

**ENR 1.7 ALTIMETER SETTING PROCEDURES****1. Introduction****1.1 Applicable Regulations**

The following documents are applicable for altimeter setting in the Swiss FIR/UIR:

- **ICAO Annex 2, Rules of the Air:** no differences.
- **ICAO Doc 8168-OPS/611, Aircraft Operations:** no differences.
- **Implementing Regulation (EU) 923/2012** (Standardised European Rules of the Air): no differences.

**1.2 Definitions** (references relate to ICAO LEXICON DOC 9110 Vol. II definitions)

When the following terms are used in the text of this chapter they have the following meanings:

| Term                        | Meaning                                                                                                                                                                        | ICAO Lexicon |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Altitude:</b>            | The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.                                                                    | A 96         |
| <b>Elevation:</b>           | The vertical distance of a level, a point or an object affixed to the surface of the earth, measured from sea level.                                                           | E 6          |
| <b>Flight level:</b>        | A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 mb, and is separated from other such surfaces by specific pressure intervals. | F 22         |
| <b>Height:</b>              | The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.                                                                 | H 6          |
| <b>Level:</b>               | A generic term relating to the VER PSN of an aircraft in FLT and meaning variously, HGT, ALT or FLT FL.                                                                        | L 8          |
| <b>Transition altitude:</b> | The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.                                                                   | T 26         |
| <b>Transition layer:</b>    | The airspace between the transition altitude and the transition level.                                                                                                         | T 27         |
| <b>Transition level:</b>    | The lowest flight level available for use above the transition altitude.                                                                                                       | T 28         |

**1.3 Terrain clearance**

The lowest usable FLs for operations in controlled airspace taking into account terrain clearance will be determined by the appropriate ATC units.

**1.4 Transition altitude**

The TA for the APs of Bern-Belp, Genève, Les Eplatures and Zurich are indicated in AD 2.17 and on the IACs.

**1.5 Transition level**

When the transition level cannot be transmitted on the ATIS, it will be provided to the pilots in the approach clearance.

**2. Basic altimeter setting procedures****2.1 Altimeter setting procedure**

The VER PSN of ACFT when **at or below** the TA shall be expressed in **terms of ALT**, whereas PSN **at or above** the TRL shall be expressed in terms of FLs.

While PSG through the transition layer, VER PSN shall be expressed in terms of FLs when ascending and in terms of ALT when descending.

**2.2 QNH**

The QNH will be transmitted unasked to arriving and departing ACFT.

**2.3 En route**

The VER PSN of ACFT during ENR FLT shall be expressed in terms of FLs compatible with the indications in [ENR 3.1.3](#), [ENR 3.2.1](#), [ENR 3.3.1](#) and [ENR 3.5.1](#).

## 2.4 QFE

A QFE setting will be transmitted O/R only. Reference points are as follows:

|    |           |          |                              |
|----|-----------|----------|------------------------------|
| AP | Bern-Belp | AP ELEV: | <a href="#">LSZB AD 2.2</a>  |
| AP | Genève    | THR 22:  | <a href="#">LSGG AD 2.12</a> |
|    |           | THR 04:  | <a href="#">LSGG AD 2.12</a> |
| AP | Zurich    | THR 14:  | <a href="#">LSZH AD 2.12</a> |
|    |           | THR 16:  | <a href="#">LSZH AD 2.12</a> |
|    |           | THR 10:  | <a href="#">LSZH AD 2.12</a> |
|    |           | THR 28:  | <a href="#">LSZH AD 2.12</a> |

## 2.5 Missed approach

The procedures in [ENR 1.7.2.1](#) shall apply in the event of a missed APCH.

## 2.6 Flight planning

The true ALT of the lowest FL usable on AWYs A1 and A9 will be determined in time intervals of three HR by the MET service. It may be obtained from the competent ATC unit O/R.

The MET information required for FLT planning may be obtained from the MET office at Geneva for the Geneva area or at Zurich for the Zurich and Ticino area.

## 3. Description of altimeter setting regions

Switzerland is divided into three altimeter setting regions, which are:

- a. Zurich altimeter setting region.
- b. Geneva altimeter setting region.
- c. Ticino altimeter setting region.

The atmospheric pressure for the Ticino region will be transmitted O/R by the FIC or MET centres at Geneva and Zurich. For flights conducted in accordance with VFR, the QNH values for the respective altimeter setting region shall be used.

QNH and QFE values will be transmitted in whole millibars only and rounded down to the nearest whole millibar. FL zero is located at the standard atmospheric pressure level of 1013.2 millibar (29.92 in.) at MSL. Consecutive FLs are separated by a pressure interval corresponding to 500 ft (152.4 m) in the standard atmosphere.

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

### 4.1 Altimeter test

According to the ICAO documents mentioned in [ENR 1.7.1.1](#), the pilot-in-command or another crew member charged with the responsibility has the duty to carry out a test of the altimeter(s) prior to the commencement of a FLT, in order to ensure that its indications are correct.

### 4.2 QNH setting

When it is intended to use a QNH setting for the FLT, set the altimeter for the test to the QNH setting of the AD concerned. Then, particularly if the PWR plant is not running, the altimeter should be tapped lightly before reading. A SVCBL altimeter will indicate the real ELEV when so set.

### 4.3 QFE setting

When a QFE setting is used, the same procedure as in [ENR 1.7.4.2](#) should be applied. When set, however, the altimeter will indicate the HGT in relation to the QFE reference point.

## 5. Cruising levels

### 5.1 IFR FLTs

- a. outside of controlled airspace:  
An IFR flight operating in level cruising flight outside of controlled airspace shall be flown at a cruising level appropriate to its track as specified in the table of cruising levels in [ENR 1.7.5.3](#) except when otherwise specified by the competent authority for flight at or below 900 m (3000 ft) above mean sea level.

## b. within controlled airspace:

An IFR flight operating in cruising flight in controlled airspace shall be flown at a cruising level, or, if authorised by ATS unit to employ cruise climb techniques, between two levels or above a level, selected from the table of cruising levels in [ENR 1.7.5.3](#) except that the correlation of levels to track prescribed therein shall not apply whenever otherwise indicated in air traffic control clearances or specified by the competent authority in aeronautical information publications.

**5.2 VFR FLTs**

Except where otherwise indicated in air traffic control clearances or specified by the competent authority, VFR flights in level cruising flight when operated above 900 m (3000 ft) from the ground or water shall be conducted at a cruising level appropriate to the track as specified in the table of cruising levels in [ENR 1.7.5.3](#).

**5.3 Table of cruising levels**

Implementing Regulation (EU) 923/2012 (Standardised European Rules of the Air), Appendix 3 applies up to FL195. In accordance with Art. 5005 letter g and Art. 5020 letter b, the table is adapted above FL195 to align with the orientation of the major traffic flows.

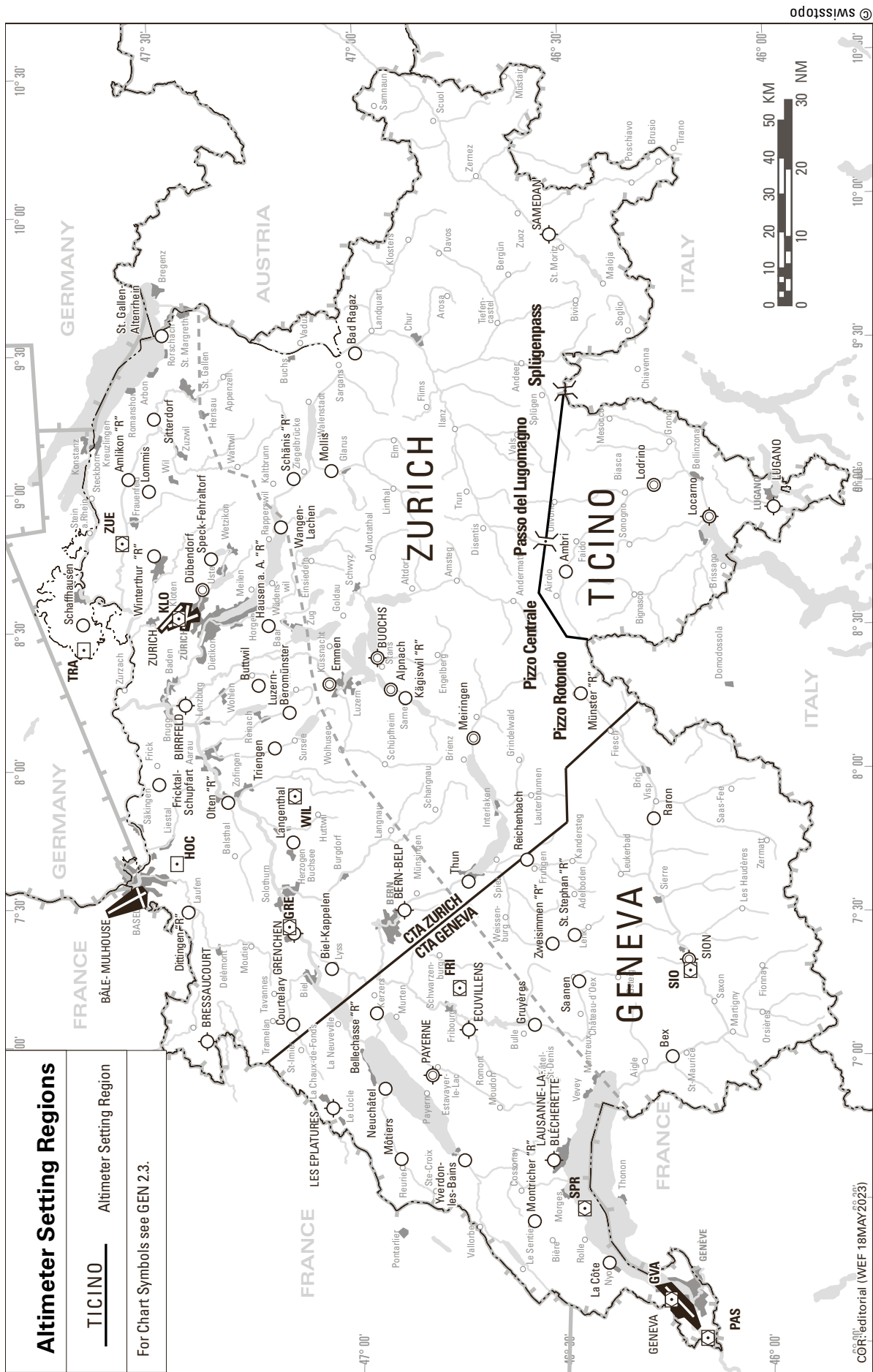
VFR FLTs at and above FL 200 require prior co-ordination (REF [ENR 1.4.2](#)).

**Magnetic track**

| 000°-179°    |          |        |              |          |        | 180°- 359°   |          |        |              |          |        |
|--------------|----------|--------|--------------|----------|--------|--------------|----------|--------|--------------|----------|--------|
| IFR flight   |          |        | VFR flight   |          |        | IFR flight   |          |        | VFR flight   |          |        |
| Flight level | Altitude |        | Flight level | Altitude |        | Flight level | Altitude |        | Flight level | Altitude |        |
|              | Feet     | Metres |              | Feet     | Metres |              | Feet     | Metres |              | Feet     | Metres |
| 10           | 1 000    | 300    | —            | —        | —      | 20           | 2 000    | 600    | —            | —        | —      |
| 30           | 3 000    | 900    | 35           | 3 500    | 1 050  | 40           | 4 000    | 1 200  | 45           | 4 500    | 1 350  |
| 50           | 5 000    | 1 500  | 55           | 5 500    | 1 700  | 60           | 6 000    | 1 850  | 65           | 6 500    | 2 000  |
| 70           | 7 000    | 2 150  | 75           | 7 500    | 2 300  | 80           | 8 000    | 2 450  | 85           | 8 500    | 2 600  |
| 90           | 9 000    | 2 750  | 95           | 9 500    | 2 900  | 100          | 10 000   | 3 050  | 105          | 10 500   | 3 200  |
| 110          | 11 000   | 3 350  | 115          | 11 500   | 3 500  | 120          | 12 000   | 3 650  | 125          | 12 500   | 3 800  |
| 130          | 13 000   | 3 950  | 135          | 13 500   | 4 100  | 140          | 14 000   | 4 250  | 145          | 14 500   | 4 400  |
| 150          | 15 000   | 4 550  | 155          | 15 500   | 4 700  | 160          | 16 000   | 4 900  | 165          | 16 500   | 5 050  |
| 170          | 17 000   | 5 200  | 175          | 17 500   | 5 350  | 180          | 18 000   | 5 500  | 185          | 18 500   | 5 650  |
| 190          | 19 000   | 5 800  | 195          | 19 500   | 5 950  |              |          |        |              |          |        |
| 090°-269°    |          |        |              |          |        | 270°-089°    |          |        |              |          |        |
| 210          | 21 000   | 6 400  | 215          | 21 500   | 6 550  | 200          | 20 000   | 6 100  | 205          | 20 500   | 6 250  |
| 230          | 23 000   | 7 000  | 235          | 23 500   | 7 150  | 220          | 22 000   | 6 700  | 225          | 22 500   | 6 850  |
| 250          | 25 000   | 7 600  | 255          | 25 500   | 7 750  | 240          | 24 000   | 7 300  | 245          | 24 500   | 7 450  |
| 270          | 27 000   | 8 250  | 275          | 27 500   | 8 400  | 260          | 26 000   | 7 900  | 265          | 26 500   | 8 100  |
| 290          | 29 000   | 8 850  |              |          |        | 280          | 28 000   | 8 550  | 285          | 28 500   | 8 700  |
| 310          | 31 000   | 9 450  |              |          |        | 300          | 30 000   | 9 150  |              |          |        |
| 330          | 33 000   | 10 050 |              |          |        | 320          | 32 000   | 9 750  |              |          |        |
| 350          | 35 000   | 10 650 |              |          |        | 340          | 34 000   | 10 350 |              |          |        |
| 370          | 37 000   | 11 300 |              |          |        | 360          | 36 000   | 10 950 |              |          |        |
| 390          | 39 000   | 11 900 |              |          |        | 380          | 38 000   | 11 600 |              |          |        |
| 410          | 41 000   | 12 500 |              |          |        | 400          | 40 000   | 12 200 |              |          |        |
| 430          | 43 000   | 13 100 |              |          |        | 430          | 43 000   | 13 100 |              |          |        |
| 450          | 45 000   | 13 700 |              |          |        | 470          | 47 000   | 14 350 |              |          |        |
| 490          | 49 000   | 14 950 |              |          |        | 510          | 51 000   | 15 550 |              |          |        |
| etc.         | etc.     | etc.   |              |          |        | etc.         | etc.     | etc.   |              |          |        |

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Figure 1.      **Altimeter Setting Regions**



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