

## Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444)

16<sup>th</sup> Edition, Amendment 9

Reference	Details of difference
<b>Chapter 1</b>	<b>Definitions</b>
ITP aircraft	Not used
ITP distance	Not used
Standard instrument arrival (STAR)	Some Australian Standard Instrument Arrival charts are called Standard Arrival Route chart.
Runway visual range (RVR)	Within Australia, the term 'RUNWAY VISUAL RANGE' or 'RVR' is used exclusively in relation to RVR measured by an instrumented system. The term 'RUNWAY VISIBILITY' or 'RV' is used for a report of visibility along a runway as determined by a ground observer.
<b>Chapter 4</b>	<b>General Provisions for Air Traffic Services</b>
4.4.1.4	The intent of paragraph 4.4.1.4 is achieved, but without specific reference to the terms 'required communications performance' or 'required navigation performance' (or related terms).
4.5.6.1.3	Cruise climb procedures are not permitted, however may be achieved via a block clearance
4.9.1.1	For wake turbulence separation, Airbus A380 and Antonov AN225 aircraft are considered as 'SUPER' wake turbulence category and the B757, H53 and H47 as 'HEAVY' if leading.
4.9.1.2 - 4.9.1.2.1	Wake turbulence groups not implemented in Australia.
4.9.2	"SUPER" or "HEAVY" is only to be used in initial radio telephony contact with each approach, departures, director, ground and tower controller.
4.10	The system of altimetry used in Australia makes use of a transition layer between the transition altitude, which is always 10,000FT, and the transition level of FL110 to FL125 depending on QNH to separate aircraft using QNH from those using 1013.2HPA as a datum.
4.11.3	"SUPER" or "HEAVY" is only to be used in initial radio telephony contact with each approach, departures, director, ground and tower controller.
4.11.5	Australian FIRs operate ADS-C to FANS 1A standards.

4.12.3.1	Australia has not implemented a special Air-report (AIREP SPECIAL) for when runway braking action encountered is not as good as reported. However, the Australian Aeronautical Information Publication asks pilots to advise ATS about any deterioration or improvement of reported runway surface conditions, deceleration, and/or directional control.
4.12.7	Australia has not implemented a process of forwarding aircraft reports about braking action to the aerodrome operator. Instead, ATC will relay and will relay those reports to other affected aircraft where relevant
<b>Chapter 5</b>	<b>Separation Methods and Minima</b>
5.2.1.1 & 5.9	In Class C, D and E airspace ATC may assign to the pilot of 1 aircraft responsibility to maintain separation with another aircraft only if: (a) the aircraft to be separated are operating at or below 10,000FT; and (b) the pilot has: (i) reported the other aircraft in sight; and (ii) accepted responsibility to follow, or maintain his or her own separation with, that aircraft.
5.3.4.1	An aircraft may only be assigned a level vacated by another aircraft if a rate of climb or descent is specified to ensure that the applicable vertical Separation minimum is maintained.
5.4.1.2.1.1	Australia requires the provision of at least one nautical mile displacement between the geographical locations of aircraft.
5.4.1.2.1.2	1. Australia uses a lateral separation procedure which ensures there is at least one nautical mile displacement between the two aircraft accounting for the accuracy of the navigation aid or method used.  2. In addition to navigation aid combinations mentioned in PANS-ATM, Australia facilitates lateral separation on the basis of dead reckoning tracks, and one aircraft on a VOR radial and the other aircraft on an NDB track.
5.4.1.2.1.6	Australia has implemented - Airspace where SLOP authorised: <ul style="list-style-type: none"> <li>• 50NM lateral separation using RAV10/RNP10 or RNP4 only,</li> <li>• 23NM lateral separation using RNP4 only, RCP240 and RSP180.</li> </ul> Airspace where SLOP is <b>not</b> authorised: <ul style="list-style-type: none"> <li>• 15NM lateral separation using RNP2 and VHF.</li> </ul> Australia continues to apply 30NM lateral separation using ADS-C and CPDLC or VHF. Australia has not implemented lateral separation standards for use while one aircraft climbs/ descends through the level of another aircraft in level flight.
5.4.1.2.1.7	Australia does not use lateral offsets to establish lateral separation.

5.4.1.2.1.8	Australia has not implemented 15 NM lateral separation for RNP 2 operations outside VHF range, but uses 50NM lateral separation for RNP 4/RNAV 10/RNP 10 operations and 23NM lateral separation for RNP 4 operations.
5.4.2.3	Use of off-track DME stations is permitted under specified conditions.
5.4.2.3.4.1	Use of 10NM is only permitted between arriving aircraft, and then only when the preceding aircraft is within 20NM of a controlled aerodrome with DME or a published waypoint. This may be reduced to 5NM where the leading aircraft is within 15NM. Otherwise a minimum of 15NM is used.
5.4.2.5.1	Australia only applies Mach Number Technique to jet aircraft.
5.4.2.6	Reduced longitudinal distance minima are applied to RNP2 and RNP 4 approved aircraft within CTA. The reduced distance minima are not used after pilot advice of continuous operation of GNSS equipment in the DR mode for more than one minute, or non-RAIM operation for more than five minutes.
5.4.2.6.2	Use of off-track waypoint is permitted under specified conditions.
5.4.2.7.1 - 5.4.2.7.3.3	In Trail Procedures (ITP) are not in use in Australia.
5.4.2.8	Australia has not implemented longitudinal separation minima based on distance using ADS-C climb and descend procedure (CDP)
5.4.2.9.1	Australia does not designate airspace or routes with an RSP or RCP specification.
5.4.2.9.2 – 5.4.2.9.3	Australia applies longitudinal separation minima to same track, or crossing tracks where the relative angle is less than 45 degrees or more than 135 degrees. For angles between 45 degrees and 135 degrees Australia applies lateral separation. <ol style="list-style-type: none"> <li>1. For the 50NM separation minimum, Australia uses a maximum ADS-C periodic reporting interval of 24 minutes for RNP 10 and RNP 4 operations.</li> <li>2. Australia does not use the 30NM separation minimum for RNP 2 operations.</li> <li>3. Australia does not use the 5 minute and 20NM RNP separation minima.</li> <li>4. Australia has implemented the system of required communication performance and required surveillance performance to the extent required to support the application of the 50NM and 30NM separation minima.</li> </ol>
5.4.2.9.4	Not used
5.6	IAS is used in lieu of TAS. Additional requirements apply when both aircraft proceed on the same route on which a turn of 41 degrees to 65 degrees is specified.
5.6.1	Additional specified tracking requirements and speed differentials are required for application of the one minute standard.

5.6.2	<p>In the application of the 2 minute minimum with the following aircraft climbing to a higher or lower level than the preceding aircraft, a speed differential of 10%, but not less than 10KT, is used.</p> <p>Additionally, if the following aircraft is climbing to the lower level, its cruising IAS or Mach No must not be greater than the climbing IAS or Mach No of the preceding aircraft.</p>
5.8.1.1	<p>VFR aircraft must be provided with wake turbulence separation when following a SUPER aircraft.</p> <p>Wake turbulence separation is not applied:</p> <ul style="list-style-type: none"> <li>• when a LIGHT aircraft will enter the wake turbulence envelope of a MEDIUM fixed wing aircraft of less than 25 000 kg MTOW.</li> <li>• between an aircraft landing behind an aircraft taking-off on the same runway.</li> <li>• if a pilot has initiated a waiver of the relevant departure wake turbulence separation standard.</li> </ul>
5.8.2.1	<ul style="list-style-type: none"> <li>• 3 minutes will be applied to a HEAVY aircraft landing behind a SUPER aircraft.</li> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> <li>• Wake turbulence is applied in all controlled airspace, not just on arrival/landing</li> </ul>
5.8.3.1; Figure 5-42; Figure 5-43.	<ul style="list-style-type: none"> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> <li>• Wake turbulence is applied in all controlled airspace, not just on arrival/landing</li> </ul>
5.8.3.2	Wake turbulence groups not implemented in Australia.
5.8.3.3; Figure 5-44.	<ul style="list-style-type: none"> <li>• 4 minutes will be applied to a HEAVY aircraft departing behind a SUPER aircraft.</li> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> <li>• Intermediate point is defined as: a point more than 150 m after the take-off commencement point of the preceding aircraft using the runway or the parallel runway</li> </ul>
5.8.3.4	Wake turbulence groups not implemented in Australia.
5.8.4.1	<ul style="list-style-type: none"> <li>• 3 minutes will be applied to a HEAVY aircraft departing behind a SUPER aircraft.</li> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> <li>• Wake Turbulence separation is not applied when an aircraft is landing behind another aircraft that is taking-off on the same runway.</li> </ul>
5.8.4.2 – 5.8.4.3	Wake turbulence groups not implemented in Australia.

5.8.5.1	<ul style="list-style-type: none"> <li>• 3 minutes will be applied to a LIGHT or MEDIUM aircraft behind a SUPER aircraft.</li> <li>• 2 minutes will be applied to a LIGHT or MEDIUM aircraft behind a HEAVY aircraft.</li> <li>• 2 minutes will be applied to a LIGHT aircraft behind MEDIUM aircraft.</li> <li>• Opposite direction wake turbulence standard will be applied behind an aircraft that has taken-off.</li> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> </ul>
5.8.5.2	Wake turbulence groups not implemented in Australia.
<b>Chapter 6</b>	<b>Separation in the vicinity of aerodromes</b>
6.3.2.4.1	The phrase 'CLIMB UNRESTRICTED TO (level)' is not used in Australia.
6.3.2.5.1	Clearances for departing aircraft specifying a cleared level other than that indicated in the filed flight plan will be prefixed with the term "AMENDED ..."
6.5.2.4.1	The phrase 'DESCEND UNRESTRICTED TO (level)' is not used in Australia.
6.6.4 (a)	Significant changes in the mean surface wind from the current ATIS broadcast will be advised when a variation in the mean wind results in either a downwind and/or significant crosswind. A crosswind is considered significant when it equals or exceeds 8 KT for civil single engine aircraft, 10 KT for military aircraft, or 12 KT for civil multi- engine aircraft. Unless requested by the pilot ATC will not issue a take-off or landing clearance to a helicopter when the tailwind exceeds 5 KT. Where threshold wind analysers are installed jet arrivals will be provided with a threshold wind as part of the landing clearance.
<b>Chapter 7</b>	<b>Procedures for Aerodrome Control Service</b>
7.1	Land and Hold Short Operations (LAHSO) is a procedure used at selected airports and with conditions and approvals for use involving dependent operations conducted on two intersecting runways whereby aircraft land and depart on one runway while aircraft landing on the other runway hold short of the intersection.
7.2.6 (e)	<p>Unless required by noise abatement legislation a runway will not be nominated when:</p> <ul style="list-style-type: none"> <li>• Completely dry runway: Crosswind exceeds 20 KT including gusts or Downwind exceeds 5 KT including gusts.</li> <li>• NOT completely dry: Crosswind exceeds 20 KT including gusts There is a downwind component.</li> </ul> <p>When a nominated runway is selected with conditions in excess of those specified above the phraseology of 'CURFEW RUNWAY NOMINATION' will be used.</p>
7.3	The ground controller is not required to include HEAVY/SUPER in the initial call.
7.9.3.3	At aerodromes where the Australian Defence Force provides aerodrome control service, TAKE-OFF RUN AVAILABLE is used on the automatic terminal information service ATIS (vice TORA).

7.11	Reduced runway separation minima are used by day and by night.
7.14	This procedure is not used. The decision of a VFR operation to proceed or not to proceed remains a pilot responsibility.
<b>Chapter 8</b>	<b>Radar Services</b>
8.6.5.1 (c)	Where boundary divides two sectors: <ul style="list-style-type: none"> <li>• Where the separation minimum is less than 5NM, Australia vector aircraft no closer to the boundary than half the prescribed separation minimum.</li> <li>• Where different separation minima apply on either side of a boundary, Australia vector aircraft no closer to the boundary than half the larger of the two minima.</li> </ul>
8.6.7.1	A radar vectoring service is terminated automatically when the aircraft is transferred to the aerodrome control frequency.
8.7.3.1	The horizontal separation minimum based on surveillance of 5NM or 3NM is not applied when aircraft are on reciprocal tracks. Aircraft are considered separated once surveillance indicates the tracks have passed each other.
8.7.3.4; Figure 8-1A; Figure 8-1B	<ul style="list-style-type: none"> <li>• 6 NM will be applied to a HEAVY aircraft behind a SUPER aircraft</li> <li>• Wake Turbulence separation is not applied for a LIGHT aircraft behind a MEDIUM fixed-wing aircraft of less than 25,000KG maximum certified take-off mass.</li> <li>• Wake turbulence separation is applied in all controlled airspace, not just during the approach/departure phase of flight.</li> </ul>
8.7.3.5	Wake turbulence groups not implemented in Australia.
8.7.4	Australia has not implemented the separation minima specified in this section, but does permit the application of surveillance separation to aircraft without direct VHF/UHF communications in special circumstances or where no possible intervention is required.
8.9.6 & 8.9.7	Surveillance radar approaches and precision radar approaches are not available in Australia.
<b>Chapter 9</b>	<b>Flight Information Service and Alerting Service</b>
9.1.1	The progress of VFR flights in Classes E and G airspace is not recorded. However, for SAR purposes, VFR flight plan details may be submitted with a time for commencement of SAR alerting, referred to as a SARTIME.
9.1.4	Class F airspace category is not used in Australian Flight Information Regions.
<b>Chapter 11</b>	<b>Air Traffic Services Messages</b>

11.4.3.4.3	<p>Major domestic and international airports have ATC established that can will report known runway surface and braking conditions in a timely manner. ATC provides plain language reports on runway surface conditions (DRY, WET, STANDING WATER etc) for the runway as a whole.</p> <p>ATC does not report runway condition codes and normally does not report runway condition information for runway thirds.</p> <p>When a runway is not dry, ATC will request pilot reports on braking action when considered necessary and will relay those reports where relevant.</p>
<b>Chapter 12</b>	<b>Phraseologies</b>
12.3.1.2	The phrases 'CLIMB UNRESTRICTED TO (level)' and 'DESCEND UNRESTRICTED TO (level)' are not used in Australia.
12.3.1.11	<p>Australia has not implemented the phrase for reporting runway condition code.</p> <p>ATC does not report runway condition codes and normally does not report runway condition information for runway thirds. Instead, ATC provides plain language reports on runway surface conditions (DRY, WET, STANDING WATER etc) for the runway as a whole.</p> <p>Australia reports runway surface conditions with the following phrase:</p> <p>a. RUNWAY (number) (condition)</p>
12.3 & 12.4	AIP contains additional phraseologies.
12.3.2.1	Except where clearance is relayed through a third party, the name of the unit issuing the clearance is omitted.
12.3.4.10	Australia does not reply to indicate confirmation that read back has been received.
12.7.2	De-icing operations are conducted without the use of specific phraseology.
<b>Chapter 15</b>	<b>Procedures related to Emergencies, Communication Failure and Contingencies</b>
	Australian procedures contain additional details – refer AIP ERSA – EMERGENCY PROCEDURES
<b>Chapter 16</b>	<b>Miscellaneous Procedures</b>
16.5	<p>Strategic lateral offset procedures (SLOP) are only permitted in oceanic controlled airspace – where offsets to the right of the center line up to a maximum of 2 NM are permitted.</p> <p>SLOP is not permitted in continental enroute airspace</p>
<b>Appendix 1</b>	
Appendix 1 (Model Airep Special)	The Australian special Air-report (AIREP SPECIAL) does not include reporting when runway braking action encountered is not as good as reported. Instead, pilots are asked to report these matters directly to ATS.
<b>Appendix 2</b>	<b>FLIGHT PLAN</b>

Appendix 2, Subsection 2.2	<ol style="list-style-type: none"> <li>1. Use of SID/STAR details in Item 15, route details of a Flight Route Notification cannot be accepted for operations within Australian airspace. Databases assisting in the provision of ATS in Australia only recognise designated air route and way-point information.</li> <li>2. For operations in Australian airspace, aircraft are not required to indicate Required Communication Performance (RCP) capability using P codes. However, operators may declare RCP capability for flights that will operate in airspace administrated by States that require it.</li> <li>3. Aircraft operators should consult the Australian aeronautical information publication: ENR 1.10 Appendix 2 for specific flight notification requirements in relation to PBN operations.</li> <li>4. Wake turbulence category at Item 9 is limited to H, M or L. J is not available due to system limitation.</li> </ol>
Appendix 2 Subsection 7.4 ITEM M	Wake turbulence category at Item M is limited to H, M or L. J is not available due to system limitation.
<b>Appendix 3</b>	<b>AIR TRAFFIC SERVICES MESSAGES</b>
Appendix 3, subsection 1.8	<ol style="list-style-type: none"> <li>1. For operations in Australian airspace, aircraft are not required to indicate Required Communication Performance (RCP) capability using P codes. However, operators may declare RCP capability for flights that will operate in airspace administrated by States that require it.</li> <li>2. Wake turbulence category at Item 9 is limited to H, M or L. J is not available due to system limitation.</li> </ol>
<b>Appendix 5</b>	<b>CONTROLLER-PILOT DATA LINK COMMUNICATIONS (CPDLC) MESSAGE SET</b>
	Australia references the ICAO Doc 10037 Global Operational Data Link (GOLD) Manual for standard message elements. Aircraft operators should consult the Australian aeronautical information publication: GEN 3.4 sub-section 6.15 for free text message elements.