



VICTORIA FLYING CLUB

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Precautionary Landing

- Review Circuits, Illusions Created by Drift and Landings
- Definition and Motivation
- **Precautionary Landing**
- Summary and Questions
- Pre-Flight Briefing



Review Circuits, Illusions Created by Drift and Landings

- What are the legs of a standard aerodrome traffic circuit?
- What would be the ideal direction of the wind with respect to the circuit and why?
- What illusions created by drift do we need to be aware of when flying close to the ground?
- What is the proper reaction if the turn to final turns out to be too wide and why?
- Mentally perform a short and soft-field landing.



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Definition and Motivation

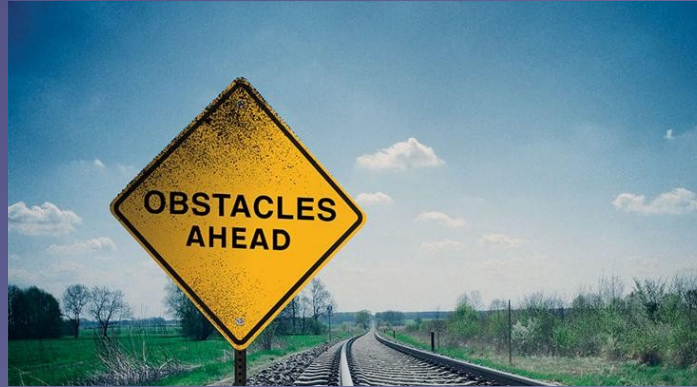


- *Planned or unplanned* landing in **unknown terrain** or **airfield**
- A **plan** is only a plan until put to action – *dynamic re-planning*
- *Constantly* evaluate the operational **context** and make **decisions**
- *Situations*: **airfield** with **limited data**, **failed aircraft systems**, **low fuel**, **deteriorating weather**, **pilot / crew or passenger state**, **loss of situational awareness**, **darkness**



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Landing Site Selection – COWLS

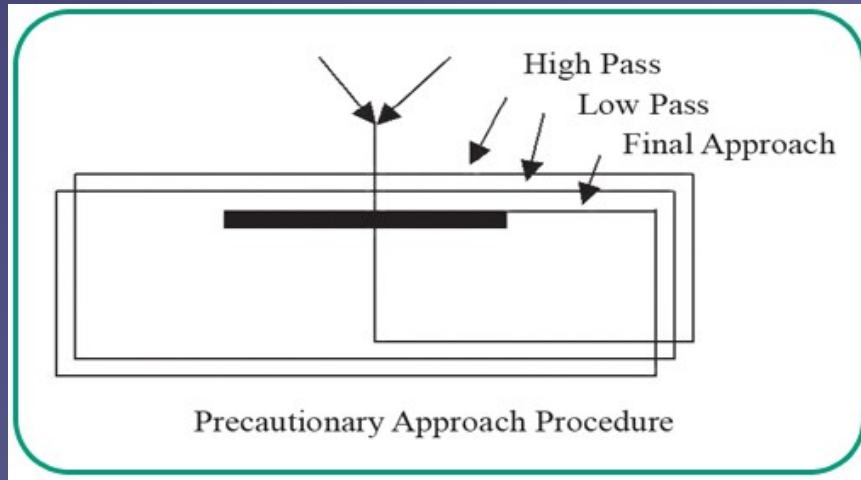


- **C**ivilization
- **O**bstacles
- **W**ind
- **L**anding (Take-Off) Area / Length
- **S**urface
- Landing Type Selection: **N**ormal, **S**hort, **S**oft, **C**rosswind





High Pass

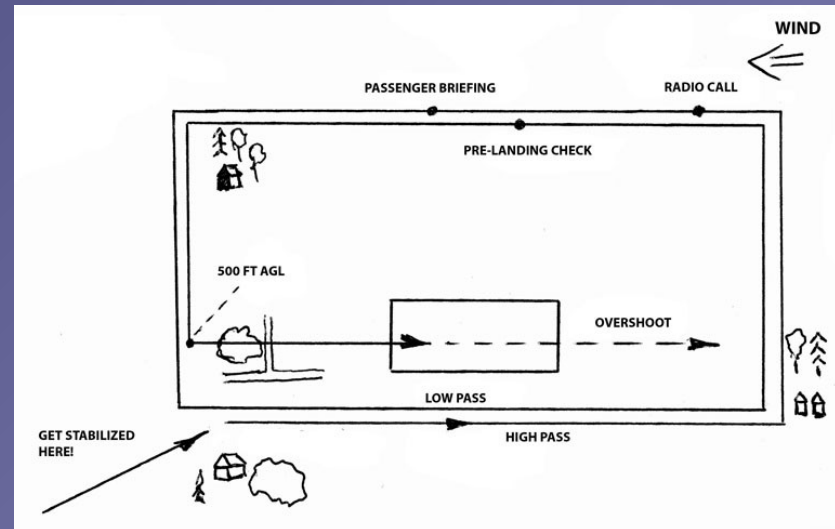


- Assess **overall situation** and **environment** – establish **headings**
- **Number** of passes, **shape**, **altitude** and **airspeed** depend on situation
- Overfly landing site on the **upwind side** for **better visibility**
- Example: altitude **2000' AGL**, airspeed **65 KIAS**, flaps **20°**
- $60 \text{ KIAS} \rightarrow 60 \text{ NM/h} \rightarrow 1 \text{ NM} / \text{min} \rightarrow 100' / \text{s}, 10\text{s} \rightarrow 1000' \text{ length}$
- Sufficient **evidence** to **not support landing decision?**



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Low Pass



- Assess **details** such as obstacles and surface condition
- **Number** of passes, **shape**, **altitude** and **airspeed** depend on situation
- **Trim** *properly* for airspeed and altitude, maintain **obstacle clearance**
- Overfly landing site on the **upwind** side for **better visibility**
- Example: circuit altitude **1000' AGL**, airspeed **65 KIAS**, flaps **20°**
- *Sufficient* **evidence** to **support landing decision**?



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Low Approach



- Final assessment of **landing site**, **landing type** and **approach path** and **configuration**
- **Number** of approaches, **shape**, **altitude** and **airspeed** depend on situation
- Example: approach speed **60 KIAS**, flaps **30°**, go-around at **30' AGL**
- Configuration according to selected landing type
- **Final assessment** for landing decision – in favor or against



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Communication

Inform ATC

Briefings

Cessna 172 CHECKLIST

PREFLIGHT INSPECTION

1. Aircraft documents ON BOARD
2. Fire extinguisher CHECK
3. First Aid Kit CHECK
4. Control Lock REMOVE
5. Flight controls and trim CHECK
6. Ignition switch OFF
7. Electrical equipment, radios OFF
8. Master switch ON
9. Flaps DOWN
10. Fuel gauges CHECK QUANTITY
11. Master OFF
12. External inspection

PASSENGER BRIEFING

1. Doors, windows
2. Seatbelts
3. Fire Extinguisher
4. First Aid Kit
5. ELT
6. Controls
7. Smoking
8. Life Vests
9. Loose Articles - Secure

ENGINE START

1. Documents, safety equipment and preflight COMPLETE
2. Passenger Briefing COMPLETE
3. Seats/Harnesses SECURE
4. Brakes SET
5. Avionics Power Switch OFF
6. Circuit Breakers CHECK IN
7. Fuel valve LEFT
8. Mixture RICH
9. Throttle SET
10. Carb Heat OFF
11. Master ON
12. Beacon Light ON
13. Primer As Req & locked
14. Propeller area CLEAR
15. Mags START
16. Throttle 1000 RPM
17. Oil Pressure CHECK

AFTER START

1. Avionics Power Switch ON
2. Flaps RETRACT
3. Nav Lights ON
4. Transponder STANDBY
5. Radios SET
6. AHS COPY
7. Flight Instruments SET
8. Fuel Valve RIGHT
9. Taxi clearance OBTAIN
10. Brakes CHECK
11. Flight Instruments CHECK

RUN UP

1. Brakes SET
2. Fuel Valve BOTH TANKS
3. Mixture RICH (<3000)
4. Airs CLEAR
5. Throttle 1700 RPM
6. Oil Pressure/Temp CHECK
7. Suction Gauge CHECK
8. Ammeter CHECK
9. Magneto CHECK BOTH
10. Carb Heat CHECK DROP
11. Mixture CHECK LEANING
12. Full idle with carb heat ON
13. Oil Pressure/Temp CHECK
14. Throttle 1000 RPM

BEFORE TAKE OFF

1. Belts, Doors, Windows, Seats - SECURE
2. Primer LOCKED
3. Master ON
4. Mags BOTH
5. Carb Heat COLD
6. Mixture RICH
7. Flaps AS REQUIRED
8. Trim SET FOR T/O
9. Fuel BOTH
10. Flight Instruments CHECK
11. Flight Controls FREE & CORRECT
12. Radios SET
13. Take off clearance OBTAIN

LINE UP

1. Time off RECORD
2. Transponder ALT (check code)
3. Landing Light ON
4. Strobe Lights ON

BEFORE LANDING

1. Primer LOCKED
2. Master ON
3. Mags BOTH
4. Carb Heat ON
5. Mixture RICH
6. Fuel Valve BOTH
7. Brakes CHECK
8. Seats, Belts, Harnesses SECURE

AFTER LANDING

1. Taxi Clearance OBTAIN
2. Transponder OFF
3. Carb Heat OFF
4. Wing Flaps UP
5. Strobe Lights OFF
6. Landing Lights OFF

SHUT DOWN

1. Flight Instruments CLOSED
2. Radios 21.5 (check tone)
3. Avionics Power Switch OFF
4. Fuel Valve OFF
5. Master OFF
6. Mags OFF
7. Carb Heat OFF
8. Master OFF

- Inform ATC – Flight Service Station, Flight Planning
- Passenger briefing
- Approach and landing briefing and checklists



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Safety Considerations

- Maintain a *safe* **airspeed**
- Maintain a *safe* **height** (obstacle clearance)
- Maintain a *good* **lookout**
- Turn accurately and **coordinated**
- Anticipate turns and **compensate drift** on legs
- Do *not* **overbank** or **skid**



Summary / Quiz

- What situations may lead to a precautionary landing?
- Explain the acronym COWLS.
- Mentally perform a precautionary landing due to deteriorating weather on a grass field. State all observations and actions.
- What role plays proper communication when deciding for a precautionary landing?



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Pre-Flight Briefing

- Exercise
- Training Area
- Departure and Arrival Procedures
- Weather Briefing / NOTAMs
- Aircraft and Documents
- Time and Fuel Requirements
- Safety Considerations and Responsibilities



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Precautionary Landing (Ex. 21, LP. 24)

- Objective
- Review
- Motivation
- Howto
- Summary / Questions
- Preflight Briefing