

USE ALTIMETER SETTING

1. Introduction

One the main instrument of the aircraft is the altimeter.

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

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

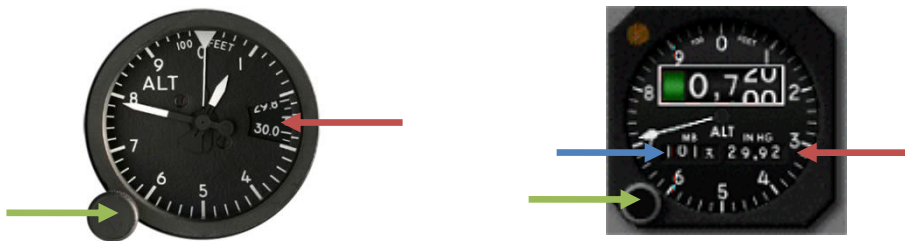
2. Tune altimeter

Every pressure altimeter has a tune button in order to choose the right pressure on it.

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 = inHg ; blue = hPa ; green = tune button)



Most altimeters in hPa don't show decimals. In that case, select the nearest value.

If not enable to select 1013,25 then, 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)
- sometime as a part of a taxi clearance
- pilot requests it
- The QNH changes.

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3. Transition altitude and transition level

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

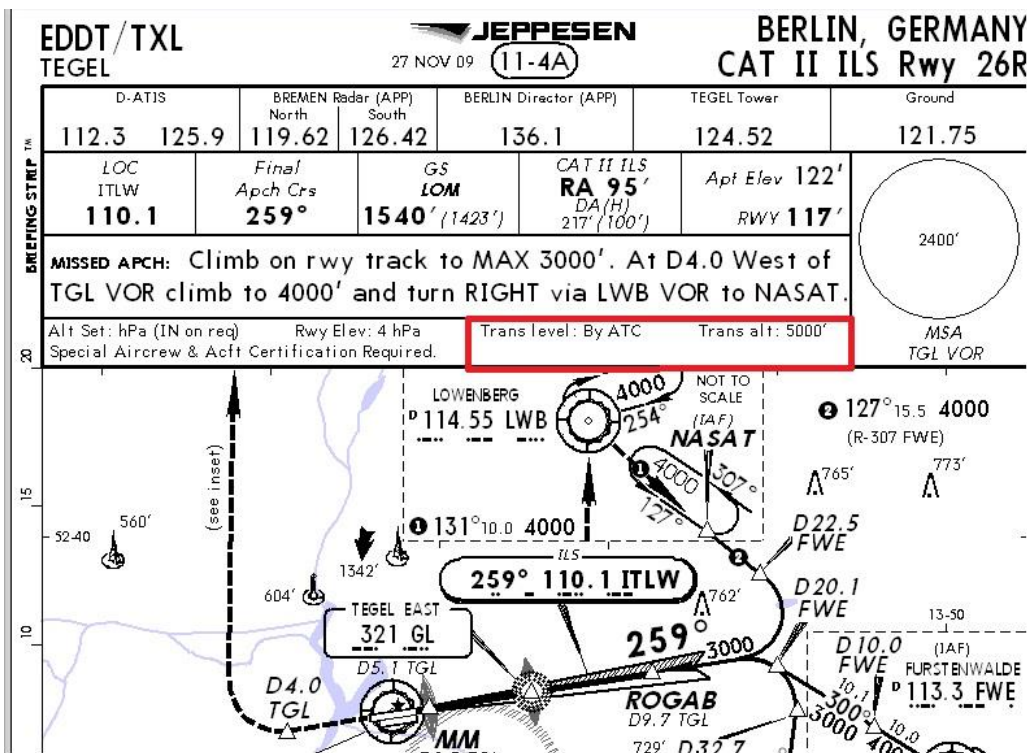
3.1. Transition altitude

The transition altitude is named TA in the charts.

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 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 county
- 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 were available, in the case you don't know the value of transition altitude, the default transition altitude to be taken is a height of 3000ft (3000ft above the surface).

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

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3.2. Transition level

The transition level is named TL or TRL in the charts.

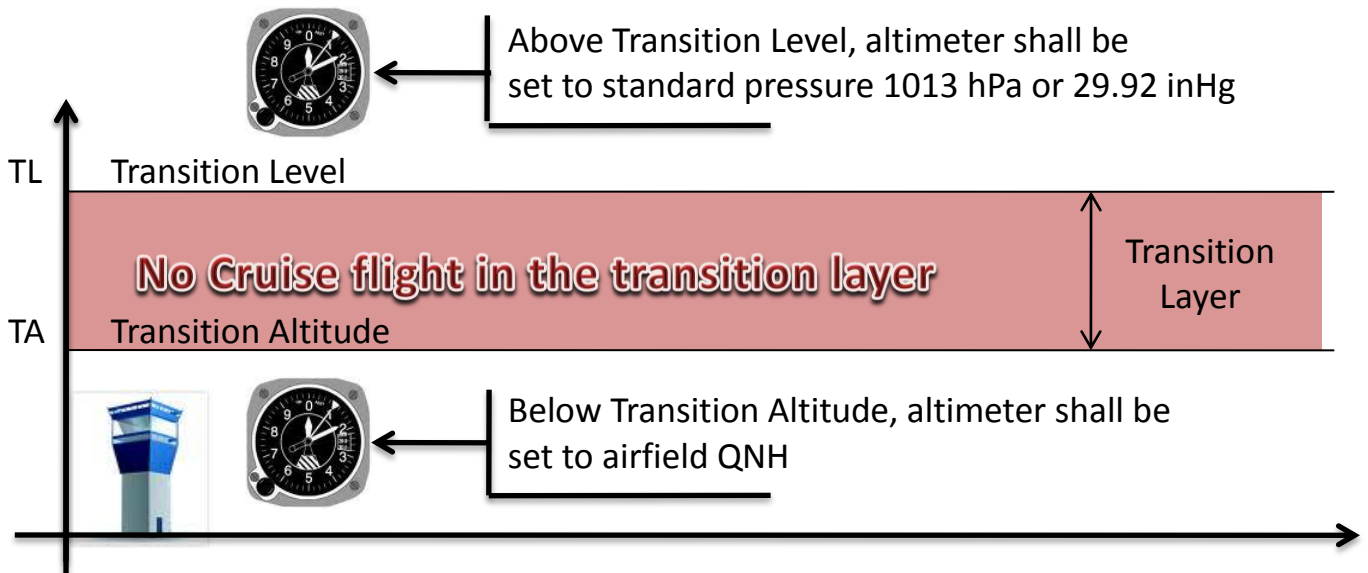
You must know that:

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

3.3. Transition Layer

The transition layer is the gap between the TA and the TL.

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



Note that a typical transition layer is less than 1000ft. (the transition flight level is calculated to get this value). Be careful, in some countries the transition layer can be less than 500ft or greater than 1000ft.

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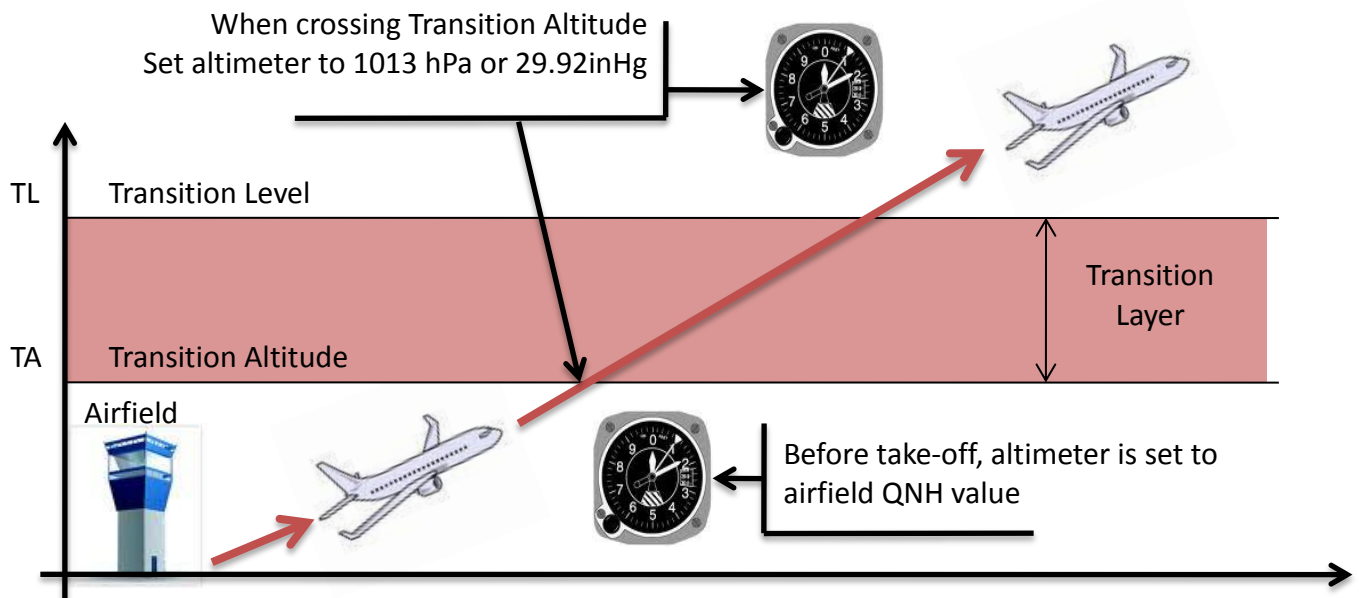
4. Use of altimeter setting

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

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

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

1. On ground, pilot shall set its altimeter at airfield QNH given by the airfield ATIS or given by ATC.
2. On ground, pilot must take transition altitude and transition flight level values from charts or in the airfield ATIS (Pilot could ask ATC in service to have these information)
3. After take-off, pilot shall monitor its altitude and compare it to transition altitude
4. At the time where actual aircraft altitude is greater than 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 transition flight level to make sure that he never stabilizes in the transition layer.



In conclusion, when aircraft climbs and its altitude is greater than 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.

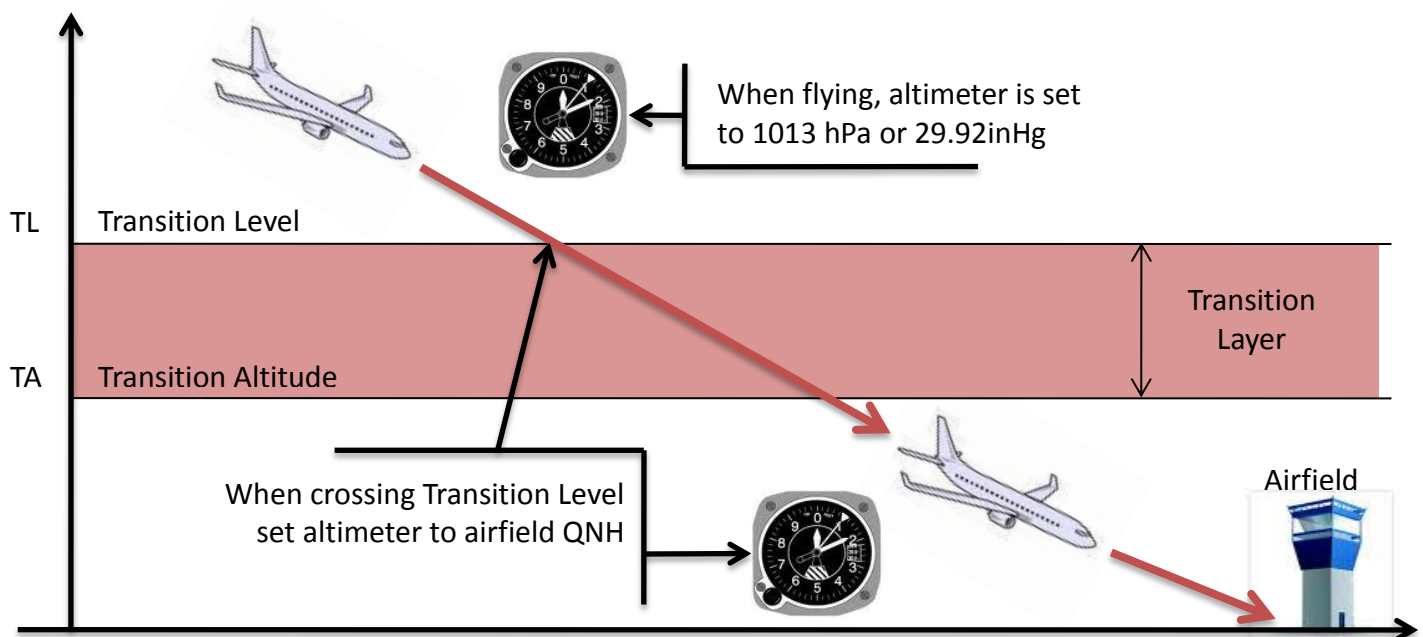
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4.2. During descent – from cruise flight level to airfield circuit/Landing

You will find the different step to set 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, 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, pilot shall monitor his current flight level and compare it to 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 transition altitude to make sure that he never stabilizes in the transition layer.



In conclusion, when aircraft descends and its flight level is lower than transition altitude, 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.

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