

May '09 Safety Newsletter

Dear fellow aviators,

Welcome to the May Safety Newsletter. You may have noticed the month of April has been and gone with no Safety Newsletter. Sorry! I am behind the drag curve at the moment. So I thought the best strategy now would be to play catch-up by going straight to the May issue even though it is now June. Confused? No excuses, but I have been on extended leave here in UK enjoying the English weather! and pursuing another form of aviation, namely gliding.

Before getting into the Newsletter here are some updates. Firstly, the confidential reporting system is work in progress but delayed because of my absence. Secondly, the GC has at last decided to spend the money and get the Slingsby fitted with an ELT so it can leave the circuit. A welcome piece of news for all the aerobatic pilots and Slingsby fans in the club. Lastly, the GC has decided to purchase yet another C.172. This was a decision I did not agree with. What we really need is another C.152 Aerobat for student training and as an aerobatic back up for the Slingsby. It would also be cheaper for members than the C.172. However, the GC is a democracy and I was out voted.

During the last six weeks while gliding it occurred to me that there are a lot of useful lessons to be learnt from gliding that can equally be applied to powered flying. To name but three: Attitude Flying, Aileron / Rudder co-ordination for balanced flight and Power Failure after Take-off.

This month I would like to take each of these subjects and discuss their considerations and how they apply to powered flying.

Attitude Flying

What does this mean?

It means for every phase of flight (climb, straight & level, descent, turn) we should know the attitude and we should use that attitude as the primary means of control, BEFORE looking at the airspeed.

Why use Attitude Flying?

Knowing and using the attitude means subsequent speed control will be better, you will not end up chasing the airspeed and, as a bonus and very importantly, your lookout will be enhanced.

How to use Attitude Flying!

The great thing about gliders is that you don't have an engine to complicate the issue of speed control. All you have is the pitch attitude. So from day one in gliding the emphasis is in the right place, pitch attitude.

However, exactly the same applies to powered aircraft. Once you have set the power you must learn and know the pitch attitude. Gliding is a very good introduction to and discipline for "attitude flying".

In the Cessna with the power set, select the Attitude and trim as required. Then check the airspeed to "confirm the attitude is correct". If the airspeed is not correct go back to the attitude and make an adjustment and re-trim. Note the emphasis is on Attitude with the airspeed only being used to determine which way the attitude must be adjusted.

A pilot with poor attitude awareness will have poor speed control. I have flown with students and PPL's who have struggled to achieve accurate speed control. To remedy this I have forced them to fly Attitude by covering up the ASI. If you haven't tried this exercise talk to your instructor.

Aileron / Rudder co-ordination for balanced flight

Glider wings have a high "aspect ratio" to reduce "lift induced drag" and make them more efficient. The downside to this high aspect ratio wing is a reduced roll rate and greater "adverse yaw due to aileron drag". The net result of this is that you need a lot more rudder to keep the glider in balance than you do on a Cessna. And balanced flight in a glider is very important for efficient flight. It could mean the difference between staying in the air or, sitting in a field wishing you were still in the air! I know!

All gliders come equipped with a very high tech, sensitive "yaw detector" as a "head-up display" fitted to the canopy. It is piece of wool taped to the exterior of the canopy! A fantastic piece of equipment that never breaks down, except when it gets wet!

We don't have this high tech yaw detector on the Cessna but we do have the "seat of our pants" and the balance indicator. Why is it important to keep our Cessna in balanced flight? Because it is more efficient, more comfortable and if you stall the aircraft it should just stall and not spin. Balanced flight is very important for spin avoidance.

How do we keep our Cessna in balance? With the coordinated use of the ailerons and rudder... ALWAYS! Even for a lookout prior to turning.

Left aileron means left rudder at the same time, the more aileron the more rudder. No aileron means no rudder, as is often the case in a turn with bank applied.

This co-ordination takes time to develop but don't be lazy. The rudder pedals are not footrests!

Power Failure after Take-off

If any of you have experienced a "winch launch" with a glider you will know how exhilarating it is. One second you are stationary on the ground with nothing but a wire stretched out in front of you. The next second "whoosh" and you are climbing with a 50-degree climb angle.

I was really enjoying this exciting experience until my instructor said, "right, we will now practise some simulated cable breaks". I thought about this for a while. A sudden and complete loss of power at 60 kts with the glider at a 50 degree pitch angle ... hmmm! This sounds like an extreme EFATO with a Cessna. And it was!

The procedure that was drummed into us gliding students with the winch cable break was as follows:

1. Pitch down to "mirror" the pitch attitude. E.g. 50 degrees pitch up to 50 degrees pitch down. Prompt and full forward stick was needed in extreme cases.
2. Check your speed is safe. Safe for stall avoidance and maneuvering (turning).
3. Maneuver for a safe landing.

The most critical power failure after take-off in the Cessna will be from a climb at "best angle V_x " where you will have the high pitch attitude and low airspeed. The recovery must be prompt and precise with the same step-by-step approach as above.

With the power failure the first and only action is pitch down and check your speed is safe. Then and only then do you think about turning. Remember the stall speed is increased in a turn so you will need a higher speed than best glide before you turn. Read all the reports on stall / spin accidents and you will see how important a safe speed for manoeuvring is.

Happy and safe flying

Bob