Introduction

Objectives

To experience the sensory illusions that occur when deprived of visual references.

To maintain straight and level flight by sole reference to the aeroplane's instruments.

1. Considerations

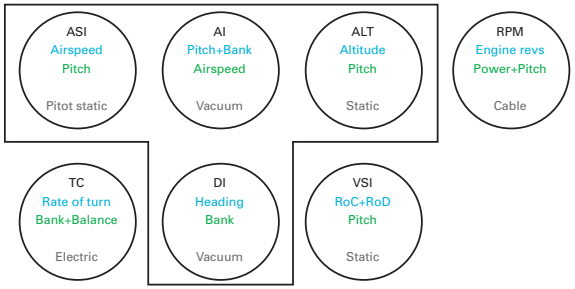
- Power + Attitude = Performance

Control Instruments

- Attitude Indicator
- Tachometer

Performance Instruments

- Airspeed Indicator
- Altimeter
- Directional Indicator
- Turn Coordinator
- Balance Indicator
- Vertical Speed Indicator



Instrument Layout

- Basic T plus TC, VSI and RPM

Instrument Lag

- All instruments have lag (delay in indicating correct information)
- Only VSI lag is significant, must be checked against other information

2. Airmanship

- Instrument check while taxiing
- Can't use peripheral vision
- Need to consciously counteract inertia
- Change – check – hold – adjust – trim
- Lookout "clear left"….

3. Aeroplane Management

- Pitot static system operation
- Set AI symbol before flight, don't change

4. Human Factors

Balance organs

- Sense angular acceleration and change of direction in 3 planes, and body tilt
- Can't detect change when it's very slow or constant

Muscular pressure sensors

- Affected by gravity
- Know if standing or sitting with eyes closed
- Can't distinguish between causes of increased G

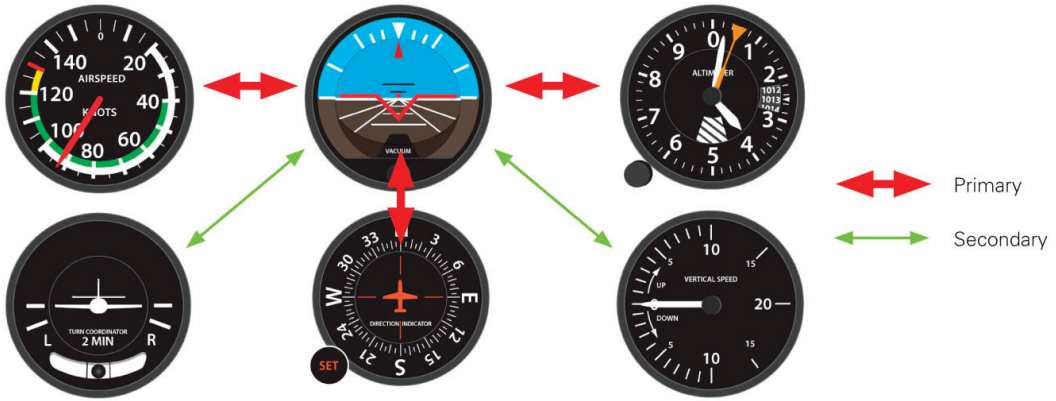
Vision

- Most powerful system
- Usually resolves ambiguous information from other senses
- But in IF conditions visual references not available
- Leans
- Trust the instruments

5. Air Exercise

- Demonstration of limitations of vestibular and muscular system

Selective Radial Scan



Maintain straight and level

- Set attitude, check altitude, heading and airspeed being maintained
- Check in balance and VSI showing level

Attain straight and level from a climb or descent

- APT and PAT

Turns

- All turns at Rate 1