INSTRUMENT FLYING

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



Too low



100 nign

Airmanship

- · Preflight in the light
- Use of aeroplane's lights
- Number of other gircraft 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

Civil Aviation Authority of New Zealand