FIRST FLYING TECHNIQUES - DESCENT

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 descent toward a lower 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

A non-pressurized aircraft is made to descend at **a specific vertical airspeed** and at **a specific speed**.
The pilot will only modify the power to maintain the right airspeed.

Because of the lack of pressurization, in the real world you need to maintain a vertical speed **at no more than -750 feet per minute**. Failure to do so may result in medical incapacity.
Caution: a major risk is too fly above Vno, even Vne. Monitor airspeed and always adjust power.

In our Cessna, we will descend using the following parameters:

- Target rate of descent: -500fpm.
- Target airspeed: 125 knots.

The principle is completely different for a pressurized aircraft.
The descent is done at idle thrust/power and pitch angle is adjusted to maintain the descent airspeed (same principle as the climb).

3. Practical Aspects

To establish a standard descent, it is important to apply pitch and power change **simultaneously**.

Failure to reduce power will result in a rapid increase in aircraft speed which may lead to over speed.

Our aircraft is in level flight, at 100 knots, and engine set at 2,000 RPM.

Gently push your flight control to order a pitch down attitude and **simultaneously** reduce power partly. Target a pitch angle around **-2°**. **Trim your aircraft accordingly** and only adjust **power**.

We are maintaining 100 knots in our case for training.

In the general case, we will maintain the maximum safe airspeed which is also named Vno.

Our Cessna should then maintain 125 knots.

If for a reason you are leaving your cruise level too late and feel too high, you can increase your descent path by reducing your speed.

Remember to maintain a constant rate of descent and to never exceed -750fpm.

4. Conclusion

The main parameter to watch out during a descent is your rate of descent and your airspeed. Remember to trim your aircraft in order to make the task easier and adjust the power if required.