



VICTORIA FLYING CLUB

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- Bookings, Questions



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# Forced Landing

- Review Descent, Approach and Landing
- Definition and Motivation
- **Forced Landing**
- Summary and Questions
- Pre-Flight Briefing



# Review Descent, Approach and Landing

- Mentally perform a power-off descent and state all observations and required actions.
- What is the best glide airspeed and where do we find it?
- How do we visually determine our glide distance?
- How can the rate of descent be increased during an approach for landing?
- What types of landing can we perform?
- Mentally perform a soft-field landing and state all observations and required actions.



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# Definition and Motivation



- *Unplanned immediate* landing due to **failure** or other **emergency**
- **Aviate**, Navigate, Communicate, Manage
- Continue to **fly the airplane** has *highest* priority
- Situations: **engine failure** (mechanical, oil supply, fuel supply – contamination, air supply – icing, blockage, fire)

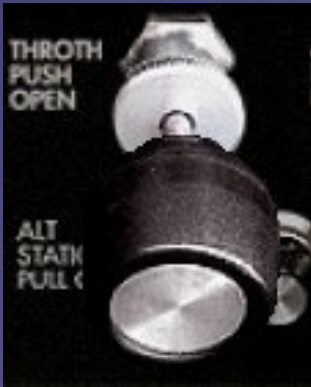




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# Engine Failure During Take-Off

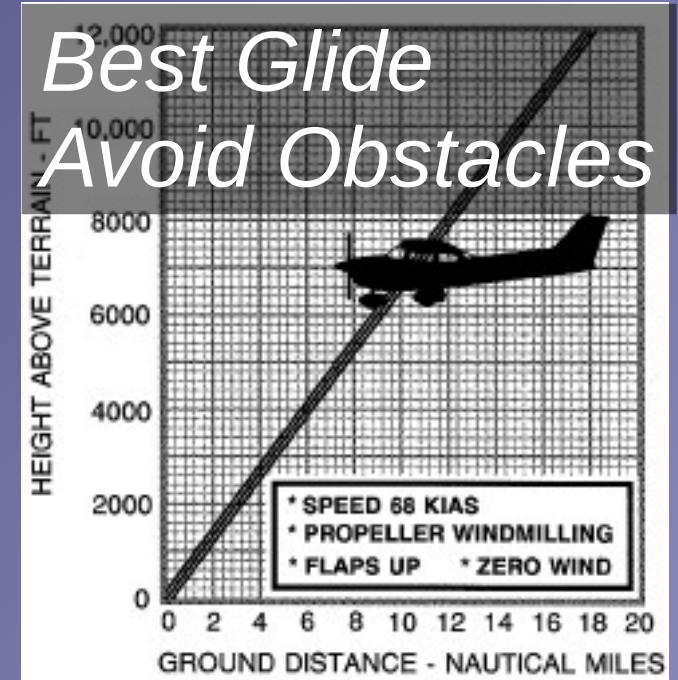
*Power Idle*



*Apply Brakes*



*Best Glide  
Avoid Obstacles*



- During take-off run: **power idle**, apply **brakes**, keep *straight*
- Immediately after take-off *with* sufficient runway: **power idle**, **flaps as required**, land *straight ahead*
- Immediately after take-off *without* sufficient runway: establish **best glide airspeed (68 KIAS)**, avoid *major turns* and **obstacles**



# Engine Failure at Safe Altitude

- **Altitude** at or above **2000 ft AGL** with *sufficient* deliberation time
- Establish **best glide (68 KIAS)** attitude and trim
- Select and head towards suitable **field** (key point)
- **Cause check** (Fuel Selector, Fuel Valve, Mixture, Throttle, Fuel Pump, Magnetos, Engine Instruments)
- Attempt **restart**
- *If restart not successful, continue with low altitude procedures*
- **MEMORIZE THIS PROCEDURE!**



# Engine Failure at Low Altitude

- **Altitude** below **2000 ft AGL** with *limited* deliberation time
- Establish **best glide** (**68 KIAS**) **attitude** and **trim**
- Select and head towards suitable **field** (key point)
- **Fuel Valve** - Off, **Mixture** - Off, **Ignition** - Off
- **Mayday**, **Squawk** 7700, **ELT** On, passenger **briefing**
- Seats upright, seat belts fasted, cockpit hazards removed
- **Flaps** as required
- **Master** - Off, **Doors** – Unlatch
- **MEMORIZE THIS PROCEDURE!**



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# Restart Procedure

- **Fuel Valve** – On
- **Fuel Selector** – Both
- **Mixture** – Full Rich
- **Fuel Pump** – On
- **Ignition** – Start / Windmilling
- **Fuel Pump** – Off (Consider On)

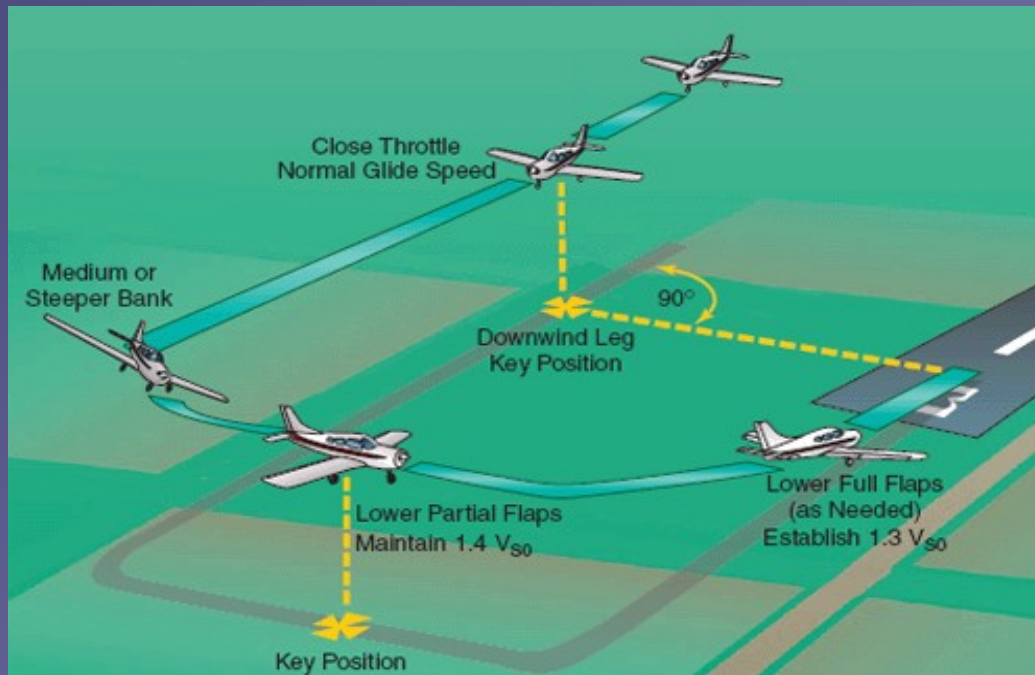






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# Engine Failure in Circuit

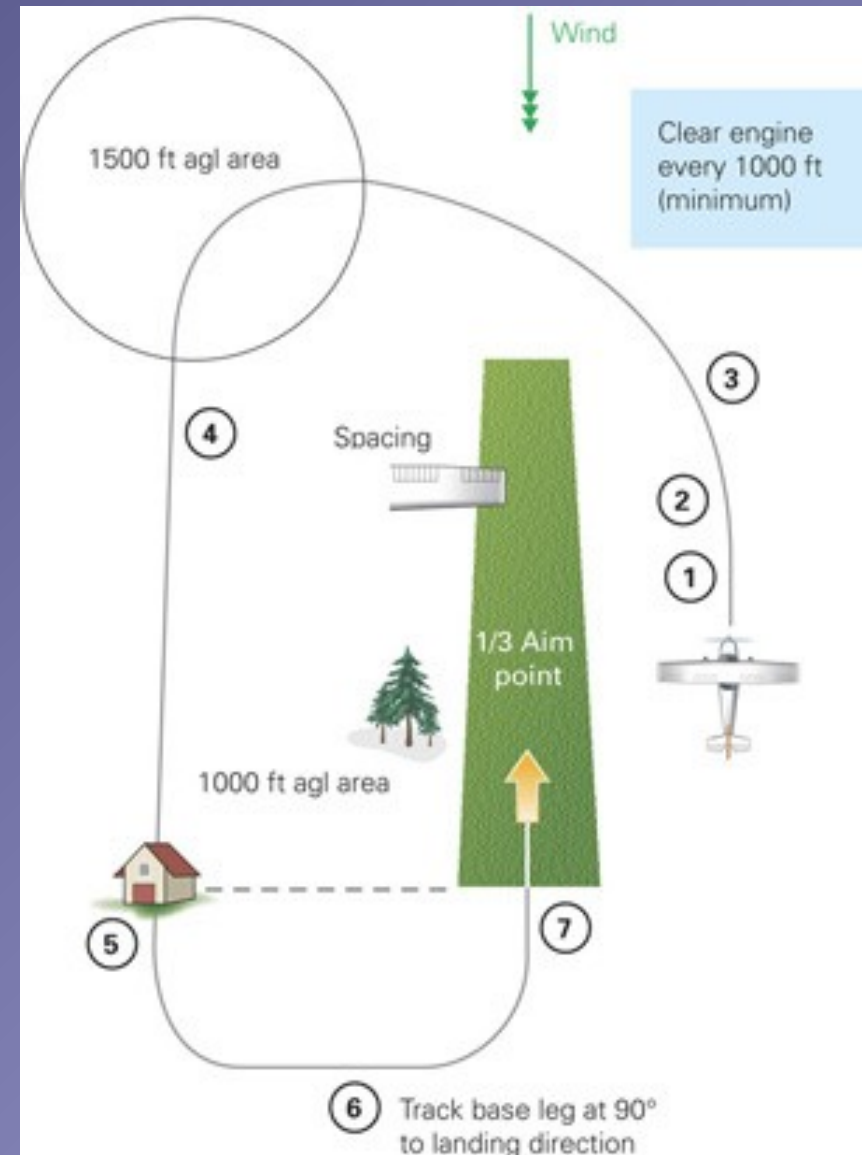


- Perform **power-off landing** *if* at or above **circuit altitude**
- Manage energy / airspeed and plan for each leg to final
- Use **slipping** or **flaps** *as required* to control rate of descent
- Consider **absolute altitude**, **rate of descent** and **wind**
- Inform ATC (request clearance beforehand if practicing)



# Forced Landing Approach

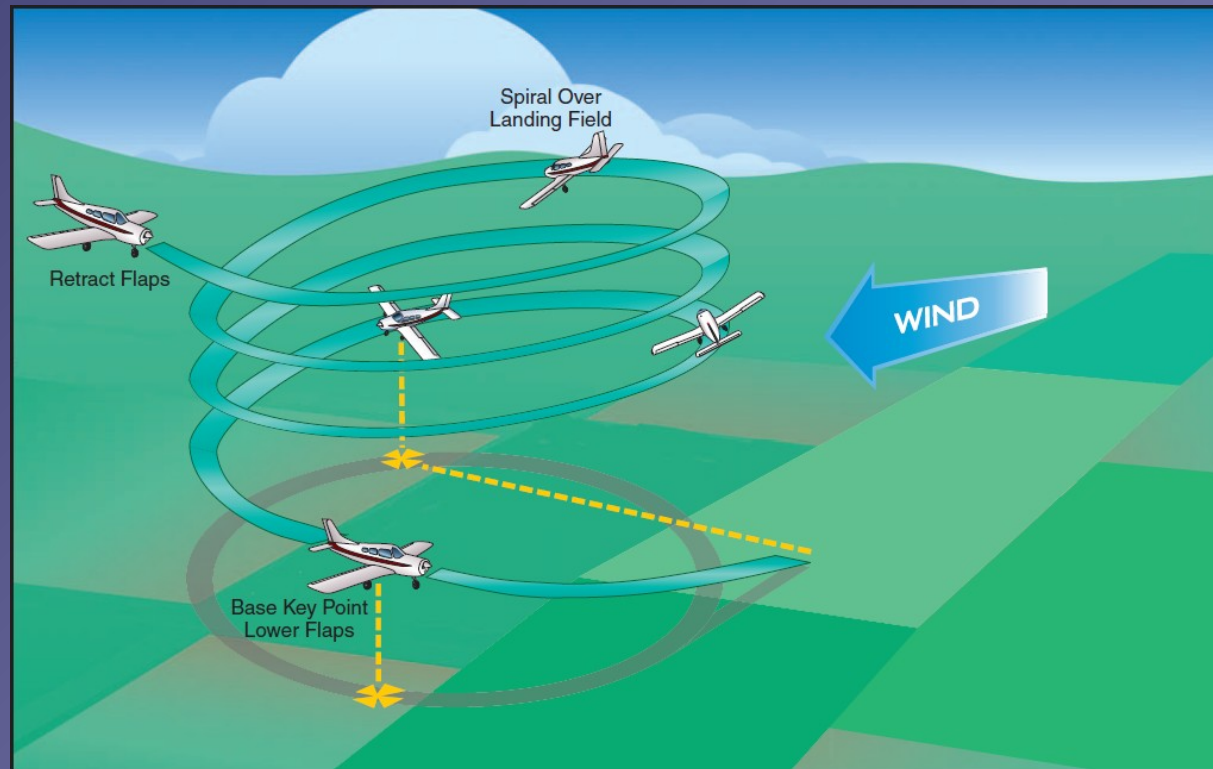
- Establish **key points** (high key, low key, final) and key point **altitudes**
- Organize **legs**
- Consider **absolute altitude**, rate of descent and wind
- Example aircraft performance: ROD **500 ft/min** → altitude loss turning **180°: 500 ft, 360°: 1000 ft**
- Approach *slightly high* and attempt to land in **first third** of the selected field (**1000 ft THLD**)
- Use **slipping** and **flaps** as required to increase rate of descent





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# 360° Forced Landing Pattern



- Proceed to selected **key point** at altitude – **high key** *above* threshold
- Descend to lower altitude **circling** – **low key** *abeam* threshold
- Initiate final approach from low to **final key** on extended centerline
- Options if *high* but *too low* for full turn: widen out, bow ties or serpentines



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# Distress Communication

- Current frequency or **121.5**
- Mayday, Mayday, Mayday
- 3 x Callsign
- **Position**, Altitude
- **Problem**
- **Intentions**
- Callsign
- Squawk 7700, ELT On

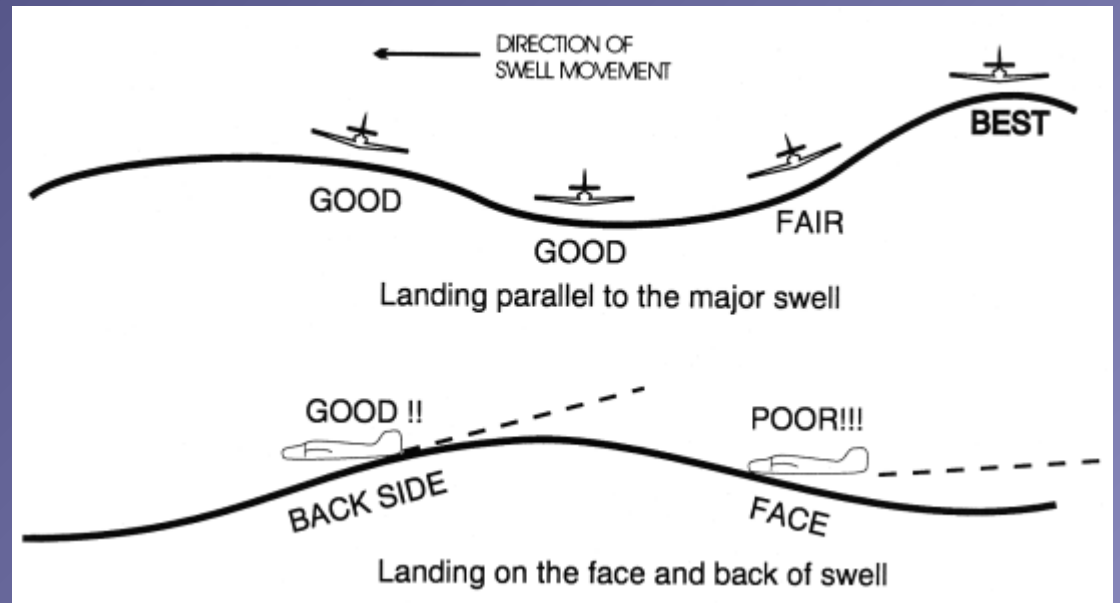






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# Hills, Mountains, Forest, Water



- Hills / Mountains: land *uphill*
- Forest: assume **tree tops** as landing surface
- Plantation / Field: assume **plant tops** as landing surface
- Roads (traffic, power lines, obstructions)
- Water: ditching and evacuation – consider **swell, wind**





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# Safety Considerations

- Avoid any skidding tendency during maneuver
- Avoid unnecessary noise or livestock nuisance
- Remain clear of all obstacles
- Clear engine every **1000 ft** in cold weather
- Go around at **500 ft AGL** (**1000 ft** over civilization)
- *Lower* altitudes are *only* permitted with instructor



## Summary / Quiz

- What situations may lead to a forced landing?
- How does altitude affect the type of forced landing?
- Mentally perform a forced landing from a safe altitude within farmland countryside.
- Simulate a Mayday call reporting an engine failure and state your intentions.
- What other means of communication are available in an emergency?



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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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# Additional Materials

- Additional materials for Forced Landing
- Flight Instructor Guide – Exercise 22, Lesson Plan 20, 22