annotate their personal logbook entry for the flight (required by regulation 61.345) to reflect that the flight was conducted as a CSF.

2.12 If a VFR flight is one of the following:

a. a flight conducting an air transport operation; or

b. a flight over water that is conducted beyond a distance from land greater than which would allow the aircraft to reach land with an engine inoperative; or

c. a flight in a designated remote area; or

d. a flight at night proceeding beyond 120NM from the aerodrome of departure;

Then the pilot in command must ensure one of the following has occurred:

a. submission of a flight plan, or

b. nomination of a SARTIME for arrival, or

c. leave a flight note with a responsible person.

2.13 VFR flights which are required to, or wish to, use a SARTIME may do so by providing ATS with the following details:

a. call sign;

b. aircraft type;

c. departure point;

d. route to be flown;

e. destination;

f. POB; and

g. SARTIME.

Note: Only one SARTIME may be current at any time. To prevent the existence of multiple SARTIMEs for aircraft used by more than one pilot, SARTIMEs should be nominated immediately before the start of each flight.

2.14 VFR flights operating on SARTIME are requested to include contact telephone details for the pilot or company at the destination where available.

2.15 VFR flights may operate on reporting schedules in the following circumstances:

a. flood, fire or famine relief flights;

b. search and rescue flights;

c. overwater flights; and

d. military flights.

2.16 When the pilot of a flight wishes to indicate a variation of SAR requirements, this must be indicated in Item 8 - Flight Rules, amplified in Item 15 (Route) by the position at which the change will occur, followed by the new Flight Rules.

2.17 Submission of flight details at least 30 minutes before EOBT is recommended.

2.18 Where notification of flight details, or changes to details, are submitted less than 30 minutes before EOBT, delays will be encountered when an ATC unit requires that the data be programmed into the computerised SSR Code/Call sign Management System.

2.19 The preferred method to cancel a SARTIME is via telephone to CENSAR on 1800 814 931. When telephone facilities are not available you may use ATS frequencies.

2.20 SARTIME are managed on a national basis by the central SARTIME management database, CENSAR.

2.21 The following table identifies flight notification options for the various classes and types of operations when flying IFR or VFR:

Flight Rules	Class of Airspace	Type of Operation	Summary of Flight Notification Options
IFR	All Classes	All Operations	Submit a Flight Plan
VFR	Class C and D	All Operations	Submit a Flight Plan
VFR	Any	Air transport operation; or Over water flights; or In designated Remote Areas; or At night proceeding beyond 120NM from the aerodrome of departure	Submit a Flight Plan; or Nominate a SARTIME; or Leave a Flight Note
VFR	Any	CSF	Submit a Flight Plan; or Nominate a SARTIME
VFR	Class E and G	Any other operations not mentioned above	Submit a Flight Plan; or Nominate a SARTIME; or Leave a Flight Note; or No notification

2.22 Pilots not formally required to submit flight notification, or leave a flight note as defined in the preceding paragraphs, are nevertheless encouraged to leave a flight note as defined in *AIP GEN.*

3. FLIGHT NOTIFICATION/NOTE CONTENTS

3.1 Forms

3.1.1 An example of the Australian Domestic Flight Notification form is at *APPENDIX 1*. Instructions for completion of the Australian Domestic flight notification form for both IFR and VFR flights are contained at *APPENDIX 2*. In a number of cases, particularly in Item 19, completion is recommended as good practice. If mandatory Items are left incomplete, delays may occur.

Note: The reverse side of the Australian Flight Notification Form contains a "flight log/template" to assist pilots in planning and navigation. It is not intended to be mandatory or prescriptive, and pilots may use any template, or other device, of their choice.

3.1.2 The flight notification forms are available from the Airservices website: www.airservicesaustralia.com/flight-briefing/.

3.1.3 The suggested format for a Flight Note is at *APPENDIX 3.* This form is available from the CASA website: www.casa.gov.au.

3.2 Flight Rules

3.2.1 Flight rules must be indicated in any flight notification, except for VFR flights operating wholly outside controlled airspace nominating a SARTIME.

3.2.2 Flights which, within a single stage, will be flown under both the IFR and VFR must indicate:

a. in the Flight Rules section of the flight notification, the flight rules applicable to the first route segment of the flight plan, Y to indicate IFR first followed by one or more changes of flight rules, or Z to indicate VFR first followed by one or more changes of flight rules;

b. in Field 15 of the flight notification, the position at which the change of flight rules will occur; and

c. for each subsequent stage, the flight rules applicable to that stage, with a change in Field 15 if applicable.

Note: The use of Y or Z must not be used to indicate a variation of flight rules between individual stages. Where the flight rules field is left blank on a multistage flight, the previous flight rule will apply.

3.3 **PBN Notification**

3.3.1 No indication on the flight notification form is required for Visual Navigation or DR Substitute applications of GNSS.

3.3.2 Notification of PBN capabilities requires a combination of entries in Item 10 (Equipment and Capabilities) and Item 18 of the ATS Flight Notification form. Guidance is provided in *Appendix 2* to this section.

3.4 **Military Flights**

3.4.1 Aircraft operating on LJR for any part of a flight must submit flight notification to ATS, regardless of flight rules.

3.4.2 LJR notification is required for flights planned below 5,000FT AGL within Class G airspace for aircraft that:

a. operate with a TAS above 250KT

b. have nominated NOCOM for any portion of the flight; or

c. are unable to meet reporting requirements.

Note: LJR notification is not required if the MLJ is operating within a Danger Area established for that purpose.

3.4.3 Military flights with an LJR component are required to provide EETs for all points nominated in Item 15 of their flight notification to enable ATS units to provide an effective service.

3.4.4 Military flights carrying out specific operations notified in the remarks section of the flight notification form, together with a level at or below 1,000FT will be operating with reference to ground level.

3.4.5 Pilots of military aircraft that are not RVSM-approved, but require priority in the RVSM flight level band for operational reasons, must enter STS/NONRVSM and RMK/MIL SPEC REQ in Item 18.

3.4.6 Formation flights of State aircraft must not insert the letter W in Item 10 of the ICAO flight plan form, regardless of the RVSM approval status of the aircraft concerned.

3.5 **General**

3.5.1 Pilots of flights operating IFR under a Private IFR rating must include this advice when submitting flight notification. Flight procedure Authorisations (FPAs) applicable to flight within controlled airspace must also be included.

3.5.2 For flights not operating along an ATS route, reporting points should be provided in Item 15 for locations approximately 30 minutes or 200NM apart.

3.6 **Location data**

3.6.1 Any location abbreviations used should be authorised abbreviations (e.g. published in *AIP*).

3.6.2 If a common name is entered into NAIPS in lieu of an aerodrome abbreviation or navigational air/waypoint, the flight notification output will assume that the aircraft is tracking over a navigational aid/waypoint and not aerodrome; e.g. the location HOLBROOK will translate to HBK, not YHBK.

3.6.3 Some locations with abbreviations may not have fixed positions e.g. HLS associated with a mobile oil platform or ship. These location codes are linked to fixed geographical coordinates in systems and datasets. To ensure correct provision of ATS, in the event a platform is relocated or is in the process of relocating the NOTAM office must be immediately advised. A NOTAM will be issued to suspend use of the four (4) letter location code in flights plans. Pilots must then use “ZZZZ” procedure as specified in *Appendix 2 Item 13 and Item 16.*

When the NOTAM office is notified that the mobile oil platform/ ship is back in its original position the NOTAM will be cancelled, and use of the four (4) letter location code in flight plans may resume.

3.6.4 Pilots entering geographical coordinates must adhere to the correct format e.g. 2730S15327E.

4. FLIGHT NOTIFICATION AMENDMENT

4.1 When flight notification details have been submitted and amendment is necessary, advise ATS of the following items as soon as possible:

Item	Details	1. All IFR 2. VFR in CTR/CTA	VFR wholly OCTA nominating a SARTIME
7	Aircraft ident and/or registration	X	X
8	Flight rules to which flight will be operating	X	
10	Serviceability of equipment carried	X	
13	DEP aerodrome and EOBT if the change exceeds 30 minutes	X	X (DEP aerodrome only)
15 16	Route, landing points or alternates	X	X
15	Cruising level	X	
15	Speed and estimated total elapsed time	X	
18	Any change to: STS/PBN/NAV/ RMK/(includes SARTIME)	X	X
19	POB	X	

4.2 If advising ATS of a change of aircraft ident and/or registration, pilots of SARTIME flights must also advise, prior to take-off, that the flight is subject to a SARTIME.

4.3 To assist in managing the airways system, pilots should always warn ATS of any flight notification amendments by utilising appropriate alerting phraseologies; e.g.

"MELBOURNE CENTRE, DELTA MIKE GOLF, IFR FLIGHT PLAN AMENDMENT"
or
"FLIGHTWATCH, DELTA MIKE GOLF, SARTIME FLIGHT PLAN AMENDMENT".

5. CARRIAGE OF FLIGHT DOCUMENTATION

5.1 Pilots conducting certain flights (see the relevant rules in *CASR Parts 91, 103, 121, 131, 133* and *135* relating to the carriage of documents) are required to carry, and have readily accessible in the aircraft, the latest editions of the aeronautical maps, charts and other aeronautical information and instructions, published:

a. in AIP, or

b. in NOTAM, or

c. authorised aeronautical information by a data service provider, that are relevant to the route to be flown, and any probable diversionary route that may be flown, on that flight; or

d. for a flight in a foreign country:

   (i) in the document that in that country is equivalent to the AIP; or

   (ii) by an organisation approved to publish aeronautical information by the national aviation authority of that country.

APPENDIX 1

Australian – Domestic Flight Notification Form

airservices australia

7. Aircraft Identification

8. Flight Rules: I V Y Z

Type of Flight: S N G M

9. No | Type

Wake Turb Cat: J H M L

10. Equipment: N or S And / Or: A B C D E1 E2 E3 F G H I J1 J2 J3 J4 J5 J6 J7 K L M1 M2 M3 O R T U V W X Y Z

SSR: L E H S I P X C A N

ADS-B: B1 B2 V1 V2 U1 U2

ADS-C: D1 G1

13. DEP Aerodrome	EOBT	15. Cruising Speed N M	Level A F	16. DEST Aerodrome	Total EET HR MIN	ALTN Aerodrome

15. Route

18.

(Stage 2) 8. I V Y Z

13. DEP Aerodrome	EOBT	15. Cruising Speed N M	Level A F	16. DEST Aerodrome	Total EET HR MIN	ALTN Aerodrome

15. Route

18. (Info relevant to Stage 2)

(Stage 3) 8. I V Y Z

13. DEP Aerodrome	EOBT	15. Cruising Speed N M	Level A F	16. DEST Aerodrome	Total EET HR MIN	ALTN Aerodrome

15. Route

18. (Info relevant to Stage 3)

18. (Information relevant to all stages)

DOF/ REG/VH

PER/

RMK / SARTIME		To ATS Unit	Location	DEST Tel No:
Date/Time	Arr Dep			ORGN/

19. Supplementary Information (optional)

ENDURANCE HR MIN: E/ E/ E/

PERSONS ON BOARD: P/ P/ P/

EMERGENCY RADIO: R/ UHF U, VHF V, ELT E

DINGHIES: D/ NUMBER, CAPACITY, COVER C, COLOUR

SURVIVIAL EQUIPMENT: S/ POLAR P, DESERT D, MARITIME M, JUNGLE J

JACKETS: J/ LIGHT L, FLUORES F, UHF U, VHF V

AIRCRAFT COLOUR AND MARKINGS

A/

REMARKS

N/

PILOT-IN-COMMAND	PHONE	MOBILE	EMAIL	COMPANY
C/				

PSN	LSALT	FL or ALT	TAS	TR(M)	WIND	HDG (M)	G/S	DIST	ETI	EET	PLN EST	REV EST	ATA ATD

Item	**Fuel Calculation**	**Min**	**lbs, L or kg**	**Min**	**lbs, L or kg**
a	Taxi fuel				
b	Trip fuel				
c	Contingency fuel (_______% of b)				
d	Alternate fuel				
e	Final reserve fuel				
f	Additional fuel				
g	Holding fuel				
h	Fuel required (a+b+c+d+e+f+g)				
i	Discretionary fuel				
j	Margin fuel				
k	Endurance (h+i+j)				
	From				

Pilot Notes

CALL SIGN:	PHONE NO:	FAX NO:

BRIEFING 1800 805 150 FAX 1800 805 150 CENSAR 1800 814 931

APPENDIX 2

ATS FLIGHT NOTIFICATION - USER GUIDE

The Australian Domestic Flight Notification Form provides a modified ICAO flight plan form for Australian requirements and to allow entry of multiple stages of flight.

Item 7 – Aircraft Identification

Enter	Aircraft registration/flight number. ZZZZ and TBA cannot be accepted.
Requirements	One call sign per flight notification.
	For VH registered aircraft conducting a domestic flight (i.e. within Australian FIR), enter the three letters after the prefix only e.g. for VH-ZFR enter ZFR. For international flights, enter the full registration e.g. VHZFR.
	For flight numbers, and other approved call signs, enter a mixture of figures and letters that do not exceed seven alphanumeric characters and without hyphens or symbols; e.g. QFA611.
	For unmanned aircraft except when assigned a flight number call sign or another approved call sign: a. enter the prefix UX then at least two characters of the aircraft model e.g. UXSCE4 b. enter the full radiotelephony call sign in Item 18 after RMK/RTF e.g. UNMANNED SCAN EAGLE FOUR

Item 8 (a) – Flight Rules

Circle	I	if the entire flight will be operated under the Instrument Flight Rules (IFR)
	V	if the entire flight will be operated under the Visual Flight Rules (VFR)
	Y	if the flight will be operated initially under the IFR followed by one or more changes of flight rules
	Z	if the flight will be operated initially under the VFR followed by one or more changes of flight rules
Requirements	If Y or Z is circled, an entry in Item 15 must specify where the change of flight rules will occur; e.g. YBAF VFR.	

Type of Flight

Circle	S	for scheduled air service
	N	for non-scheduled air service
	G	for general aviation
	M	for military
	X	if other than any of the defined categories above

Item 9 – Number of Aircraft

Enter	Number of aircraft where there are more than one, otherwise leave blank.

Type

Enter	Aircraft type. Where more than one aircraft type is included in a formation, enter the type of the lowest performance aircraft. Additional details regarding the formation must be inserted at Item 18.
Requirements	Use the two to four letter ICAO approved aircraft type abbreviation. For aircraft type abbreviations not approved by ICAO, enter ZZZZ and specify the type of aircraft in Item 18 preceded by TYP/.

Wake Turbulence Category

Circle	J	SUPER, to indicate an A388 aircraft type
	H	HEAVY, for aircraft 136,000KG MTOW or more, except for A388 aircraft type
	M	MEDIUM, for aircraft between 7,000 and 136,000KG MTOW
	L	LIGHT, for aircraft 7,000KG MTOW or less.

Item 10 – Equipment and Capabilities

Circle to indicate the presence of serviceable equipment that the pilot is qualified to use and where applicable, has authorisations from the State of Registry:

N	no COM/NAV/Approach Aid equipment for the route to be flown or the equipment is unserviceable.

S	standard COM/NAV/Approach Aid equipment of VHF/ILS/VOR.
A	GBAS Landing System
B	LPV (APV with SBAS)
C	LORAN C
D	DME
E1	FMC WPR ACARS
E2	D-FIS ACARS
E3	PDC ACARS
F	ADF
G	GNSS
H	HF RTF
I	Inertial NAV
J1	CPDLC ATN VDL Mode 2
J2	CPDLC FANS 1/A HFDL
J3	CPDLC FANS 1/A VDL Mode A
J4	CPDLC FANS 1/A VDL Mode 2
J5	CPDLC FANS 1/A SATCOM (INMARSAT)
J6	CPDLC FANS 1/A SATCOM (MTSAT)
J7	CPDLC FANS 1/A SATCOM (Iridium)
K	MLS
L	ILS
M1	ATC SATVOICE (INMARSAT)
M2	ATC SATVOICE (MTSAT)
M3	ATC SATVOICE (Iridium)
O	VOR
P1	CPDLC RCP 400
P2	CPDLC RCP 240
P3	SATVOICE RCP 400
P4-P9	Reserved for RCP
R	PBN Approved
T	TACAN

U	UHF RTF
V	VHF RTF
W	RVSM Approved
X	MNPS
Y	VHF with 8.33 kHz channel spacing capability
Z	other equipment or capabilities (see Note 1).

Note 1: If the letter Z is used, specify the other equipment carried or other capabilities in Item 18, preceded by COM/, NAV/, and/or DAT/, as appropriate.

Note 2: If the letter R is used, specify the performance based navigation levels that can be met in Item 18 following the indicator PBN/.

Note 3: The NAIPS interface does not currently support the use of P1, P2 and P3. Operators may only have to declare the RCP capability for flights that will operate in airspace administrated by States that require it.

Enter 'G' (GNSS) and 'R' (PBN capability) in Item 10 for aircraft equipped with a GNSS enabled area navigation system with additional entries as appropriate. The correlation between Item 10 and Item 18 entries for common PBN approvals is summarised below:

	PBN Capability	**Item 10**	**Item 18**
Oceanic	RNAV10 (RNP10)	GR and I (if appropriate)	PBN/A1
	RNP4	GR	PBN/L1
Continental	RNP2	GZ	NAV/RNP2
Terminal	RNP1, all permitted sensors	GRDI	PBN/O1
	RNP1, GNSS	GR	PBN/O2
Approach	RNP APCH	GR	PBN/S1
	RNP APCH with Baro-VNAV	GR	PBN/S2
	RNP AR APCH with RF	GRI	PBN/T1
Precision Approach	GLS	AGZ	NAV/GLS

For the majority of Australian IFR operations the appropriate field 10 navigation entries will be:

S	Standard COM/NAV/Approach Aid combination of VHF/VOR/ILS, and
R	PBN capable, and
G	GNSS, and
Z	other equipment or capabilities (required to enable nomination of NAV/RNP2 in Item 18.

Surveillance Equipment

Circle N for Nil, or

Aircraft with ADS-B capability:

Notes:

1. *ADS-B capability indicated in a domestic flight notification is only for a capability suitable for ATC service. ADS-B equipment outputting a Source Integrity Level (SIL) of 1 (SIL=1) (e.g. TABS devices and EC devices) is not suitable for ATC service. Therefore an aircraft fitted with ADS-B equipment outputting SIL=1 should not enter an ADS-B code in Field 10b. See later note about indicating transponder capability.*
2. *Light Sport Aircraft (LSA), experimental aircraft and other eligible aircraft fitted non-TSO ADS-B equipment eligible for and outputting SIL=2 or SIL=3 may indicate a relevant ADS-B code in Field 10b.*

Enter up to two ADS-B codes: either ‘L’ or ‘E’ and ‘B1’ or ‘B2’.

L	SSR Transponder Mode S, including aircraft identification, pressure altitude, ADS-B Out and enhanced surveillance capability.
E	SSR Transponder Mode S, including aircraft identification, pressure altitude and ADS-B Out capability.
B1	ADS-B “Out” capability using 1090MHz extended squitter
B2	ADS-B “Out” and “In” capability using 1090MHz extended squitter

Note: Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

Use the following table to determine the Field 10b entries for ADS-B transponder (use only one entry)

Mode S transponder with ADS-B

Field 10b Entry	Transponder Capability					
	Mode S (ADS-B)	Aircraft ID	Pressure Altitude	Enhanced Surveillance	ADS-B 1090 OUT	ADS-B 1090 IN
LB2	X	X	X	X	X	X
EB2	X	X	X		X	X
LB1	X	X	X	X	X	
EB1	X	X	X		X	

Aircraft without ADS-B capability:

Note: Aircraft fitted with a transponder together with a TABS device or EC device outputting SIL=1 should only enter a code in Field 10b appropriate for the transponder fitted to the aircraft.

Enter one SSR code representing the highest level of non-ADS-B surveillance capability available (in order highest is H then S, I, P, X, C and A is lowest).

- H SSR Transponder Mode S, including aircraft identification, pressure altitude and enhanced surveillance capability.
- S SSR Transponder Mode S, including both pressure altitude and aircraft identification capability.
- I SSR Transponder Mode S, including aircraft identification, but no pressure altitude capability.
- P SSR Transponder Mode S, including pressure altitude, but no aircraft identification capability.
- X SSR Transponder Mode S with neither aircraft identification nor pressure altitude capability.
- C SSR Transponder Mode C
- A SSR Transponder Mode A

Note: Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

Use the following table (listed in order of highest to lowest capability) to determine to correct Field 10b entry for non-ADS-B transponder (use only one entry).

Mode S transponder without ADS-B

Field 10b Entry	Transponder Capability			
	Mode S (non-ADS-B)	Aircraft ID	Pressure Altitude	Enhanced Surveillance
H	X	X	X	X
S	X	X	X	
I	X	X		
P	X		X	
X	X			

Aircraft with ADS-C capability:

Enter up to two ADS-C codes: ‘D1’ and/or ‘G1’

D1 ADS-C with FANS 1/A capabilities

G1 ADS-C with ATN capabilities

Note: The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/. Operators may only have to declare the RSP capability for flights that will operate in airspace administered by State that require it.

Item 13 – Departure Aerodrome

Item 16 – Destination Aerodrome and Total Estimated Elapsed Time

– Alternate Aerodrome

Enter	Aerodrome abbreviation in four letters.
Requirements	Enter the four letter authorised abbreviation then, without a space, the total estimated elapsed time as four figures in hours and minutes; e.g. 0340. Include any aerial work delay noted as DLE in Item 18. For aerodromes without an authorised abbreviation, enter ZZZZ. In Item 18 write DEP/ (or as applicable “DEST/ ALTN/”) followed by either the latitude and longitude of the aerodrome or bearing and distance from a location with an authorised abbreviation or, the first point of the route or the marker radio beacon if the aircraft has not taken off from the aerodrome. In Item 18, enter the common name of the alternate location after RMK/.

Note 1: For bearing and distance, enter the designator of the location followed by three figures in degrees magnetic followed by three figures in nautical miles; e.g. BN270120 is a position 120NM, 270 degrees from Brisbane.

Note 2: Use of authorised aerodrome abbreviations for mobile locations may be suspended by NOTAM when not in the normal location. Pilots must use ZZZZ and provide location details when the aerodrome abbreviation is suspended.

Total EET

Enter	Total estimated elapsed time of the flight as four figures in hours and minutes; e.g. 0340 and include any aerial work delay noted as DLE in Item 18.

AFIL

AFIL (Flight Notification Filed in the Air) can be used instead of the departure aerodrome abbreviation when ATS services are only required for entry to, or to cross controlled airspace. (Estimated Off Blocks Time becomes the estimate for the point where the ATS service is to commence).

Note: For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies to the termination point of the flight plan.

Estimated Off Blocks Time

Enter	Estimated off blocks time (EOBT), or the estimate for the point where the ATS service is to commence (applicable for use with AFIL - as referred to above in the departure aerodrome section), in four figure UTC.
Requirements	Provide an EOBT for every flight stage as HHMM. All flights must also include DOF/ followed by the date of flight as YYMMDD at Item 18, even if the date of flight is the current day. EOBT/DOF more than 120 hours (5 days) in advance of the time of notification cannot be accepted. A change more than 30 minutes to a submitted EOBT should be advised to ATS or through NAIPS.

Item 15 – Cruising Speed

Enter	Enter TAS in knots or enter Mach number.
Requirements	Circle N, then enter zero and three figures for knots; e.g. 0180. Circle M, then enter zero and two figures for mach number to the nearest hundredth of a unit; e.g. 082.

Level

Enter	First planned cruising level.
Requirements	Enter either “A” followed by three figures to indicate altitude in hundreds of feet up to and including 10,000FT; e.g. A085; or, “F” followed by three figures to indicate flight levels above 10,000FT; e.g, F350.

Item 15 – Route

Enter	Details of the planned route, change of level, flight rules, and cruise climb.
Requirements for locations/ waypoints	For an aerodrome, use authorised abbreviation; e.g. YMBL for Marble Bar. For a navaid identifier, use published two or three letter abbreviation; e.g. CDU for Ceduna NDB. For a latitude and longitude identification, use degrees and minutes in an eleven character group; e.g. 2730S15327E. For a waypoint use assigned designator; e.g. DORSU. For bearing and distance, enter the identification of the significant point followed by three figures in degrees magnetic followed by three figures in nautical miles; e.g. BN270120 is a position 120NM, 270° from Brisbane.
Requirements for route	Check *AIP charts* and *DAH* for full route details and *ERSA Flight Planning Requirements* for specific route requirements/restrictions and city pair options. Where specific route requirements/restrictions are not specified, route details may be entered according to the following rules: a. Route details must start and end with DCT (direct); b. DCT must be following or preceded by one of the following points: (i) Navaid (ii) Waypoint; or

(iii) ARP, that is not the departure or destination location (unless a DLE is planned at the location).

c. Subsequent points should be described by ATS route designators where defined.

When planning via an intersection waypoint (black square) to change from one route to another, flight plan via:

a. the air route to the waypoint short of the intersection waypoint, then
b. direct to the intersection waypoint, then
c. direct to the first waypoint on the second air route, then
d. via the new air route.

ROUTE TYPE	EXAMPLE ENTRY
Flights outside designated ATS routes:	
Direct from departure point to destination without the use of navaids.	*For YAUR-YPMP:* DCT
Direct from departure point to destination with the use of navaids	*For YROM-YCMU* DCT ROM CMU DCT
From departure point to destination via published or non-published points	*For YBDV-YLRE* DCT BDV BDV062150 LRE DCT *or* DCT BDV 2440S14147E LRE DCT *or* DCT BDV YMOO LRE DCT
For survey work, include the points where the aircraft will enter and exit the survey area. *(See Note 2)*	*For YGLA-YGLA (via survey area):* DCT GLA BUD YGYM 2500S15100E GLA DCT

Flights on designated ATS routes:	
To or from locations with or without navigation aids.	*For YPAD-YLLE:* DCT AD H246 OOM DCT *For YSSY-YLHI:* DCT TESAT B450 LHI DCT
Via the SID or STAR transition point of the route. (*See Note 3*)	*For YBBN-YSSY* DCT SANEG H91 IGDAM H12 BOREE DCT *Where SANEG is the SID transition point from Brisbane and BOREE is the STAR transition point to Sydney* *For YSSY-YLHI:* DCT NOBAR B450 LHI DCT
Changing routes at a waypoint intersection	L503 IGEVO DCT LEKET DCT VIMAV N759

Note 1: Pilots should refer to ENR 1.1 para 5., "Air Route Specifications" and ENR 1.1 para 4. "Navigation Requirements" when planning a route.

Note 2: When planning to conduct survey work, a map of the survey area must be provided to ATS with the flight notification.

When planning survey work, include in Item 18 the expected delay en route (DLE) at the commencement of survey; e.g. DLE/GYM0130 indicates a delay at Gympie for 90 minutes.

Note 3: SID/STAR designators and instrument approach fixes/waypoints for Australian airports must not be entered. Designated ATS routes and published location identifiers or waypoints must be used instead.

Requirements for change of speed/level

Enter the significant point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned to commence, followed by an oblique stroke and both the cruise speed and the level without a space between them; e.g. AYE/N0130A080, AS/M082F350. Both cruise speed and level must be entered even when only one of these quantities will be changed.

Requirements for change of flight rules	Enter details of a change to flight rules following the entry in Item 8 of Y or Z. Enter the location where the change will occur followed by a space and VFR or IFR; e.g. YBAF VFR. A change in level may also be included; e.g. ROM/ N0180A090 IFR.
Requirements for cruise climb/ block level reservation	Enter the letter C followed by an oblique stroke, the point at which the cruise climb or block level is planned to start, an oblique stroke, the speed to be maintained during the cruise climb or block level, AND the two levels defining the layer to be occupied during the cruise climb or block level, OR one level and the word PLUS; e.g. C/FERET/N0380F370F390, or C/FERET/N0380F370PLUS.

Note: Cruise Climb is not used in Australian administered airspace. Level clearances will be issued upon request, subject to availability.

Item 18

Enter	Other information such as navaid training, block surveys and other plain language remarks of significance. Whenever possible, limit item 18 to 250 characters or less.
	Note 1: Flight plans with excessive Item 18 data require manual processing to address an ATM system limitation, which may cause delay and an increased risk of processing error.
	Note 2: ACARS and TCAS or ACAS are not required to be included in the flight notification.

Enter information in the sequence shown below:

STS/	Use for special aircraft handling, followed by one or more of the indicators below separated by a space e.g. STS/ MEDEVAC NONRVSM;
	ALTRV – flight operated in accordance with an altitude reservation
	ATFMX - flight approved for exemption from ATFM measures by ATC
	FFR – fire-fighting
	FLTCK – flight check for calibration of navaids
	HAZMAT – flight carrying hazardous material
	HEAD – flight engaged in, or positioning for, the transport of dignitaries with Head of State status
	HOSP – medical flight declared by medical authorities
	HUM – flight operating on a humanitarian mission
	MARSA – flight for which a military entity assumes responsibility for separation of military aircraft
	MEDEVAC – life critical medical emergency evacuation
	NONRVSM – non RVSM-capable flight intending to operate in RVSM airspace
	SAR – flight engaged in a search and rescue mission; and
	STATE – for a flight engaged in domestic or international military services; or international customs or police services.

Note: Other reasons for special handling by ATS may be denoted under the designator RMK/.

PBN/ Followed by PBN capabilities. R must have been entered in Item 10. Include as many of the descriptors below, as apply to the flight without spaces e.g. PBN/A1L1T1. The field capacity is 16 characters only i.e. 8 entries. In order to make efficient use of the available capacity to present relevant aircraft capability use the following guidance:

- Only include one of the RNP APCH entries S1 or S2, not both
- Only include one of the RNP AR APCH entries T1 or T2, not both
- If RNAV 5 and B2, B3, B4 and B5 are applicable use B1, All Sensors. LORAN C (B6) is not required in Australia to qualify for B1.
- If a DME/DME/IRU specification is filed (C3, D4 or O4) do not file DME/DME (C3, D3 or O3) as well.

D

Descriptor	**RNAV SPECIFICATION**
A1	RNAV 10 (or RNP 10)
B1	RNAV 5 all permitted sensors (except LORANC)
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORANC
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU

Descriptor	RNAV SPECIFICATION
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
	RNP SPECIFICATION
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF
T2	RNP AR APCH without RF

Note: RNP2 has not yet been allocated a PBN code. Enter RNP2 in NAV/ with G, R and Z in Field 10.

NAV/ Followed by navigation equipment or capabilities other than those listed for Item 10 or under PBN/ e.g. NAV/ RNP2. Z must have been entered in Item 10.

COM/ Followed by communication equipment and capabilities other than those listed for Item 10a. Use when Z has also been entered in Item 10a; e.g. COM/HF3452.

DAT/ Followed by data communication equipment and capabilities not specified in 10a. Use when Z has also been entered in Item 10a.

SUR/	Indicate surveillance equipment and capabilities not specified in 10b. Indicate as many RSP specification(s) as apply to the flight, using designator(s) with no space. Multiple RSP specifications are separated by a space. Example: RSP180 RSP400.
DEP/	when ZZZZ has been entered in Item 13 followed by latitude and longitude or bearing and distance from a location with an authorised abbreviation; e.g. DEP/BN090120.
DEST/	when ZZZZ has been entered in Item 16 followed by latitude and longitude or bearing and distance from a location with an authorised abbreviation; e.g. DEST/2730S15327E.
DOF/	Followed by YYMMDD to indicate the date of flight. e.g. DOF/121115
REG/	Followed by the full aircraft registration; e.g. REG/VHZFR.
EET/	For international flights that enter or leave the Australian FIR use EET/ to indicate the estimated elapsed time to the FIR boundary. Enter EET/ followed by the FIR boundary indicator and the estimated elapsed time in hours and minutes; e.g. EET/YMMM0130.
SEL/	Followed by the SELCAL Code, for aircraft so equipped.
TYP/	When an approved aircraft type designator has not been assigned and ZZZZ has been entered in Item 9, enter TYP/ followed by the aircraft type; e.g. TYP/Echo Mk1.
CODE/	Aircraft address (optional). Expressed in the form of an alphanumerical code of six hexadecimal characters e.g. CODE/7C0001.
DLE/	followed by the point where the aircraft will be operating and the estimated time in hours and minutes as a four figure group; e.g. DLE/MDG0030 RMK/MDG NDB indicates that the aircraft will be delayed at Mudgee for 30 minutes training on the NDB.
OPR/	Name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/	Followed by the originator's 8 letter AFTN address or other appropriate contact details such as a contact phone number when submitting a SARTIME.
PER/	Followed by the aircraft performance category as described in ENR 1.5 para 1.2; e.g. PER/B. IFR aircraft arriving at a controlled aerodrome must insert their performance category.
ALTN/	when ZZZZ has been entered in Item 16 followed by latitude and longitude or bearing and distance from a location with an approved abbreviation; e.g. ALTN/ 2700S15320E.
RMK/	When any other plain language remarks are required or deemed necessary. Where applicable, followed by one or more of the indicators below: **SARTIME**, followed by FOR ARR (for arrival) or FOR DEP (for departure), date/time as a six figure group, the authority (TO CENSAR) and location as an authorised aerodrome abbreviation, navaid identifier or latitude/ longitude. ZZZZ cannot be accepted for the location. Only one SARTIME per flight notification may be entered. If more than one SARTIME is required, then TBA can be entered, e.g. RMK/SARTIME FOR ARR 080430 TO CENSAR YROM or RMK/SARTIME FOR DEP TBA TO CENSAR YBMV. Pilots are also requested to submit contact telephone details under ORGN/ when available. **ATC APPROVED NIL ADSB,** insert if in receipt of an approval issued by Airservices in accordance with *GEN 1.5 Section 6.2.* **ADSB EXEMPT,** if in receipt of an individual CASA exemption or authorisation. **CSF,** if conducting a community service flight as defined in *GEN 2.2*. **FLT** Insert if flight numbers are used either in RTF phraseologies or for traffic sequencing, and are not entered in Item 7.

FORM Insert details of the aircraft taking part in a formation flight if more than one aircraft type or different RVSM approval is included in the formation. The number, type and wake turbulence category and RVSM approval of the second and subsequent types of aircraft are entered, separated by a plus sign; e.g. RMK/FORM 2PC9+4F18 M OPS IN R577, or RMK/FORM 2F18+2F18 W.

PIFR Insert PIFR as the first element of RMK/ to indicate that the pilot is rated to Private IFR. Include relevant FPAs applicable to flight within controlled airspace as per the table below:

FPA	**Abbreviation**		**Example/Notes**
	Prefix	**Suffix**	
Navigation Only	NAV		Enter equipment as per item 10 and RMK/PIFR NAV in item 18.
Night Flying	NGT		RMK/PIFR NGT
Instrument Departures	IDEP	SID	RMK/PIFR IDEP RMK/PIFR IDEP SID
Instrument Approaches (Single or Multi-engine as applicable to the aircraft being flown)	IAL	NDB, VOR, DME, DMEGNSS, RNAVGNSS, ILS, LOC	RMK/PIFR IAL NDB RMK/PIFR IAL DMEGNSS RMK/PIFR IAL RNAVGNSS RMK/PIFR IAL VOR, ILS
Visual circling approach	VSA		RMK/PIFR VSA Not required where other IAL FPA are also listed.
STAR	STAR	NDB, VOR, GNSS, DME	RMK/PIFR STAR GNSS
Holding	HLDG	NDB, VOR, GNSS, DME	RMK/PIFR HLDG VOR
Multiple FPA			RMK/PIFR NAV IAL RNAVGNSS HLDG VOR GNSS

Item 19 - Supplementary Information

Enter	Additional information relevant to the flight for search and rescue purposes (optional).
E/	Endurance - Enter a 4-figure group giving fuel endurance in hours and minutes for each stage of flight.
P/	Persons on board – Enter the total number of persons on board (passengers and crew) for each stage of flight. Enter TBN if the total number of persons is not known at the time of filing.
R/	Emergency radio – Circle the following if carried:
	U — UHF radio on 243.0MHz
	V — VHF radio on 121.5MHz
	E — ELT
D/	Dinghies – Enter the following:
	NUMBER — Total number of dinghies carried.
	CAPACITY — Total capacity, in persons, of all dinghies.
	COVER — Circle if dinghies are covered.
	COLOUR — Colour of dinghies.
S/	Survival Equipment – Circle the following if carried:
	P — Polar
	D — Desert
	M — Maritime
	J — Jungle
	Note: See ERSA – EMERGENCY PROCEDURES for further information
J/	Jackets – Circle if life jackets carried and circle if equipped with the following:
	L — Lights
	F — Fluorescein
	U — UHF radio on 243.0MHz
	V — VHF radio on 121.5MHz

A/	Aircraft colour and markings is used to record predominate colour and significant markings of the aircraft.
N/	Remarks – Indicate any other survival equipment carried and any other remarks regarding survival equipment.
C/	Pilot in command - Include telephone, mobile and email address and company name (if applicable).

Military Supplement

Item 18

Enter	The following list of abbreviations shows those approved for use by the Military. These abbreviations must be used to indicate the type of flying activity to be conducted. No other abbreviations are to be used. All levels specified with these abbreviations indicate operations at or below that level. Levels below 1,000FT are to be treated as AGL.
EET/	All fighter/strike operations must enter EET/ for the LJR component of the flight. EET/is followed by the designator and the elapsed time in hours and minutes from the departure point to the significant point; e.g. EET/ CG0108 2726S15333E0116 BN0120 indicates an elapsed time to Gold Coast of 68 minutes, Point Lookout 76 minutes and Brisbane 80 minutes. Any en route delay time (DLE) must be accumulated with the estimated elapsed time associated with the route segment from the airwork position; e.g. EET/CG0108 2726S15333E0116 BN0140 DLE/2726S15333E 0020 indicates an estimated elapsed time to Gold Coast of 68 minutes, Point Lookout 76 minutes and Brisbane 100 minutes (including the 20 minutes airwork).
RMK/	followed by one or more of the indicators below: **TFR** followed by a level to indicate Terrain Following Radar; e.g. RMK/TFR003. **LLN** followed by a level to indicate Low Level Navigation; e.g. RMK/LLN010. **LLO** followed by a level to indicate Low Level Operations; e.g. RMK/LLO030.

SVY followed by a level to indicate Aerial Survey; e.g. RMK/SVY050.

NVG followed by a level to indicate Night Vision Goggle exercise; e.g. RMK/NVG008.

AVM followed by a significant point and upper level of operation to indicate Abrupt Vertical Manoeuvres; e.g. RMK/AVM2515S14330EA090.

NOCOM followed by (time after ATD) + (time after ATD) CNL (agency) (frequency), to indicate that communications will be non-continuous for the specified period: e.g. RMK/NOCOM 10+34 CNL WLM APP 135 7, indicates that the aircraft will be NOCOM from 10 minutes after ATD until 34 minutes after ATD and will cancel NOCOM with Williamtown Approach on 135.7 MHz.

Note: There may be more than one NOCOM period annotated.

MILSPECREQ To indicate special requirements flights for military aircraft.

Pilots must include the reason for MILSPECREQ in:

a. STS/ for NONRVSM

b. RMK/ for:

   (1) LTD COMNAV;

   (2) LTD FUEL ENDCE;

   (3) TO LAND BY TIME;

   (4) AAR MARSA; or

   (5) other purpose as decided by the military authority.

MARSA followed by the call sign of the aircraft or formation with whom MARSA will apply e.g. RMK/ MARSA PSTL. Use when STS/MARSA has also been entered in Item 18.

AAR followed by RVCP or anchor point, track designator or MAAA (as applicable) and MARSA call sign e.g. RMK/ AAR AMX100 MARSA BUCK4; or RMK/AAR CARBN W946 MARSA COLT.

APPENDIX 3
FLIGHT NOTE

FLIGHT NOTE

The holder of this Flight Note should alert/contact **JRCC Australia on 1800 815 257** if the pilot has not contacted the holder, to confirm their safety, prior to the **Alert Authorities Time** below.
Any delay could be crucial to the safety of the occupants of the aircraft.
Note: All times are local at each location

Final Destination:	**Alert Authorities Time:** (Local Time)	**Date:**

By supplying all available details below, search and rescue will be more efficient, potentially saving lives, time and cost.

Call-sign:	**Type:**	**Aircraft colour/markings:**	**Navaids:** (Carried & used, include GNSS)	**TAS:**
Pilot's Name:			**Mobile Ph:**	**Alternative Ph (if any):**
Emergency/Secondary/After Hours Contact (Name/Company/Location/Ph)**:**				

Note: Complete a separate line for each flight sector

DEP AD/Point & Ph	**EOBT** (Local time)	**Route** (Turning points)	**DEST & Ph**	**POB**	**Endurance HR|MIN**	

Remarks (if any): (Other useful information to aid Search and Rescue - Mobile phone number of passengers/registration if different from call-sign)

Emergency Equipment (tick box as appropriate)					
Survival Equipment	Life raft ☐ Capacity & colour:	First Aid☐	Water ☐	Lifejackets ☐	Emergency Rations ☐
ELT/PLB/EPIRB	Fixed ☐	Portable☐	**Insert HEX ID/UIN if known:**		
Flight monitoring/aircraft tracking	Fitted ☐	**Type:**		Nil ☐	
Emergency recovery system	Parachute ☐	**Other:**		Nil ☐	
Other signalling/Life-saving devices					

ENR 1.11 ADDRESSING OF FLIGHT PLAN MESSAGES

1. General

1.1 Flight plans are submitted to the briefing office in Canberra, or transmitted directly via NAIPS or the AFTN (see AFTN address list at *GEN 3.4, APPENDIX 1*.)

1.2 Flight movement messages relating to traffic into or via the Brisbane and Melbourne FIRs should be addressed in accordance with the following table:

FIR or controlled aerodrome	Message address
Brisbane FIR	YBBBZQZX
Melbourne FIR	YMMMZQZX
Departure or destination aerodrome	[ICAO location code] ZTZX (see *GEN 3.4 APPENDIX 1* controlled aerodrome location codes)

INTENTIONALLY BLANK

ENR 1.12 INTERCEPTION OF CIVIL AIRCRAFT

1. INTERCEPTION PROCEDURES

The following procedures and visual signals apply over the territory and territorial waters of Australia in the event of interception of an aircraft.

1.1 Action by intercepted aircraft

1.1.1 An aircraft which is intercepted by another aircraft must immediately:

a. follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the tables in *Sections 1.3 and 1.4;*

b. notify, if possible, the appropriate ATS unit;

c. attempt to establish radio communication with the intercepting aircraft, or with the appropriate intercept control unit, by making a general call on the emergency VHF frequency 121.5MHz and repeating this call on the emergency UHF frequency 243.0MHz, if practicable, giving the identity and position of the aircraft and nature of the flight;

d. if equipped with SSR transponder, select code 7700, unless otherwise instructed by the appropriate ATS unit; and

e. if equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate ATS unit.

1.2 Radio communications during interception

1.2.1 If radio contact is established during interception but communication in a common language is not possible, attempts must be made to convey instructions, acknowledgment of instructions and essential information by using the following phrases and pronunciations and transmitting each phrase twice.

Phrases for use by INTERCEPTED aircraft		
Phrase	**Pronunciation[1]**	**Meaning**
CALL SIGN (call sign)[2]	**KOL** SA-IN (call sign)	My call sign is (call sign)
WILCO	**VILL**-KO	Understood. Will comply.
CAN NOT	**KANN** NOTT	Unable to comply.
REPEAT	REE-**PEET**	Repeat your instruction.
AM LOST	**AM LOSST**	Position unknown.
MAYDAY	**MAYDAY**	I am in distress.
HIJACK[3]	**HI-JACK**	I have been hijacked.
LAND (place name)	**LAAND** (place name)	I request to land at (place name).
DESCEND	DEE-**SEND**	I require descent.

1. *Syllables to be emphasized are printed in bold letters.*
2. *The call sign required to be given is that used in radiotelephony communications with ATS units and corresponding to the aircraft identification in the flight notification.*
3. *Circumstances may not always permit, nor make desirable, the use of the phrase "HIJACK".*

1.2.2 The phrases shown in the table below should be used by the intercepting aircraft and transmitted twice in the circumstances described in *para 1.2.1.*

1.2.3 If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the intercepted aircraft should request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.

1.2.4 If instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the intercepted aircraft should request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.

1.2.5 The visual signals for use in the event of interception are detailed in *Sections 1.3 and 1.4*.

Phrases for use by INTERCEPTING aircraft		
Phrase	**Pronunciation**[1]	**Meaning**
CALL SIGN	**KOL** SA-IN	What is your call sign?
FOLLOW	**FOL**-LO	Follow me.
DESCEND	DEE-**SEND**	Descend for landing.
YOU LAND	**YOU LAAND**	Land at this aerodrome.
PROCEED	PRO-**SEED**	You may proceed.

1. *Syllables to be emphasized are printed in bold letters.*

1.3 Signals initiated by intercepting aircraft and responses by intercepted aircraft

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTED Aircraft Response	Meaning
1	**DAY or NIGHT**- Rocking aircraft and flashing navigational lights at irregular intervals (and landing lights in the case of a helicopter) from a position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left (or to the right in the case of a helicopter) on the desired heading. *Notes:* *1. Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Serial 1.* *2. If the intercepted aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.*	You have been intercepted. Follow me.	**DAY or NIGHT** - Rocking aircraft, flashing navigational lights at irregular intervals and following.	Understood, will comply.

Series	INTERCEPTING Aircraft Signals	Meaning	INTERCEPTED Aircraft Response	Meaning
2	**DAY or NIGHT** - An abrupt break-away manoeuvre from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.	You may proceed.	**DAY or NIGHT -** Rocking the aircraft.	Understood, will comply.
3	**DAY or NIGHT**- Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use, or if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover near to the landing area.	Land at this aerodrome	**DAY or NIGHT** - Lowering landing gear, (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area, landing is considered safe, proceeding to land.	Understood, will comply.

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1.4 **Signals initiated by intercepted aircraft and responses by intercepting aircraft**

Series	INTERCEPTED Aircraft Signals	Meaning	INTERCEPTING Aircraft Response	Meaning
4	**DAY or NIGHT** - Raising landing gear (if fitted) and flashing landing lights while passing over runway in use of helicopter landing area at a height exceeding 300M (1,000FT) but not exceeding 600M (2,000FT) (in the case of a helicopter, at a height exceeding 50M (170FT) but not exceeding 100M (330FT)) above the aerodrome level, and continuing to circle runway in use of helicopter landing area. If unable to flash landing lights, flash any other lights available.	Aerodrome you have designated is inadequate	**DAY or NIGHT** - If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the *Series 1* signals prescribed for intercepting aircraft. If it is decided to release the intercepted aircraft, the intercepting aircraft uses the *Series 2* signals prescribed for intercepting aircraft.	Understood, follow me. Understood, you may proceed.
5	**DAY or NIGHT -** Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply	**DAY or NIGHT** - Use *Series 2* signals prescribed for intercepting aircraft.	Understood.
6	**DAY or NIGHT** - Irregular flashing of all available lights.	In distress.	**DAY OR NIGHT**- Use *Series 2* signals prescribed for intercepting aircraft.	Understood.

ENR 1.13 UNLAWFUL INTERFERENCE

1. PILOT ACTIONS

1.1 An aircraft which is being subjected to unlawful interference must endeavour to inform ATS of this fact, along with any deviation from the current flight plan and any other significant factors affecting the operation. SSR-equipped aircraft should use an appropriate code. Information pertinent to the safe conduct of the flight will continue to be transmitted by ATS and appropriate action taken to expedite the conduct of the flight.

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ENR 1.14 AIR TRAFFIC INCIDENTS

1. AUSTRALIAN TRANSPORT SAFETY BUREAU (ATSB)

1.1 About the ATSB

1.1.1 The ATSB is an independent Commonwealth government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers.

1.1.2 The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in:

a. independent investigation of transport accidents and other safety occurrences;

b. safety data recording, analysis and research; and

c. influencing safety action, including through public communications, education and safety recommendations.

1.1.3 The ATSB is established by the *Transport Safety Investigation Act 2003 (TSI Act)* and conducts its investigations in accordance with the provisions of the Act. The fundamental objective of transport safety investigations is the prevention of accidents and incidents. Under the *TSI Act*, it is not a function of the ATSB to apportion blame or provide a means for determining liability. The ATSB does not investigate for the purpose of taking administrative, regulatory or criminal action.

1.1.4 The ATSB publishes all transport safety investigations, including identified safety issues and related safety actions, on the ATSB website www.atsb.gov.au.

1.2 Contact information

1.2.1 Reporting reportable matters

a. Immediately reportable matters via phone 1800 011 034 (International: +61 2 6230 4470).

b. Written reports: www.atsb.gov.au/mandatory/

1.2.2 General enquiries

a. Phone: 1800 020 616 (International: +61 2 6122 1600).

b. Email: atsbinfo@atsb.gov.au

1.2.3 REPCON voluntary confidential reporting scheme

a. Written reports: www.atsb.gov.au/voluntary/

b. Phone: 1800 020 505 (International: +61 2 6230 5135).

1.2.4 Witness report of an accident or incident

a. Contact via www.atsb.gov.au/witness/

b. Phone: 1800 992 986 (International: +61 2 6122 1600, Option1).

2. REPORTING OF ACCIDENTS AND INCIDENTS

2.1 Introduction

2.1.1 The *TSI Act* specifies that certain accidents and incidents, known as reportable matters, must be reported to the ATSB by responsible persons. Depending on the severity of the accident or incident and the type of operation, reportable matters are defined in the *Transport Safety Investigation Regulations 2021* (TSI Regulations) as either immediately reportable matters or routine reportable matters.

2.1.2 The ATSB is the repository for Australia's official aviation safety occurrence database. While the ATSB does not investigate all accidents and incidents, it still needs to be notified of safety occurrences so that the information can be used for safety research and analysis. The ATSB publishes a number of statistical and research reports based on reported occurrences.

2.1.3 The ATSB publishes a searchable database of de-identified aviation accidents and incidents since July 2003. The database can be used for research and analysis, and is available at www.atsb.gov.au/avdata/

2.2 Aircraft that must report reportable matters

2.2.1 All Australian aircraft operating inside and outside of Australia, including:

a. Australian-registered (VH) aircraft on the Civil Aviation Safety Authority (CASA) civil aircraft register.

b. Aircraft listed with sport aviation bodies.

c. Type 1 and Type 2 Remotely Piloted Aircraft (RPA) (type certified or an RPA greater than 250g that is not an excluded RPA as defined by the Civil Aviation Safety Regulations 1998 (CASR) Part 101).

2.2.2 All foreign civilian-registered aircraft operating inside Australia.

2.2.3 The following aircraft are excluded from reporting:

a. Australian Defence aircraft – being aircraft used by the Australian Defence Force (other than aircraft registered on the CASA civil aircraft register).

b. Exempt foreign aircraft – being aircraft used by the military, customs or police services of a foreign country;

c. An RPA that is not Type 1 RPA or Type 2 RPA (this means an excluded RPA as defined by *CASR Part 101*, or micro RPA below 250g).

d. Model aircraft.

e. Small (uncrewed) balloons and light (uncrewed) balloons.

f. Tethered balloons with no persons on board.

g. Kites.

h. Rockets (this is not considered an aircraft).

2.3 Responsible persons for reporting safety matters to the ATSB

2.3.1 Reportable matters known by responsible persons must be reported to the ATSB by that person unless that person believes, on reasonable grounds, that one or more other responsible persons:

a. have already reported the matter; or

b. will as soon as is reasonably practicable report the matter.

2.3.2 However, the ATSB still encourages all responsible persons with information about a reportable matter to report that information to the ATSB.

2.3.3 The following are responsible persons:

a. A crew member of the aircraft concerned.

b. The owner or operator of the aircraft.

c. A person performing an air traffic control service in relation to the aircraft.

d. A person performing a dedicated aerodrome rescue or firefighting service in relation to the aircraft.

e. A person who is licensed as an aircraft maintenance engineer and does any work in relation to the aircraft.

f. A member of the ground handling crew in relation to the aircraft.

g. A member of the staff of CASA.

h. The operator of an aerodrome.

i. A sport aviation body that administers aviation activities in relation to the aircraft.

2.4 Reporting of accidents and incidents

2.4.1 Immediately reportable matters must be reported by phone to the ATSB on 1800 011 034 (+61 2 6230 4470 international) as soon as is reasonably practical.

2.4.2 Immediately reportable matters also require a more detailed written report to be submitted within 72 hours. Written reports can be submitted via the ATSB's online reporting system www.atsb.gov.au/mandatory/ or via a data transfer from a company safety management system database.

2.4.3 Routine reportable matters only require a written report to be submitted within 72 hours. Written reports can be submitted via the ATSB's online reporting system www.atsb.gov.au/mandatory or via a data transfer from a company safety management system database.

3. REPORTABLE MATTERS

3.1 Introduction

3.1.1 Reportable matters are defined in the *TSI Regulations* via a combination of the type of safety occurrences (*see 3.1.2*) and the type of operation (*see 3.1.3*). The combination determines whether a safety occurrence is an immediately reportable matter, routine reportable matter, or not reportable.

3.1.2 The TSI Regulations refer to the following types of safety occurrences:

a. An aircraft accident.

b. A reportable serious aircraft incident.

c. A loss of a separation standard between aircraft.

d. A declaration of an emergency in relation to an aircraft.

e. A serious property damage incident (external).

f. An aircraft incident.

g. An aircraft incident (external).

3.1.3 The TSI Regulations refer to four categories of aircraft operations, each with different reporting obligations:

a. Category A (passenger transport) aircraft operation.

b. Category B (commercial non-passenger) aircraft operation.

c. Category C (non-commercial) aircraft operation.

d. Category D (type 2 RPA and certain uncrewed balloons) aircraft operation.

Note: The full title of Categories A to C (as shown in 3.1.3) primarily relate to crewed aircraft operations. Uncrewed aircraft, including remotely piloted aircraft (RPA), fit into these categories as follows:

a. Category A: RPA conducting passenger transport aircraft operations (future).

b. Category B: type 1 RPA operations (heavier than 25KG or with a type certificate) that is not an excluded RPA as per CASR Part 101.

c. Category C: no uncrewed aircraft operations.

d. Category D: type 2 RPA (at least 250g and under 25KG) that is not an excluded RPA as per CASR Part 101, and uncrewed balloons operations (payload of least 4KG).

3.1.4 See *Section 6.* for details of reportable matters required to be reported.

3.2 **Reportable matters for each type of operation category**

Category A operations have the most reporting requirements and Category D have the least reporting requirements. The below table shows the types of safety occurrences that are either immediately reportable matters (telephone as soon as reasonably practicable and written report within 72 hours), or routine reportable matters (written report within 72 hours), for each type of operation category.

Category	Immediately reportable matters (IRM)	Routine reportable matters (RRM)
Category A (passenger transport) aircraft operations	– Aircraft accident – Reportable serious aircraft incident – Loss of separation standard between aircraft – Declaration of an emergency in relation to the aircraft – Serious property damage incident (external)	– Aircraft incident – Aircraft incident (external)
Category B (commercial non-passenger) aircraft operations	– Aircraft accident – Loss of separation standard between aircraft – Serious property damage incident (external)	– Reportable serious aircraft incident – Declaration of an emergency in relation to the aircraft – Aircraft incident (external)
Category C (non-commercial) aircraft operations	– Aircraft accident – limited to fatal aircraft-related injuries, serious aircraft-related injuries or missing aircraft – Loss of separation standard between aircraft – Serious property damage incident (external)	– Aircraft accident other than reportable as an IRM – Reportable serious aircraft incident – Declaration of an emergency in relation to the aircraft – Aircraft incident (external)

Category	Immediately reportable matters (IRM)	Routine reportable matters (RRM)
Category D (type 2 RPA and uncrewed balloons) aircraft operations	– Aircraft accident – limited to fatal aircraft-related injuries or serious aircraft-related injuries – Serious property damage incident (external)	– Aircraft accident other than reportable as an IRM – Loss of a separation standard between aircraft

3.3 **Category A (passenger transport) aircraft operations**

3.3.1 Passenger transport operation, including the following when they are commercial operations:

a. Air transport operations (scheduled or non-scheduled).

b. Balloon transport operations.

c. Mining fly-in-fly-out operations.

d. Scenic flights/joy flights (where it is not a cost sharing flight).

e. Parachuting operations (where it is not a cost sharing flight).

f. RPA passenger carrying operations and advanced air mobility (future).

g. Aerial work operations that carry passengers who are not crew members (for example, marine pilot transfers).

h. Medical transport operation, including transporting medical patients, medical personnel, or supplies (blood, tissue etc).

i. Repositioning flights prior to conducting a substantive Category A operation.

3.4 **Category B (commercial non-passenger) aircraft operations**

3.4.1 Operation conducted for a commercial purpose – any non-passenger carrying crewed aircraft operation that is conducted for a commercial purpose, including:

a. Aerial work operations such as surveying, spotting, surveillance, aerial application, mustering, aerial photography, media operations, external load operations, search and rescue operations.

b. Flying training activities (such as training under a *CASR Part 141* or *Part 142* training organisation).

3.4.2 Crewed cargo transport operation.

3.4.3 Operating Type 1 remotely piloted aircraft (medium or heavy RPA (heavier than 25KG) or any RPA with a type certificate) that is not an excluded RPA as defined by *CASR Part 101*.

3.4.4 Repositioning flights prior to conducting a substantive Category B operation.

3.5 **Category C (non-commercial) aircraft operations**

3.5.1 All crewed non-commercial operations generally. This includes:

a. Recreational, sport, travel and pleasure flying.

b. Flights where the pilot shares equally in costs with passengers (cost sharing).

c. Community service flights.

d. An aircraft with a special certificate of airworthiness.

e. Operation (where the registered operator is an individual) without payment or reward.

3.6 **Category D (Type 2 RPA and certain uncrewed balloons) aircraft operations**

3.6.1 Operating Type 2 (very small or small) RPA (at least 250g and under 25KG) that is not an excluded RPA as defined by *CASR Part 101*.

3.6.2 Operating an uncrewed free medium or heavy balloon (payload at least 4KG).

4. DEFINITIONS AND EXAMPLES OF TYPES OF REPORTABLE MATTERS

4.1 Introduction

4.1.1 Reportable matters are safety occurrences that involve the operation of an aircraft, including preparation for departure and during disembarkation.

4.1.2 Specifically, in relation to a particular crewed aircraft, reportable matters must occur during the period:

a. Beginning when the aircraft is being prepared for take-off; and

b. ending when all passengers and crew members have disembarked after the flight.

4.1.3 For uncrewed aircraft, reportable matters must occur during the period:

a. Beginning when the aircraft is ready to move with the purpose of flight; and

b. ending when the aircraft comes to rest at the end of the flight and the primary propulsion system is shut down. In the case of an uncrewed aircraft without a primary propulsion system (such as a gas balloon), the end of flight is when the aircraft comes to rest at the end of the flight.

4.2 Emergency declaration

4.2.1 A declaration of an emergency, in relation to an aircraft, means:

a. A declaration, by a flight crew member of the aircraft, of an alert phase (PAN PAN) or a distress phase (MAYDAY); or

b. a declaration by an air traffic service provider of a distress phase (DETRESFA) in relation to the aircraft.

4.3 Loss of separation standard between aircraft

4.3.1 A situation where the recognised separation standard (vertical, lateral or longitudinal) between aircraft that are being provided with an Air Navigation Service Provider (ANSP) separation service is infringed. This includes any of the following:

a. Loss of procedural or surveillance separation standards.

b. Loss of prescribed runway or wake turbulence separation standards.

c. Visual reference is lost during visual separation by a pilot or air traffic controller in controlled airspace.

4.4 **Serious property damage incident (external)**

4.4.1 In relation to the operation of an aircraft, damage to property outside the aircraft that would cost at least $25,000 to repair or replace, that is caused by:

a. Contact with any part of the aircraft, including anything that is attached to the aircraft or that has become detached from the aircraft; or

b. direct exposure to jet blast, propeller wash or rotor downwash from the aircraft.

4.5 **Aircraft accident**

4.5.1 A person suffers a fatal aircraft-related injury (*see 5.1*) in relation to the operation of the aircraft; or

4.5.2 A person suffers a serious aircraft-related injury (*see 5.2*) in relation to the operation of the aircraft; or

4.5.3 The aircraft sustains damage or structural failure (*see 5.3*), or there are reasonable grounds for believing that the aircraft has sustained damage or structural failure, which:

a. Adversely affects the structural strength, performance or flight characteristics of the aircraft; and

b. would normally require major repair or replacement of the affected component.

Except for any of the following:

(i) Engine failure;

(ii) engine damage limited to a single engine (including damage to its cowlings or accessories);

(iii) damage to propellers, wing tips, antennas, probes, vanes, tyres, brakes, wheels, fairings, panels, landing gear doors or windscreens;

(iv) damage such as small dents or puncture holes to the aircraft skin;

(v) minor damage to main rotor blades, tail rotor blades or landing gear;

(vi) minor damage resulting from hail or bird strike (including holes in the RADOME); or

4.5.4 the aircraft is missing; or

4.5.5 the aircraft is completely inaccessible.

4.6 Reportable serious aircraft incident

4.6.1 A serious aircraft incident is an incident involving:

a. Circumstances indicating that there was a high probability of an aircraft accident (that is, a high probability of a fatal or serious aircraft-related injury and/or the aircraft sustaining damage or structural failure); or

b. an incident in the following table of incidents that have the potential to be classified as a serious incident.

Note: The International Civil Aviation Organization (ICAO) Annex 13 Attachment C list of examples of serious incidents is consistent with the TSI Regulations examples.

Note: A reportable serious aircraft incident includes a serious aircraft incident (as per 4.6.1) even when not in the list of examples in the following table, as well as any incident in the list of examples below (with clarifying notes) even if it might not meet the definition of a serious aircraft incident.

4.6.2 List of examples of reportable serious aircraft incidents

Reportable serious aircraft incident as defined by the TSI Regulations	Clarifying notes
A near collision requiring an avoidance manoeuvre to avoid a collision or an unsafe situation, or when an avoidance action would have been appropriate.	– Immediate evasive action was required or should have been taken to avoid a collision. – Includes during flight and on the ground.
A collision with anything other than an animal or a bird.	Unless the resulting damage or injury qualifies it as an accident, an aircraft collides with another aircraft or collides with terrain (including water, trees and wires), a person, structure or object.
Where controlled flight into terrain was only marginally avoided.	– Includes any legitimate terrain avoidance system warning ‘pull up’ type annunciation. – Excludes anticipated or spurious annunciations that occur in VMC.

Reportable serious aircraft incident as defined by the TSI Regulations	Clarifying notes
An aborted take-off on a closed, engaged or unassigned runway, or on a taxiway (other than an authorised operation by a helicopter).	
A take-off from a closed, engaged or unassigned runway, or from a taxiway (other than an authorised operation by a helicopter).	
A landing or attempted landing on a closed, engaged or unassigned runway, on a taxiway (other than an authorised operation by a helicopter), or on an unintended landing location (such as a road).	Excludes helicopter landings on taxiways by authorised helicopter operations.
The retraction of a landing gear leg during landing, or a wheels up landing.	Unless the resulting damage or injury qualifies it as an accident.
The dragging, during landing, of a wing tip, engine pod or any other part of the aircraft.	Unless the resulting damage or injury qualifies it as an accident. Includes during a go-around. Dragging includes any contact with the surface.
A significant failure to achieve predicted performance during take-off or initial climb.	
Fire or smoke in the cockpit, the passenger compartment or a cargo compartment, or engine fire, even if the fire was extinguished by the use of extinguishing agents.	– Includes explosions. – Excludes events involving fumes only.
An event requiring the emergency use of oxygen by a flight crew member.	Includes oxygen use for fumes, depressurisation.

Reportable serious aircraft incident as defined by the TSI Regulations	Clarifying notes
Aircraft structural failure, engine disintegration or uncontained turbine engine failure.	Significant structural airframe failures, excluding dents, missing panels and minor skin damage.
Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.	
Incapacitation of a flight crew member: – during a single pilot operation; or – during a multi pilot operation, if the safety of the operation is compromised because of a significant increase in workload for the remaining flight crew members.	– Incapacitation for any reason to the extent that their ability to perform any flight management role is significantly impaired. – Includes remote pilots.
Fuel quantity level or distribution situations (such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board) requiring the declaration of an emergency by the pilot.	Includes when declaration of emergency would be expected but not done.
A runway incursion where a collision is narrowly avoided.	Only includes runway incursions classified with severity index A as per the *ICAO Manual on the Prevention of Runway Incursions (Doc 9870)*

Reportable serious aircraft incident as defined by the TSI Regulations	Clarifying notes
A take-off or landing incident such as under shooting, overrunning or running off the side of a runway.	– Over-running refers to either a landing or rejected take-off where the aircraft continues beyond the effective operational length available for use by aircraft for landing at certified or registered aerodromes or the distance available for landing on an aircraft landing area. – Under-shoot refers to a landing that touches down prior to the designated landing area on a runway within the aerodrome perimeter.
Any of the following which caused, or could have caused, difficulties controlling the aircraft: – system failures (including loss of power or thrust) – weather phenomena – operations outside the approved flight envelope – any other occurrence.	– Relates only those circumstances that require immediate intervention. – Includes system alerts such as engine indications requiring inflight shutdowns, stall warnings during critical phases of flight. – Includes complete or partial loss of engine power.
Failure of more than one redundant system mandatory for flight guidance and navigation.	
The unintentional or emergency release of a slung load or any other load carried external to the aircraft.	

4.7 **Aircraft incidents**

4.7.1 Any event that is associated with the operation of an aircraft and affects, or could affect, the safety of the operation of the aircraft.

4.7.2 The degree to which an occurrence “affects or could affect” the safety of the operation of the aircraft should be understood to mean occurrences that, if not corrected, could endanger the aircraft or its occupants. To be clear, a responsible person is required to report an aircraft incident whether or not it was actually corrected or able to be corrected.

4.7.3 If an event, without correction, does not endanger the aircraft or its occupants, then the ATSB would consider that it has not affected or could not affect the safe operation of the aircraft (and therefore is an event that does not need to be reported).

4.7.4 Below are typical examples of aircraft incidents. For completeness, the list also includes occurrences that are aircraft accidents and/or reportable serious aircraft incidents, with notes to indicate this. However, the list is not exhaustive, and other operational events not in the list that meet the definition of an aircraft incident must be reported as aircraft incidents.

4.7.5 Operational related aircraft incident examples:

Incident	Definition	Clarifying note
Aircraft control incidents		
Hard landing	The vertical deceleration operational limits for the aircraft set out in the aircraft's flight manual are exceeded during the landing.	Note damage criteria for accidents.
Airframe overspeed	The airspeed limit has been exceeded for the current aircraft configuration as published in the aircraft manual.	– General airframe limits such as VNE; Extension speeds for flaps, slats, spoilers; Undercarriage extension speed. – Minor overspeeds are not incidents. In determining whether the overspeed is minor, both the degree and duration of the overspeed event should be taken into account.

Incident	Definition	Clarifying note
Stall warning	Any cockpit warning or alert that indicates the aircraft is approaching an aerodynamic stall.	– Warnings and alerts that are reportable include: – aural stall warnings – stick shaker activations – stick pusher activations – alpha protection or alpha floor activations. – Stall warnings that are intentionally generated during flying training or flight testing operations are not reportable. – Stall warnings are not reportable if the crew conclusively establish that the indication was false and provided that the false warning did not result in difficulty controlling the aircraft or a hazard arising from the response to the warning. – Note criteria for reportable serious aircraft incidents for stall warnings during critical phases of flight.

Incident	Definition	Clarifying note

Incorrect configuration	Where an aircraft system is incorrectly set for the current and/or intended phase of flight.	– Landing gear not extended in preparation for landing;
		– Inadvertent retraction of landing gear after landing;
		– Incorrectly setting the flaps or slats;
		– Incorrect application of carburettor heat (when carburettor icing occurred or was likely to have occurred).
		– Incorrectly setting the auto flight system mode;
		– Raising the flaps instead of the landing gear after becoming airborne.
		– Minor configuration issues that are not reportable include:
		  – Momentary Enhanced Ground Proximity Warning System (EGPWS) flap and gear warnings related to incorrect settings in the EGPWS
		  – Configuration warnings on the application of take-off power that are resolved by the crew and the aircraft subsequently departs without incident.

Incident	Definition	Clarifying note

Control issues	Occurrences where there were difficulties controlling the aircraft either airborne or on the ground.	– Minor control issues arising from:
		  – Weather phenomenon (icing, severe turbulence, significant wind shear, thunderstorm encounter);
		  – Wake turbulence;
		  – Minor technical issues.
		– Note criteria for reportable serious aircraft incidents.

Weather events	– Icing issue that affect the performance of the aircraft; – Lightning strikes; – Turbulence or windshear that affect aircraft performance;	Note criteria for reportable serious aircraft incidents.

Incident	Definition	Clarifying note
Unstable approach	Flight crew continues an approach to landing when unstable (rather than conducting a go-around) when: a. there is an approved operator-specific stabilised approach criteria and that criteria is not met; or b. there is no approved operator-specific stabilised approach criteria, and one of the clarifying notes is not met under the following conditions: (i) IMC at or below 1,000FT AGL; (ii) VMC at or below 500FT AGL.	– An approach is unstable when one or more of the following criteria is not met: – the aircraft is on the correct flight path; – only small changes in heading/pitch are necessary to maintain the correct flight path; – the airspeed is not more than VREF + 20KT indicated speed and not less than VREF; – the aircraft is in the correct landing configuration; – sink rate is no greater than 1,000FT/minute; – power setting is appropriate for the aircraft configuration and is not below the minimum power for the approach as defined by the operating manual; – all briefings and checklists have been conducted; – instrument landing system approaches flown within one dot of the glideslope and localiser;

Incident	Definition	Clarifying note
		– a Category II or III instrument approach flown within the expanded localiser band; – a circling approach is flown with wings level on final approach when the aircraft reaches 300 feet above airport elevation. – Does not include when the approach was discontinued due to being unstable in the vicinity of 1,000FT (IMC) or 500FT (VMC).
Wheels-up landing	An aircraft contacts the intended landing area with the landing gear retracted.	– Includes intentional and unintentional wheels-up landing. – Includes amphibious aircraft landing on water with landing gear not retracted. *Note: All wheels-up landings are either accidents or reportable serious aircraft incidents.*

Incident	Definition	Clarifying note
Aircraft loading incidents		
Loading-related	Incorrect loading of an aircraft if the loading adversely affected, or could have affected, any of the following: a. the aircraft's weight; b. the aircraft's balance; c. the aircraft's structural integrity; d. the aircraft's performance; e. the aircraft's flight characteristics.	– Incorrect load sheet provided to flight crew; – Incorrect weight data input into flight computers; – Incorrect passenger numbers or seating; – Incorrect freight or baggage or incorrect loading; – Freight shifting inflight or unrestrained freight; – Incorrect fuel quantity or tank usage. – Does not include events that were detected and corrected before flight.
Cabin safety incidents		
Flight crew incapacitation	A flight crew member becomes incapacitated, such that their ability to perform normal flight duties is impaired.	– Incapacitation may be due to illness, injury, physiological or psychological factors, or environmental or other factors. Incapacitation's may be short term or persist for the duration of the flight, and includes both partial and total incapacitation. – Note criteria for reportable serious aircraft incidents.

Incident	Definition	Clarifying note
Depressurisation	Air pressure inside the cabin of a pressurised aircraft reduces to an extent that requires action by the flight crew.	Note criteria for reportable serious aircraft incidents.
Cabin injuries	Crew and passenger injuries and incapacitation's sustained as a direct result of an aircraft operation.	– Injuries to flight crew, cabin crew or passengers if they are the result of: – the movement of the aircraft due to a weather phenomenon like windshear or turbulence; – an abrupt aircraft manoeuvre, either airborne or on the ground – unrestrained objects. – Does not include workplace health and safety related injuries like slips, trips, falls, spillage of hot beverages, bumping head on overhead lockers or passenger illness unless the injury or illness is a direct result of the operation of the aircraft.

Incident	Definition	Clarifying note
Unrestrained occupants/objects	Aircraft occupants, equipment or objects are not appropriately restrained for the aircraft operation or phase of flight.	Includes crew or passengers standing during take-off or landing, passenger not wearing seat belts when required, and unrestrained galley equipment during critical flight phases.
Fire, smoke, and fumes		
Fumes	Smells, odours or odourless fumes not generally associated with normal aircraft operations.	– Includes fumes from: – dangerous goods – post compressor wash – oil / electrical smells – carbon monoxide from engine combustion or heating. – Excludes (if no other consequences): – fumes from galley oven contents or residual cleaning products – bird ingestion through air conditioning – passenger hand luggage contents. – Note criteria for reportable serious aircraft incidents when incapacitation results from fumes. – Note separate reporting requirements for declaration of an emergency.

Incident	**Definition**	**Clarifying note**
Fire	Any fire that has been detected and confirmed in relation to an aircraft operation.	All fire events are reportable serious aircraft incidents.
Smoke	Smoke is reported to be emanating from: a. inside the aircraft; or b. an external component of the aircraft.	– All smoke related events are reportable serious aircraft incidents. – Excludes passengers smoking inside the aircraft when the safety of the aircraft was not compromised.
Flight preparation / Navigation incidents		
Lost/unsure of position	Uncertainty by flight crew in relation to an aircraft's position where the flight crew request assistance from an external source.	Applies to pilots that request navigational assistance from ATC, other aircraft, or other person outside the aircraft in determining their current position.
Pre-flight planning and preparation	Inadequate or incorrect pre-flight planning or preparation of an aircraft for flight that affected, or if not corrected, could have affected the safety of the operation of the aircraft.	– Inadequate or incorrect fuel planning; – Navigation/flight planning issues including flight management computer data entry errors; – Deficiencies or erroneous data in navigation databases; – Inadequate pre-flight aircraft inspection.

Incident	Definition	Clarifying note
Flight below safe altitude	An aircraft is operated below the designated or planned lowest safe altitude for the in-flight conditions and phase of flight.	– Crew error to descend below the lowest safe altitude in IMC; – Aircraft operating below lowest safe altitude without knowledge of terrain in the vicinity; – ATC instruction to descend or operate below the lowest safe altitude; – Aircraft that continue the approach below minima with no visual reference to the runway; – Intentional unauthorised low flight.
VFR into IMC	An aircraft operating under the visual flight rules enters instrument meteorological conditions.	Note criteria for reportable serious aircraft incidents.
Fuel related incidents		
Fuel contamination	The presence of a foreign substance in fuel loaded into an aircraft.	– Fuel that is manufactured outside the technical specifications for the fuel grade or type; – Contamination of fuel in aircraft fuel tanks or aircraft fuel systems; – Incorrect fuel type for aircraft.
Fuel leak or venting	Unplanned loss of fuel from a fuel tank or fuel system.	Includes missing or insecure fuel cap.

Incident	Definition	Clarifying note
Fuel starvation	Fuel supply to the engine(s) is interrupted although there is usable fuel on board the aircraft.	– Mismanagement of the fuel system by the flight crew; – Mechanical failure involving the fuel system; – Unporting of the fuel standpipes during an aircraft manoeuvre. – Note criteria for reportable serious aircraft incidents.
Low fuel	The aircraft's supply of fuel becoming so low that the safety of the aircraft is compromised.	– Any occurrence where final reserve fuel is compromised. – Note the separate reporting requirements for a declaration of an emergency.
Fuel exhaustion	When the engine stops because the aircraft has become completely devoid of useable fuel.	All fuel exhaustion events are reportable serious aircraft incidents.

Incident	Definition	Clarifying note
Ground Proximity Warning		

TAWS/GPWS	A Terrain Avoidance and Warning System (TAWS) warning or alert.	– TAWS warning or alert, such as from a Ground Proximity Warning System (GPWS) and EGPWS
		– Excludes:
		  – expected or spurious terrain warnings in VMC
		  – momentary EGPWS flap and gear warnings related to incorrect settings in the EGPWS
		  – momentary EGPWS glideslope warnings where a safe approach is continued.
		– Note criteria for reportable serious aircraft incidents.

Incident	Definition	Clarifying note
Ground operations' incidents		
Near collision on ground	An aircraft has a near collision with another aircraft, vehicle, structure, person or object while it is operating on the ground or water.	– Near collision on taxiway or apron with another aircraft, vehicle, person or object. *Note: A near collision on the runway strip is a reportable serious aircraft incident.* – Note criteria for reportable serious aircraft incidents for near collisions. *Note: All actual collisions are either an aircraft accident or a reportable serious aircraft incident depending on the level of damage.*
Foreign object damage/debris	Loose objects on a runway or in an aircraft that have caused, or have the potential to cause, damage to an aircraft.	– Aircraft panels/parts that have dislodged from aircraft or vehicles and are a potential hazard to other aircraft; – Tools or equipment left in an engine or avionics bay (found during preflight preparation); – Loose objects in the cockpit/aircraft that result a hazardous condition. – Excludes foreign objects on a runway that have had no interaction with an aircraft.

Incident	Definition	Clarifying note
Ground handling	Aircraft ground handling and aircraft servicing that have caused, or have the potential to cause, damage to the aircraft or injury.	– Any hazardous condition such as vehicles colliding with a stationary aircraft or fuel spillages resulting from ramp operations (after the aircraft is being prepared for flight and before all passengers and crew have disembarked). – Note separate reporting requirement for Aircraft loading incidents.
Jet blast/prop wash/rotor wash	Air disturbance from a ground-running aircraft propeller, rotor, or jet engine that have caused or have the potential to cause damage or injury.	Jet blast or propeller wash that has the likelihood of causing injury to persons, or damage to aircraft or other objects. Also includes instances of helicopter rotor down wash where helicopters are hover taxiing or flying at low level.
Runway events		
Depart, approach, or lands on wrong runway	An aircraft approaches an area other than that authorised or intended for landing or departure.	*Note: All take-off, aborted take-off, landing and attempted landings on closed or engaged runway, on a taxiway, or an unassigned runway, or roadway, are reportable serious aircraft incidents.*

Incident	Definition	Clarifying note
Runway incursions	Incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.	Incorrect presence means: a. anything within the confines of the runway strip, irrespective of having an appropriate clearance, which hinders the operation of an arriving or departing aircraft; or b. an aircraft, vehicle or person entering the confines of the flight path without a clearance to do so, regardless of other aircraft operations. *Note: A runway incursion where a collision is narrowly avoided is a reportable serious aircraft incident.*
Runway excursion	An aircraft veers off the side of the runway or overruns the runway threshold.	Over-running refers to either a landing or a rejected take-off where the aircraft continues beyond the effective operational length available for use by aircraft for landing at certified or registered aerodromes or the distance available for landing on an aircraft landing area. *Note: A runway veer-off or overrun incident during take-off or landing is a reportable serious aircraft incident.*

Incident	Definition	Clarifying note
Runway under shoot	An aircraft attempting a landing touches down prior to the designated landing area on a runway within the aerodrome perimeter.	Includes aircraft landing on the runway surface before a displaced runway threshold. *Note: An aircraft touching down prior to the runway surface is a reportable serious aircraft incident.*
Terrain collisions		
Collision with terrain and near collision with terrain	Any collision or near collision with terrain or water, including wirestrikes, or where controlled flight into terrain is only narrowly avoided	*Note: All collisions and near collisions (where avoidance manoeuvre was required or appropriate) are aircraft accidents or reportable serious aircraft incidents.*
Ground strike	Part of the aircraft drags on, or strikes, the ground or water in an unintended manner during take-off or landing.	– A rotor or propeller makes contact with the ground during take-off or landing; – An engine pod, wingtip, or tail contacts the ground during take-off or landing. – Note criteria for accidents and reportable serious aircraft incidents.

Incident	Definition	Clarifying note
Miscellaneous warning devices		
Warning device other	An aural or visual aircraft warning device activates to alert the flight crew to a situation requiring immediate or prompt corrective action.	Includes chip detectors, propeller/rotor low RPM horns, fire warning devices, carbon monoxide detection. *Note: Separate reporting criteria for stall warnings, EGPWS/TAWS, TCAS/ ACAS, abnormal engine indications or low fuel warnings.*

4.7.6 Mechanical related aircraft incident examples:

Incident	Definition	Inclusions/exclusions
Airframe related incidents		
Doors/exits	An aircraft door (passenger, cargo, or emergency), or its component parts, has exhibited damage or has failed.	Excludes internal doors, like cockpit doors or lavatory doors.

Landing gear	An aircraft's landing gear, brakes, their component parts or tyres have failed.	– Landing gear collapse due to mechanical malfunction;
		– Use of emergency gear extension;
		– Tyre deflation;
		– Overheated or smoking brakes;
		– Faults with float type undercarriages;
		– Faults with emergency flotation devices in helicopters.
		– Excluded:
		  – failure of landing gear indication bulbs
		  – flat tyres while standing or taxiing.
		– Note criteria for accidents and reportable serious aircraft incidents for landing gear collapse, and smoke and fire.

Incident	Definition	Inclusions/exclusions
Windows	A window of the aircraft has exhibited damage or has failed.	– Separation of windows from the aircraft in flight; – Shattering, cracking, crazing, or delamination of a window; – Window heat arcing.
Wing/fuselage/ empennage	Part of the fuselage, wing, or empennage has structurally failed.	– Cracks; – Debonding; – Delamination. – Note criteria for reportable serious aircraft incidents for near collisions.
Objects falling from aircraft	Objects that are inadvertently detached or dropped from an airborne aircraft.	– Detached aircraft parts; – Inadvertent release of towed banner – Cameras or phones lost during open door operations. – Excludes objects deliberately detached or dropped from an aircraft. – Note criteria for reportable serious aircraft incidents loss of a slung load or any other load carried external to the aircraft.

Incident	Definition	Inclusions/exclusions
Power plant/propulsion related incidents		
Abnormal engine indications	Any indications that an engine is malfunctioning or operating outside normal parameters.	– Abnormal engine instrument readings, such as engine power output or temperature, oil pressure or temperature, fuel pressure; – Observation of abnormal sights or sounds by a crew member; – Engine overspeed or over-torque warnings.
Engine failure or malfunction	An engine malfunction that results in a total engine failure, a loss of engine power or rough running engine.	– Partial power loss (loss of RPM, surging, coughing); – Inflight shutdown of a failing engine; – Full power loss to an individual engine. – Note criteria for accidents and reportable serious aircraft incidents.
Propellers and rotor malfunctions	A failure or malfunction of any part of a propeller, helicopter rotor, or associated components.	– Failure of associated propeller accessories, such as feathering mechanisms, constant speed units, and reduction gearboxes; – General reports of damage to a propeller or rotor including delamination.
Transmission and gearboxes	The failure or malfunction of an aircraft transmission or gearbox or associated components.	

Incident	Definition	Inclusions/exclusions
Systems related incidents		
Systems failure	An aircraft system failure. This includes the following systems: a. air/pressurisation b. avionics/flight Instruments c. electrical d. fire protection e. flight controls f. fuel g. hydraulics h. anti-ice protection i. datalink (remotely pilot aircraft)	– Includes only when the operation of the aircraft was compromised or had the potential to compromise safety. – Note criteria for reportable serious aircraft incidents for failure of more than one redundant system.

4.7.7 Airspace related aircraft incident examples:

Incident	Definition	Inclusions / Exclusions
Aircraft separation related incidents		
Collision or near collision	A collision or near collision between aircraft, either airborne or on the runway strip.	– Near collision is where immediate evasive action was required or should have been taken. *Note: All aircraft collisions and near collisions are either accidents or reportable serious aircraft incidents.*
Airborne Collision Alert System warnings	An airborne collision avoidance system resolution advisory alert or equivalent.	– Includes all systems, such as TCAS. – Excludes traffic advisories.

Incident	Definition	Inclusions / Exclusions
Loss of separation	A situation where the recognised separation standard (vertical, lateral or longitudinal) between aircraft that are being provided with an ANSP separation service is infringed.	Note separate reporting requirements for all loss of separation incidents.
Loss of separation assurance	A separation standard existed, however, planned separation was not provided by the ANSP separation service.	– LOSA is an occurrence where separation existed but: – The potential conflict was not identified; or – Separation was not planned or was inappropriately planned; or – The separation plan was not executed or was inappropriately executed; or – Separation was not monitored or was inappropriately monitored.
Other separation issues	Aircraft separation is a concern but does not meet the definition of near collision.	Includes separation issues inside and outside controlled airspace.

4.8 **Aircraft incident (external)**

4.8.1 An aircraft incident (any occurrence associated with the operation of an aircraft that affects or could affect the safety of the operation of the aircraft) that originates from any of the following outside the aircraft:

a. Infrastructure

b. Flying and other objects

c. Animals or birds.

4.8.2 The following table lists typical examples of aircraft incidents (external). The list also notes when they meet additional requirements to be considered as reportable serious aircraft incidents or aircraft accidents. However, the list is not exhaustive, and other events not in the list that meet the definition of an aircraft incident (external) will also need to be reported.

4.8.3 Aerodrome related aircraft incident (external) examples:

Incident	Definition	Inclusions/exclusions
Aerodrome related	Where aircraft safety has been compromised due to the failure or inadequacy of any aerodrome infrastructure used in conjunction with aircraft operations, including: a. Runway lighting (including approach and slope guidance lighting); b. Runway, taxiway or apron surface areas; c. Signs and markings.	Must impact on the operation of an aircraft to be reportable.
Airways facility	Where aircraft safety has been compromised due to the failure or inadequacy of a facility used in connection with an aircraft operation, including: a. A navigation aid; b. Communications; c. Radar/surveillance (including ADS-B); d. Air traffic services; or e. General operational services (e.g. briefing, UNICOM, etc).	– Must impact on the operation of an aircraft to be reportable. – Navigation aids include ground-based and satellite-based aids.

4.8.4 Environment related aircraft incident (external) examples:

Incident	Definition	Inclusions/exclusions
Birdstrike or animal strike	A collision between an aircraft and an animal or a bird.	– Includes birdstrikes (including when the pilot suspects a birdstrike) where the aircraft is in flight, or taking off or landing anywhere. – Birdstrike and animal strikes where a carcass is found on a runway. – Excludes near strikes.
Collision or near encounter with flying object	Collision or near encounter with a flying object when the object interrupts flight or is sighted in the proximity of an aircraft.	– Includes collision or near encounter with any RPA or model aircraft or parachute. *Note: If an RPA is known to be a Type 1 or Type 2 RPA, then reporting requirements for collision and near collision apply.*
Interference from ground	– Near encounter between an airborne aircraft and an object when the object interrupts the aircraft's flight path, or – a laser or spotlight being directed at an airborne aircraft that affects the flight; or – any unauthorised communication, signal or system interference directed at an aircraft, air traffic control or air navigation aid.	– Must impact on the operation of an aircraft to be reportable. – Includes interference from laser pointer lights, kites, yacht masts, weather balloons.

Incident	Definition	Inclusions/exclusions
Other	Other environmental issues that affect the safety of a flight.	Includes insect nests or bodies, or dirt/sand blocking pitot tubes.

5. GUIDANCE FOR DETERMINING INJURY AND DAMAGE

5.1 Fatal aircraft-related injury

5.1.1 A fatal aircraft related injury is one where the person dies as a result of the injury within 30 days after the injury occurs, and the person suffers the injury as a result of:

a. Being in the aircraft during the operation; or

b. direct contact during the operation with any part of the aircraft, including parts which have become detached from the aircraft; or

c. direct exposure to jet blast during the operation.

5.1.2 Fatal aircraft related injuries do not include:

a. The injury results from natural causes.

b. The injury is intentionally self-inflicted.

c. The injury is intentionally caused by another person.

d. The injury is to a person who is a stowaway in a part of the aircraft that is not usually accessible to crew members or passengers after take-off.

5.2 Serious aircraft-related injury

5.2.1 A serious aircraft related injury is when a person suffers a serious injury as a result of:

a. Being in the aircraft during the operation; or

b. direct contact during the operation with any part of the aircraft, including parts which have become detached from the aircraft; or

c. direct exposure to jet blast during the operation.

5.2.2 A serious injury is defined as an injury where any of the following apply:

a. The injury requires, or would usually require, admission to hospital, for more than 48 hours, within 7 days after the day when the injury is suffered.

b. The injury involves a fracture of any bone (other than a simple fracture of fingers, toes or nose).

c. The injury involves lacerations which cause severe hemorrhage or severe nerve, muscle or tendon damage.

d. The injury involves injury to any internal organ.

e. The injury involves second or third degree burns, or any burns affecting more than 5% of the body surface.

f. The injury involves exposure to hazardous chemicals, infectious substances or injurious radiation.

5.2.3 Serious aircraft related injuries do not include when:

a. The injury results from natural causes.

b. The injury is intentionally self-inflicted.

c. The injury is intentionally caused by another person.

d. The injury is to a person who is a stowaway in a part of the aircraft that is not usually accessible to crew members or passengers after take-off.

5.3 Guidance for the determination of aircraft damage

5.3.1 *ICAO Annex 13 Attachment E* provides guidance for when determining if aircraft damage is considered to be an accident, including:

a. If an engine separates from an aircraft, the event is categorised as an accident even if damage is confined to the engine.

b. A loss of engine cowls (fan or core) or reverser components which does not result in further damage to the aircraft is not considered an accident.

c. Occurrences where compressor or turbine blades or other engine internal components are ejected through the engine tail pipe are not considered accidents.

d. A collapsed or missing RADOME is not considered an accident unless there is related substantial damage in other structures or systems.

e. Occurrences of missing flaps, slats and other lift augmenting devices, winglets, etc., that are permitted for dispatch under the Configuration Deviation List (CDL) are not considered accidents.

f. Retraction of a landing gear leg or wheels-up landing, resulting in skin abrasion only, when the aircraft can be safely dispatched after minor repairs or patching, and subsequently undergoes more extensive work to effect a permanent repair, would not be classified as an accident.

g. If the structural damage is such that the aircraft depressurises, or cannot be pressurised, the occurrence is categorised as an accident.

h. The removal of components for inspection following an occurrence, such as the precautionary removal of an undercarriage leg following a low-speed runway excursion, while involving considerable work, is not considered an accident unless significant damage is found.

i. Occurrences that involve an emergency evacuation are not counted as accidents unless someone receives serious injuries or the aircraft has sustained significant damage.

Note 1: Regarding aircraft damage which adversely affects the structural strength, performance or flight characteristics, the aircraft may have landed safely, but cannot be safely dispatched on a further sector without repair.

Note 2: If the aircraft can be safely dispatched after minor repairs and subsequently undergoes more extensive work to effect a permanent repair, then the occurrence would not be classified as an accident. Likewise, if the aircraft can be dispatched under the CDL with the affected component removed, missing or inoperative, the repair would not be considered as a major repair and consequently the occurrence would not be considered an accident.

Note 3: The cost of repairs, or estimated loss, such as provided by insurance companies may provide an indication of the damage sustained but should not be used as the sole guide as to whether the damage is sufficient to count the occurrence as an accident. Likewise, an aircraft may be considered a 'hull loss' because it is uneconomic to repair, without it having incurred sufficient damage to be classified as an accident.

6. DETAILS TO BE REPORTED

6.1 Introduction

6.1.1 The TSI Regulations outline details of immediately and routine reportable matters that are required to be reported to the ATSB. Practically, the below details should be reported when they are known to the reporter.

6.1.2 Investigation decision making and research using details of occurrences included in the ATSB database benefit from reporting as much detail about the reportable matters as is known. Reporters are encouraged to report all details known and to provide detailed descriptions.

6.2 Telephone notification of Immediately reportable matters

a. The type, model, nationality, registration marks and flight number (if any) of the aircraft the subject of the immediately reportable matter.

b. The kind of aircraft operation (with reference to the CASR Part number), and aircraft activity, that the aircraft was engaged in at the time of the immediately reportable matter.

c. The name and contact details of the operator of the aircraft.

d. As much detail as is known about the nature of the immediately reportable matter.

e. A description of any damage to the aircraft or any other property.

f. A description of any dangerous goods on board the aircraft.

g. Whether a person died, or was seriously injured.

h. Where the immediately reportable matter occurred (including a description of the location, or the geographical coordinates).

i. The aircraft's place of departure and destination.

j. The day and local time when the immediately reportable matter occurred.

k. A description of the following, in as much detail as is known:
   (i) what happened;
   (ii) how and why it happened.

l. In relation to the responsible person reporting the matter, their name and a method of contacting the person that will enable the person to be promptly contacted for ATSB to conduct further enquiries into the matter.

6.3 **Written reports (Immediately and Routine reportable matters) excluding bird/animal strikes**

Note: For bird/animal strikes see para 6.4.

a. The name and contact details of the person making the report.

b. The person's role in relation to the aircraft concerned.

c. The type, model, nationality, registration marks and flight number (if any) of the aircraft.

d. The name of the owner of the aircraft.

e. The name and contact details of the operator of the aircraft.

f. If the aircraft was under hire when the reportable matter occurred, the name of the hirer.

g. The name and nationality of each flight crew member, and the type and licence number of the licence held by each of them (for example, a Recreational Pilot Licence Number).

h. The Aviation Reference Number of each flight crew member if one has been issued by CASA.

i. The day and local time when the reportable matter occurred.

j. The place where the flight started (or intended to start); and the place where the flight was intended to end, and if different, the actual place the flight ended.

k. The purpose of the flight.

l. Unless the reportable matter occurred at an airport, the location of the aircraft immediately after the occurrence of the reportable matter, including the geographical coordinates of that location.

m. The number of persons on board the aircraft when the reportable matter occurred (separately for crew and passengers).

n. The nature of the reportable matter, including:
   (i) its outcome or effect on the flight of the aircraft;
   (ii) the phase of the aircraft's flight when the matter occurred;
   (iii) the weather conditions;
   (iv) the airspace designation;
   (v) the altitude at which the matter occurred;
   (vi) if the matter occurred at, or in relation to, an airport—the name of the airport;
   (vii) if the matter occurred on, or in relation to, a runway—the runway number;
   (viii) the causes of the occurrence (if known), including any human performance issues;
   (ix) any safety action carried out to prevent a recurrence of the matter; and
   (x) the nature and extent of any damage to the aircraft.

o. The physical characteristics of the area where the reportable matter occurred (e.g. the terrain, vegetation cover, and existence and location of any buildings, runways or aerodromes).

p. The flight rules under which the aircraft was operating at the time of the reportable matter.

q. The kind of aircraft operation the aircraft was engaged in at the time of the reportable matter (including the CASR Part number and general activity).

r. If the matter resulted in a death or serious injury, and the aircraft carried an emergency locator transmitter—whether the emergency locator transmitter was fixed or portable and whether it was activated at the time the immediately reportable matter occurred.

s. If the aircraft's pilot has died (and if available, for all accidents):
   (i) the pilot's date of birth; and
   (ii) the pilot's total flying hours on all aircraft and flying hours on the same type of aircraft.

t. If any crew members, passengers and/or other persons have been fatally or seriously injured:
   (i) how many;
   (ii) their names and nationalities; and
   (iii) descriptions of their injuries.

6.4 **Written reports – aircraft incidents (external) bird/animal strikes**

a. The name and contact details of the person making the report.

b. The day and local time when the reportable matter occurred.

c. The nature of the reportable matter, including:
   (i) if the matter occurred at, or in relation to, an airport, the name of the airport, and if it occurred on, or in relation to, a runway, the runway number; and
   (ii) the nature and extent of any damage to the aircraft.

d. Any other information that the person making the report considers appropriate such as the species, number of birds/ animals seen and struck, weather conditions.

7. PROTECTING OF EVIDENCE FOR INVESTIGATIONS

7.1 The *TSI Act* provides powers to ATSB transport safety investigators to obtain information necessary to conduct investigations into reportable matters. However, investigations always seek, where possible, to obtain information in cooperation with the owner.

7.2 The *TSI Act* makes provision for an offence if a person engages in reckless conduct that adversely affects an investigation that is either being conducted at that time or could be later conducted into an immediately reportable matter. Practically, this means that potential evidence relating to all immediately reportable matters must be protected, including recorded data (flight recorder, cockpit voice recorder, air traffic communications etc), wreckage and damaged parts, and related documents, unless authorised by the ATSB or informed that the ATSB will not be investigating the matter.

7.3 Similarly, the ATSB may issue a ‘protection order’ for the purpose of protecting evidence that might be relevant to an investigation. This may direct that specified things, or things in a specified class of things, must not be removed or interfered with except with the permission of the ATSB.

7.4 These provisions do not apply if the conduct was necessary for any of:

a. to ensure the safety of persons, animals or property

b. to remove deceased persons or animals from an accident site

c. to move a transport vehicle, or the wreckage of a transport vehicle, to a safe place

d. to protect the environment from significant damage or pollution.

ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, UIR, TMA

1. A full description of Australia’s FIRs and TMAs is contained in AIP DAH. Further, diagrammatic presentation of Australia’s TMAs is contained in aeronautical charts.

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ENR 2.2 OTHER REGULATED AIRSPACE

1. OPERATIONS IN OCEANIC CONTROLLED AIRSPACE

1.1 Clearance Requirements

1.1.1 Aircraft not in receipt of an airways clearance in another FIR are required to obtain an airways clearance prior to entering Australian administered Class A airspace. Clearances may be issued by the primary guard station prior to FIR entry. If a clearance is not received 15 minutes prior to entry, it may be obtained directly by one of the following methods:

a. Voice clearances may be obtained from Brisbane on INO-1, SEA-3, SP-6 or other advised frequencies as appropriate.

b. CPDLC clearances may be obtained from Brisbane (YBBB) or Melbourne (YMMM), as appropriate.

1.2 Mach Number Technique

1.2.1 Mach Number Technique (MNT) is the term used to describe the method of clearing successive jet aircraft, operating along the same track, to maintain specified mach numbers in order to maintain longitudinal separation.

1.2.2 The MNT may be used by ATC in the application of longitudinal separation standards on routes within oceanic controlled airspace. Pilots of jet aircraft must include the planned true Mach Number in their flight plans.

1.2.3 Pilots are required to readback and maintain an assigned Mach Number. ATC approval must be obtained before making any change. If an immediate temporary Mach Number change is essential (e.g. due to turbulence), ATC must be notified as soon as possible that such a change has been made.

1.2.4 MNT may also be applied by ATC in other Australian airspace.

2. SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

2.1 Introduction

2.1.1 Although all possible contingencies cannot be covered, the procedures in *paras 2.2*, *2.3* and *2.4* provide for the more frequent cases such as:

a. the inability to comply with assigned clearance due to meteorological conditions (*para 2.4* refers);

b. en route diversion across the prevailing traffic flow (for example, due to medical emergencies (*paras 2.2* and *2.3* refer)); and

c. the loss of, or significant reduction in, the required navigation capability when operating in an airspace where the navigation performance accuracy is a prerequisite to the safe conduct of flight operations, or pressurisation failure (*paras 2.2* and *2.3* refer).

2.1.2 The pilot must take action as necessary to ensure the safety of the aircraft, and the pilot's judgement must determine the sequence of actions to be taken, having regard to the prevailing circumstances. ATC will render all possible assistance.

2.2 General procedures

2.2.1 If an aircraft is unable to continue the flight in accordance with its ATC clearance, a revised clearance must be obtained, whenever possible, prior to initiating any action.

2.2.2 If prior clearance cannot be obtained, the following contingency procedures should be employed until a revised clearance is received. In general terms, the aircraft should be flown at an offset level and on an offset track where other aircraft are less likely to be encountered. Specifically, the pilot should:

a. leave the cleared track or ATS route by initially turning at least 30 degrees to the right or to the left, in order to establish and maintain a parallel, same direction track or ATS route offset by 5NM. The direction of the turn should be based on one or more of the following factors:

   (1) Aircraft position relative to any organised track or ATS route system;

   (2) The direction of flights and flight levels allocated on adjacent tracks;

   (3) The direction to an alternate airport;

(4) Any strategic lateral offset being flown; and

(5) Terrain clearance;

b. maintain a watch for conflicting traffic both visually and by reference to ACAS (if equipped), leaving ACAS in RA mode at all times, unless aircraft operating limitations dictate otherwise;

c. turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

d. keep the SSR transponder on at all times and, when able, squawk 7700 as appropriate and, if equipped with ADS-B or ADS-C, select the appropriate emergency functionality;

e. as soon as practicable, advise ATC of any deviation from their assigned clearance;

f. use means as appropriate (i.e. voice and/or CPDLC) to communicate during a contingency or emergency;

Note 1: When emergency situations are communicated via CPDLC, the controller may respond via CPDLC. However, the controller may also attempt to make voice contact with the aircraft.

Note 2: Guidance on emergency procedures for controllers, radio operators, and flight crew in data link operations can be found in the Global Operational Data Link (GOLD) Manual (Doc 10037).

g. if voice communication is used, use the radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times, as appropriate; and

h. establish communications with and alert nearby aircraft by broadcasting at suitable intervals on the frequency in use and on 121.5MHz (or, as a backup, on the inter-pilot air-to-air frequency 123.45MHz):

(1) aircraft identification;

(2) flight level;

(3) position including the ATS route designator or the track code, as appropriate;

(4) the nature of the distress condition; and

(5) intentions.

Note: ATC will attempt to determine the nature of the emergency and ascertain any assistance that may be required. Subsequent ATC action with respect to that aircraft will be based on the intentions of the pilot and overall traffic situation.

2.3 **Actions to be taken once offset from track**

Note: The pilot's judgement of the situation and the need to ensure the safety of the aircraft will determine the actions outlined to be taken. Factors for the pilot to consider when deviating from the cleared track or ATS route or level without an ATC clearance include, but are not limited to:

a. operation within a parallel track system;

b. the potential for User Preferred Routes (UPR) parallel to the aircraft's track or ATS route;

c. the nature of the contingency (e.g. aircraft system malfunction); and

d. weather factors (e.g. convective weather at lower flight levels).

2.3.1 If possible, maintain the assigned flight level until established on the 5NM parallel, same direction track or ATS route offset. If unable, initially minimise the rate of descent to the extent that is operationally feasible.

2.3.2 Once established on a parallel, same direction track or ATS route offset by 5NM, either:

a. descend below FL 290, and establish a 500FT vertical offset from those flight levels normally used, and proceed as required by the operational situation or if an ATC clearance has been obtained, in accordance with the clearance; or

Note 1: Flight levels normally used are those contained in ENR 1.7 Section 5.

Note 2: Descent below FL 290 is considered particularly applicable to operations where there is a predominant traffic flow (e.g. east-west) or parallel track system where the aircraft's diversion path will likely cross adjacent tracks or ATS routes. A descent below FL 290 can decrease the likelihood of conflict with other aircraft, ACAS RA events and delays in obtaining a revised ATC clearance.

b. establish a 500FT vertical offset (or 1,000FT vertical offset if above FL 410) from those flight levels normally used, and proceed as required by the operational situation, or if an ATC clearance has been obtained, in accordance with the clearance.

Note: Altimetry System Errors (ASE) may result in less than 500FT vertical spacing (less than 1,000FT above FL410) when the above contingency procedure is applied.

2.4 Weather deviation procedures

2.4.1 General

2.4.1.1 When weather deviation is required, the pilot should communicate with ATC via voice or CPDLC. A rapid response may be obtained by either:

a. stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response; or

b. requesting a weather deviation using a CPDLC lateral downlink message.

Note: Pilots are advised to contact ATC as soon as possible with requests for weather deviations to provide adequate time for the request to be assessed and acted upon.

2.4.1.2 When requesting a weather deviation or offset clearance, the flight crew should specify the distance off route with respect to the cleared route of the aircraft.

2.4.1.3 If the flight crew has received an off-route clearance and then requests and receives a subsequent off-route clearance, the new clearance supersedes the previous clearance (i.e. only the most recent clearance is valid).

Note: All clearances to deviate left or right of route (including multiple clearances) are by reference to the cleared route before any deviation commenced.

2.4.1.4 When necessary, the pilot should initiate the communications using the urgency call "PAN PAN" (preferably spoken three times) or by using a CPDLC urgency downlink message.

2.4.1.5 The pilot must inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to its cleared route. D

2.4.1.6 After communicating with ATC, the pilot:

a. must comply with the ATC clearance issued; or

b. when ATC are unable to issue a clearance for the requested deviation, should advise ATC of intentions and execute the procedures detailed in the following *para 2.4.2.1*.

2.4.2 Actions to be taken if a revised ATC clearance cannot be obtained

2.4.2.1 If the aircraft is required to deviate from track or ATS route to avoid adverse meteorological conditions and prior clearance cannot be obtained, an ATC clearance must be obtained at the earliest possible time. Until an ATC clearance is received, the pilot should take the following actions:

a. If possible, deviate away from an organised track or ATS route system;

b. Establish communications with and alert nearby aircraft by broadcasting, at suitable intervals on the frequency in use and on 121.5MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45MHz):

(1) aircraft identification;

(2) flight level;

(3) position including ATS route designator or the track code; and

(4) intentions.

c. Watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d. Turn on all exterior lights (commensurate with appropriate operating limitations);

e. For deviations of less than 5NM from the originally cleared track or ATS route, remain at a level assigned by ATC;

f. For deviations greater than or equal to 5NM from the originally cleared track or ATS route, when the aircraft is approximately 5NM from track, initiate a level change in accordance with the following table:

Originally cleared track or ATS route centre line	Deviations >5 NM	Level Change
EAST (000° – 179° magnetic)	LEFT RIGHT	DESCEND 300FT CLIMB 300FT
WEST (180° – 359° magnetic)	LEFT RIGHT	CLIMB 300FT DESCEND 300FT

g. If the pilot receives clearance to deviate from cleared track or ATS route for a specified distance and, subsequently, requests, but cannot obtain a clearance to deviate beyond that distance, the pilot should apply an altitude offset in accordance with the table above before deviating beyond the cleared distance;

h. When returning to track or ATS route, be at its assigned flight level when the aircraft is within approximately 5NM of the centre line; and

i. If contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain traffic information.

Note: If, as a result of actions taken under the provisions of this paragraph, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

3. STRATEGIC LATERAL OFFSET PROCEDURES (SLOP) IN OCA

3.1 Aircraft operating in OCA within Australian administered airspace are authorised to use SLOP in accordance with the requirements detailed in *para 3.2.*

3.2 The following requirements apply to the use of SLOP:

a. The offset must only be applied by aircraft with automatic offset tracking capability.

b. The offset must be established in tenths of a nautical mile up to a maximum of 2NM to the RIGHT of track relative to the direction of flight.

Note: Offsets to the left of track are not permitted.

c. The offset must only be applied during the en route phase of flight.

d. The offset may only be used in OCA. Pilots must fly the route centreline for any portion of their route within CTA. Pilots must return to centreline before leaving OCA or, where the subsequent state does not allow SLOP, prior to leaving Australian administered airspace.

e. The offset must not be used in addition to diversions or other offsets; e.g. weather or wake turbulence.

f. The offset must not be applied at levels where obstacle clearance would be affected.

g. Identified aircraft:

(1) may continue an offset in OCA; and

(2) must advise ATC prior to initiating or changing an offset.

3.3 The decision to apply SLOP is the responsibility of the pilot in command - a clearance is not required. Except when an identified aircraft initiates or changes a lateral offset, pilots are not required to notify ATC that SLOP are being applied.

3.4 The use of SLOP is recommended in OCA for aircraft cruising at levels not in compliance with the table of cruising levels specified at *ENR 1.7 Section 5.*

3.5 OCA is depicted on Australian AIP charts as follows:

a. From 150NM SSE of YBBN south to 200NM NNE of YSSY – the blue line depicting the Class C airspace boundary.

b. South of 150NM SE of YSSY – the FIR boundary.

c. Remainder – the brown line depicting the Class E airspace boundary.

4. USE OF GNSS IN OCEANIC AND REMOTE AREAS

4.1 Australia has approved the use of GNSS as a primary means of navigation for oceanic/remote areas. Aircraft operators intending to utilise GNSS as a primary means of navigation in these areas must be approved by the State of Registry or State of the Operator, as appropriate.

4.2 To ensure navigation integrity, an appropriate en route GNSS prediction analysis, using the software provided by the GNSS manufacturer, must be conducted prior to each flight. For this analysis, the following parameters, or equivalents, must be used:

a. the route or airspace RNP, where published; or

b. a centreline space of:

(1) 20NM for flight in CTA, and

(2) 50NM for flight in OCA.

4.3 Aircraft meeting the requirements for the use of GNSS as a primary means of navigation in oceanic/remote continental airspace must indicate the approval in the flight notification. Such aircraft may flight plan on designated Area Navigation routes within Australian FIRs.

5. OPERATIONS IN OCEANIC AIRSPACE REQUIRING PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS) AUTHORISATION

5.1 ICAO have introduced new provisions on PBCS calling for States to prescribe Required Communication Performance (RCP) and Required Surveillance Performance (RSP) specifications in their airspace as appropriate to the level of air traffic services provided. RCP 240 and RSP 180 are being applied in addition to Required Navigation Performance (RNP) specifications to certain separation minima in oceanic airspace by some States.

5.2 Australia has filed a difference with ICAO and has not yet implemented RCP or RSP.

5.3 Flights proceeding outside Australia should be aware that some States have prescribed RCP 240 and RSP 180 specifications in their administered airspace. Those States may require operators to be authorised by CASA to declare their RCP and RSP capabilities and for entering the respective descriptors in their flight plans.

5.4 CASA has issued an Instrument, number CASA 33/18 - *Required Communication Performance and Required Surveillance Performance (RCP 240 and RSP 180) Capability Declarations - Direction 2018*, which states the requirements for Australian operators to assess their compliance to RCP 240 and RSP 180 specifications and declare their readiness by entering the respective RCP and RSP descriptors in their flight plans.

5.5 Guidance on PBCS and the subject CASA Instrument is provided in *Advisory Circular (AC) 91-06 V1.0*.

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ENR 3. ATS ROUTES

ENR 3.1 LOWER ATS ROUTES

1. Details regarding lower ATS routes in Australia FIR can be found in the *DAH.*

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ENR 3.2 UPPER ATS ROUTES

1. Details regarding upper ATS routes in Australian FIRs can be found in *AIP DAH*.

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ENR 3.3 AREA NAVIGATION ROUTES

1. Details regarding Area Navigation routes in Australian FIR can be found in *AIP DAH*.

2. Information regarding which GNSS equipment can be used for different navigation specifications (i.e. RNP or RNAV) can be found in the the *CASR Part 91*, acceptable means of compliance and guidance material (AMC/GM) is available on the CASA website. D

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ENR 3.4 HELICOPTER ROUTES

1. Details regarding helicopter routes and lanes-of-entry to specified airports can be found in *ERSA FAC*.

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ENR 3.5 OTHER ROUTES

1. Details of all routes in Australian FIRs can be found in *AIP DAH*. Information concerning flight planning restrictions can be found in *ERSA GEN*.

2. CONDITIONAL ROUTES (CDR)

2.1 CDR are promulgated to facilitate the flexible use of SUA.

2.2 CDR and associated conditions are published in *ERSA GEN FPR*. Conditions may include time, level and/or flight planning restrictions. Changes to the availability of a CDR (full route or portion) will be notified by NOTAM.

2.3 CDR are divided into categories according to their availability and flight planning requirements. A CDR may be established in one or more of the following categories:

a. **Category one (CDR1) - standard plannable CDR**
CDR1 are normally available for flight planning during times published in the *ERSA GEN FPR* and may be restricted to fixed altitude and/or flight level bands.

b. **Category two (CDR2) - non-standard plannable CDR**
CDR2 are normally available for flight planning when CDR1 are not available, or to address specific ATS conditions.

c. **Category three (CDR3) - non-plannable CDR**
CDR3 are not available for flight planning. CDR3 may be available from ATC at short notice when the published activity in the relevant SUA has paused, ceased, or for addressing specific ATS conditions.

2.4 Conditional route categories and Restricted Area (RA) conditional status should align. Where the flight planning allowance for a CDR category is different to the published RA conditional status, contact the National Airspace Management Office (NAMO) to ascertain the correct flight planning requirement.

2.5 For enquiries regarding CDR, contact the NAMO by emailing: namo@airservicesaustralia.com.

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ENR 3.6 EN ROUTE HOLDING

1. En route holding positions are identified on AIP aeronautical charts.

2. Further details regarding:

    a. En route holding may be found in *ENR 1.5 Section 3.*

    b. Holding Fuel requirements are contained in *ENR 1.1 Section 10.*

    c. ATFM procedures are contained in *ENR 1.9*.

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ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 RADIO NAVIGATION AIDS - EN ROUTE

1. En route radio navigation aids for all ATS routes are identified in *AIP DAH* and on aeronautical charts.

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ENR 4.2 SPECIAL NAVIGATION SYSTEMS

1. There are no special navigation systems in existence in Australian FIRs.

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ENR 4.3 GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)

1. No SBAS signal should be used for navigation in Australian airspace until the Southern Positioning Augmentation Network (SouthPAN) is commissioned for safety of life applications including aeronautical navigation.

2. SouthPAN (Service Provider Identifier 8) is radiating test configuration SBAS L1 and DFMC services. Both services are not available for aeronautical navigation, and this is indicated by transmission of Message Type 0. A pilot in command becoming aware of irregular operation of a navigation function due to SouthPAN testing should report to the appropriate ATS unit in accordance with *ENR 1.1 para 10.10.1*. The keyword ‘SouthPAN’ should be included in any report.

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ENR 4.4 NAME-CODE DESIGNATORS FOR SIGNIFICANT POINTS

1. The five-letter codes and respective geographical coordinates for IFR waypoints in Australian FIR are listed in *ERSA GEN* and identified on en route charts.

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ENR 4.5 AERONAUTICAL GROUND LIGHTS – EN ROUTE

1. Aeronautical ground lights may indicate visual lanes of entry at some Class D aerodromes. If present, these lights are identified on Visual Terminal Charts (VTC).

2. Aerodrome beacons and hazard beacons for particular locations are identified in *ERSA FAC*.

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ENR 5. NAVIGATION WARNINGS

ENR 5.1 PROHIBITED, RESTRICTED, DANGER AND MILITARY OPERATING AREAS

1. GENERAL

1.1 Airspace in which a potential hazard to aircraft operations may exist, and all areas over which the operation of civil aircraft may be restricted are promulgated as follows:

a. Prohibited Area;

b. Restricted Area;

c. Danger Area; or

d. Military Operating Area (MOA).

1.2 Details of PRD and MOA are promulgated in the *DAH, ERSA* and/or NOTAM, and depicted on *AIP aeronautical charts*. PRD and MOA are identified using:

a. a letter, as follows

(i) P - Prohibited Area

(ii) R - Restricted Area

(iii) D - Danger Area

(iv) M - Military Operating Area

b. a number, to identify the specific area.

1.3 Temporary Restricted, Danger and Military Operating Areas, such as for military exercises, air shows and special events, are promulgated by AIP SUP, or as Brisbane FIR (YBBB) or Melbourne FIR (YMMM) NOTAM as appropriate for the location. Temporary areas are identified using:

a. a temporary airspace identifier:

(i) TRA – temporary Restricted Area

(ii) TDA – temporary Danger Area

(iii) TM – temporary Military Operating Area, and

b. an additional airspace identifier such as:

(i) the airspace name e.g. ‘Coral South’, and/or

(ii) numbers from the 900 series, i.e. numbers that start with a nine e.g. TRA940.

1.4 Unless otherwise specified, vertical limits are promulgated as AMSL when at or below the transition altitude, or as a flight level when above the transition altitude. The abbreviation “SFC” means the surface of the ground or water. “NOTAM” indicates that the vertical limits or hours of activation will be notified by NOTAM.

1.5 The promulgated vertical limits of Prohibited, Restricted and Military Operating Areas include all the buffers necessary for the protection of aircraft operating outside these areas. Therefore, the promulgated levels may be used by aircraft avoiding the areas, except where the vertical limit abuts controlled airspace, in which case, a clearance is required.

2. FLIGHT WITHIN PRD AND MOA

2.1 Flight within a Prohibited Area is not permitted in any circumstances.

2.2 Flight within active Restricted Areas is subject to the conditions published in *AIP, ERSA, DAH* and NOTAM. To obtain access to a Restricted Area, pilots must request approval from the controlling authority (see *ERSA*). When an ATC service is available within that airspace, approval may be requested from ATC directly, in the same manner as a clearance request to enter controlled airspace.

Note: Clearances may be withheld when activities hazardous to the aircraft are taking place, or when those activities require absolute priority.

2.3 All Restricted Areas have been allocated an RA conditional status to indicate the likelihood of obtaining a clearance to fly through the area.

Conditional Status	Meaning
RA1	Pilots may flight plan through the Restricted Area and, under normal circumstances, expect a clearance from ATC.
RA2	**Pilots must not flight plan through the Restricted Area** unless on a route specified in *ERSA GEN FPR* or under agreement with the controlling authority. Even so, a clearance from ATC is not assured. Other tracking may be offered through the Restricted Area on a tactical basis.
RA3	**Pilots must not flight plan through the Restricted Area** and clearances will not be available.
Note 1: NOTAM may be issued to indicate changes to the conditional status, which should be checked prior to flight planning.	
Note 2: In a declared emergency, every effort will be made to obtain approval to transit a Restricted Area, irrespective of its conditional status.	
Note 3: See ENR 3.5 para 2 Conditional Routes.	

2.4 If the conditional status is uncertain, treat the Restricted Area as conditional status RA3 and avoid the area.

2.5 Approval for flight within an active Danger Area outside controlled airspace is not required. However, it is the responsibility of the pilot in command to be aware of the dangerous activity and take appropriate precautions.

2.6 MOA are generally established to encompass intensive military activities, including live firing. For non-participating aircraft, flight within active MOA is generally only approved in exceptional circumstances.

MOA have the same entry approval requirements as Restricted Areas:

a. For all aircraft within Australian territory (including Australian territorial waters which are generally up to 12NM offshore); and

b. Only Australian registered aircraft outside Australian territory.

2.6.1 Outside Australian territory, foreign registered aircraft are not subject to MOA entry control, however flights electing to transit an active MOA without approval will not receive an air traffic control service and protection from dangerous activities occurring in the MOA cannot be provided. A limited FIS and SAR service will be available from civil ATS, in accordance with the relevant flight rules.

The Pilot in Command should take appropriate precautions against any safety risks that could arise from the flight, including contacting the MOA administering authority and identifying their operation. Where contact cannot be made with the MOA administering authority, squawk 7700 and broadcast at suitable intervals on 121.5 MHz including aircraft identification, position, flight level, and intentions.

2.7 Restricted, Danger and Military Operating Areas may be activated or deactivated at short notice. Access to a Restricted or Military Operating Area may be available if the activity for which it has been activated has ceased (early deactivation). It is a pilot responsibility to check current status with ATS.

ENR 5.2 MILITARY EXERCISE AND TRAINING AREAS AND AIR DEFENCE IDENTIFICATION ZONE (ADIZ)

1. MILITARY SENSITIVE AREAS

Note 1: These areas are applicable to military activities only.

Note 2: See also ENR 5.6.

Note 3: Levels are AGL unless specified otherwise.

1.1 Brisbane FIR

1.1.1 YB/S1- Katherine Gorge

Overfly at or above 2,500FT AMSL or remain outside the area bounded by 141554S 1322406E - 141454S 1323706E - 141954S 1323606E - 141954S 1322406E - 141554S 1322406E.

1.1.2 YB/S2 - Newcastle/Stockton

Overfly at or above 2,000FT or remain outside the area bounded by 325118S 1514218E - south bank of Hunter River 325224S 1514300E - 325224S 1514836E - 325942S 1514836E clockwise around arc radius 5NM centre 325554S 1514218E - 325118S 1514218E.

1.1.3 YB/S3 - Singleton City

Overfly at or above 2,000FT or remain outside a circle radius 1NM centre 322354S 1511106E.

1.1.4 YB/S4 - Legges Camp / Bombah Point

Overfly at or above 2,000FT or remain outside a circle radius 1NM centre 322954S 1521806E.

1.1.5 YB/S5 - Largs

Overfly at or above 2,000FT or remain outside a circle radius 1NM centre 324154S 1513606E.

1.1.6 YB/S6 - Siding Spring Observatory

Aircraft operating outside controlled airspace are to remain outside the following circular areas centre 311630S 1490406E.

Aircraft operating in controlled airspace are to remain on track unless otherwise instructed by ATC.

SFC to 10,000FT AMSL	3NM radius
10,000FT to FL200	5NM radius
FL200 to FL300	8NM radius
FL300 to FL450	12NM radius
above FL450	17NM radius

1.1.7 **YB/S7 - Leadville**

Overfly at or above 1,000FT or remain outside a circle radius 3NM centre 320100S 1493018E.

1.1.8 **YB/S8 - Saxonvale Mine**

All military aircraft are advised caution is to be exercised flying over coal mines adjacent to west boundary Singleton firing ranges/training areas.

Mine operator advises vertical danger to unspecified heights exists during regular explosive blasting in pits. Aircraft should avoid overflying pits, but no restrictions exist overflying mine buildings, or other parts of mine operation.

Saxonvale is the southern mine of the two.

1.1.9 **YB/S9 - Pallarenda**

Overfly at or above 2,000FT or remain outside a circle radius 1NM centre 191206S 1464624E. Aircraft departing/arriving Townsville are to comply with avoidance instructions issued by Townsville ATC.

1.1.10 **YB/S10 Great Barrier Reef Marine Park (Far Northern Section)**

Overfly at or above 3,000FT or remain outside the following circular areas radius 3NM and centres:

Ashmore Banks	114754S	1433818E
	115118S	1433536E
	115354S	1433906E
Boydong Islet and Reef	112854S	1430106E
	112954S	1430506E
Bird Islet	114554S	1430536E
Burkitt Island	135654S	1434518E
Bushy Island and Reef	111454S	1425306E
	113454S	1425406E
	114354S	1425806E
Cairncross Island and Reef	111354S	1425506E
Cholmondeley Islet and Reef	112154S	1430306E
Clack Island and Reef	140354S	1441506E
Combe Island and Reef	142412S	1445424E
Coquet Island	143224S	1445936E
Davie Reef	135842S	1442654E
Douglas Island and Reef	111354S	1425906E
Fife Island and Reef	133854S	1434306E
Hannah Island	135154S	1434306E
Hay Island	134006S	1434136E
Houghton Island	143124S	1445836E
Howick Island	143006S	1445836E
Ingham Island	142506S	1445318E
King Island and Reef	140554S	1442006E
Lloyd Island and Reef	124554S	1432406E
Lowrie Islet	131624S	1433548E
MacArthur Islands	114354S	1425906E
MacLennan Reef	112412S	1434636E
Magra Islet and Reef	115154S	1431706E
Morris Island and Reef	132854S	1434306E
Moulter Reef	112442S	1435936E
Newton Island	143024S	1445506E

Night Island	131054S	1433436E
Pelican Island and Reef	135442S	1435006E
Pipon Island and Reef	140654S	1443106E
Quoin Island	122418S	1432936E
Raine Island	113606S	1440154E
Reef	132612S	1435818E
Reef	132136S	1435736E
Saunders Islet	114154S	1431106E
	114254S	1431206E
Sinclair Island and Reef	143254S	1445406E
Sinclair Islet and Reef	110654S	1430106E
Sir Charles Hardy Island	115354S	1432806E
Stainer Islet	135724S	1435006E
Tydeman Reef	135900S	1443018E
Wallace Island and Reef	112654S	1430206E
West Hannibal Lighthouse	113554S	1425706E
Wilke Island	134618S	1433830E

1.1.11 **YB/S11 Great Barrier Reef Marine Park (Cairns Section)**

Overfly at or above 3,000FT or remain outside the following circular areas radius 3NM and centres:

Agincourt Reefs	155948S	1455000E
Beaver Reef	175006S	1462906E
Eagle Island and Reef	144154S	1452306E
Green Island	164530S	1455806E
Hastings Reef	163112S	1460124E
Hope Islands	154454S	1452706E
Low Islets	162306S	1453418E
Low Wooded Island and Reef	150554S	1452306E
Mackay Reef	160254S	1453906E
Michaelmas Reef	163618S	1455900E
Nymph Island	143854S	1451506E
Rocky Islets	145136S	1452900E

Stephens Island and Reef	174354S	1461006E
Taylor Reef	175006S	1463342E
Three Isles	150654S	1452536E
Turtle Island	144312S	1451130E
Two Islands	150112S	1452654E
Undine Reef	160654S	1454006E

1.1.12 **YB/S12 - Great Barrier Reef Marine Park (Central Section)**

Overfly at or above 3,000FT or remain outside the following circular areas radius 3NM and centres:

Brook Islands	180836S	1461718E
Dunk Island	175636S	1460924E
Eshelby Island	200112S	1483736E
Family Islands	180218S	1461048E
Hardy Reef	194542S	1491354E
John Brewer Reef	183806S	1470348E

1.1.13 **YB/S13 - Great Barrier Reef Marine Park (Mackay/Capricorn Section)**

Overfly at or above 3,000FT or remain outside the following circular areas radius 3NM and centres:

Bell Cay	214848S	1511454E
Bushy Island	205730S	1500506E
Bylund Cay	214712S	1522442E
Gannett Cay	215854S	1522830E
Frigate Cay	214424S	1522506E
Price Cay	214712S	1522636E
Redbill Island	205824S	1500506E
Thomas Cay	213854S	1522136E

1.1.14 **YB/S14 - Great Barrier Reef Marine Park (Southern Section)**

Overfly at or above 3,000FT or remain outside the following circular areas radius 3NM and centres:

Fairfax Islands	235124S	1522224E
Heron Island	232630S	1515448E
Hoskyn Islands	234812S	1521748E
Lady Elliot Island	240654S	1524236E
Lady Musgrave Island	235424S	1522336E
Masthead Islet	233212S	1514436E
North Reef	231100S	1515424E
North West Island	231748S	1514224E
One Tree Island	233024S	1520530E
Tryon Island	231448S	1514636E
Wilson Island	231818S	1515454E
Wreck Island	231954S	1515718E

1.1.15 **YB/S15 - Pelican Rock/Akens Island**

During the months October to March, the rock is a nesting area for pelicans. Pilots of low flying aircraft are requested to avoid the area over and near 222024S 1501536E as far as practicable during this period.

1.1.16 **Restricted and Military Operating Areas withing Marine Parks**

1.1.16.1 The existing military Restricted and Military Operating Areas that are located within a marine park have been identified in the Queensland State Marine Parks Act Zoning Plans. The Great Barrier Reef Marine Park Regulations 2019, as well as other Marine Park Zoning Plans, contain restrictions regarding aircraft operations in the vicinity of whales. Although the conduct of military operations within Restricted and Military Operating Areas is not constrained, military pilots are requested to comply with the following requirements based on the legislation and zoning plans, particularly during the migratory period between 1 August and 30 November:

a. not operate an aircraft below 1,000FT within 300M of a whale, and

b. not operate a helicopter below 2,000FT within 1KM of a whale.

1.1.16.2 Whenever possible, prior notification of military flights within a marine park should be provided to the Assistant Director Marine Parks, Queensland Department of Environment and Heritage, PO Box 155 North Quay Queensland 4002.

1.2 **Melbourne FIR**

1.2.1 **YM/S1 - Altona**

Overfly at or above 500FT and preferably by 1,500FT or remain outside a circle radius 0.5NM centre 375106S 1444824E

1.2.2 **YM/S2 - Sarsfield**

Overfly at or above 1,000FT or remain 5NM outside a circle radius 5NM centre ESL 040034 (374454S 1474248E).

1.2.3 **YM/S3 - Clyde River Valley**

Overfly at or above 4,000FT or remain outside an area bounded by a semicircle of 2NM radius centred on Nelligen (353854S 1500806E) thence 2NM either side of the Clyde river, Northbound to join a semicircle radius 2NM centre on Brooman (352754S 1501424E)

1.2.4 **YM/S4 - Mt Stromlo Observatory**

Aircraft operating outside controlled airspace are to remain outside the following circular areas centre 351912S 1490024E.

Aircraft operating in controlled airspace are to remain on track unless otherwise instructed by ATC.

SFC to 10,000FT AMSL	1NM radius
10,000FT to FL200	5NM radius
FL200 to FL300	8NM radius
FL300 to FL450	12NM radius
Above FL450	17NM radius

1.3 Permanent Drilling Rigs

1.3.1 Oil and gas platforms (land and sea) are declared sensitive areas. They are to be avoided by an airspace of 1,000FT vertically and 1NM horizontally. Permanent Drilling Rigs are listed in below.

Barracouta	381749S	1474034E
Whiting	381424S	1475226E
Snapper	381139S	1480132E
Marlin	381350S	1481315E
Tuna	381012S	1482510E
West Tuna	381133S	1482319E
Flounder	381841S	1482622E
Halibut	382416S	1481913E
Fortescue	382427S	1481641E
Cobia	382659S	1481833E
Mackerel	382846S	1482034E
Kingfish B	383550S	1481117E
Kingfish A	383548S	1480841E
West Kingfish	383536S	1480620E
Bream B	383102S	1475020E
Bream A	383000S	1474620E
Dolphin	382914S	1472239E
Perch	383409S	1471921E

2. MILITARY AAR AND AEW&C AIRSPACE

2.1 General

The conduct of Air to Air Refuelling (AAR) and Airborne Early Warning and Control (AEW&C) operations is based on the strict requirement that participating aircraft remain within specifically designated airspace. In general AAR and AEW&C operations in Australian airspace are conducted on tracks and in anchor patterns published in this document. Where mission requirements necessitate operations outside of published areas refer to Australian Defence Force Flight Information Handbook Australia (ADF FIHA) for planning information.

AAR operations will be conducted under instrument flight rules. The tanker aircraft is responsible for requesting altitude clearance and routing, if different than flight plan routing, for the receiver(s) and tanker beyond the AR Exit point. Throughout the refuelling operation, controller initiated heading assignments may not be effected without a clearance from the tanker. Each aircraft must receive a specific clearance prior to leaving the refuelling track/anchor if outside Military Restricted airspace.

2.2 **Explanation of terms**

2.2.1 **Refuelling tracks**

a. **RVIP – Rendezvous Initial Point.** A planned geographic point prior to the RVCP to which tankers and receivers time independently to effect an arrival at the RV control time.

b. **RVCP – Rendezvous Control Point.** The planned geographic point over which the receiver(s) arrive in the observation/astern position with respect to the assigned tanker.

c. **Navigation Checkpoints.** Designated points where required to provide a means for adequate navigation along track.

d. **Exit.** The point at which the refuelling track terminates.

e. **Communication/Rendezvous Plan (C/R Plan):**

   (i) Primary UHF

   (ii) Backup UHF

   (iii) APN 69/134/135 Settings

   (iv) APX 78/Encode/Decode

   (v) TACAN Channels Receiver/Tanker

   (vi) N/R = Not required

f. **Refuelling Altitudes.** The block of airspace within which refuelling operations may be conducted.

g. **Scheduling Unit.** The military unit responsible for scheduling AAR operations along the route.

h. **Assigned Centre.** Primary airspace control authority.

i. **SODAR.** Simultaneous Opposite Direction Air Refuelling.

2.2.2 **Refuelling Anchors**

a. **Entry Points.** Designated points where tanker aircraft may enter the anchor area without the assistance of radar. When tanker is actively controlled by ATC or GCI the tanker may proceed to the anchor point without crossing an Entry point.

b. **Anchor Point/Inbound Course/Leg length.** The geographic point upon which the anchor pattern is oriented and the inbound course to the anchor point and the length of the inbound leg.

c. **Anchor Pattern**. A left hand pattern with the four defining points of the pattern.

d. **Exit Point**. Designated points where tanker and receiver aircraft may depart the anchor area after refuelling is complete. Under positive radar control tanker and receiver aircraft may exit anchor pattern without crossing an exit point.

2.3 Amberley AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM11									
262906.0S 1540454.0E	262906.0S 1540454.0E	260606.0S 1544800.0E (AM11C) 048° 45NM	260606.0S 1544800.0E 254854.0S 1543636.0E 261148.0S 1535330.0E 262906.0S 1540454.0E	261148.0S 1535330.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M640C/D active, Brisbane (As assigned) if M640C/D deactivated	NOTAM
AIRSPACE: 261542S 1532954E (AMX100) - 244942S 1550206E (AMX101) - 253930S 1555400E (AMX102) - 264642S 1535330E (AMX103) - 261542S 1532954E (AMX100).									
REMARKS: Pattern size: 45NM x 20NM. Pattern exists within M640C and D (5000-NOTAM).									
AM13									
273136.0S 1551154.0E	273136.0S 1551154.0E	270654.0S 1555418.0E (AM13C) 045° 45NM	270654.0S 1555418.0E 265006.0S 1554200.0E 271448.0S 1545936.0E 273136.0S 1551154.0E	271448.0S 1545936.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M649B active, Brisbane (As assigned) if M649B deactivated	NOTAM
AIRSPACE: 274630.0S 1544430.0E (AMX104) - 271312.0S 1544430.0E (AMX105) - 263324.0S 1554654.0E (AMX106) - 261548.0S 1563030.0E (AMX107) - 271636.0S 1573106.0E (AMX108) - 285012.0S 1563754.0E (AMX109) - 274630.0S 1544430.0E (AMX104).									
REMARKS: Pattern size: 45NM x 20NM. Pattern exists within M649B (5000-NOTAM).									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM15									
300436.0S 1541700.0E	300436.0S 1541700.0E	292430.0S 1544042.0E (AM15C) 015° 45NM	292430.0S 1544042.0E 291524.0S 1542018.0E 295530.0S 1535630.0E 300436.0S 1541700.0E	295530.0S 1535630.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M661A active, Brisbane (As assigned) if M661A deactivated	NOTAM
AIRSPACE: 285212.0S 1534942.0E (AMX110) - 282912.0S 1535736.0E (AMX111) - 283348.0S 1540918.0E (AMX112) - 291324.0S 1550712.0E (AMX113) - 302812.0S 1542554.0E (AMX114) - 301854.0S 1532930.0E (AMX115) - 293924.0S 1533736.0E (AMX116) then along the minor arc of a circle radius 30.00NM centre 291154.0S 1532342.0E - 285212.0S 1534942.0E (AMX110).									
REMARKS: Pattern size: 45NM x 20NM. Pattern exists within M661A (5000-NOTAM).									
AM17									
290512.0S 1503006.0E	290512.0S 1503006.0E	283500.0S 1505924.0E (AM17C) 030° 45NM	283500.0S 1505924.0E 282206.0S 1504218.0E 285218.0S 1501254.0E 290512.0S 1503006.0E	285218.0S 1501254.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R639D active, Brisbane (As assigned) if R639D deactivated	NOTAM
AIRSPACE: 292212.0S 1500918.0E (AMX117) - 282830.0S 1495324.0E (AMX125) - 280830.0S 1510336.0E (AMX126) - 281942.0S 1510848.0E (AMX127) - 283530.0S 1512036.0E (AMX128) - 284430.0S 1512942.0E (AMX129) - 292218.0S 1500918.0E (AMX117).									
REMARKS: Pattern size: 40NM x 20NM. Pattern exists within R639D (10000-NOTAM).									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM19									
281136.0S 1501548.0E	281136.0S 1501548.0E	274112.0S 1504512.0E (AM19C) 030° 40NM	274112.0S 1504512.0E 272812.0S 1502806.0E 275830.0S 1495842.0E 281136.0S 1501548.0E	275830.0S 1495842.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R639C active, Brisbane (As assigned) if R639C deactivated	NOTAM
AIRSPACE: 281000.0S 1494800.0E (AMX118) - 265736.0S 1494406.0E (AMX130) - 271742.0S 1505342.0E (AMX131) - 272830.0S 1505306.0E (AMX132) - 274500.0S 1505536.0E (AMX133) - 280106.0S 1510012.0E (AMX134) - 280830.0S 1510336.0E (AMX135) - 282830.0S 1495324.0E (AMX136) - 281000.0S 1494800.0E (AMX118).									
REMARKS: Pattern size: 40NM x 20NM. Pattern exists within R639C (10000-NOTAM).									
AM22									
241348.0S 1543754.0E	241348.0S 1543754.0E	245112.0S 1551424.0E (AM22C) 125° 50NM	245112.0S 1551424.0E 243754.0S 1553048.0E 240030.0S 1545418.0E 241348.0S 1543754.0E	240030S 1545418E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647		NOTAM
AIRSPACE: 250654.0S 1551954.0E (AMX200) - 244942.0S 1550206.0E (AMX201) - 240824.0S 1541948.0E (AMX202) - 234554.0S 1544730.0E (AMX203) - 244542.0S 1554554.0E (AMX204) - 250654.0S 1551954.0E (AMX200).									
REMARKS: Pattern size: 50NM x 20NM. Airspace size: 80NM x 30NM. No current procedure available for anchor AAR operations outside Military controlled airspace.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM24									
262412.0S 1564712.0E	262412.0S 1564712.0E	270106.0S 1572500.0E (AM24C) 125° 50NM	270106.0S 1572500.0E 264730.0S 1574130.0E 261036.0S 1570342.0E 262412.0S 1564712.0E	261036S 1570342E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647		NOTAM
AIRSPACE: 271636.0S 1573106.0E (AMX205) - 261648.0S 1563124.0E (AMX206) - 255612.0S 1565630.0E (AMX207) - 265506.0S 1575700.0E (AMX208) - 271636.0S 1573106.0E (AMX205).									
REMARKS: Pattern size: 50NM x 20NM. Airspace size: 80NM x 30NM. No current procedure available for anchor AAR operations outside Military controlled airspace.									
AM26									
304348.0S 1560036.0E	304348.0S 1560036.0E	300312.0S 1562306.0E (AM26C) 017° 45NM	300312.0S 1562306.0E 295430.0S 1560218.0E 303506.0S 1553942.0E 304348.0S 1560036.0E	303506S 1553942E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647		TBA
AIRSPACE: 295142.0S 1563542.0E (AMX209) - 305936.0S 1555818.0E (AMX210) - 304630.0S 1552654.0E (AMX211) - 293842.0S 1560436.0E (AMX212) - 295142.0S 1563542.0E (AMX209).									
REMARKS: Pattern size: 45NM x 20NM. Airspace size: 75NM x 30NM. No current procedure available for anchor AAR operations outside Military controlled airspace.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM28									
283530.0S 1494700.0E	283530.0S 1494700.0E	274606.0S 1493748.0E (AM28C) 344° 50NM	274606.0S 1493748.0E 274918.0S 1491536.0E 283848.0S 1492436.0E 283530.0S 1494700.0E	283848.0S 1492436.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL200/ FL300	33SQN OPS 0753629647		NOTAM
AIRSPACE: 273512.0S 1490724.0E (AMX213) - 272942.0S 1494548.0E (AMX214) - 281000.0S 1494800.0E (AMX118) - 284900.0S 1495924.0E (AMX215) - 285424.0S 1492142.0E (AMX216) - 273512.0S 1490724.0E (AMX213).									
REMARKS: Pattern size: 50NM x 20NM. Airspace size: 80NM x 30NM. No current procedure available for anchor AAR operations outside Military controlled airspace.									
AM83									
254830.0S 1564106.0E	254830.0S 1564106.0E	250012.0S 1555254.0E (AM83C) 305° 70NM	250012.0S 1555254.0E 251336.0S 1553624.0E 260200.0S 1562442.0E 254830.0S 1564106.0E	260200.0S 1562442.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 244542.0S 1554554.0E (AMX900) - 255612.0S 1565630.0E (AMX901) - 261648.0S 1563124.0E (AMX902) - 261548.0S 1563030.0E (AMX107) - 253930.0S 1555400.0E (AMX102) - 250654.0S 1551954.0E (AMX903) - 244542.0S 1554554.0E (AMX900).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
AM84									
291012.0S 1495330.0E	291012.0S 1495330.0E	271754.0S 1493242.0E (AM84C) 340° 70NM	271754.0S 1493242.0E 272106.0S 1491030.0E 291324.0S 1493100.0E 291012.0S 1495330.0E	291324.0S 1493100.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA

AIRSPACE: 292806.0S 1492754.0E (AMX905) - 270348.0S 1490148.0E (AMX137) - 265736.0S 1494406.0E (AMX138) - 281000.0S 1494800.0E (AMX118) - 292212.0S 1500918.0E (AMX117) - 292806.0S 1492754.0E (AMX905).

REMARKS: Pattern size: 113NM x 20NM. Airspace size: 146NM x 30NM.

2.4 Darwin AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
DN81									
102630.0S 1331236.0E	102630.0S 1331236.0E	094524.0S 1321530.0E (DN81C) 302° 70NM	094524.0S 1321530.0E 100142.0S 1320336.0E 104248.0S 1330042.0E 102630.0S 1331236.0E	104248.0S 1330042.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA

AIRSPACE: 093230.0S 1320612.0E (DNX900) - 103118.0S 1332754.0E (DNX901) - 110436.0S 1330330.0E (DNX902) then along the minor arc of a circle radius 150.00NM centre 122524.0S 1305424.0E (DN/DME) - 100254.0S 1314354.0E (DNX903) - 093230.0S 1320612.0E (DNX900).

REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
DN82									
145848.0S 1291712.0E	145848.0S 1291712.0E	140900.0S 1282600.0E (DN82C) 312° 70NM	140900.0S 1282600.0E 142312.0S 1281130.0E 151306.0S 1290236.0E 145848.0S 1291712.0E	151306.0S 1290236.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 141600.0S 1275654.0E (DNX904) - 135024.0S 1282318.0E (DNX905) then along the minor arc of a circle radius 170.00NM centre 122524.0S 1305424.0E (DN/DME) - 145912.0S 1293836.0E (DNX906) - 152718.0S 1290954.0E (DNX907) - 141600.0S 1275654.0E (DNX904).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									
DN83									
131742.0S 1275854.0E	131742.0S 1275854.0E	120730.0S 1275230.0E (DN83C) 352° 70NM	120730.0S 1275230.0E 120918.0S 1273212.0E 131930.0S 1273830.0E 131742.0S 1275842.0E	131930.0S 1273830.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 115442.0S 1272548.0E (DNX908) - 115118.0S 1280418.0E (DNX909) then along the minor arc of a circle radius 170.00NM centre 122524.0S 1305424.0E (DN/DME) - 133136.0S 1281354.0E (DNX910) - 133500.0S 1273442.0E (DNX911) - 115442.0S 1272548.0E (DNX908).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									

2.5 EAXA AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
NW81									
365906.0S 1521524.0E	365906.0S 1521524.0E	360924.0S 1531654.0E (NW81C) 030° 70NM	360924.0S 1531654.0E 355518.0S 1525918.0E 364454.0S 1515742.0E 365906.0S 1521524.0E	364454.0S 1515748.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA

AIRSPACE: 360212.0S 1533412.0E (NWX900) - 371312.0S 1520630.0E (NWX901) - 364618.0S 1513318.0E (NWX902) then along the minor arc of a circle radius 120.00NM centre 345700.0S 1503200.0E (UXUTI) - 352906.0S 1525306.0E (NWX903) - 360212.0S 1533412.0E (NWX900).

REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
NW82									
364212.0S 1503706.0E	364212.0S 1503706.0E	353224.0S 1502930.0E (NW82C) 342° 70NM	353224.0S 1502930.0E 353406.0S 1500506.0E 364354.0S 1501218.0E 364212.0S 1503706.0E	364354.0S 1501218.0E	N/A	FL260/ FL320	2SQN	Melbourne	TBA

AIRSPACE: 351700.0S 1503412.0E (NWX904) - 365642.0S 1504500.0E (NWX905) - 365918.0S 1500736.0E (NWX906) - 351930.0S 1495730.0E (NWX907) - 351700.0S 1503412.0E (NWX904).

REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.

2.6 Edinburgh AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
ED01									
314500.0S 1444600.0E	314500.0S 1444600.0E	303500.0S 1444500.0E (ED01C) 350° 70NM	303500.0S 1444500.0E 303448.0S 1441030.0E 314436.0S 1441106.0E 314500.0S 1444600.0E	314436.0S 1441106.0E	N/A	FL190/ FL240	33SQN	Melbourne	NOTAM
AIRSPACE: 301818.1S 1432613.4E (EDX100) - 302123.9S 1452143.3E (EDX101) - 320135.6S 1451905.1E (KADUV/WPT) - 315823.9S 1432132.8E (EDX102)									
REMARKS: Pattern size: 70NM x 30NM. Airspace size: 100NM x 100NM.									

2.7 Tindal AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
TN11									
143812.0S 1323918.0E	143812.0S 1323918.0E	141530.0S 1321900.0E (TN11C) 315° 30NM	141530.0S 1321900.0E 142524.0S 1320718.0E 144806.0S 1322736.0E 143812.0S 1323918.0E	144806.0S 1322736.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL160/ FL190	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R249 active, Brisbane (As assigned) if R249 Deactivated	NOTAM
AIRSPACE: A circle radius 27.50NM centre 143118.0S 1322242.0E (YPTN/AD).									
REMARKS: Pattern exists within R249 (10000-NOTAM) remaining 2.5NM clear of boundary. Pattern size: 30NM x 15NM.									
TN12									
133530.0S 1312124.0E	133530.0S 1312124.0E	133542.0S 1304524.0E (TN12C) 266° 35NM	133542.0S 1304524.0E 135348.0S 1304530.0E 135348.0S 1312130.0E 133530.0S 1312124.0E	135348.0S 1312130.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL160/ FL190	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R225A&B active, Brisbane (As assigned) if R225A&B Deactivated	NOTAM
AIRSPACE: 140000.0S 1302224.0E (TNX101) - 132524.0S 1303542.0E (TNX102) then along the minor arc of a circle radius 62.50NM centre 122524.0S 1305423.0E (DN/DME) -132136.0S 1312254.0E (TNX103) - 140000.0S 1314942.0E (TNX104) - 140000.0S 1302224.0E (TNX101).									
REMARKS: Pattern exists within R225A&B (9500-NOTAM). Pattern size: 35NM x 18NM. Tanker to remain North of latitude S14 and South of 62.5DME DN.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
TN81									
144848.0S 1350618.0E	144848.0S 1350618.0E	155506.0S 1344218.0E (TN81C) 195° 70NM	155506.0S 1344218.0E 160148.0S 1350154.0E 145512.0S 1352554.0E 144848.0S 1350618.0E	145512.0S 1352554.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 144230.0S 1353554.0E (TNX900) - 161736.0S 1350142.0E (TNX901) - 160500.0S 1342412.0E (TNX902) then along the minor arc of a circle radius 150.00NM centre 143118.0S 1322242.0E (YPTN/AD) - 143000.0S 1345718.0E (TNX903) - 144230.0S 1353554.0E (TNX900).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									
TN82									
165724.0S 1311348.0E	165724.0S 1311348.0E	161354.0S 1301612.0E (TN82C) 304° 70NM	161354.0S 1301612.0E 162942.0S 1300318.0E 171312.0S 1310100.0E 165724.0S 1311348.0E	171312.0S 1310100.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 162418.0S 1294754.0E (TNX904) - 155342.0S 1301248.0E (TNX905) then along the minor arc of a circle radius 150.00NM centre 143118.0S 1322242.0E (YPTN/AD) - 165454.0S 1313542.0E (TNX906) - 172624.0S 1311012.0E (TNX907) - 162418.0S 1294754.0E (TNX904).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
TN83									
144142.0S 1295812.0E	144142.0S 1295812.0E	133548.0S 1302330.0E (TN83C) 017° 70NM	133548.0S 1302330.0E 132842.0S 1300418.0E 143436.0S 1293854.0E 144142.0S 1295812.0E	143424.0S 1293854.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 131254.0S 1300454.0E (TNX908) - 132324.0S 1303342.0E (TNX909) - 145730.0S 1295730.0E (TNX910) - 144654.0S 1292836.0E (TNX911) - 131254.0S 1300454.0E (TNX908).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									
TN84									
170811.0S 1300552.0E	170811.0S 1300552.0E	172433.0S 1300532.0E (TN84C) 087° 110NM	172433.0S 1300532.0E 172453.0S 1315950.0E 170724.0S 1315948.0E 170811.0S 1300552.0E	170724.0S 1315948.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 170146.0S 1294313.0E (TNX912) - 170153.0S 1322236.0E (TNX913) - 173154.0S 1322236.0E (TNX 914) - 173154.0S 1294313.0E (TNX915) - 170146.0S 1294313.0E (TNX912).									
REMARKS: Pattern size: 110NM x 20NM. Airspace size: 153NM x 30NM									

2.8 Townsville AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
TL11									
193136.0S 1454730.0E	193136.0S 1454730.0E	193612.0S 1450524.0E (TL11C) 256° 40NM	193612.0S 1450524.0E 195606.0S 1450748.0E 195130.0S 1454948.0E 193136.0S 1454730.0E	195130.0S 1454948.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	Within NOTAM vertical limits	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R738 active, Brisbane (As assigned) if R738 Deactivated	NOTAM

AIRSPACE: 201154.0S 1445342.0E (TLX100) - 192642.0S 1443918.0E (TLX101) - 192154.0S 1453154.0E (TLX102) - 191900.0S 1460142.0E (TLX103) - 193500.0S 1460430.0E (TLX104) - 194506.0S 1461236.0E (TLX105) - 195200.0S 1463700.0E (TLX106) - 200112.0S 1455000.0E (TLX107) - 201154.0S 1445342.0E (TLX100).

REMARKS: Pattern exists within R738A and R738B (7000-NOTAM). Pattern size: 40NM x 20NM. Check status of R741B (5000-NOTAM).

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
TL12									
185530.0S 1454742.0E	185530.0S 1454742.0E	183406.0S 1451201.0E (TL12C) 295° 40NM	183406.0S 1451206.0E 185100.0S 1450048.0E 191230.0S 1453624.0E 185530.0S 1454747.0E	191230.0S 1453624.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	Within NOTAM vertical limits	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R738 active, Brisbane (As assigned) if R738 Deactivated	NOTAM
AIRSPACE: 192642.0S 1443918.0E (TLX101) - 181430.0S 1445612.0E (TLX108) - 181812.0S 1451224.0E (TLX109) - 183836.0S 1454206.0E (TLX110) - 190600.0S 1461000.0E (TLX111) - 191900.0S 1460142.0E (TLX103) - 192154.0S 1453154.0E (TLX102) - 192642.0S 1443918.0E (TLX101).									
REMARKS: Pattern exists within R738C and R738D (7000-NOTAM). Pattern size: 40NM x 20NM.									
TL81									
194512.0S 1443454.0E	194512.0S 1443454.0E	183506.0S 1443000.0E (TL81C) 349° 70NM	183506.0S 1443000.0E 183624.0S 1440900.0E 194630.0S 1441342.0E 194512.0S 1443454.0E	194630.0S 1441342.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 200200.0S 1440930.0E (TLX900) - 182130.0S 1440242.0E (TLX901) - 181754.0S 1445400.0E (TLX902) then along the minor arc of a circle radius 120.00NM centre 191442.0S 1464530.0E (TL/DME) - 195930.0S 1444730.0E (TLX903) - 200200.0S 1440930.0E (TLX900).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									

2.9 Williamtown AAR and AEW&C airspace

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM11									
310448.0S 1544818.0E	310448.0S 1544818.0E	305542.0S 1535124.0E (WM11C) 277° 50NM	305542.0S 1535124.0E 311530.0S 1534700.0E 312442.0S 1544348.0E 310448.0S 1544818.0E	312442.0S 1544348.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL130/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M550D active, Brisbane (As assigned) if M550D Deactivated	NOTAM
AIRSPACE: 304333.0S 1532427.0E (WMX300) - 310443.0S 1553803.0E (WMX301) - 320101.0S 1550606.0E (WMX302) - 311724.0S 1530823.0E (WMX303) - 304333.0S 1532427.0E (WMX300)									
REMARKS: Pattern exists within M550D. Pattern size: 50NM x 20NM.									
WM18									
315400.0S 1541742.0E	315400.0S 1541742.0E	313400.0S 1532330.0E (WM18C) 281° 50NM	313400.0S 1532330.0E 315224.0S 1531406.0E 321218.0S 1540806.0E 315400.0S 1541742.0E	321218.0S 1540806.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL130/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M550C active, Brisbane (As assigned) if M550C Deactivated	NOTAM
AIRSPACE: 311724.0S 1530823.0E (WMX303) - 320101.0S 1550606.0E (WMX302) - 325503.0S 1543446.0E (WMX304) - 322917.0S 1532440.0E (WMX305) - 321258.0S 1524130.0E (WMX306) - 311724.0S 1530823.0E (WMX303)									
REMARKS: Pattern exists within M550C. Pattern size: 50NM x 20NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM19									
320754.0S 1531318.0E	320754.0S 1531318.0E	314006.0S 1532642.0E (WM19C) 010° 30NM	314006.0S 1532642.0E 313424.0S 1531030.0E 320206.0S 1525700.0E 320754.0S 1531318.0E	320206.0S 1525700.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL130/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M550C active, Brisbane (As assigned) if M550C Deactivated	NOTAM
AIRSPACE: 311724.0S 1530823.0E (WMX303) - 320101.0S 1550606.0E (WMX302) - 325503.0S 1543446.0E (WMX304) - 322917.0S 1532440.0E (WMX305) - 321258.0S 1524130.0E (WMX306) - 311724.0S 1530823.0E (WM303)									
REMARKS: Pattern exists within M550C. Pattern size: 30NM x 15NM.									
WM20									
332048.0S 1524624.0E	332048.0S 1524624.0E	323918.0S 1530700.0E (WM20C) 010° 45NM	323918.0S 1530700.0E 323324.0S 1525042.0E 331500.0S 1522954.0E 332048.0S 1524624.0E	331500.0S 1522954.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL130/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M550A active, Brisbane (As assigned) if M550A Deactivated	NOTAM
AIRSPACE: 321258.0S 1524130.0E (WMX306) - 322917.0S 1532440.0E (WMX305) - 334906.0S 1524538.0E (WMX307) - 334854.0S 1520641.0E (WMX308) - 333926.0S 1520206.0E (WMX309) - 331154.0S 1515814.0E (WMX310) - Then along the counter clockwise arc of a circle radius 25.00NM centre WLM TAC 324750.0S 1514959.0E (WMX311) - 324219.0S 1521854.0E (WMX312) - 324038.0S 1522734.0E (WMX313) - 321258.0S 1524130.0E (WMX306)									
REMARKS: Pattern exists within M550A. Pattern size: 45NM x 15NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM21									
333654.0S 1535724.0E	333654.0S 1535724.0E	330518.0S 1541512.0E (WM21C) 012° 35NM	330518.0S 1541512.0E 325848.0S 1535906.0E 333030.0S 1534112.0E 333654.0S 1535724.0E	333030.0S 1534112.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL130/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if M550B active, Brisbane (As assigned) if M550B Deactivated	NOTAM
AIRSPACE: 322917.0S 1532440.0E (WMX305) - 325503.0S 1543446.0E (WMX304) - 334855.0S 1540250.0E (WMX314) - 334906.0S 1524538.0E (WMX307) - 322917.0S 1532440.0E (WMX305)									
REMARKS: Pattern exists within M550B. Pattern size: 35NM x 15NM.									
WM22									
322200.0S 1500812.0E	322200.0S 1500812.0E	315736.0S 1503730.0E (WM22C) 034° 35NM	315736.0S 1503730.0E 314436.0S 1502248.0E 320906.0S 1495318.0E 322200.0S 1500812.0E	320906.0S 1495318.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	A100/ FL220	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R560 active, Brisbane (As assigned) if R560 Deactivated	NOTAM
AIRSPACE: 320236.0S 1490547.0E (WMX401) - 321329.0S 1492125.0E (WMX402) - 322745.0S 1494203.0E (WMX403) - 324315.0S 1495932.0E (WMX404) - 320827.0S 1504205.0E (WMX405) - 320243.0S 1505208.0E (WMX406) - 315350.0S 1505254.0E (WMX407) - 314710.0S 1504945.0E (WMX408) - 313029.0S 1504156.0E (WMX409) - 312442.0S 1503707.0E (WMX410) - 310811.0S 1502326.0E (WMX411) - 314535.0S 1494048.0E (WMX412) - 320236.0S 1490547.0E (WMX401)									
REMARKS: Pattern exists within R560A (8500-FL240) and R560B. Pattern size: 35NM x 18NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM23									
311024.0S 1492500.0E	311024.0S 1492500.0E	304542.0S 1500148.0E (WM23C) 041° 40NM	304542.0S 1500148.0E 303006.0S 1494718.0E 305436.0S 1491036.0E 311024.0S 1492500.0E	305436.0S 1491036.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL120/ FL330	33SQN OPS 0753629647	RAAF CRU (FREQ TBA) if R570A active, Brisbane (As assigned) if R570A Deactivated	NOTAM
AIRSPACE: 304714.0S 1485813.0E (WMX413) - 300647.0S 1500449.0E (WMX414) - 310811.0S 1502326.0E (WMX411) - 314535.0S 1494048.0E (WMX412) - 315822.0S 1491434.0E (WMX415) - 315126.0S 1490439.0E (WMX416) - 304714.0S 1485813.0E (WMX413)									
REMARKS: Pattern exists within R570A. Pattern size: 40NM x 20NM.									
WM87									
323212.0S 1551712.0E	323212.0S 1551712.0E	312848.0S 1555206.0E (WM87C) 012° 70NM	312848.0S 1555206.0E 312012.0S 1553100.0E 322336.0S 1545548.0E 323212.0S 1551712.0E	322336.0S 1545548.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 310443.0S 1553803.0E (WMX926) - 311153.0S 1561323.0E (WMX927) - 324648.0S 1552030.0E (WMX910) - 323824.0S 1544512.0E (WMX911) - 310443.0S 1553803.0E (WMX926)									
REMARKS: Pattern size: 70NM X 20NM. Airspace size: 100NM x 30NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM88									
294324.0S 1490242.0E	294324.0S 1490242.0E	294242.0S 1494236.0E (WM88C) 078° 35NM	294242.0S 1494236.0E 292242.0S 1494206.0E 292318.0S 1490206.0E 294324.0S 1490242.0E	292318.0S 1490206.0E	N/A	FL260/ FL320	33SQN OPS 0753629647	Brisbane	TBA
AIRSPACE: 294813.0S 1485603.0E (WMX931) - 291720.0S 1485356.0E (WMX932) - 291703.0S 1494911.0E (WMX933) - 294725.0S 1495046.0E (WMX934) - 294813.0S 1485603.0E (WMX931)									
REMARKS: Pattern size: 35NM x 20NM. Airspace size: 50NM x 30NM.									
WM89									
332200.0S 1544912.0E	332200.0S 1544912.0E	320036.0S 1553442.0E (WM89C) 012° 90NM	320036.0S 1553442.0E 315200.0S 1551330.0E 331324.0S 1542742.0E 332200.0S 1544912.0E	331324.0S 1542742.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 313951.0S 1551809.0E (WMX929) - 315154.0S 1555732.0E (WMX930) - 334036.0S 1545524.0E (WMX923) - 332742.0S 1541612.0E (WMX924) - 313951.0S 1551809.0E (WMX929)									
REMARKS: Pattern size: 90NM x 20NM. Airspace size: 118NM x 33NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM92									
304406.0S 1534318.0E	304406.0S 1534318.0E	305642.0S 1550200.0E (WM92C) 098° 70NM	305642.0S 1550200.0E 303654.0S 1550518.0E 302418.0S 1534642.0E 304406.0S 1534318.0E	302418.0S 1534642.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 304330.0S 1532430.0E (WMX904) - 301854.0S 1532930.0E (WMX905) - 302812.0S 1542554.0E (WMX906) - 303824.0S 1553124.0E (WMX907) - 310142.0S 1551812.0E (WMX908) - 304330.0S 1532430.0E (WMX904).									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									
WM93									
334936.0S 1543812.0E	334936.0S 1543812.0E	324612.0S 1551336.0E (WM93C) 012° 70NM	324612.0S 1551336.0E 323736.0S 1545212.0E 334100.0S 1541630.0E 334936.0S 1543812.0E	334100.0S 1541630.0E	N/A	FL260/ FL320	2SQN	Brisbane	TBA
AIRSPACE: 322145.0S 1545452.0E (WMX928) - 323454.0S 1552642.0E (WMX914) - 340454.0S 1543412E (WMX915) - 335130S 1540154E (WMX916) - 322145.0S 1545452.0E (WMX928)									
REMARKS: Pattern size: 70NM x 20NM. Airspace size: 100NM x 30NM.									

ENTRY POINTS	RVIP	ANCHOR PT/ IB COURSE/ PATTERN LEN	ANCHOR PATTERN	EXIT POINTS	CR PLAN	REFUEL ALTS	SCHED UNIT	ASSIGNED CENTRE	TIMES OF OPS
WM94									
315348.0S 1524248.0E	315348.0S 1524248.0E	311836.0S 1525936.0E (WM94C) 010° 38NM	311836.0S 1525936.0E 311336.0S 1524536.0E 314848.0S 1522842.0E 315348.0S 1524248.0E	314848.0S 1522842.0E	N/A	FL260/ FL340	2SQN	Brisbane	TBA

AIRSPACE: 310014.0S 1524826.0E (WMX315) - 310021.0S 1531630.0E (WMX316) - 311724.0S 1530823.0E (WMX303) - 320152.0S 1524655.0E (WMX317) - 320215.0S 1522513.0E (WMX318) - 320219.0S 1522105.0E (WMX319) - 320323.0S 1521746.0E (WMX320) - 313320.0S 1522706.0E (WMX321) - 310014.0S 1524826.0E (WMX315)

REMARKS: Pattern exists within R586C (FL125-FL600 NOTAM). Pattern size: 38NM x 13NM.

3. MILITARY AAR AND AEW&C AIRSPACE ANCHOR WAYPOINTS

3.1 Amberley

WPT	LAT	LONG	WPT	LAT	LONG
AMX100	261542.0S	1532954.0E	AMX200	250654.0S	1551954.0E
AMX101	244942.0S	1550206.0E	AMX201	244942.0S	1550206.0E
AMX102	253930.0S	1555400.0E	AMX202	240824.0S	1541948.0E
AMX103	264642.0S	1535330.0E	AMX203	234554.0S	1544730.0E
AMX104	274630.0S	1544430.0E	AMX204	244542.0S	1554554.0E
AMX105	271312.0S	1544430.0E	AMX205	271636.0S	1573106.0E
AMX106	263324.0S	1554654.0E	AMX206	261648.0S	1563124.0E
AMX107	261548.0S	1563030.0E	AMX207	255612.0S	1565630.0E
AMX108	271636.0S	1573106.0E	AMX208	265506.0S	1575700.0E
AMX109	285012.0S	1563754.0E	AMX209	295142.0S	1563542.0E
AMX110	285212.0S	1534942.0E	AMX210	305936.0S	1555818.0E
AMX111	282912.0S	1535736.0E	AMX211	304630.0S	1552654.0E
AMX112	283348.0S	1540918.0E	AMX212	293842.0S	1560436.0E
AMX113	291324.0S	1550712.0E	AMX213	273512.0S	1490724.0E
AMX114	302812.0S	1542554.0E	AMX214	272942.0S	1494548.0E
AMX115	301854.0S	1532930.0E	AMX215	284900.0S	1495924.0E
AMX116	293924.0S	1533736.0E	AMX216	285424.0S	1492142.0E
AMX117	292212.0S	1500918.0E	AMX900	244542.0S	1554554.0E
AMX118	281000.0S	1494800.0E	AMX901	255612.0S	1565630.0E
AMX125	282830.0S	1495324.0E	AMX902	261648.0S	1563124.0E
AMX126	280830.0S	1510336.0E	AMX903	250654.0S	1551954.0E
AMX127	281942.0S	1510848.0E	AMX905	292806.0S	1492754.0E
AMX128	283530.0S	1512036.0E	AM11C	260606.0S	1544800.0E
AMX129	284430.0S	1512942.0E	AM13C	270654.0S	1555418.0E
AMX130	265736.0S	1494406.0E	AM15C	292430.0S	1544042.0E
AMX131	271742.0S	1505342.0E	AM17C	283500.0S	1505924.0E
AMX132	272830.0S	1505306.0E	AM19C	274112.0S	1504512.0E
AMX133	274500.0S	1505536.0E	AM22C	245112.0S	1551424.0E
AMX134	280106.0S	1510012.0E	AM24C	270106.0S	1572500.0E
AMX135	280830.0S	1510336.0E	AM26C	300312.0S	1562306.0E
AMX136	282830.0S	1495324.0E	AM28C	274918.0S	1491536.0E
AMX137	270348.0S	1490148.0E	AM83C	250012.0S	1555254.0E
AMX138	265736.0S	1494406.0E	AM84C	291324.0S	1493100.0E

3.2 Darwin

WPT	LAT	LONG	WPT	LAT	LONG
DNX900	093230.0S	1320612.0E	DNX908	115442.0S	1272548.0E
DNX901	103118.0S	1332754.0E	DNX909	115118.0S	1280418.0E
DNX902	110436.0S	1330330.0E	DNX910	133136.0S	1281354.0E
DNX903	100254.0S	1314354.0E	DNX911	133500.0S	1273442.0E
DNX904	141600.0S	1275654.0E	DN81C	094524.0S	1321530.0E
DNX905	135024.0S	1282318.0E	DN82C	140900.0S	1282600.0E
DNX906	145912.0S	1293836.0E	DN83C	120730.0S	1275230.0E
DNX907	152718.0S	1290954.0E			

3.3 EAXA

WPT	LAT	LONG	WPT	LAT	LONG
NWX900	360212.0S	1533412.0E	NWX905	365642.0S	1504500.0E
NWX901	371312.0S	1520630.0E	NWX906	365918.0S	1500736.0E
NWX902	364618.0S	1513318.0E	NWX907	351930.0S	1495730.0E
NWX903	352906.0S	1525306.0E	NW81C	360924.0S	1531654.0E
NWX904	351700.0S	1503412.0E	NW82C	353224.0S	1502930.0E

3.4 Edinburgh

WPT	LAT	LONG	WPT	LAT	LONG
EDX100	301818.1S	1432613.4E	ED01C	303500.0S	1444500.0E
KADUV	320135.6S	1451905.1E	EDX102	315823.9S	1432132.8E
EDX101	302123.9S	1452143.3E			

3.5 Tindal

WPT	LAT	LONG	WPT	LAT	LONG
TNX101	140000.0S	1302224.0E	TNX906	165454.0S	1313542.0E
TNX102	132524.0S	1303542.0E	TNX907	172624.0S	1311012.0E
TNX103	132136.0S	1312254.0E	TNX908	131254.0S	1300454.0E
TNX104	140000.0S	1314942.0E	TNX909	132324.0S	1303342.0E
TNX900	144230.0S	1353554.0E	TNX910	145730.0S	1295730.0E
TNX901	161736.0S	1350142.0E	TNX911	144654.0S	1292836.0E
TNX902	160500.0S	1342412.0E	TNX912	170146.0S	1294313.0E
TNX903	143000.0S	1345718.0E	TNX913	170153.0S	1322236.0E
TNX904	162418.0S	1294754.0E	TNX914	173154.0S	1322236.0E
TNX905	155342.0S	1301248.0E			

WPT	LAT	LONG	WPT	LAT	LONG
TNX915	173154.0S	1294313.0E	TN81C	155506.0S	1344218.0E
TN11C	141530.0S	1321900.0E	TN82C	161354.0S	1301612.0E
TN12C	133542.0S	1304524.0E	TN83C	133548.0S	1302330.0E

3.6 Townsville

WPT	LAT	LONG	WPT	LAT	LONG
TLX100	201154.0S	1445342.0E	TLX110	183836.0S	1454206.0E
TLX101	192642.0S	1443918.0E	TLX111	190600.0S	1461000.0E
TLX102	192154.0S	1453154.0E	TLX900	200200.0S	1440930.0E
TLX103	191900.0S	1460142.0E	TLX901	182130.0S	1440242.0E
TLX104	193500.0S	1460430.0E	TLX902	181754.0S	1445400.0E
TLX105	194506.0S	1461236.0E	TLX903	195930.0S	1444730.0E
TLX106	195200.0S	1463700.0E	TL11C	193612.0S	1450524.0E
TLX107	200112.0S	1455000.0E	TL12C	183406.0S	1451206.0E
TLX108	181430.0S	1445612.0E	TL81C	183506.0S	1443000.0E
TLX109	181812.0S	1451224.0E			

3.7 Williamtown

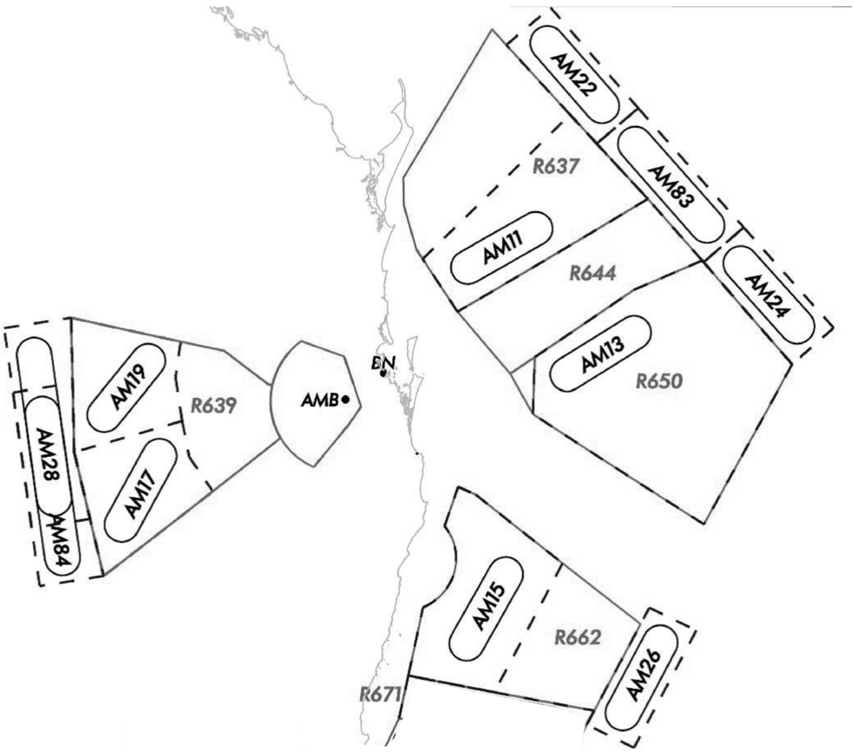
WPT	LAT	LONG	WPT	LAT	LONG
WM11C	305542.0S	1535124.0E	WMX306	321258.0S	1524130.0E
WM18C	313400.0S	1532330.0E	WMX307	334906.0S	1524538.0E
WM19C	314006.0S	1532642.0E	WMX308	334854.0S	1520641.0E
WM20C	323918.0S	1530700.0E	WMX309	333926.0S	1520206.0E
WM21C	330518.0S	1541512.0E	WMX310	331154.0S	1515814.0E
WM22C	315736.0S	1503730.0E	WMX311	324750.0S	1514959.0E
WM23C	304542.0S	1500148.0E	WMX312	324219.0S	1521854.0E
WM87C	312848.0S	1555206.0E	WMX313	324038.0S	1522734.0E
WM88C	294242.0S	1494236.0E	WMX314	334855.0S	1540250.0E
WM89C	320036.0S	1553442.0E	WMX315	310014.0S	1524826.0E
WM92C	305642.0S	1550200.0E	WMX316	310021.0S	1531630.0E
WM93C	324612.0S	1551336.0E	WMX317	320152.0S	1524655.0E
WM94C	311836.0S	1525936.0E	WMX318	320215.0S	1522513.0E
WMX300	304333.0S	1532427.0E	WMX319	320219.0S	1522105.0E
WMX301	310443.0S	1553803.0E	WMX320	320323.0S	1521746.0E
WMX302	320101.0S	1550606.0E	WMX321	313320.0S	1522706.0E
WMX303	311724.0S	1530823.0E	WMX401	320236.0S	1490547.0E
WMX304	325503.0S	1543446.0E	WMX402	321329.0S	1492125.0E
WMX305	322917.0S	1532440.0E	WMX403	322745.0S	1494203.0E

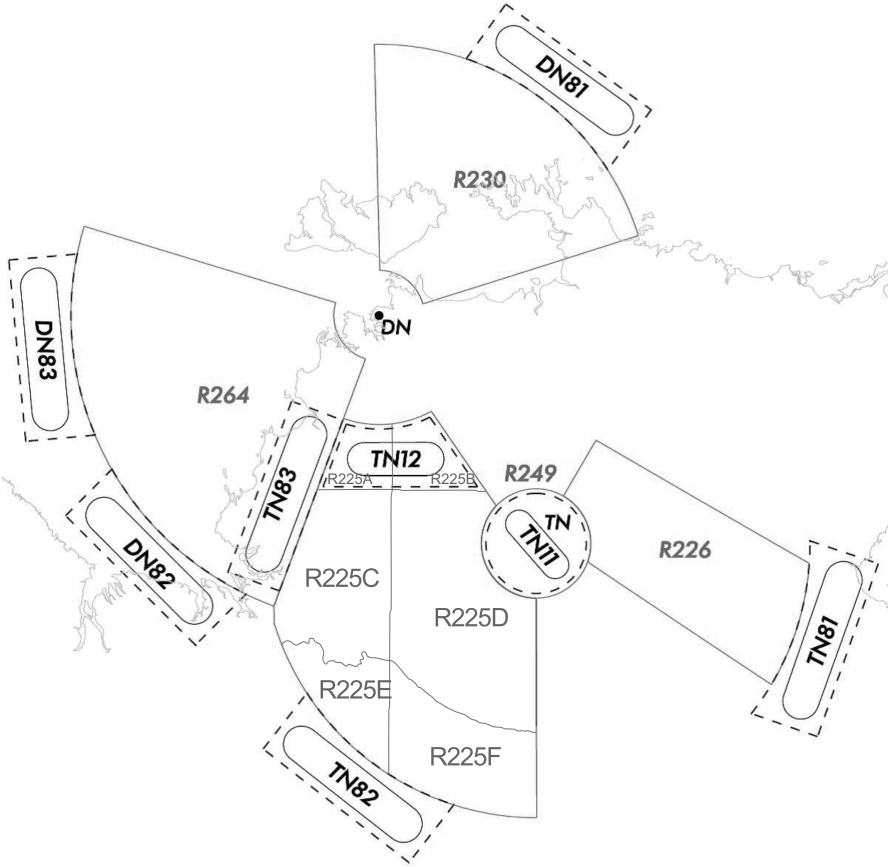
WPT	LAT	LONG	WPT	LAT	LONG
WMX404	324315.0S	1495932.0E	WMX906	302812.0S	1542554.0E
WMX405	320827.0S	1504205.0E	WMX907	303824.0S	1553124.0E
WMX406	320243.0S	1505208.0E	WMX908	310142.0S	1551812.0E
WMX407	315350.0S	1505254.0E	WMX910	324648.0S	1552030.0E
WMX408	314710.0S	1504945.0E	WMX911	323824.0S	1544512.0E
WMX409	313029.0S	1504156.0E	WMX914	323454.0S	1552642.0E
WMX410	312442.0S	1503707.0E	WMX915	340454.0S	1543412.0E
WMX411	310811.0S	1502326.0E	WMX916	335130.0S	1540154.0E
WMX412	314535.0S	1494048.0E	WMX923	334036.0S	1545524.0E
WMX413	304714.0S	1485813.0E	WMX924	332742.0S	1541612.0E
WMX414	300647.0S	1500449.0E	WMX926	310443.0S	1553803.0E
WMX415	315822.0S	1491434.0E	WMX927	311153.0S	1561323.0E
WMX416	315126.0S	1490439.0E	WMX928	322145.0S	1545452.0E
WMX900	320400.0S	1521700.0E	WMX929	313951.0S	1551809.0E
WMX901	310412.0S	1524706.0E	WMX930	315154.0S	1555732.0E
WMX902	311112.0S	1530624.0E	WMX931	294813.0S	1485603.0E
WMX903	321106.0S	1523630.0E	WMX932	291720.0S	1485356.0E
WMX904	304330.0S	1532430.0E	WMX933	291703.0S	1494911.0E
WMX905	301854.0S	1532930.0E	WMX934	294725.0S	1495046.0E

4. MILITARY AAR TRACK WAYPOINTS

WPT	LAT/LONG	TR OUT (ºM)	DIST (NM)
W946			
AGETA	300143.1S 1480742.3E	301	
CARBN	290721.8S 1465807.3E	303	81
CMU	280205.2S 1453725.5E	313	96
EXXON	254636.0S 1433906.0E	314	172
VALDZ	232700.0S 1414148.0E	316	175
MA	203952.6S 1392908.3E	305	207
TEXAN	190042.0S 1372924.0E	306	150
PETRL	171216.0S 1352134.5E	308	163
GUKVI	161454.0S 1341536.0E	309	85
TN	143109.1S 1322215.6E		151
W951			
ROM	263235.1S 1484654.1E	285	
ESLES	255831.1S 1472326.5E	286	82
LIDBU	244524.5S 1443301.5E	288	171
VALDZ	232700.0S 1414148.0E		175
W952			
AMOCO	240000.0S 1521230.0E	328	
KELPI	223410.2S 1513511.6E	332	92
BOOMA	200000.0S 1504112.0E	333	162
LAMEK	180916.6S 1500235.5E	334	116
CALTX	170000.0S 1493913.7E		73
W953			
NOBIP	170000.0S 1501754.0E	154	
ORIGA	180918.0S 1504206.0E	154	73
GASSO	200000.0S 1512024.0E	152	116
VEGDI	223418.0S 1521850.0E	151	163
DOLKO	240000.0S 1525218.0E		91
W954			
CFS	301910.2S 1530715.2E	093	
GALON	303804.7S 1543200.4E	092	76
POSUM	310553.3S 1564700.5E	090	119
LHI	313144.1S 1590422.6E	088	120
LADUR	314400.0S 1601430.0E		61

5. MILITARY AAR AND AEW&C PATTERNS

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DN83
DN
R264
TN12
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TN
TN11
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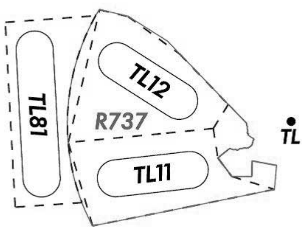
R225D
TN81
R225E
TN82
R225F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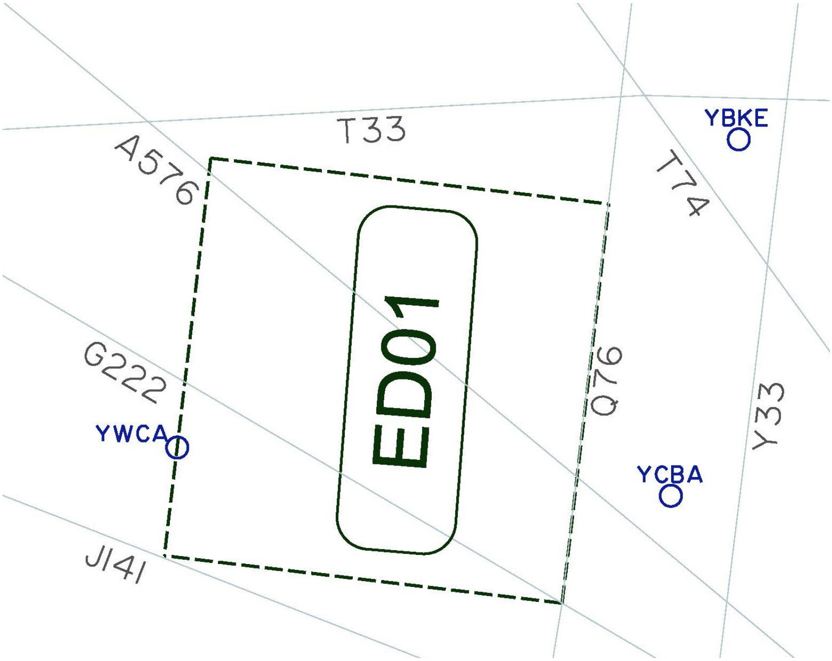
TL12
R737
TL
TL11


T33
A576
T74
YBKE
ED01
G222
Q76
Y33
YWCA
YCBA
J141

6. REFUELLING TRACKS

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W946 (North)							
AGETA 300143.1S 1480742.3E	CARBN 290721.8S 1465807.3E	CMU 280205.2S 1453725.5E EXXON 254636.0S 1433906.0E VALDZ 232700.0S 1414148.0E MA 203952.6S 1392908.3E TEXAN 190042.0S 1372924.0E PETRL 171216.0S 1352134.5E	GUKVI 161454.0S 1341536.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)

REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W946.

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W946 (South)							
GUKVI 161454.0S 1341536.0E	PETRL 171216.0S 1352134.5E	TEXAN 190042.0S 1372924.0E MA 203952.6S 1392908.3E VALDZ 232700.0S 1414148.0E EXXON 254636.0S 1433906.0E CMU 280205.2S 1453725.5E CARBN 290721.8S 1465807.3E	AGETA 300143.1S 1480742.3E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)

REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W946.

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W951 (West)							
ROM 263235.1S 1484654.1E	ESLES 255831.1S 1472326.5E	LIDBU 244524.5S 1443301.5E	VALDZ 232700.0S 1414148.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W951. Track refuelling may continue on W946 if required.							
W951 (East)							
VALDZ 232700.0S 1414148.0E	LIDBU 244524.5S 1443301.5E	ESLES 255831.1S 1472326.5E	ROM 263235.1S 1484654.1E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W951.							

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W952 (North)							
AMOCO 240000.0S 1521230.0E	KELPI 223410.2S 1513511.6E	BOOMA 200000.0S 1504112.0E LAMEK 180916.6S 1500235.5E	CALTX 170000.0S 1493913.7E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Track runs parallel to W953.							
W952 (South)							
CALTX 170000.0S 1493913.7E	LAMEK 180916.6S 1500235.5E	BOOMA 200000.0S 1504112.0E KELPI 223410.2S 1513511.6E	AMOCO 240000.0S 1521230.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Track runs parallel to W953.							

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W953 (South)							
NOBIP 170000.0S 1501754.0E	ORIGA 180918.0S 1504206.0E	GASSO 200000.0S 1512024.0E VEGDI 223418.0S 1521850.0E	DOLKO 240000.0S 1525218.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Track runs parallel to W952.							
W953 (North)							
DOLKO 240000.0S 1525218.0E	VEGDI 223418.0S 1521850.0E	GASSO 200000.0S 1512024.0E ORIGA 180918.0S 1504206.0E	NOBIP 170000.0S 1501754.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Track runs parallel to W952.							

RVIP	RVCP	NAV CHK POINTS	EXIT	CR PLAN	REFUELLING ALTITUDES	SCHED UNIT	ASSIGNED CENTRE
W954 (East)							
CFS 301910.2S 1530715.2E	GALON 303804.7S 1543200.4E	POSUM 310553.3S 1564700.5E LHI 313144.1S 1590422.6E	LADUR 314400.0S 1601430.0E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W954.							
W954 (West)							
LADUR 314400.0S 1601430.0E	LHI 313144.1S 1590422.6E	POSUM 310553.3S 1564700.5E GALON 303804.7S 1543200.4E	CFS 301910.2S 1530715.2E	a. 301.500 b. TBA c. reserved d. reserved e. 33/96	FL250/FL300	33SQN OPS 0753629647	Brisbane (FREQ as assigned)
REMARKS: Simultaneous Opposite Direction Refuelling operations are authorised on W954.							

7. PROCEDURES FOR AIRCRAFT OPERATING IN AN AIR DEFENCE IDENTIFICATION ZONE

7.1 General

7.1.1 The following general rules and procedures apply to enable identification of air traffic entering any designated Air Defence Identification Zone (ADIZ) under the control of Australia.

7.1.2 An ADIZ is airspace of defined dimensions within which identification of all aircraft is required.

7.1.3 When a flight is intended to operate within an ADIZ, the pilot, unless exempted in accordance with *para 7.1.4*, must:

a. lodge a flight notification covering flight within the ADIZ with the appropriate ATS unit at least 60 minutes before entry into the ADIZ;

b. report position to ATS when passing each position reporting point within the ADIZ;

c. report position to ATS at ADIZ boundary with a geographical reference (e.g. 15NM east of...) or, if the departure point is within 100NM of the ADIZ boundary, report departure;

d. report departure if departing from a point in the ADIZ;

e. maintain a continuous listening watch on the communications frequency of the appropriate ATS unit or on another frequency as directed until the flight is through the ADIZ;

f. not deliberately deviate from tracks and altitudes filed in the flight notification unless prior ATC clearance is obtained, or, outside controlled airspace, notification is given to the appropriate ATS unit; and

g. activate the aircraft transponder when within 100NM of the ADIZ and when operating within the ADIZ.

7.1.4 The following flights over Australia and its territorial waters are exempted from compliance with the requirements of *para 7.1.3:*

a. a flight originating within an ADIZ which maintains a steady outbound track;

b. a flight which remains within 10NM of the point of departure;

c. aircraft performing published approach, holding or recovery procedures; and

d. a flight conducted in accordance with special procedures arranged with the Regional Air Defence Commander.

7.1.5 Flight notifications lodged in accordance with *para 7.1.3* must include details of:

a. tracks and altitudes to be flown while operating in the ADIZ;

b. estimated elapsed times for each route segment in the ADIZ, including the segment in which the ADIZ boundary is crossed;

c. position reporting points, departure and landing points; and

d. estimated time at the commencing point of the first route segment for which details are required in accordance with *sub-para b.*

7.1.6 Reporting points published in aeronautical charts must be used plus those required by the Regional Air Defence Commander.

7.1.7 Pilots must immediately notify ATS of any deviation from flight notification beyond the following tolerances:

a. estimated time of commencing the ADIZ route segments – ± 5 minutes;

b. over land area – ± 10NM from track;

c. over oceanic areas - ± 20NM from track.

Note: The 5 minutes expressed in sub-para a. will be used in considering an appropriate response, but pilots must report predicted deviations of greater than two (2) minutes.

7.1.8 In the event of failure of two-way radio communication, the pilot must proceed in accordance with the normal radio failure procedures.

7.2 **Special Requirements**

7.2.1 Special requirements may be published relative to a particular ADIZ. Flights exempted in accordance with *para 7.1.4* will not be exempted from the special requirements unless so specified.

7.3 **Non-Compliance**

7.3.1 Significant deviations from the requirements for flight in an ADIZ must be reported immediately to ATS and details and reasons for the deviation must be reported at the first point of landing, for transmission to the Regional Air Defence Commander.

7.4 **Diversion of Aircraft for Defence Operations**

7.4.1 The Regional Air Defence Commander may, through ATS, direct the flight of aircraft in the interests of national security. Messages initiating such requirements will be prefaced by ‘MILITARY OPERATIONS REQUIRE...’

ENR 5.3 OTHER ACTIVITIES OF A DANGEROUS NATURE AND OTHER POTENTIAL HAZARDS

1. Other general activities of a dangerous nature.

Lateral limits Coordinates	**Vertical limits**	**Advisory measures**	**Authority responsible for INFO**	**Remarks Time of ACT**
1	2	3	4	5
BUSHFIRES 5NM from any bushfire	3,000FT AGL SFC	Avoid area due to potential aerial firefighting traffic	NOTAM may be issued by the relevant State Fire Authority	Any time a bushfire is present
WARSHIPS 5NM from any warships	2,000FT AMSL SFC	Avoid area due to potential military aerial traffic	Traffic alerts and warnings may be passed on FREQ 121.5MHz	Any time warships are present

2. Other potential hazards

Lateral limits Coordinates	**Vertical limits**	**Advisory measures**	**Authority responsible for INFO**	**Remarks Time of ACT**
1	2	3	4	5
VOLCANIC ASH Subject to prevailing winds	FL600 SFC	Avoid flying through volcanic ash. Remain clear of visible volcanic ash and reports of ash clouds	SIGMET report may be issued by the Bureau of Meteorology	Any time volcanic ash is present. See *AC 91-33*

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ENR 5.4 AIR NAVIGATION OBSTACLES - EN ROUTE

1. MAN-MADE OBSTACLES GREATER THAN 360 FEET

1.1 In Australia, man-made obstacles greater than 360FT are required to be reported. Where required for navigation purposes, these obstacles are identified on aeronautical maps and charts, including WAC. Unreported obstacles up to 360FT may exist in navigation tolerance areas. Pilots are, therefore, required to take this into account when calculating LSALT.

2. MARKING OF POWER LINES AND OTHER OVERHEAD CABLES

2.1 The standards for marking power lines and other overhead cables with long spans are addressed by Standards Australia in the following documents:

a. AS3891.1 – 1991, Air navigation – Cables and their supporting structures – Mapping and marking – Permanent marking of overhead cables and their supporting structures; and

b. AS3891.2 – 1992, Air navigation – Cables and their supporting structures – Mapping and marking – Marking of overhead cables for low flying.

3. NVIS AND OBSTACLE LIGHTING

3.1 Some LED lighting systems, clearly visible to the naked eye, fall outside the combined visible and near-infrared spectrum of NVIS and therefore will not be visible to operating crew using NVIS.

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ENR 5.5 AERIAL SPORTING AND RECREATIONAL ACTIVITIES

1. GLIDING OPERATIONS

1.1 General

1.1.1 For rules relating to gliding operations refer to *CASR Part 103* and the *Part 103 MOS.*

1.1.2 Pilots should take extra care when operating at an aerodrome where gliding operations are in progress. Gliding operations are indicated by the "gliding operations in progress" ground signal displayed next to the primary wind direction indicator. Pilots should also establish whether the gliders are being launched by wire or aerotow, or both.

1.1.3 Where aerotowing is in progress, pilots should remain well clear of gliders under tow. If wire launching is used, pilots should establish the locations of either the winch or tow car and the cable, and remain well clear. Over-flying the runway below 2,000FT AGL is not advised, nor is landing without first ascertaining that the cable is on the ground and not across the landing path. Aerotow and winch launching are possible up to 4,000FT AGL, but launches to 1,500FT or 2,000FT AGL are normal.

1.1.4 In Class G airspace, gliders may be operating no-radio, on Area VHF or on frequencies 122.5, 122.7 or 122.9MHz.
Radio-equipped gliders at, or in the vicinity of, non-controlled aerodromes make broadcasts in accordance with the table at *ENR 1.1 para 9.1.14*.

1.2 Operations at Certified Aerodromes

1.2.1 Gliding operations may be conducted from:

a. a glider runway strip within the runway strip (single runway), using a common circuit direction;

b. a glider runway strip adjacent to the existing runway strip (dual runways), using a common circuit direction; or

c. a separate glider runway strip parallel to and spaced away from the existing runway strip (parallel runways), using contra-circuit procedures.

1.2.2 Details of the gliding operation are published in the ERSA entry for the aerodrome. When procedures are changed for intensive short-term gliding activity, a NOTAM will be issued.

1.2.3 Where dual or parallel runways are established, the glider runway strip will conform to normal movement area standards, but will be marked by conspicuous markers of a colour other than white. Glider runway strips must not be used except by gliders, tug aircraft and other authorised aircraft.

1.2.4 Where a single runway is established and gliders operate within the runway strip, the runway strip markers may be moved outwards to incorporate the glider runway strip. Glider movement and parking areas are established outside of the runway strips. When the glider runway strip is occupied by a tug aircraft or glider, the runway is deemed to be occupied. Aircraft using the runway may, however, commence their take-off run from a position ahead of a stationary glider or tug aircraft.

1.2.5 Except for gliders approaching to land, powered aircraft have priority in the use of runways, taxiways and aprons where a single runway or dual runway operation is established.

1.2.6 At the locations where parallel runways exist and contra-circuit procedures apply, operations on the two parallel runways by aircraft below 5,700KG MTOW may be conducted independently in VMC by day. Aircraft must not operate within the opposing circuit area below 1,500FT AGL. Pilots should ascertain the runways in use as early as possible and conform to that circuit. A crossing runway should only be used when operationally necessary, and traffic using the crossing runway should avoid conflicting with the established circuit.

1.2.7 At aerodromes other than for which contra-circuits are prescribed, gliders are generally required to conform to the established circuit direction. However, unforeseen circumstances may occasionally compel a glider to execute a non-standard pattern, including use of the opposite circuit direction in extreme cases.

1.2.8 A listening watch on the appropriate VHF frequency must be maintained while operating at or in the vicinity of non-controlled aerodromes by the tug pilot. The winch or tow-vehicle driver should also maintain a listening watch during wire launching. The tug pilot or winch/car driver may be able to advise glider traffic information to inbound or taxiing aircraft.

Note: The appropriate VHF frequency is as described at ENR 1.1 subsection 9.1.

1.2.9 Where wire launching is used, launching will cease and the wire will be retracted or moved off the strip when another aircraft joins the circuit or taxies, or a radio call is received indicating this. A white strobe light is displayed by a winch, or a yellow rotating beacon by a tow-car or associated vehicle, whenever the cable is deployed.

2. PARACHUTING OPERATIONS

2.1 General

2.1.1 For rules relating to parachuting operations refer to *CASR Part 105* and the *Part 105 MOS.*

2.2 Conflicting Traffic

2.2.1 ATC will provide separation between parachutists and non-parachuting aircraft in Class A, C and D airspace, and provide traffic information to pilots of aircraft engaged in parachuting operations on known or observed traffic in Class E and Class G airspace.

2.3 Additional Requirements in Controlled Airspace

2.3.1 ATC base separation on the assumption that the parachutist will be dropped within 1NM of the target. If an extension of this area is necessary, the pilot must advise ATC of the direction and distance required.

2.4 Additional Requirements for Operations Above 10,000FT AMSL

2.4.1 Pilots should refer to *Division 26.11* of the *Part 91 MOS* for the requirements relating to oxygen usage for high altitude flights.

3. BALLOON OPERATIONS

3.1 General

3.1.1 For rules relating to ballooning operations refer to *CASR Part 131* and the *Part 131 MOS*. Specific guidance on a limited number of operationally focused balloon matters is contained in *AC 131-02; 'Manned free balloons – Operations'*.

3.1.2 Pilots are reminded of the requirement to not operate an aircraft in a manner which creates a hazard to a person or property, (*CASR 91.055*). Outside of a populous area or public gathering, balloons do not need to maintain a minimum height AGL. However, this does not absolve pilots from any responsibility not to cause a hazard to landholders, stock, persons or property. Pilots planning to conduct balloon operations in an unfamiliar area are recommended to contact local area balloon operators for landowner information, and to check for compliance with State, Territory or Federal laws and the rights of landowners and occupiers.

ENR 5.6 BIRD MIGRATION AND AREAS WITH SENSITIVE FAUNA

1. In Australia, bird migration areas are not identified. However, at locations where birds may pose a particular hazard, a note describing the hazard at a particular location will be contained in *ERSA FAC*.

2. Some areas which may have special significance because of sensitive fauna or other ecological considerations are identified as a “Fly Neighbourly Advice” area. Details on these areas are contained in *ERSA GEN* under the heading SPECIAL PROCEDURES (NOT ASSOCIATED WITH AN AERODROME).

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ENR 6. EN ROUTE CHARTS

ENR 6.1 AUSTRALIAN AIP AERONAUTICAL CHARTS

1. Details on all aeronautical charts produced in Australia are contained in *GEN 3.2.*

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