Slow Flight

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.

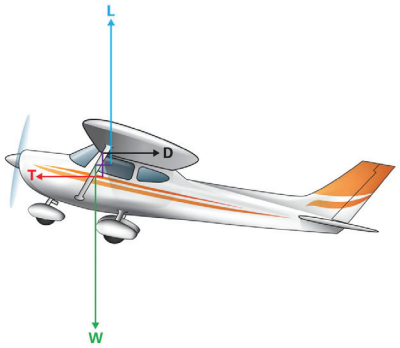
To maintain a constant altitude while turning at low airspeed.

To return to normal operating airspeeds.

1. Principles of Flight

Power + Attitude = Performance

- L = Angle of Attack x 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



2. Airmanship

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

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

3. Aeroplane Management

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

4. Human Factors

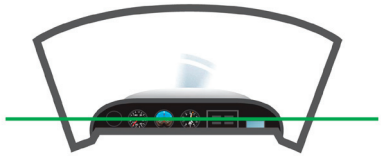
- High level of concentration
- Unfamiliar high nose attitudes

5. Air Exercise

Power + Attitude = Performance

Slowing to S + L at Low Airspeed

- **P**ower reduce to decelerate
- **A**ttitude increases as aeroplane slows – maintain level
- **T**rim to relieve backpressure
- Adjust power to maintain height
- Airspeed = _____



Maintaining S + L at Low Airspeed

- **L**ookout
- **A**ttitude
- **I**nstruments

Turning at Low Airspeed

- To maintain level, Lift must ↑, Drag will ↑, 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

- **P**ower increase to full power, balance with rudder
- **A**ttitude lower nose to level attitude
- **T**rim to relieve pressure
- Reduce to cruise power, balance with rudder

- **L**ookout
- **A**ttitude
- **I**nstruments