



FIRST FLYING TECHNIQUES - CLIMB

1. Introduction

We aim to teach and demonstrate how to operate a general aviation aircraft and show some basic techniques and manoeuvres that every real pilot must have learnt to be licensed.
In this document, we will learn how to establish a safe climb toward a higher altitude.

We use the Cessna 172 as training aircraft which is also a default aircraft in most flight simulators.

Understand we are not learning to fly the Cessna 172 specifically.
We will not review specific practical aspects about this aircraft.

2. Theoretical Knowledge

An aircraft is made to climb at a specific airspeed while maintaining a defined **climb power**.
The pilot will only modify the pitch angle to maintain the right airspeed.

To modify the airspeed by only adjusting our pitch, we will follow this simple rule:
The higher the pitch angle, the lower the airspeed is.

Therefore, if we want to:

- accelerate, we will reduce our pitch angle by pushing on the flight controls
- decelerate, we will increase our pitch angle by pulling on the flight controls

Remember to apply small corrections, degree per degree and to trim your aircraft!

Caution: a major risk is to not pay enough attention to airspeed and let it decrease past the stall speed.

On our Cessna, we will climb using the following parameters:

- Target airspeed: 90 knots.
- Climb power: 2400 RPM.
- Target pitch angle: approximately +8°

First Flying Techniques : Descent	Version 1.1	22 June 2017	Page 1
© IVAO HQ training department	Training Documentation Managers Erwan L'hotellier and Joey Salzmann		

3. Practical Aspects

3.1. Standard Climb

To establish a standard climb, it is important to apply pitch and power change(2400 rpm) simultaneously.

Failure to increase power will result in a rapid decrease in aircraft speed which may lead to stall.

Our aircraft is in level flight, at 90 knots, and we want to initiate a climb.



Gently, **simultaneously**, pull your flight control to order a pitch up attitude and increase power to climb power. Target a pitch angle around +7°. **Trim your aircraft accordingly** and only adjust **power**.



Then adjust the pitch angle so you can maintain 90 knots.

Remember to check the airspeed regularly.

The next part will illustrate how to correct any deviations.

First Flying Techniques : Descent	Version 1.1	22 June 2017	Page 2
© IVAO HQ training department	Training Documentation Managers Erwan L'hotellier and Joey Salzmann		

3.2. Deviations

If we have not raised the nose of our aircraft enough, and the power is set to the climb power, the aircraft will accelerate past the climb speed and your climb will be longer to achieve.



Note that an Air Traffic Controller will expect from you a minimum rate of climb, so make sure you achieve a standard climb at the correct airspeed.

On the contrary, you may also have a too high pitch angle, and therefore your speed will decrease.

This is a dangerous situation since you may slow down to stall speed. Correct your pitch without delay!



4. Conclusion

During a climb, always make sure your airspeed and your pitch are correct.

First Flying Techniques : Descent	Version 1.1	22 June 2017	Page 3
© IVAO HQ training department	Training Documentation Managers Erwan L'hotellier and Joey Salzmann		