EXPLANATORY STATEMENT
CIVIL AVIATION ACT 1988
CIVIL AVIATION REGULATIONS 1988
CIVIL AVIATION ORDERS
DETERMINATION — INSTRUMENT APPROACH AND DEPARTURE PROCEDURES
APPROVAL — RNAV RNP TRIAL AT QUEENSTOWN, NEW ZEALAND

Determination

Section 98 of the Civil Aviation Act 1988 (the Act) provides that the Governor-General may make regulations for the purposes of the Act and in relation to the safety of air navigation.

Under subregulation 178 (1) of the Civil Aviation Regulations (CAR 1988), the pilot in command of an aircraft must not fly along a route segment at a height lower than the published lowest safe altitude (LSALT) for that segment. Under subregulation 178 (2), if there is no LSALT, the pilot must not fly lower than the LSALT calculated by a method determined by CASA.

However, paragraph 178 (4) (c) provides an exemption from these requirements if the flight is during an instrument approach procedure (IAP) or an instrument departure procedure (IDP) determined by CASA under paragraphs 178 (6) (b) or (c) respectively.

The instrument determines an IAP and an IDP for use in a trial proposed by Qantas Airways Ltd (Qantas). The instrument enables specially trained pilots in specially equipped Boeing 737-800 aeroplanes to fly into and out of Queenstown, New Zealand using RNAV RNP technology and navigation. RNAV refers to the computerised area navigation system, and RNP to the related navigation performance capability of appropriately equipped aircraft.

Use of RNAV (RNP) can enable accurate navigation and obstacle avoidance in instrument meteorological conditions (I.M.C.) under the instrument flight rules (I.F.R.). This can significantly reduce the likelihood of accidents involving controlled flight into terrain (CFIT). CFIT can be more likely in complex, non-precision approaches (NPA) which lack vertical guidance and which require high flight crew mental work load.

The safety of flights into and out of Queenstown is currently limited by the high terrain and lack of accurate approach and departure navigation aids. However, the risks are significantly reduced by the use of instrument approach and departure procedures in RNP-capable aircraft.

RNAV (RNP) procedures of the type to be used in the trial have been developed and are in use in the US (Alaska Airlines) and in Canada (Westjet). However, there are as yet no internationally agreed design standards for such procedures. The design of the IAP and IDP has been carried out by Naverus Inc. (US-based RNP procedure specialists) and the design standards have been subject to the scrutiny of the FAA and Transport Canada. CASA has conducted its own assessment of the procedure design standards used by Naverus and is satisfied that the proposed IAP and IDP meet or exceed acceptable standards of safety for instrument approach and departure operations.

Conditions of Determination

The trial is Stage 3 of a proposed 5-Stage program developed by Qantas with a view to acquiring full operational capability using RNP 0.10. At each stage of the project, Qantas must comply with various conditions to ensure the viability and safety of the operations. For example, the IAP and IDP determined by the instrument may be used only so long as they remain approved by the CAA NZ.
Other conditions of the trial include the following: Qantas may use only approved aircraft capable of the required navigation performance (RNP) as specified in the aircraft manufacturer’s flight manual; only pilots specially trained for the operations may be used in the trial; the operations must be conducted in accordance with the documented RNAV (RNP) implementation proposal put to CASA by Qantas and on which the trial is based; Qantas must monitor a number of performance indicators and provide CASA with reports every 3 months; flight crew must be supplied with incident and feedback forms for these reporting purposes and encouraged to complete such forms without fear or favour. Monitoring and reporting is designed to confirm that operations are within operational limits and ensure that any indication of less-than-expected performance is identified prior to becoming a safety concern.

Approval

Section 98 of the Act empowers the Governor-General to make regulations for the purposes of the Act and in the interests of the safety of air navigation.

Subregulation 5 (1) of CAR 1988 provides that where CASA is authorised to issue directions, it may do so in the form of CAOs.

Subregulation 235 (2) of CAR 1988 authorises CASA to issue directions setting out the manner of determining a maximum weight for an aircraft that its gross weight must not exceed at take-off or landing.

For aircraft of a maximum take-off weight exceeding 5 700 kg, CASA has issued such directions in the form of section 20.7.1B of the CAOs.

Subsections 12 and 12A of section 20.7.1B provide for methods of meeting take-off obstacle clearance requirements in relation to take-off weight limitations by reference to the definition of the take-off area. An amendment to subparagraph 12.1.1 (b) and paragraph 12A.5 of section 20.7.1B has been made in Civil Aviation Amendment Order (No. 7) 2005 to commence immediately before this instrument commences. As a result, in subparagraph 12.1.1 (b) and paragraph 12A.5, the take-off area is given a particular limitation for approved RNP operations, in RNP-capable aeroplanes that are approved for area navigation (RNAV) using specified RNP containment values.

Therefore, to enable departures during the Queenstown trial to take advantage of these RNP-related obstacle clearance provisions, the instrument also contains:

(a) an approval of Boeing 737-800 aeroplanes for area navigation (RNAV); and

(b) an approval of the trial as an approved RNP operation; and

(c) specification of the RNP containment appropriate for the RNP Type selected in the operations.

Legislative Instruments Act 2003

Under subsections 5 (1) and (4) of the Legislative Instruments Act 2003 (the LIA) the determination is a legislative instrument. It is subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

Consultation under section 17 of the LIA has not been undertaken in this case. The instrument relates to a trial of certain procedures and technology specifically proposed by Qantas for Queenstown, New Zealand.

The instrument commences on the day after it is registered on the Federal Register of Legislative Instruments. However, the trial may commence only when the CAA NZ has
approved the relevant instrument approach and departure procedures. The approval was given on 4 April 2005. The instrument stops having effect at the end of March 2007.

The instrument has been issued by the Acting Director of Aviation Safety, on behalf of CASA, in accordance with subsection 84A (2) of the Act.

[Instrument number CASA 166/05]