VICTORIA FLYING CLUB

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Slow Flight

- Review Flight for Endurance
- Definition and Motivation
- **Slow Flight** in Clean and Landing Configuration
- **Slow Flight** Climbs, Descents and Turns
- Summary and Questions
- Pre-Flight Briefing

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Review Flight for Endurance

- *Attitude plus power equals performance!*
- Mentally configure the aircraft for maximum endurance flight and state all observations and required actions.
- What particular observation applies to the control inputs compared to normal cruise flight?

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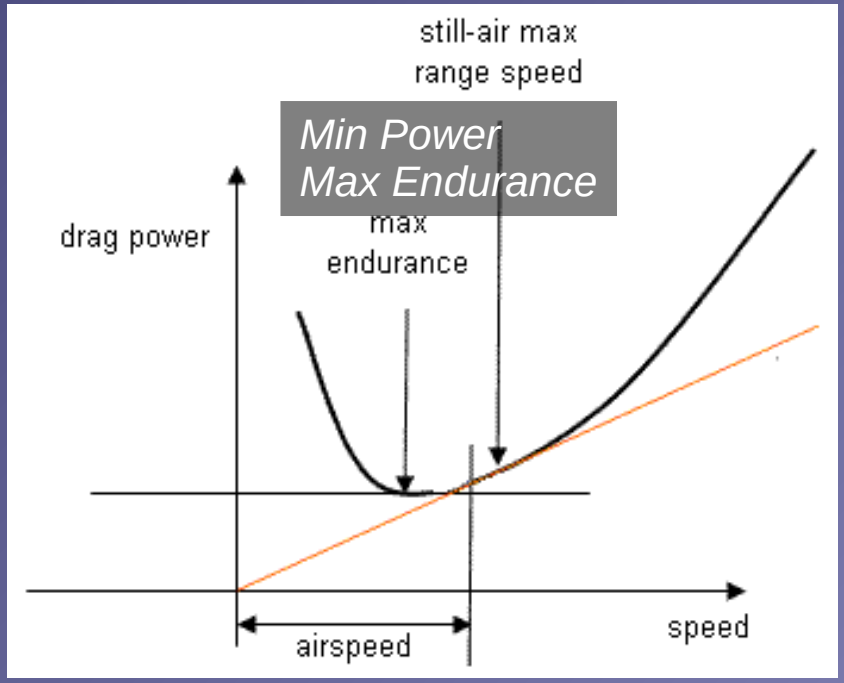
Definition and Motivation



- Flight at airspeeds in the **range** *below* the **maximum endurance** speed down to just above the stalling speed
- Dominating **induced drag** requires *more* **thrust** and **power**
- Control surfaces are *less* effective at slower airspeeds
- (Soft Field) Take-offs, Landings and Go-Arounds

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Safety Considerations

- *High* **nose-up attitude** maneuver
- *Limited* forward visibility
- **HASEL**, recovery at or above ***2000 ft AGL***
- Maintain good **lookout** during maneuver
- **Attitude** and **power** are to be controlled *precisely*
- **Yaw** is to be controlled *precisely* with **rudder**
- Remain **coordinated** at all times

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Entering Slow Flight (Clean) from Flight for Maximum Endurance

- Perform **HASEL** checks and continue **lookout** during the maneuver
- Configure the aircraft for **maximum endurance** flight *first*, then
- Apply **elevator** back-pressure to establish a *slightly more* **nose-up attitude** to **decelerate** into the slow flight range
- Increase **power** *as required* to keep the **airspeed** *stable* controlling **yaw** with **rudder** maintaining **altitude** and finally **trim**

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Entering Slow Flight (Clean)

- Perform **HASEL** checks and continue **lookout** during the maneuver
- Reduce **power** and **decelerate** into slow flight range
- Apply **elevator** back-pressure and increase **nose-up attitude** *gradually* as required to maintain **altitude**
- Increase **power** *as required* to keep the **airspeed** *stable* controlling **yaw** with **rudder** maintaining **altitude** and finally **trim**

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Maintaining Slow Flight (Clean)

- **Stall warning** audible and **ailerons** are *much less* **responsive**
- *More* **power** in slow flight produces *more* **yaw** and requires *continuous* **rudder** input to remain **coordinated**
- *Attitude plus power equals performance!*
- **Pitch** controls **airspeed**, **power** controls **altitude** in practice

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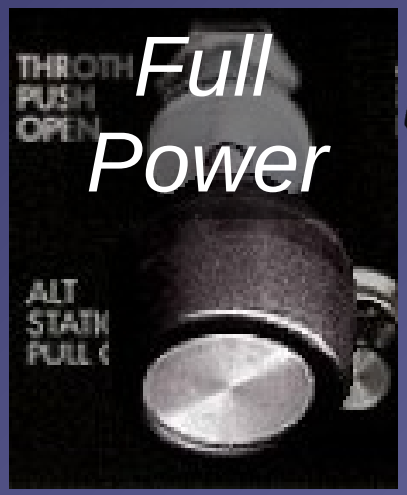
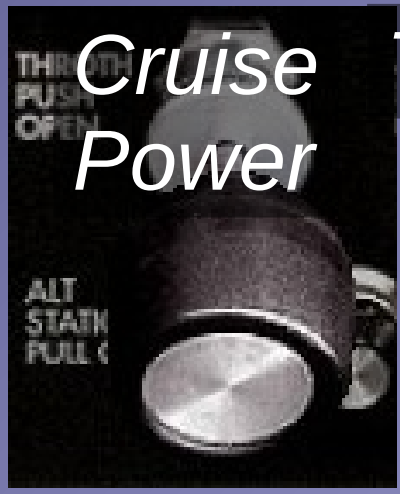
Recovering Slow Flight (Clean)





- Apply *full* **power** controlling **yaw** with **rudder** to remain **coordinated**
- Apply **elevator** forward pressure to lower the **pitch attitude** *gradually* while maintaining **altitude**
- Establish **cruise attitude** and accelerate to **cruise airspeed**
- Reduce **power** to **cruise power** setting and finally **trim**

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Entering Slow Flight (Flaps)

- Perform **HASEL** checks and continue **lookout** during the maneuver
- Reduce **power** and **decelerate** into slow flight range
- Apply **elevator** back-pressure to increase **nose-up attitude** *gradually* as required to maintain **altitude**
- Extend **flaps** *in stages* to desired setting while decelerating in **white arc**
- Increase **power** *as required* to keep the airspeed at the bottom of the **white arc** controlling **yaw** with **rudder** maintaining **altitude** and finally **trim**

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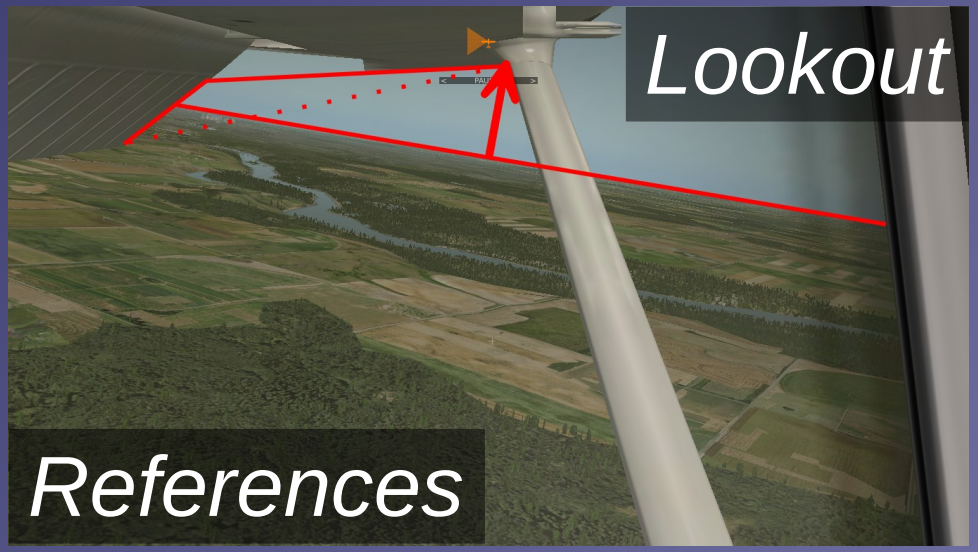
Maintaining Slow Flight (Flaps)



- Additional **flaps** create *more* **drag** and require *more* **thrust** and **power**
- **Stall warning** audible and **ailerons** are *much less* **responsive**
- *More* **power** in slow flight produces *more* **yaw** and requires *continuous* **rudder** input to remain **coordinated**
- *Attitude plus power equals performance!*
- **Pitch** controls **airspeed**, **power** controls **altitude** in practice

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Recovering Slow Flight (Flaps)

- Apply *full* **power** controlling **yaw** with **rudder** to remain **coordinated**
- Apply **elevator** forward pressure to lower the **pitch attitude** *gradually* while maintaining **altitude**
- Raise **flaps** *in stages* to up while accelerating in **white arc**
- Establish **cruise attitude** and accelerate to **cruise airspeed**
- Reduce power to **cruise power** setting and finally **trim**

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Climbs and Descents in Slow Flight

- *Attitude plus power equals performance!*
- Increase **power** *as required* to initiate **climb** in practice
- Reduce **power** *as required* to initiate **descent** in practice
- Adjust **attitude** to maintain (slow flight) **airspeed** in practice

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Turns in Slow Flight

- **Ailerons** are *less* **responsive** and expect *more* **adverse yaw**
- *Different* **rudder** inputs are required to compensate **yaw** and support **turns** while remaining **coordinated**
- Establish and maintain **banked attitude** (up to ***30°***) with **ailerons** and *continuous* **rudder** support
- Right turns require *more* rudder than left turns

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Summary / Quiz

- Define slow flight and give examples for when slow flight is applicable.
- Mentally enter a slow flight in landing configuration from cruise flight and state all observations and required actions.
- Mentally perform a turn to the right in slow flight and state all observations and required actions.
- Mentally recover from a slow flight in landing configuration and state all observations and required actions.

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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 Slow Flight
- Flight Instructor Guide – Exercise 11, Lesson Plans 5, 6, 7

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Familiarization Demonstration

- Employ an obvious and dramatic example
- Stall: Power Idle, increase nose-up attitude while maintaining straight-and-level, control yaw and demonstrate falling leaf / nose-drop