

Basic Stalling

BASIC CONCEPTS

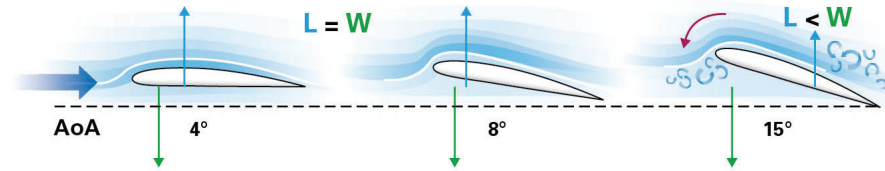
Objectives

To control the aeroplane to the point of stall, recognise the symptoms of the approaching stall, experience the stall itself, and recover with minimum height loss.

To control the aeroplane to the point of stall, recognise the symptoms of the approaching stall, and recover at stall onset with minimum altitude loss.

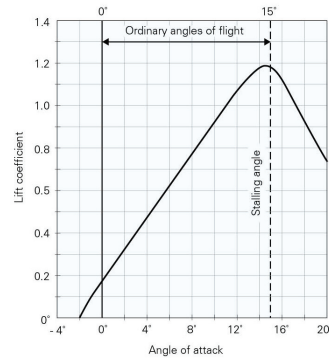
1. Principles of Flight

- $L = \text{Angle of Attack} \times \text{Airspeed}$
- Smooth airflow over the wing breaks down and becomes turbulent
- Breaks away from upper surface, aeroplane sinks, nose pitches down



At the Stall

- When the wing stalls there is a \downarrow in L and large \uparrow in D
- Aeroplane sinks, C of P moves rearwards \rightarrow pitch down



2. Airmanship

- No pax
- Awareness of aircraft configuration, position and other traffic
- HASELL checks
- HELL checks
- Recognise symptoms

H	Height
A	Airframe
S	Security
E	Engine Ts & Ps
L	Locality
L	Lookout

3. Aeroplane Management

- Smooth but positive throttle and control movements
- Preflight – no loose objects
- Carb heat use

5. Air Exercise

Entry

- HASELL checks and reference point (high)
- Carb heat HOT
- Close throttle
- Keep straight with rudder
- Maintain altitude with \uparrow backpressure
- Through _____ kts (or stall warning sounds), carb heat COLD

Symptoms

- Low and \downarrow airspeed
- High nose attitude
- Less effective controls – higher stick forces
- Stall warning – if fitted

At the Stall

- Aeroplane sinks and nose pitches down

Recovery

To Unstall

- Check forward with control column to reduce angle of attack
- Do not use ailerons
- Aeroplane will descend
- Recover to S+L with PAT

To Minimise Height Loss – max of 100'

- **Power + Attitude = Performance**
- Unstall, as above, check forward
- Apply full power – balance with rudder
- Raise nose to the horizon (stops sink and allows acceleration)
- Accelerate to _____ kts, then adjust attitude to maintain speed
- Regain starting altitude and S+L

Recovery at Onset

- Normal situation – when not training
- Recover at stall warning / buffet
- Height loss – 50' maximum

4. Human Factors

- More practice and exposure the better
- Plenty of time between stalls to orientate
- Sick bags



- Buffet (turbulent air from wing striking tailplane)
- Control column will be fully back – no further control movement

