



Preventing a stall at low level



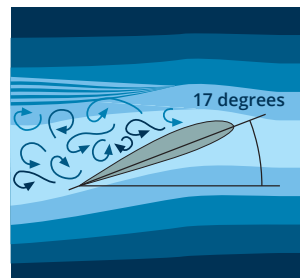
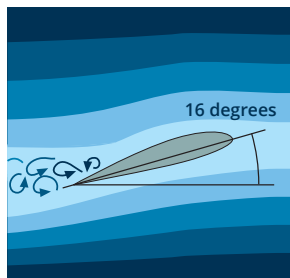
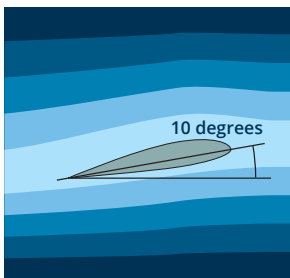
Photo courtesy of ATSB

Stalling at low level is a common contributing factor to aircraft accidents globally.

Data from the Australian Transport Safety Bureau (ATSB) indicates that between 2009 and 2018 there were more than 50 accidents where a stall at low-level in a fixed-wing Australian registered aircraft contributed to an accident. Of these accidents, 18 involved fatalities.

WHAT IS A STALL?

A stall is an aerodynamic condition which occurs when smooth airflow over the aircraft's wings is disrupted, resulting in loss of lift. Specifically, a stall occurs when the chord line of the wing and the relative airflow exceeds the wing's ability to create lift. This is called the Angle of Attack (AOA). It is possible to exceed the critical AOA at any airspeed, at any attitude, and at any power setting.



Although we talk about ‘stall speed’, it is possible to stall an aircraft at any speed. There are a range of other factors that affect stalling and recovery, such as:

Load factor



Are you manoeuvring, pulling ‘G’, out of balance etc? This will increase your stall speed.

Centre of gravity



The aircraft’s centre of gravity will affect the aircraft stability and the stall speed.

Weight



The heavier the aircraft, the higher the stall speed.

Ice, damage or configuration



Ice, damage and configuration can all change an aircraft’s aerodynamic properties; such as increasing drag or increasing stall speeds.

Turbulence



A vertical gust, or windshear, can cause a sudden change in the relative airflow and result in an abrupt increase in angle of attack.

Distraction



Flying the aircraft close to the stall requires significant concentration. Distraction from your primary duty, which is flying the aircraft, may lead to a stall.

TIPS FOR PILOTS

- » Use an instructor to maintain your skills in recognising and recovering from stalls. Ensure you use a recovery height of at least 3,000 ft AGL.
- » Manoeuvring at low level increases the chances of a low-level stall. You must be appropriately trained, rated and approved to operate at low level.
- » Prior to any low level operation, ensure you have briefed it, are aware of any environmental hazards in the area and are confident of your and any other pilot’s abilities.
- » Remember that turns and any application of ‘G’ will increase the stall speed – sometimes dramatically.
- » Know and fly within the aircraft’s and your own limits.
- » Try to avoid using more than 30 degrees of bank in the circuit. Use coordinated controls.
- » Be aware of trying to turn back to the runway after an engine failure – this has led to many accidents.
- » Don’t follow another aircraft in the circuit too closely. If you cannot maintain a safe distance, *go around*.
- » If you are not stable on your approach to land, make your decision early to go around.