

ENR 1.8 REGIONAL SUPPLEMENTARY PROCEDURES (DOC 7030)

1 RNP AND RVSM PROCEDURES

1.1 General

1.1.1 [CAR Part 91](#) prescribes the operating rules (Subpart C), and instrument and equipment requirements (Subpart F) and specifications (Appendix A.10) for operating in Required Navigation Performance (RNP) and Reduced Vertical Separation Minima (RVSM) airspace.

1.1.2 RNP and RVSM are subsidiary airspace designations like transponder mandatory airspace. Aircraft operating within this airspace must achieve the navigational accuracy required to allow reduced separation by ATC.

1.1.3 New Zealand has designated:

- (a) RNP airspace in the Auckland Oceanic FIR; lower limit FL245, upper limit FL600.
- (b) RVSM airspace in the New Zealand FIR and the Auckland Oceanic FIR; lower limit FL290, upper limit FL410.

1.2 Operational Approval

RNP

1.2.1 RNP operational approval is provided by the State of Registry or State of the Operator, as appropriate. The approval process is detailed in Civil Aviation [Advisory Circular 91-7](#) and [Advisory Circular 91-10](#). AC 91-7 provides policy and direction to New Zealand operators for obtaining operational approval of RNP10 capability. AC 91-10 provides policy and direction to New Zealand operators for obtaining operational approval of RNP4 capability. Other operators should consult their relevant State Authority. It should be noted that RNP5 (European requirements) compliant aircraft do not automatically qualify for RNP10 approval.

RVSM

1.2.2 To conduct RVSM operations, operators must obtain an operational and airworthiness approval from the State of Registry or State of the operator, as appropriate. [AC 91-4](#) outlines the approval process for New Zealand registered aircraft.

1.2.3 The pilot must notify ATC whenever the aircraft no longer has the required serviceable equipment when within, and up to 30 minutes prior to entry to, airspace where RVSM may be applied.

1.2.4 If TCAS is installed in RVSM compliant aircraft, the equipment should be updated to Change 7, or a later approved version, for optimum performance in RVSM airspace.

1.3 Flight Planning

RNP

1.3.1 RNP compliance is indicated by inclusion of the letter “**R**” in field 10 (Equipment) of the ICAO flight plan when any portion of the flight planned route passes through an **active** RNP designated airspace.

1.3.2 Operators wishing to access 30/30 separation minima must annotate:

- (a) “J”, “R”* and “Z”+ in Item 10, Equipment;
- (b) “D” in Item 10, Surveillance Equipment; and
- (c) “NAV/RNP4” in Item 18.

1.3.3 The requirements of these annotations are to confirm that:

- (a) OpsSpec approval is granted for RNP4 (30/30 separation);
- (b) crew training for pilots and dispatchers is complete for both RNP4 and FANS 1/A; and
- (c) documentation of normal and abnormal procedures for pilots and dispatchers is completed and issued.

** This information allows automated ATC systems to determine aircraft navigational capability.*

+ This indicates that there is further information in field 18.

RVSM

1.3.4 RVSM operational approval is required for aircraft to operate within RVSM airspace; however, non-RVSM approved aircraft (including VFR) may request entry in-flight on an ad hoc basis. The operator must determine that the appropriate State Authority has approved the aircraft and that it will meet the RVSM requirements for the filed route of flight and any planned alternate routes. The letter “**W**” must only be inserted in field 10 (Equipment) of the ICAO flight plan if the aircraft has RVSM operational approval.

1.3.5 Non-RVSM approved civil aircraft may not flight plan between FL290 and FL410 inclusive within RVSM airspace, except that aircraft unable to fly to an appropriate destination at or below FL280 or at or above FL430 may, after special coordination (as detailed in 1.3.6), flight plan within the RVSM stratum provided the aircraft:

- (a) is being delivered for initial acceptance, change of ownership, or lease (see 1.4.1 for another option for delivery flights); or
- (b) was formerly RVSM approved but has experienced an equipment failure and is being flown to a maintenance facility for repair to meet RVSM requirements and/or obtain approval, or is transporting externally a spare engine or strut assembly; or
- (c) is being utilised for mercy or humanitarian purposes.

1.3.6 Civil operators requesting ATC approval for non-RVSM approved aircraft to operate within or transit through the RVSM stratum must:

- (a) for operations wholly within the New Zealand FIR, co-ordinate with the Christchurch ATS centre by telephone normally not more than 12 hours and not less than 1 hour prior to the intended departure time; or
- (b) for aircraft departing from within the New Zealand FIR that are to enter the Auckland Oceanic FIR, co-ordinate with the Christchurch ATS centre by telephone normally not more than 12 hours and not less than 4 hours prior to the intended departure time; or
- (c) for aircraft operating wholly within the Auckland Oceanic FIR, co-ordinate with Auckland Oceanic Control centre by telephone, normally not more than 12 hours and not less than 4 hours prior to the intended departure time; and
- (d) after approval is received from the Auckland Oceanic Control centre, **notify** all other affected centres prior to departure. Filing of a flight plan is not considered appropriate notification; and
- (e) include the remarks "approved non-RVSM" in field 18 of the ICAO flight plan.

1.3.7 This process is intended exclusively for the purposes indicated above and not as a means to circumvent the normal RVSM approval process. The telephone numbers for non-RVSM ATC approval request are:

- (a) Christchurch ATS Centre: (03) 358 1694;
- (b) Auckland Oceanic Control Centre: (09) 275 9817.

1.4 Delivery Flights for Aircraft that are RVSM Compliant

1.4.1 An aircraft that is RVSM compliant on delivery may operate in RVSM airspace provided that the crew is trained on RVSM policies and procedures applicable in the airspace and the responsible State approves the operation. In this case the operator should notify the Asia Pacific Approvals Registry and Monitoring Organization (APARMO) via email apamo@tc.faa.gov or fax 001+609+485 5117 with the date of the delivery flight, flight identification and registration number.

1.5 State Aircraft

1.5.1 Operators of non-RVSM approved State aircraft (military, customs or police service) may flight plan within Auckland Oceanic and New Zealand FIR RVSM airspace, and must include the remarks "non-RVSM state aircraft" in field 18 of the ICAO flight plan form. Refer also 2.8 priorities.

1.5.2 Operators of non-RVSM approved State aircraft (military, customs or police service) are requested to obtain prior ATC approval in accordance with the requirements above for civil aircraft.

1.6 ATC Separations

RNP

1.6.1 Minimum lateral and longitudinal separation between RNP10 aircraft is 50NM and between RNP4 aircraft is 30NM as permitted by ICAO Regional Supplementary Procedures (Doc 7030). In all other cases, 100NM lateral or time-based longitudinal separation will be applied.

RVSM

1.6.2 Minimum ATC separation between RVSM aircraft is 1000ft. In all other cases between non-RVSM aircraft or between a non-RVSM and an RVSM aircraft 2000ft vertical separation will be applied.

1.7 In-flight Procedures

1.7.1 When aircraft are unable to meet RNP or RVSM criteria, pilots must advise ATC:

- (a) 30 minutes prior to entry to RNP or RVSM airspace; or
- (b) immediately, when within 30 minutes of, or within RNP or RVSM airspace.

1.7.2 Before entering RVSM airspace, the pilot should review the status of required equipment. The following equipment should be operating normally:

- (a) two primary altimetry systems;
- (b) one automatic altitude-keeping device; and
- (c) one altitude-alerting device.

1.7.3 The pilot must notify ATC whenever the aircraft:

- (a) is no longer RVSM compliant due to equipment failure; or
- (b) experiences loss of redundancy of altimetry systems; or
- (c) encounters turbulence that affects the capability to maintain level flight.

1.7.4 During cleared transition between levels in RVSM airspace, the aircraft should not overshoot or undershoot the old or new FL by more than 150ft (45m). Except in a surveillance environment (ADS-B, MLAT or radar) or in an ADS-C environment, pilots must report reaching any altitude assigned within RVSM airspace.

1.7.5 During operations in or vertical transit through RVSM airspace within the New Zealand FIR, pilots of **all** non-RVSM approved aircraft are to insert the phrase "NEGATIVE RVSM" into radio calls when:

- (a) requesting a level that is within or above RVSM airspace;
- (b) requesting a level change where that level is within or requires transit through RVSM airspace;
- (c) in read-backs of level clearances;
- (d) as part of the initial call when changing frequency.

1.8 Priorities

RNP

1.8.1 ATC will endeavour to accommodate aircraft not meeting RNP criteria within the designated airspace. Aircraft meeting RNP will be given priority over aircraft not meeting RNP, subject to the traffic disposition.

RVSM

1.8.2 Within RVSM airspace, RVSM approved aircraft will be given priority for level allocation over non-RVSM approved civil aircraft. Non-RVSM approved State aircraft will be afforded the same priority as RVSM approved aircraft.

1.8.3 ATC may clear non-RVSM approved aircraft to climb or descend through RVSM airspace, provided such aircraft do not climb or descend at less than optimum rate, or level off while passing through the RVSM stratum.

1.8.4 On pilot request and at ATC discretion, non-RVSM approved civil aircraft within RVSM airspace may be cleared to cruise at an RVSM level, after consideration of ATC workload, conflicting traffic, and the priority of RVSM approved aircraft.

1.9 Monitoring of Aircraft Navigation Errors

1.9.1 Australia and New Zealand have implemented monitoring, reporting and investigation arrangements to provide information to States and ICAO on the extent of identifiable navigation errors. The detection and reporting of such errors rely on monitoring by Air Traffic Service Units and flight crews. Operators must respond to reports of navigation errors and aircraft equipment failures.

1.9.2 An essential part of the implementation of RVSM is the ability to monitor aircraft height to ensure that the aircraft height-keeping performance standard is being met.

2 PROCEDURES FOR IN-FLIGHT CONTINGENCIES

2.1 General

2.1.1 The following procedures apply to both subsonic and supersonic aircraft and are intended as guidance only. The procedures provide for an inability to maintain assigned level or track because of:

- (a) problems associated with high-level supersonic flight;
- (b) aircraft performance; and/or
- (c) weather.

2.1.2 The procedures are primarily applicable when rapid descent and/or turn-back or diversion to an alternate airport is required. The pilot's judgment will determine the sequence of actions to be taken in specific circumstances.

2.1.3 If an aircraft is unable to continue flight in accordance with its air traffic control clearance, a revised clearance must, if possible, be obtained prior to initiating any action, using the radiotelephony distress or urgency signal as appropriate.

2.2 Actions to be Taken if a Revised ATC Clearance Cannot be Obtained

2.2.1 If prior clearance cannot be obtained, the pilot must:

- (a) if possible, **deviate** away from an organised track or route system by turning at least 45 degrees right or left. The direction of the turn should be determined by the position of the aircraft relative to the organised track or route system (e.g. whether the aircraft is outside, at the edge of, or within the system). Other factors to consider are terrain clearance and the levels allocated to adjacent routes or tracks;
- (b) acquire and **maintain** a track laterally separated in either direction from the aircraft's assigned route or track by 15NM;
- (c) for deviations of less than 10NM from track because of weather, the aircraft should remain at the level assigned by ATC;
- (d) for deviations of greater than 10NM, when the aircraft is approximately 10NM from track, initiate a level change based on the following criteria:

Auckland Oceanic FIR (NZZO)		
<i>Route centreline track</i>	<i>Deviations > 10NM</i>	<i>Level change</i>
EASTBOUND 000°–179°	LEFT	DESCEND 300ft
	RIGHT	CLIMB 300ft
WESTBOUND 180°–359°	LEFT	CLIMB 300ft
	RIGHT	DESCEND 300ft
New Zealand FIR (NZZC)		
<i>Route centreline track</i>	<i>Deviations > 10NM</i>	<i>Level change</i>
NORTHBOUND 270°–089°	LEFT	DESCEND 300ft
	RIGHT	CLIMB 300ft
SOUTHBOUND 090°–269°	LEFT	CLIMB 300ft
	RIGHT	DESCEND 300ft

Note: The preceding procedures call for the pilot to broadcast aircraft position and pilot's intentions, identify conflicting traffic, and communicate air-to-air with nearby aircraft. If the pilot determines that there is another aircraft at or near the same flight level that his aircraft might conflict with, the pilot is expected to change the path of the aircraft, as necessary, to avoid conflict.

- (e) establish communications on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45 MHz) with, and alert, nearby aircraft by broadcasting at suitable intervals:
 - (i) flight identification;
 - (ii) flight level;
 - (iii) aircraft position (including the ATS route designator or the track code); and
 - (iv) intentions.
- (f) set transponder to Code 7700 and select the Emergency Mode on the automatic dependent surveillance-contract/controller-pilot data link communications (ADS-C/CPDLC) system, if applicable;
- (g) watch for conflicting traffic both visually and by reference to TCAS/ACAS (if equipped);
- (h) turn on all aircraft exterior lights (subject to any operating limitations);
- (i) if contact was not established prior to deviating, continue trying to contact ATC to obtain a clearance. If contact was established, keep ATC advised of intentions and obtain essential traffic information;
- (j) when returning to track after a weather deviation, be at the assigned flight level when the aircraft is within approximately 10NM of centreline.

2.3 Aircraft Able to Maintain Assigned Level

2.3.1 The pilot of an aircraft that can still maintain its assigned level but is required to turn back or divert should climb or descend 300ft once the aircraft is established on its 15NM offset track.

2.4 Aircraft Unable to Maintain Assigned Level

2.4.1 When an aircraft is unable to maintain the assigned level, the pilot should, if possible, minimise the aircraft's rate of descent while establishing on the 15NM offset track. When level flight can be maintained, a level should be selected which differs from those normally used by 300ft.

2.5 ETOPs Aircraft

2.5.1 If these contingency procedures are employed by the pilot of a twin-engine aircraft as a result of an engine shutdown or a failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation, reminding ATC of the type of aircraft involved and requesting expeditious handling.

2.6 Diversion Across the Flow of Adjacent Traffic

2.6.1 Before commencing a diversion across the flow of adjacent traffic the pilot should, while maintaining the aircraft on the 15NM track offset, expedite a climb above or a descent below levels where the majority of Pacific oceanic traffic operates (e.g. to a level below FL290 or above FL400) and then maintain a level which differs by 300ft from those normally used.

2.6.2 If the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level 500ft above or below levels normally used until a new ATC clearance is obtained.

2.7 Weather Deviation Procedures

General

2.7.1 If the aircraft has to deviate from track to avoid weather and prior clearance cannot be obtained, the procedures detailed in paragraph 2.2 must be followed and an ATC clearance obtained at the earliest possible time.

2.7.2 The pilot must advise ATC when a weather deviation is no longer required or when a weather deviation has been completed and the aircraft has returned to the centreline of its cleared route.

Obtaining Priority from ATC when Weather Deviation is Required

2.7.3 When the pilot initiates communications with ATC, rapid response may be obtained by stating "*WEATHER DEVIATION REQUIRED*" to indicate that priority is desired for communication and ATC response.

2.7.4 The pilot may initiate communications using the urgency call "*PAN PAN*" (preferably spoken three times) to alert all listening parties of a special handling condition, and to receive ATC priority.

Actions to be Taken: Pilot — Controller Communications Established

2.7.5 Where pilot-controller communications are established, the pilot must notify ATC and request clearance to deviate from track, advising where possible the extent of deviation expected.

2.7.6 ATC will take one of the following actions:

- (a) if there is **no** conflicting traffic in the horizontal dimension, issue a clearance to deviate from track; or
- (b) if there **is** conflicting traffic in the horizontal dimension, separate aircraft by establishing vertical separation or, if unable to establish vertical separation:
 - (i) advise the pilot unable to issue clearance for requested deviation due conflicting traffic; and
 - (ii) request the pilot's intentions.

2.7.7 The following phraseology will be used:

- (a) "*STANDARD SEPARATION NOT AVAILABLE, DEVIATE AT PILOT'S DISCRETION. SUGGEST CLIMB (or descent) TO (level), TRAFFIC (direction of flight) (position) AT (level), REPORT DEVIATION COMPLETE*"; or
- (b) "*UNABLE (requested deviation), TRAFFIC IS (call sign, position, altitude, direction), ADVISE INTENTIONS*".

2.7.8 The pilot will take the following actions:

- (a) **advise** ATC of intentions by the most expeditious means available; and
- (b) **comply** with ATC clearance issued; or
- (c) **execute** the procedures detailed in [paragraph 2.2](#) (ATC will issue essential traffic information to all affected aircraft); and
- (d) if necessary, **establish** voice communications with ATC to expedite dialogue on the situation.

2.8 Strategic Lateral Offset Procedures (SLOP) in the Auckland Oceanic FIR

2.8.1 SLOP are approved procedures that allow an aircraft to fly a parallel track to the right of the centreline relative to the direction of flight. The use of these procedures does not affect the application of prescribed separation standards.

2.8.2 Lateral offsets can be used to mitigate wake turbulence encounters in RVSM airspace, and to mitigate distracting aircraft system alerts (e.g. ACAS and GPWS) and reduce the probability of collision due loss of vertical separation as a result of the use of highly accurate navigation systems.

2.8.3 The following requirements apply to the use of lateral offsets:

- (a) The offset may only be applied by aircraft with automatic offset tracking capability; and
- (b) The offset must be established at a distance of 1NM or 2NM from the centreline; and
- (c) The offset must be to the right of track relative to the direction of flight; and
- (d) The offset must only be applied after the aircraft reaches the lowest safe altitude; and
- (e) The offset must not be applied in radar controlled airspace without ATC approval.

2.8.4 Pilots should establish contact with other aircraft, if possible, on the appropriate VHF inter-pilot air-to-air frequency 123.45 MHz to coordinate offsets.

2.8.5 Pilots are not required to notify ATC that a strategic lateral offset is being applied.

