USE ALTIMETER SETTING

1. Introduction

One of the main instruments of the aircraft is the altimeter.

The altimeter must be tuned to the right pressure in order to have the right value displayed and to be compatible with other aircraft.

The altimeter shall be tuned with the local QNH on the ground most of the time.

2. Tune altimeter

Every pressure altimeter has a tune button in order to adjust the right pressure.

Depending on the aircraft equipment, the **pressure altimeter** will only accept a sub-setting:

- in **hecto Pascal (hPa)**
- **in inches of Mercury (in Hg).**

Example of an altimeter showing one or both units:

- red arrow = setting display in inHg
- blue = setting display in hPa
- green = tune button

Most altimeters in hectopascal do not show any decimals. In that case, select the nearest value.

To select 1013,25 in the aircraft, you must select 1013 hPa.

Some pressure altimeters show a millibar (mB) setting instead of hPa.
This is not a problem since 1 mB = 1 hPa.

This altimeter should be set only with:

- Local **QNH** pressure
- Local **QFE** pressure
- **Standard** pressure 1013hPa or 29,92 inHg

A pilot will receive **QNH** information from the Air Traffic Controller when:

- aircraft is cleared to descend to an altitude below the Transition Level (TL),
- during initial approach clearance (for IFR only)
- when cleared to enter the control zone (CTR) or the traffic circuit (mainly for VFR)
- sometimes as part of a taxi clearance
- pilot requests it
- the QNH changes.

3. Transition altitude and transition level

In order to have the altimeter settings, it is important to know the transition altitude and transition level in controlled areas.

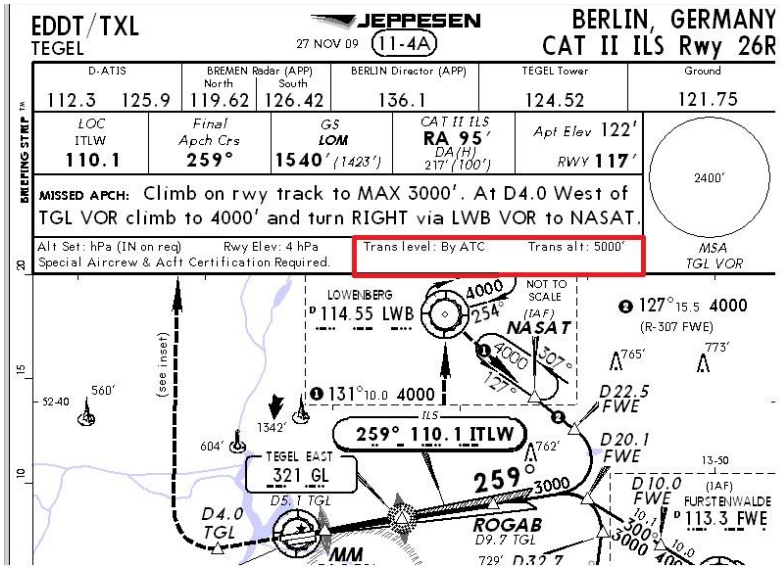
3.1. Transition altitude

The transition altitude abbreviation defined by ICAO is **TA.**

You must know that:

- TA is published on charts in controlled areas
- TA is given in ATIS of controlled areas (Ground, Tower, Approach positions)
- TA is the maximum altitude where the altimeter setting is at local QNH
- TA can be identical in one or more countries, but TA can also be different in each airport of a country
- TA is defined for a TMA where it is published

Example of TA published on the charts of EDDT: TA =5000ft



When no transition altitude is published, no ATIS or no ATC are available, in the case you do not know the value of the transition altitude, the default transition altitude to be taken is a height of 3000ft (3000ft above the surface).

In Europe we have many TA in function of airport location (values from 3000ft to 12000ft).
In northern American countries, the TA is constant and equals to 18000ft.

3.2. Transition level

The transition altitude abbreviation defined by ICAO is **TRL.**

Note that sometimes, the abbreviation TL may be used for transition level in documents.

You must know that:

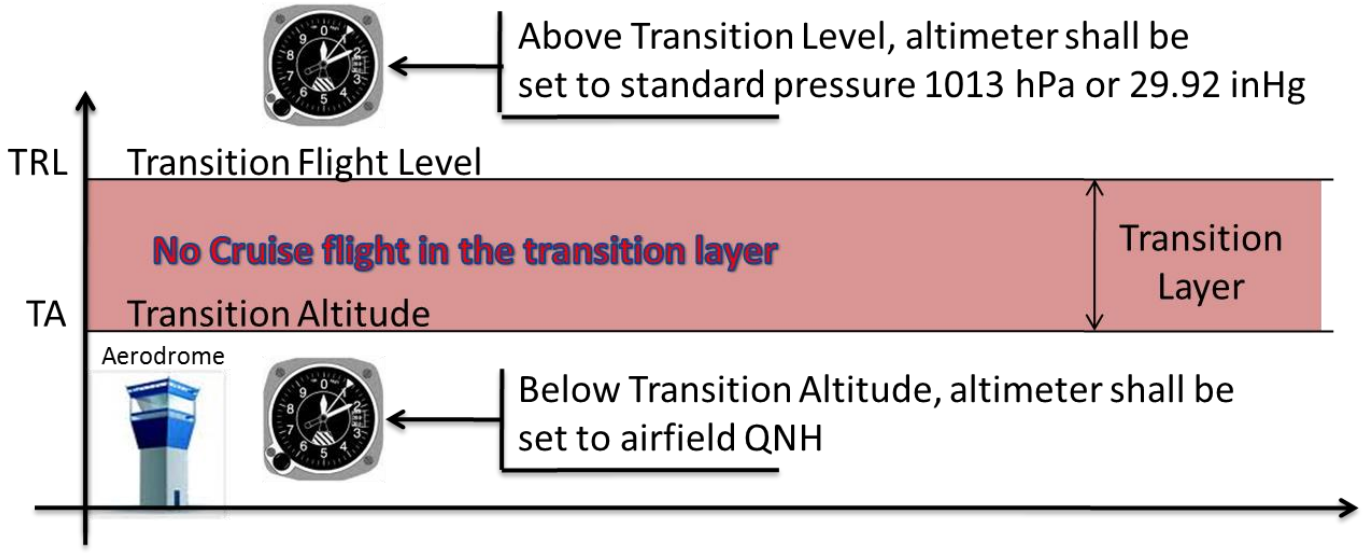
- TRL is sometimes published on charts in controlled areas
- TRL is sometime calculated by ATC for its controlled area in function of TA and local QNH
- TRL is given in ATIS of controlled areas (Ground, Tower, Approach positions)
- TRL is the minimum flight level where altimeter setting is at 1013 hPa (or 29.92 inHg)
- TRL is the first usable IFR level above the transition altitude

3.3. Transition Layer

The transition layer is the gap between the transition altitude and the transition level.

The transition level is always above the transition altitude.

No aircraft is allowed to make a stable cruise level in the transition layer gap.
Aircraft can only cross the transition layer.



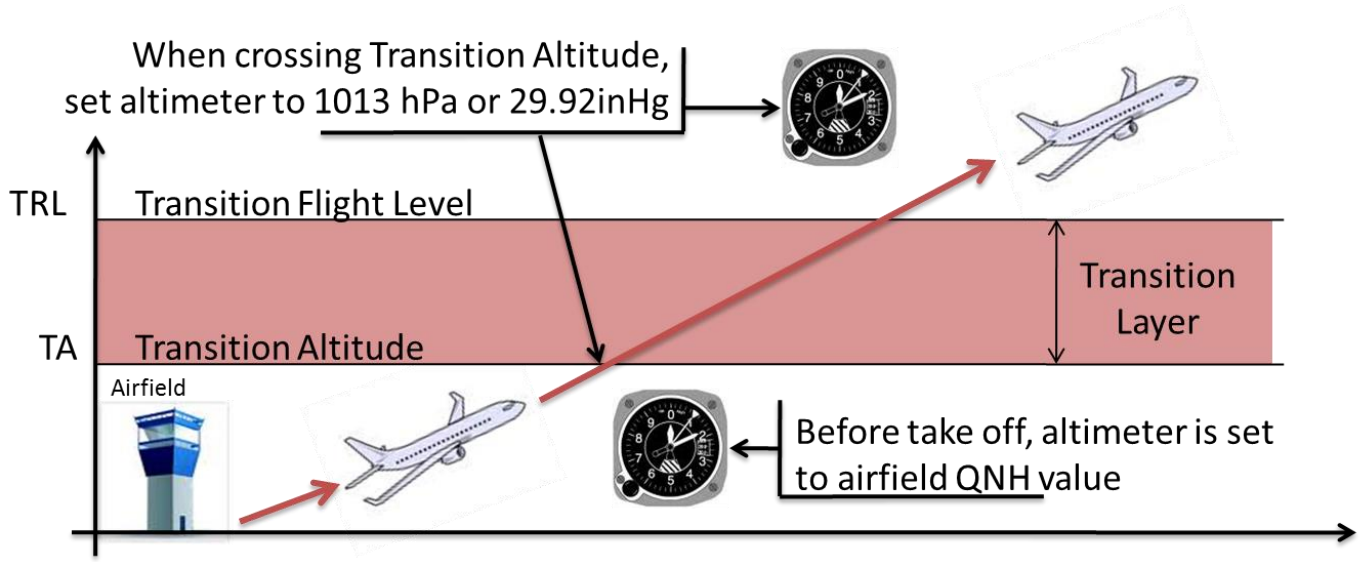
4. Use of altimeter setting

This chapter is showing practical information for **VFR** or **IFR pilots to correctly set their altimeter settings in time** during their flight.

4.1. During climbing - from ground to cruise flight level:

You will find the different steps to set the altimeter for departing aircraft:

1. On ground, the pilot shall set its altimeter at airfield QNH given by the airfield ATIS or given by ATC.
2. On ground, the pilot must take transition altitude and transition flight level values from charts or from the airfield ATIS (Pilot could ask ATC in service to get this information)
3. After take-off, the pilot shall monitor its altitude and compare it to transition altitude
4. At the time where the actual aircraft altitude is greater than the transition altitude, the **pilot without any ATC advice must set all his altimeter settings to 1013 hPa or 29.92 inHg**.
5. Then, the pilot verifies that he will cross the transition flight level to make sure that he never stabilizes in the transition layer.



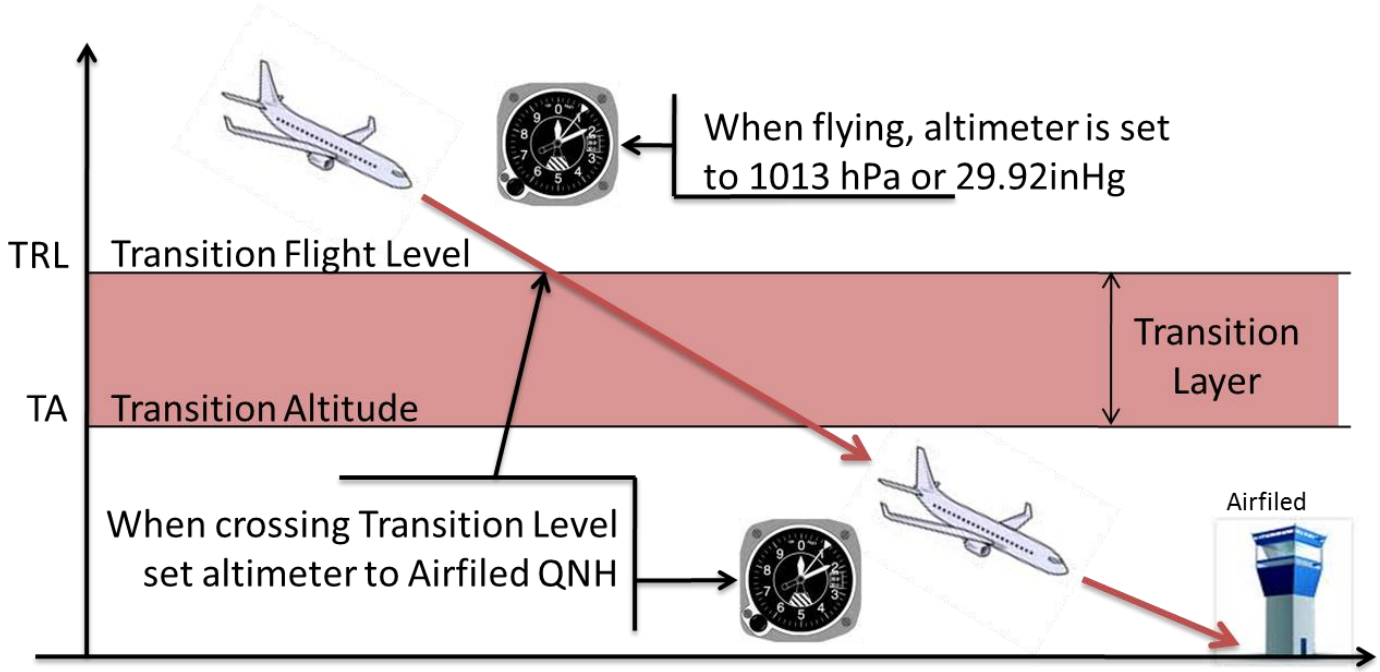
In conclusion, when the aircraft climbs and its altitude is greater than the transition altitude, the pilot without any ATC advice must set all his altimeter settings to 1013 hPa or 29.92 inHg.

Do not forget to set all altimeters and stand-by altimeters.

4.2. During descent – from cruise flight level to airfield circuit/landing

You will find the different steps to set the altimeter for arriving aircraft:

1. When flying above transition flight level, the pilot shall already have set altimeter settings to 1013 hPA or 29.92 inHg.
2. When entering into a controlled area, the pilot must take transition flight level, transition altitude and local nearby QNH values (or airfield destination QNH) from airfield ATIS, from ATC in service or from charts.
3. When descending, the pilot shall monitor his current flight level and compare it to the transition level
4. At the time where actual aircraft flight level is lower than transition flight level, **the pilot without any ATC advise must set all his altimeter settings to local, destination or nearby airfield QNH**. Then, the pilot verifies that he will cross the transition altitude to make sure that he never stabilizes in the transition layer



In conclusion, when the aircraft descends and its flight level is lower than the transition level, the pilot without any ATC advise must set all his altimeter settings to local, destination or nearby airfield QNH.

Do not forget to set all altimeters and stand by altimeters.