

Slow flight

BASIC CONCEPTS

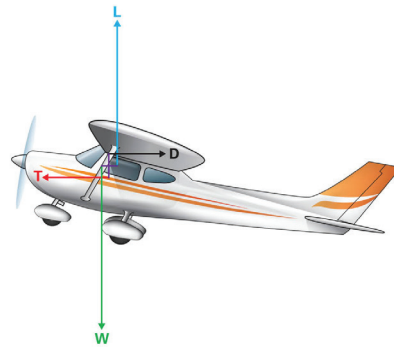
Objectives

- To slow the aeroplane and maintain straight and level at low airspeed ($1.2V_S$).
- To maintain straight and level at low airspeed in various configurations.
- To maintain a constant altitude while turning at low airspeed.
- To return to normal operating airspeeds.

Principles of flight

Power + Attitude = Performance

- $L = \text{angle of attack} \times \text{airspeed}$
- As airspeed decreases angle of attack must increase to maintain level
- High nose attitude + little extra power required
- Fly the aeroplane at a slow speed, but above the stall – next lesson
- Less control effectiveness – larger inputs required
- Slipstream effects less – maintain balance
- Medium level turns – need additional power



Airmanship

- 20°/2 second scan
- HASELL checks
- Aeroplane position in training area
- Warning symptoms of approaching stall

H	Height	Not less than 2500 feet above ground level
A	Airframe	Configuration – clean or flap
S	Security	No loose articles, harnesses secure
E	Engine Ts & Ps	Temperatures and pressures normal, mixture RICH, fuel sufficient and on fullest
L	Locality	Not over a populated area and clear of known traffic areas, including aerodromes
L	Lookout	One 180-degree, or two 90-degree, clearing turns to ensure other traffic will not result in conflict

Air exercise

Power + Attitude = Performance

Slowing to S + L at low airspeed

- **Power** reduce to decelerate
- **Attitude** increases as aeroplane slows – maintain level
- **Trim** to relieve backpressure
- Adjust power to maintain height
- Airspeed = _____

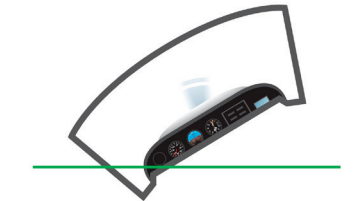


Maintaining S + L at low airspeed

- Lookout
- Attitude
- Instruments

Turning at low airspeed

- To maintain level, Lift must \uparrow , Drag will \uparrow , more power required
- Adverse yaw countered with rudder
- Ailerons will need to be deflected more for same roll rate
- Balance with rudder



Returning to cruise

- **Power** increase to full power, balance with rudder
- **Attitude** lower nose to level attitude
- **Trim** to relieve pressure
- Reduce to cruise power, balance with rudder

- Lookout
- Attitude
- Instruments

Aeroplane management

- Smooth but positive throttle and control movements
- Carb heat
- Engine operating temperatures
- Use of flap – power requirements

Human factors

- High level of concentration
- Unfamiliar high nose attitudes