AC 135-3-1(Rev 0)
17 September 2018

Civil Aviation Authority of Singapore

Advisory Circular

GUIDANCE ON OPERATING LIMITATIONS FOR ANR-135 OPERATIONS

GENERAL
Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 3C of the Air Navigation Act (Cap. 6) (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

PURPOSE
This AC provides guidance to demonstrate compliance with, and information related to, the requirements relating to operating limitations for operations in accordance with ANR-135.

APPLICABILITY
This AC is applicable for the AOC holder operating in accordance with ANR-135.

RELATED REGULATIONS
This AC relates specifically to Division 3 in Part 2 of ANR-135.

RELATED ADVISORY CIRCULARS
Nil.

CANCELLATION
This is the first AC issued on the subject.

EFFECTIVE DATE
This AC is effective from 1 October 2018.

OTHER REFERENCES
Nil.

GUIDANCE 135REG63 GUIDANCE FOR REGULATION 63 OF ANR-135 – MINIMUM FLIGHT ALTITUDES

1 The minimum safe altitude should be specified by the AOC holder for each sector of each route to be flown – including routes to alternate aerodromes. For this purpose, "sector" means the intended track from one reporting or turning point to the next, until the aircraft starts the instrument approach procedure (or joins the traffic pattern) at the aerodrome to be used for landing. Except for the scenario as described in paragraph 2 below, these figures should be specified by the AOC holder prior to flight – in the appropriate volume of the operations manual, in a prepared navigational flight plan, or in the pilot-in-command's flight brief.

2 To meet the needs of the pilot-in-command when he/she is obliged to deviate from the planned or normal route, the AOC holder should include in the operations manual instructions from which the minimum flight altitude can readily be determined.

3 In specifying minimum flight altitude, the AOC holder must take into account of any local regulations and limitations. Such minimum altitudes should not be lower than any which may be applicable under the law of Singapore or of the countries whose territory is to be flown over. The instructions should include maintenance of altitude awareness and the use of the automated or flight crew altitude or flight crew call-out; the use of auto-pilot and auto-throttle in IMC; the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved. The AOC holder should specify limitations on high rate of descent near the surface.

4 The criteria upon which minimum altitudes are based will necessarily be determined to some extent by the track guidance facilities available to the pilot-in-command and by the extent to which pilots-in-command and the AOC holder are able in particular circumstance to accept the directions of radar controllers. The minimum acceptable standards would normally be as follows:

4.1 For general application: 1,500 feet above the highest terrain or obstacle within 20nm of the intended track, with additional provision where necessary for terrain or obstacles within 10 degrees of intended track from the last known position.

4.2 For flight in controlled airspace where the track is well defined by two separate aids: 1,500 feet above the highest terrain or obstacle within 10nm of the intended track.

4.3 For radar controlled flight within 25nm of the aerodrome of departure or intended landing: 1,000 feet above the highest terrain or obstacle within 5nm of the intended track. The pilots-in-command should be instructed to monitor all radar instructions by reference to other aids and be reminded that radar control does not relieve him of his responsibility to ensure adequate terrain clearance.

4.4 If the specified minimum altitude for a sector is related only to terrain or obstacles within less than 20nm of the intended track, special attention should be drawn to the fact in manuals and prepared navigational flight plans supplied to flight crews.

4.5 For flights within 20nm of terrain having an elevation exceeding 2,000 feet, operations manuals should provide for minimum altitude to be increased by at least the following amounts according to the wind speed at flight level:

Elevation of terrain	Windspeed in knots			
	0-30	31-50	51-70	Over 70
2,000 -8,000 ft	500 ft	1,000 ft	1,500 ft	2,000 ft
Above 8,000 ft	1,000 ft	1,500 ft	2,000 ft	2,500 ft

4.6 The manual should also include a reference to the effect of mountain waves and instruct the pilot-in-command to take suitable precautions when such conditions are reported or forecast.

4.7 Minimum altitude should be related where necessary to the ability of the aircraft to comply with the mass and performance requirements, i.e. all engines operating, single engine failure for 2 engine aircraft, 1 or 2 engine failure for 3 or 4 engine aircraft.

4.8 If the AOC holder wishes to use the minimum safe altitudes provided in a recognised Flight Guide (Aerads, Jeppesen or any charts that are approved by the DGCA), it should first check that the basis of the publisher's calculations will give at least an equal standard to that required by the above paragraphs. It may be necessary to promulgate a correction in the manual so that the required standard is achieved.

GUIDANCE 135REG64 GUIDANCE FOR REGULATION 64 OF ANR-135 – INSTRUMENT FLIGHT PROCEDURES

1 The AOC holder may refer to PANS-OPS (Doc 8168), Volume I, for recommended operational procedures for use by operations personnel involved in instrument flight operations.

2 The criteria for constructing instrument flight procedures for the guidance of procedure specialists are provided in PAN-OPS (Doc 8168), Volume II. The AOC holder should note that obstacle clearance criteria and procedures certain States may differ from PANS-OPS, and knowledge of these differences is important.