Low flying introduction

Objective

To compensate for the effects of visual illusions, inertia, and stress when operating the aeroplane close to the ground.

Considerations

Inertia

- Inertia and sensation of speed seen clearly at low level
- At cruise speeds need lots of anticipation and airspace to turn aeroplane

Visual effects

- Effect of wind can lead to visual illusions
- Flying into wind, groundspeed is low → lowering the nose or ↑ power
- Downwind, groundspeed high → nose attitude being raised / power ↓
- Across the wind, drift is most noticeable. Track on reference point. Avoid crossed controls
- Apparent slip or skid when turning. Do not correct with rudder. Cross-reference balance indicator

Poor visibility configuration

- Airspeed _____ kt, Flap setting _____

Reduced airspeed

- Less momentum and lower groundspeed = more time to think and react to obstacles + reducing turn radius

Flap

- ↑ lift and drag and adversely affects the L/D ratio
- ↑ lift → ↓ stall speed
- Poorer L/D ratio means higher power setting needed to maintain straight and level

Power

- Carb heat cycled not on continuously, Ts & Ps should remain within normal range
- Prolonged use may lead to ↑ oil T
- Also ↓ stall speed and provides slipstream
- Increase power in turns

Low flying zone

- Inspect low flying zone and prep aeroplane before entering
- Stay within the boundaries, do not descend below _____ ft
- If low-level over water, wear lifejackets
- On entering, broadcast EET in the zone – when leaving, make a vacating report

Airmanship

- Poor visibility configuration used

H	**H**eight	> 200 ft agl
A	**A**irframe	Config stated
S	**S**ecurity	Loose articles & harnesses secure
E	**E**ngine	Fullest tank, pump ON, mixt RICH, SADIE, carb heat
L	**L**ocality	Boundaries identified
L	**L**ookout	Wind indications, obstructions, birds, forced landing sites
L	**L**ights	All external lights ON

Air exercise

Low flying zone boundaries

- Complete the **HASELLL** checks and at 1000 ft AGL fly around the edge of the LFZ
- Using a powered descent, enter the LFZ

Visual illusions

- Superimpose horizon over the terrain
- Look at effect wind has on turning, and how to track over the ground with a crosswind
- Note effects of flying upwind and downwind on the groundspeed

Effects of inertia

- Maintain straight and level – note the reaction time needed to initiate a manoeuvre
- Medium level turns noting the reaction times required and the radius of turn

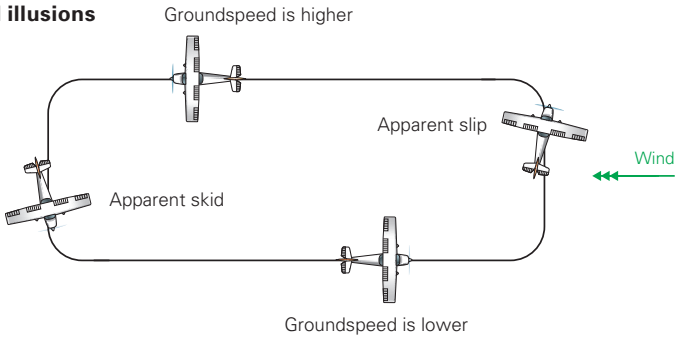
3-D effect

- Terrain/obstacles – wires, sun, shadow, mechanical turbulence

Poor visibility configuration

- Reduce power to _____ RPM, maintain straight and level flight, lower the flap to _____ degrees
- As airspeed ↓ to configuration speed, ↑ power (about _____ RPM) to maintain straight and level. Trim
- Note the reduced speed

Visual illusions



Aeroplane management

- Carb heat use
- Fuel management
- Use of power during turns with flap lowered

Human factors

- Obstructions difficult to detect at low level
- Flying close to the ground is stressful, can lead to narrowing focus
- Poor visibility configuration used to give more time
- Avoid bad weather