

**ENR 1.7 ALTIMETER SETTING PROCEDURES**

**1. Introduction**

- 1.1 The altimeter setting procedures in use generally conform to those contained in ICAO Doc 8168-OPS/611 Vol. I, Part 6 and are given in full below.
- 1.2 Transition altitudes for all international airports are given in the table in AD 2-17 in addition, transition altitudes are given on Instrument Approach Charts.
- 1.3 QNH reports and temperatures for use in determining adequate terrain clearance are provided in MET broadcasts and are available on request from Bangkok Area Control Centre. QNH and QFE values are given in whole hectopascals, but they will be provided in tenths on request for landing.

**2. Basic altimeter setting procedures**

2.1 General

- 2.1.1 A transition altitude for all civil aerodromes is 1 828 m (6 000 ft) with an exception of Bangkok, Chiang Mai, Chiang Rai, Hat Yai, Khon Kaen, Khorat, Lampang, Mae Hong Son, Nakhon Ratchasima, Rayong/U-Tapao, Phitsanulok, Buri Rum, Phuket, Sakon Nakhon, Surat Thani, Takhli, Trang, Ubon and Udon Terminal Control Area (TMA) transition altitude is 3 352.8 m (11 000 ft).
- 2.1.2 Vertical displacement of aircraft when at or below the transition altitude is expressed in interval of altitude whereas such displacement at or above the transition level is expressed in terms of flight level. While passing through the transition layer, vertical displacement is expressed in terms of altitude when descending, and in terms of flight levels when ascending.
- 2.1.3 Flight level zero is located at the atmospheric pressure level of 1 013.2 hPa (29.92 inHg) Consecutive flight levels are separated by a pressure interval corresponding to 500 ft (152.4 m) in the International Standard Atmosphere.
- 2.1.4 Flight level shall be numbered according to the following table which indicates the corresponding height in the International Standard Atmosphere, in feet:-

<u>Flight Level</u>	<u>Height in International Standard Atmosphere</u>	
<u>Number</u>	<u>Feet</u>	<u>Metres</u>
10	1 000	300
15	1 500	450
20	2 000	600
25	2 500	750
30	3 000	900
35	3 500	1 050
40	4 000	1 200
45	4 500	1 350
<u>50</u>	<u>5 000</u>	<u>1 500</u>
<u>100</u>	<u>10 000</u>	<u>3 050</u>
<u>150</u>	<u>15 000</u>	<u>4 550</u>
<u>200</u>	<u>20 000</u>	<u>6 100</u>
500	50 000	15 250

*Note The heights shown in metres are approximate equivalents taken from the table of cruising levels in Appendix 3 of Annex 2.*

2.2 Take-off and climb

- 2.2.1 Altimeter setting is made available to aircraft in the routine take-off and climb instructions.
- 2.2.2 Vertical displacement of aircraft during climb is controlled by reference to altitude until reaching the transition altitude above which vertical displacement is controlled by reference to flight level

*Note The word "controlled" is used in a composite sense in that a pilot will wish to fly his aircraft on predetermined flight levels or altitudes and ATS will wish to advise a pilot the availability of flight levels or altitudes: both are concerned with vertical position of aircraft.*

2.3 Vertical separation – en-route

2.3.1 Aircraft shall be flown en-route at flight levels at all times during an IFR flight.

2.3.2 When complying with the table of cruising levels in Appendix 3 of Annex 2 e.g. in IFR flight, or in VFR flight above 900 metres (3 000 feet) , aircraft shall be flown levels corresponding to the tracks shown in the following table:\*

TRACK**											
From 000° to 179° ***						From 180° to 359° ***					
IFR Flights Altitude			VFR Flights Altitude			IFR Flights Altitude			VFR Flights Altitude		
FL	Metres	Feet	FL	Metres	Feet	FL	Metres	Feet	FL	Metres	Feet
-90			-	-	-	0			-	-	-
10	300	1 000	-	-	-	20	600	2 000	-	-	-
30	900	3 000	35	1 050	3 500	40	1 200	4 000	45	1 350	4 500
50	1 500	5 000	55	1 700	5 500	60	1 850	6 000	65	2 000	6 500
70	2 150	7 000	75	2 300	7 500	80	2 450	8 000	85	2 600	8 500
90	2 750	9 000	95	2 900	9 500	100	3 050	10 000	105	3 200	10 500
110	3 350	11 000	115	3 500	11 500	120	3 650	12 000	125	3 800	12 500
130	3 950	13 000	135	4 100	13 500	140	4 250	14 000	145	4 400	14 500
150	4 550	15 000	155	4 700	15 500	160	4 900	16 000	165	5 050	16 500
170	5 200	17 000	175	5 350	17 500	180	5 500	18 000	185	5 650	18 500
190	5 800	19 000	195	5 950	19 500	200	6 100	20 000	205	6 250	20 500
210	6 400	21 000	215	6 550	21 500	220	6 700	22 000	225	6 850	22 500
230	7 000	23 000	235	7 150	23 500	240	7 300	24 000	245	7 450	24 500
250	7 600	25 000	255	7 750	25 500	260	7 900	26 000	265	8 100	26 500
270	8 250	27 000	275	8 400	27 500	280	8 550	28 000	285	8 700	28 500
290	8 850	29 000	300	9 150	30 000	310	9 450	31 000	320	9 750	32 000
330	10 050	33 000	340	10 350	34 000	350	10 650	35 000	360	10 950	36 000
370	11 300	37 000	380	11 600	38 000	390	11 900	39 000	400	12 200	40 000
410	12 500	41 000	420	12 800	42 000	430	13 100	43 000	440	13 400	44 000
450	13 700	45 000	460	14 000	46 000	470	14 350	47 000	480	14 650	48 000
490	14 950	49 000	500	15 250	50 000	510	15 550	51 000	520	15 850	52 000
etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.

\* Except when, on the basis of regional air navigation agreements, a modified table of cruising levels based on a nominal vertical separation minimum of less than 500 metres (2 000 feet) but not less than 300 metres (1 000 feet) is prescribed for use, under specified conditions, by aircraft operating above FL290 within designated portions of the airspace.

\*\* Magnetic track, or in polar areas at latitudes higher than 70° and within such extensions to those areas as may be prescribed by the appropriate ATS authorities, grid tracks as determined by a network of lines parallel to the Greenwich Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

\*\*\* Except where, on the basis of regional air navigation agreements, from 090° to 269° and from 270° to 089° is prescribed to accommodate predominant traffic directions and appropriate transition procedures to be associated there with are specified.

2.4 Approach and landing

2.4.1 QNH altimeter setting is made available in the routine approach and landing instructions.

2.4.2 QFE altimeter setting is made available on request in approach and landing clearances.

- 2.4.3 The vertical positioning of aircraft during approach is controlled by reference to flight levels until reaching the transition level below which vertical positioning is controlled by reference to altitudes, except as provided in 2.4.3.1.

*Note This does not preclude the pilot from using a QFE setting for terrain clearance purposed during the final approach to the runway.*

- 2.4.3.1 After approach clearance has been issued and the descent to land is commenced, the vertical position of an aircraft above the transition level may be by reference to altitude (QNH) provided that level flight above the transition altitude is not indicated or anticipated.

2.5 Missed approach

- 2.5.1 The relevant portions of 2.1.2, 2.2 and 2.4 apply in the case of a missed approach.

### 3. Procedures applicable to operators (including pilots)

3.1 Flight planning

- 3.1.1 The levels at which a flight is to be conducted shall be specified in a flight plan:

- a) in terms of flight levels, if the flight is to be conducted at or above the transition level; and
- b) in terms of altitudes, if the flight is to be conducted in the vicinity of an aerodrome and at or below the transition altitude.

*Note*

- 1) *Short flight in the vicinity of an aerodrome may often be conducted only at altitudes below the transition altitude.*
- 2) *Flight levels are specified in the flight plan by number, and not in terms of feet or metres in the case of altitudes.*

THIS PAGE INTENTIONALLY LEFT BLANK