

ENR 1.7 Altimeter Setting Procedures

ENR 1.7 ALTIMETER SETTING PROCEDURES

1. Introduction

- 1.1. The altimeter setting procedures in use generally conform to those contained in PANS-OPS ICAO Doc 8168-OPS/611 Volume I, section 2, and only differences are stated.
- 1.2. Transition Altitude (TA) is given on the instrument approach charts.

1.3 Definitions

- **QNH** — Altimeter setting indicating altitude above mean sea level (AMSL) in ISA
- **QFE** — Altimeter setting indicating height above a specific reference datum (normally aerodrome or threshold elevation)
- **Standard Pressure Setting** — 1013.25 hectopascals (hPa)

2. BASIC ALTIMETER SETTING PROCEDURES

2.1 General

2.1.1 System of flight levels

2.1.1.1 Flight level zero is located at the atmospheric pressure level of 1013.25 hPa (29.92 inHg). Consecutive flight levels are separated by a pressure interval corresponding to 100 FT in the Standard Atmosphere.

2.1.1.2 Flight levels shall be numbered according to the standard ICAO Table of cruising levels.

2.1.2 Transition Altitude (TA)

2.1.2.1 Damascus FIR Transition Altitude (TA) is common and specified as 13000 FT.

2.1.2.2 Transition Altitude (TA) is published in Aeronautical Information Publications and shown on the instrument approach charts.

2.1.3 Transition Level (TL)

2.1.3.1 Damascus FIR Transition Level (TL) is common and specified as FL 150.

2.1.4 References to vertical position

2.1.4.1 The vertical positioning of aircraft operating at or below the TA shall be expressed in terms of Altitude (ALT).

2.1.4.2 The vertical positioning of aircraft operating at or above the TL is expressed in terms of Flight Levels (FL).

2.1.4.3 Vertical positioning of aircraft while passing through the Transition Layer shall be expressed in terms of:

- a) Altitude when descending; and
- b) Flight Levels when climbing.

2.1.5 The terminology TA/TL applies during:

- a) Climb;
- b) En-route flight; and
- c) Approach and landing.

2.2 Take-off and Climb

2.2.1 A QNH altimeter setting is made available to aircraft in taxi clearance before take-off.

2.2.2 During climb, all references in A/G communication to vertical position shall be in terms of:

- a) FL when at or above TL; or
- b) ALTs when at or below TA.

2.2.3 The altimeter subscale setting shall be changed from QNH to 1013.25 hPa (ISA) on leaving or passing the TA.

2.3 En-route

2.3.1 Vertical separation en-route is assessed in terms of:

- a) ALT, when at and below the TA; and
- b) FL, when at and above the TL.

2.3.2 Terrain clearance

2.3.2.1 Terrain clearance shall be assessed based on the latest Regional QNH obtainable from ATC.

2.4 Approach and Landing

2.4.1 A QNH altimeter setting shall be made available to aircraft in approach clearance and in clearance to enter the traffic circuit.

2.4.2 QFE altimeter settings are clearly identified by ATS for AD ELEV and THR ELEV if 7 FT or more below AD ELEV. They are available in approach and landing clearances on request.

NOTE: QFE is the isobaric surface pressure at the reference point. At other altitudes, the altimeter will give an indication of the height above that reference point. With the aerodrome QFE set in the subscale, your altimeter will read zero on the highest point on the runway, and at other altitudes will read the height above the airfield elevation. For precision approach runways or for instrument runways when the threshold is 7 FT or more below aerodrome elevation, the QFE may be based

on the threshold elevation [ICAO Doc 4444, 4.10.1.2]. With the runway threshold QFE set in the subscale, your altimeter will read zero on the runway threshold.

2.4.3 Vertical positioning of aircraft during approach is controlled by reference to:

- a) FL, until reaching the TL; and
- b) ALT, when below the TL.

Note: This does not preclude a pilot using either:

- a) QNH setting from the top of descent when cleared for uninterrupted descent to a level below TL; or
- b) QFE setting for terrain clearance purposes during final approach to the runway.

2.5 Missed Approach

2.5.1 The relevant parts of 2.1.4, 2.2 ("Take-off and climb"), and 2.4 ("Approach and landing") shall be applied in the event of a missed approach.

3. ALTIMETER SETTING REGIONS (ASR).

- QNH shall be used during all operations in the aerodrome vicinity and for all take-offs
- Arriving aircraft shall set QNH upon passing the transition level or as directed by ATC
- QFE may be used upon a specific pilot request
- Standard pressure (1013.25 hPa) shall be set when climbing through the transition altitude and maintained for all flight levels

3.1 Transition Altitude, Level, and Layer

- **Transition Altitude (TA)** — Fixed altitude for each aerodrome, published in the AD section
- **Transition Level (TL)** — Lowest FL above TA, determined by ATS based on prevailing QNH
- **Transition Layer** — Airspace between TA and TL

4. PROCEDURES APPLICABLE TO OPERATORS (Including Pilots).

4.1 Flight Planning

4.1.1 The levels at which a flight is to be conducted shall be specified in a flight plan in terms of:

- a) Flight Levels (FL), if the flight is to be conducted at or above the Transition Level (TL) (or the lowest usable flight level, if applicable); and
- b) Altitudes (ALT), if the flight is to be conducted in the vicinity of an aerodrome and at or below the Transition Altitude (TA).

4.1.2 The altitudes or flight levels selected for flight shall:

- a) Ensure adequate terrain clearance at all points along the entire route;
- b) Satisfy ATC requirements; and

c) Be compatible with the Table of Cruising Levels as shown in paragraph 4.2 below.

4.2 Table of Cruising Levels

4.2.1 The cruising levels to be observed, when so required, are structured as follows:

a) In areas where, based on regional air navigation agreements and in accordance with conditions specified therein, a Reduced Vertical Separation Minimum (RVSM) of 300 m (1000 FT) is applied between FL 290 and FL 410 inclusive.

Table of Cruising Levels											
From 000° to 179°						From 180° to 359°					
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
FL	Altitude		FL	Altitude		FL	Altitude		FL	Altitude	
	Metres	Feet		Metres	Feet		Metres	Feet		Metres	Feet
	300	1000		450	1500		600	2000		750	2500
	900	3000		1050	3500		1200	4000		1350	4500
	1500	5000		1700	5500		1850	6000		2000	6500
	2150	7000		2300	7500		2450	8000		2600	8500
	2750	9000		2900	9500		3050	10000		3200	10500
	3350	11000		3500	11500		3650	12000		3800	12500
	3950	13000		-	-		-	-		-	-

Table of Cruising Levels											
From 000° to 179°					From 180° to 359°						
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
FL	Altitude		FL	Altitude		FL	Altitude		FL	Altitude	
	Metres	Feet		Metres	Feet		Metres	Feet		Metres	Feet
150	4550	15000	Class A Airspace		160	4900	16000	Class A Airspace			
170	5200	17000	No VFR flights above ALT 11500 FT		180	5500	18000	No VFR flights above ALT 12500 FT			
190	5800	19000			200	6100	20000				
210	6400	21000			220	6700	22000				
230	7000	23000			240	7300	24000				
250	7600	25000			260	7900	26000				
270	8250	27000			280	8550	28000				
290	8850	29000			300	9150	30000				
330	10050	33000			320	9750	32000				
370	11300	37000			340	10350	34000				
410	12500	41000			360	10950	36000				
450	13700	45000			380	11600	38000				
490	14950	49000			400	12200	40000				
etc.	etc.	etc.			430	13100	43000				
					470	14350	47000				
					510	15550	51000				
					etc.	etc.	etc.				

References

- ICAO Annex 4 — Aeronautical Charts
- ICAO Annex 15 — Aeronautical Information Services