

Objective

To operate the aircraft safely both on the ground and in the air at night within 25 NM of the aerodrome.

Considerations

- Night is between ECT and MCT
- Legal: Aerodrome /aircraft lighting and minima (controlled /uncontrolled)

Prerequisites

- 2 hours IF
- PPL – 2 hrs dual, 2 hrs solo, 5 total

Night vision

- Rods and cones
- Cones – colour
- Rods – peripheral vision and movement
- Used for night vision

Dark adaptation

- 30 minutes
- Avoid bright lights

Illusions

- Lookout
- Speed perception
- Lack of horizon
- IF illusions
- Flicker vertigo
- Auto-kinesis
- Star light confusion
- Black hole

Equipment

- Torch, and spare batteries
- High viz
- All lights operational
- Personal equipment – torch, pen, mobile phone, watch, warm clothing, survival kit, possibly spare VHF or GPS

Familiarity with aeroplane

- Know location of controls and switches

Familiarity with aerodrome

- Vol 4 operational data
- Aerodrome lighting
- ATC light signals
- Approach lighting

Weather

- Inadvertent IMC
- Diurnal wind effect
- Overcast vs clear sky
- Temp and dew point

Emergencies

- Radio failure
- Runway lighting failure
- Landing or nav light failure
- Internal light failure
- Electrical failure
- Engine failure

Air exercise

On the ground

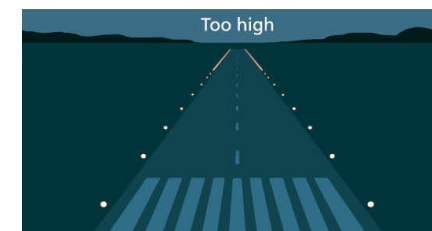
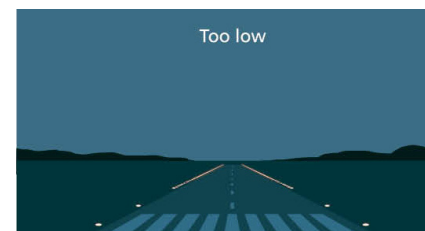
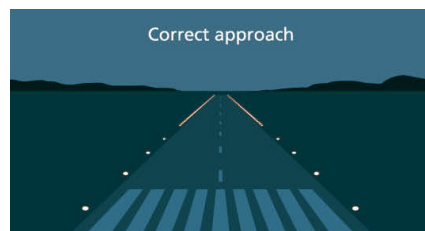
- Taxi slowly
- Notice runway light in peripheral vision
- Aircraft on approach
- Transfer to instruments as soon as airborne
- When established in climb, can use visual reference

In the circuit

- Familiarity with the circuit
- Local landmarks and townships
- Downwind spacing

Approach and landing

- Approach perspective with runway edge lights
- Don't look in to the area lit by landing light
- Speed when vacating
- Emergencies – simulate
- Illusions – experience



Airmanship

- Preflight in the light
- Use of aeroplane's lights
- Number of other aircraft in the circuit
- Illusions
- Minimum elevation figures

Aeroplane management

- More frequent SADIE checks
- Dew and frost
- Cockpit layout
- Trust instruments

Human factors

- Instrument flying illusions
- Night vision factors – adaptation, health, oxygen, colour perception, depth perception, focus, focal length, black hole, lights and stars