

**ENR 1.7 ALTIMETER SETTING PROCEDURES****1. INTRODUCTION**

- 1.1 The altimeter setting procedures in use conform to those specified in ICAO Doc 8168 - PANS OPS/611 and Doc 4444 - PANS ATM/501.
- 1.2 The purpose of these procedures is to provide pilots with suitable pressure information which will assist them in maintaining adequate terrain clearance and also to ensure a safe standard of flight separation by the general use of altimeters set at 1013.2 hPa.

**2. BASIC ALTIMETER SETTING PROCEDURES****2.1 Flight levels**

- 2.1.1 Flight level zero shall be located at the atmosphere pressure level of 1013.2 hPa. Consecutive flight levels shall be separated by a pressure interval corresponding to at least 500 FT (152.4 M) in the standard atmosphere.
- 2.1.2 Flight levels shall be numbered according to the table of cruising levels given in ENR 1.7.5 which indicates the corresponding height in the standard atmosphere in feet and the approximate equivalent height in metres.

**2.2 Transition altitude**

- 2.2.1 Transition altitude is the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
- 2.2.2 Transition altitude established for the Tirana FIR is 10000 FT.

**2.3 Transition level**

- 2.3.1 Transition level is the lowest flight level available for use above the transition altitude.
- 2.3.2 The transition level shall be located a nominal 300 m (1000 ft) above the transition altitude so that vertical separation minimum is ensured between aircraft flying concurrently at the transition altitude and the transition level.
- 2.3.3 The transition level is determined by reference to the following table:

Transition Level Reference Table	
QNH	Transition Level
≥1013 hPa	FL 110
1012 – 978 hPa	FL 120
≤ 977 hPa	FL 130

- 2.3.4 Based on current and anticipated atmospheric pressure distribution, area control centre shall coordinate, when required, the lowest flight level to be used.

**2.4 Transition layer**

- 2.4.1 Transition layer is the airspace between the transition altitude and the transition level.
- 2.4.2 Level flight is not permitted within the transition layer.

**2.5 Expression of vertical position of aircraft**

- 2.5.1 For flights in areas where a transition altitude is established, the vertical position of aircraft shall, except as provided for in 4.3.9, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

2.5.2 For flights en-route, the vertical position of aircraft shall be expressed in terms of:

- a. flight levels at or above the lowest usable flight level; and
- b. altitudes below the lowest usable flight level.

## **2.6 Take-off and climb**

2.6.1 The QNH altimeter setting shall be passed to an aircraft as part of the departure weather and data.

2.6.2 In addition, where the departure clearance requires an aircraft to maintain a specified altitude after departure, the QNH setting shall also be repeated as part of the departure clearance.

2.6.3 A QNH altimeter setting is included in the routine weather report transmitted to aircraft on initial contact.

2.6.4 Before taking off, one altimeter shall be set on the latest QNH altimeter setting for the aerodrome.

2.6.5 During climb to, and while at the transition altitude, references to the vertical position of the aircraft in air-ground communications shall be expressed in terms of altitudes.

2.6.6 On climbing through the transition altitude, the reference for the vertical position of the aircraft shall be changed from altitudes (QNH) to flight levels (1013.2 hPa), and thereafter the vertical position shall be expressed in terms of flight levels.

## **2.7 En-route**

2.7.1 During en-route flight at or below the transition altitude, an aircraft shall be flown at altitudes. References to the vertical position of the aircraft in air-ground communications shall be expressed in terms of altitudes.

2.7.2 During en-route flight at or above transition levels or the lowest usable flight level, whichever is applicable, an aircraft shall be flown at flight levels. References to the vertical position of the aircraft in air-ground communications shall be expressed in terms of flight levels.

2.7.3 Where adequate QNH altimeter setting reports are available, the latest and most appropriate reports shall be used for assessing terrain clearance.

2.7.4 Where the adequacy of terrain clearance cannot be assessed with an acceptable degree of accuracy by means of the QNH reports available or forecast lowest mean sea level pressure, other information shall be obtained for checking the adequacy of terrain clearance.

## **2.8 Approach and landing**

2.8.1 Before beginning the initial approach to an aerodrome, the number of the transition level shall be obtained.

*Note: The transition level is normally obtained from the appropriate air traffic services unit.*

2.8.2 Before descending below the transition level, the latest QNH altimeter setting for the aerodrome shall be obtained.

*Note: The latest QNH altimeter setting for the aerodrome is normally obtained from the appropriate air traffic services unit.*

2.8.3 As the aircraft descends through the transition level, the reference for the vertical position of the aircraft shall be changed from flight levels (1013.2 hPa) to altitudes (QNH). From this point on, the vertical position of the aircraft shall be expressed in terms of altitudes.

## **2.9 Missed approach**

2.9.1 The relevant parts of "Take-off and climb", "En route", and "Approach and landing" shall apply in the event of a missed approach.

### 3. DESCRIPTION OF ALTIMETER SETTING REGION(S)

#### 3.1 Regional pressure setting

- 3.1.1 Aircraft flying at or below the transition altitude in Class G airspace within the Tirana FIR shall use the current reported QNH of Tirana Airport as the regional pressure setting except when flying within LAKU FIZ/RMZ in which local Kukes QNH shall be set.
- 3.1.2 Regional QNH are provided in MET broadcasts and are available on request from the appropriate ATS units.
- 3.1.3 QNH values provided to aircraft shall be rounded down to the nearest lower whole hectopascal.

### 4. PROCEDURES FOR OPERATORS AND 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:
- a. as flight levels if the flight is to be conducted at or above the transition level (or the lowest usable flight level, if applicable); and
  - b. as altitudes if the flight is to be conducted at or below the transition altitude.
- 4.1.2 The altitudes or flight levels selected for flight:
- a. should ensure adequate terrain clearance at all points along the route;
  - b. should satisfy air traffic control requirements; and
  - c. should be compatible with the table of cruising levels in ENR 1.7.5, if relevant.

#### 4.2 Terrain clearance

- 4.2.1 The determination of lowest usable flight levels by air traffic control units within controlled airspace does not relieve the pilot-in-command of the responsibility for ensuring that adequate terrain clearance exists, except when an IFR flight is being vectored by radar.
- 4.2.2 When vectoring an IFR flight and when giving an IFR flight a direct routing which takes the aircraft off published ATS route or instrument procedure, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot re-joins the flight plan route or joins a published ATS route or instrument procedure. When applicable, the relevant minimum vectoring altitude shall include a correction for low temperature effect.

*Note: Minimum vectoring altitudes are published on the ATC Surveillance Minimum Altitude Chart.*

- 4.2.3 If an aircraft is cleared by ATC to an altitude which the pilot-in-command finds unacceptable due to low temperature, then the pilot-in-command should request a higher altitude. If such a request is not received, ATC will consider that the clearance has been accepted and will be complied with.
- 4.2.4 The pilot is responsible for altimeter corrections for pressure, temperature and, where appropriate, wind and terrain effects, except when under radar vectoring. In that case, the radar controller issues clearances such that the prescribed obstacle clearance will exist at all times, taking the cold temperature correction into account.

#### 4.3 Provision of altimeter setting information

- 4.3.1 Appropriate ATS units shall at all times have available for transmission to aircraft in flight, on request, the information required to determine the lowest flight level which will ensure adequate terrain clearance on routes or segments of routes for which this information is required.
- 4.3.2 Flight information centres and area control centres shall have available for transmission to aircraft, on request, an appropriate number of QNH reports or forecast pressures for the flight information regions and control areas for which they are responsible, and for those adjacent.
- 4.3.3 The flight crew shall be provided with the aerodrome QNH, temperature and transition level in due time prior to

reaching it during descent. This may be accomplished by voice communications or ATIS broadcast.

4.3.4 The transition level shall be included in approach clearances or requested by the pilot.

4.3.5 A QNH altimeter setting shall be included in the descent clearance when first cleared at an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft except when it is known that the aircraft has already received the information in a directed transmission.

4.3.6 QNH values are given in hectopascals (hPa). QNH in millimetres (Hg) are available on request.

4.3.7 Altimeter settings provided to aircraft shall be rounded down to the nearest lower whole hectopascal.

4.3.8 A QFE altimeter setting shall be provided to aircraft on request or on a regular basis in accordance with local arrangements.

4.3.9 When an aircraft which has been given clearance to land, or when at AFIS aerodromes an aircraft which has been informed that the runway is available for landing, is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it shall be expressed in terms of height above runway threshold elevation:

- a. for instrument runways if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and
- b. for precision approach runways.

**5. TABLE OF CRUISING LEVELS**

5.1 The cruising levels to be observed are as follows:

MAGNETIC TRACK											
From 000 degrees to 179 degrees						From 180 degrees to 359 degrees					
IFR Flights			VFR Flights			IFR Flights			VFR Flights		
Level			Level			Level			Level		
FL	Feet	Metres	FL	Feet	Metres	FL	Feet	Metres	FL	Feet	Metres
010	1000	300	-	-	-	020	2000	600	-	-	-
030	3000	900	035	3500	1050	040	4000	1200	045	4500	1350
050	5000	1500	055	5500	1700	060	6000	1850	065	6500	2000
070	7000	2150	075	7500	2300	080	8000	2450	085	8500	2600
090	9000	2750	095	9500	2900	100	10000	3050	105	10500	3200
110	11000	3350	115	11500	3500	120	12000	3650	125	12500	3800
130	13000	3950	135	13500	4100	140	14000	4250	145	14500	4400
150	15000	4550	155	15500	4700	160	16000	4900	165	16500	5050
170	17000	5200	175	17500	5350	180	18000	5500	185	18500	5650
190	19000	5800	195	19500	5950	200	20000	6100	205	20500	6250
210	21000	6400	215	21500	6550	220	22000	6700	225	22500	6850
230	23000	7000	235	23500	7150	240	24000	7300	245	24500	7450
250	25000	7600	255	25500	7750	260	26000	7900	265	26500	8100
270	27000	8250	275	27500	8400	280	28000	8550	285	28500	8700
290	29000	8850				300	30000	9150			
310	31000	9450				320	32000	9750			
330	33000	10050				340	34000	10350			
350	35000	10650				360	36000	10950			
370	37000	11300				380	38000	11600			
390	39000	11900				400	40000	12200			
410	41000	12500				430	43000	13100			
450	45000	13700				470	47000	14350			
490	49000	14950				510	51000	15550			
etc.	etc.	etc.				etc.	etc.	etc.			

THIS PAGE INTENTIONALLY LEFT BLANK