



VICTORIA FLYING CLUB

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Spins

- Review Stalls
- Definition and Motivation
- Spinning and Factors
- Summary and Questions
- Pre-Flight Briefing

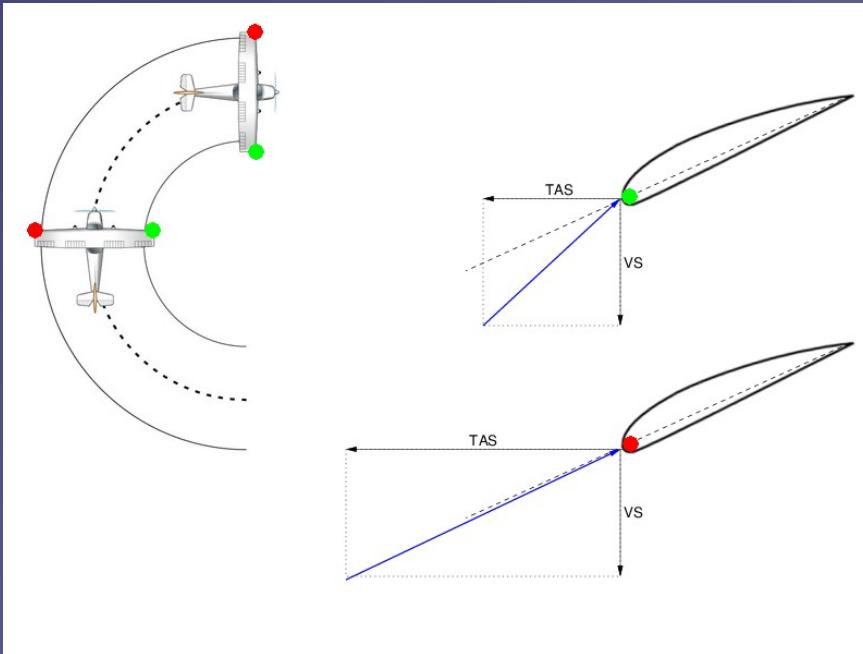


Review Stalls

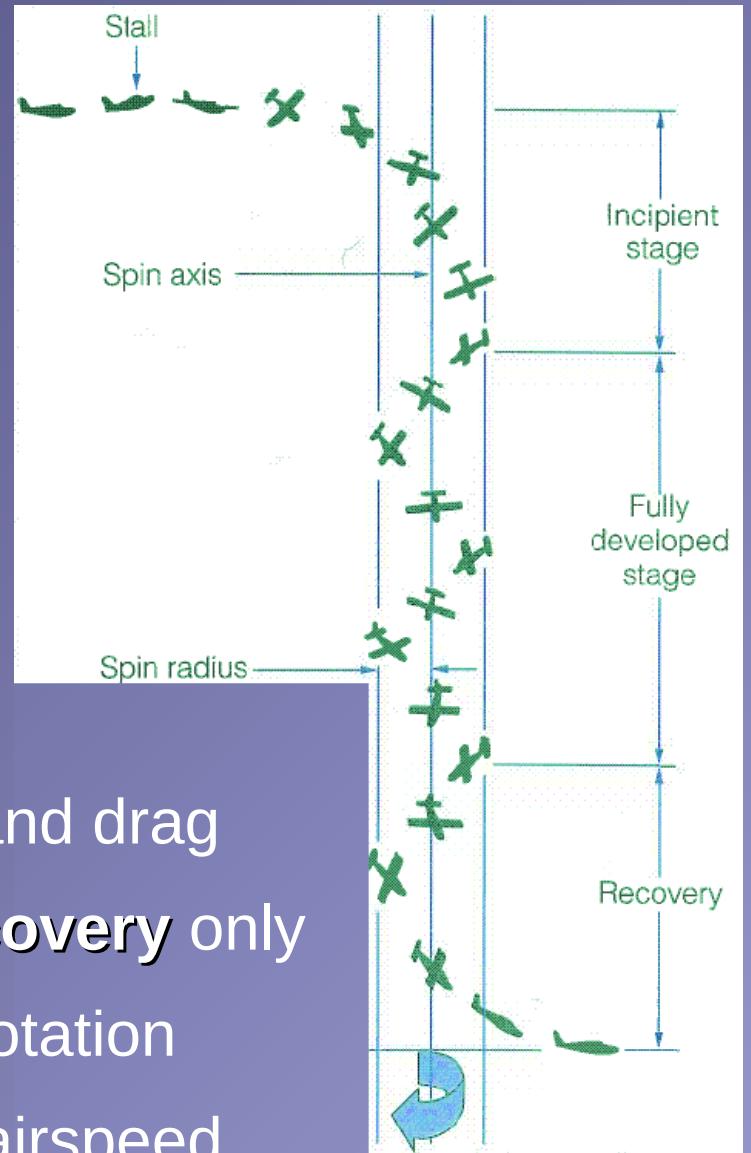
- What are the signs of an *imminent* stall?
- Define a wing drop stall and give examples of situations when it may occur.
- Mentally perform a departure / turning stall entry and recovery and state all observations and required actions.



Definition and Motivation



- **Stall aggravated by yaw**
- Inner wing has *higher* angle of attack and drag
- No applications – **recognition** and **recovery** only
- *Incipient* – initial transition into stable rotation
- *Fully Developed* – stable rotation and airspeed





Safety Considerations

- ***High nose-up / nose-down attitude*** maneuver
- Spin can occur at *any* attitude and airspeed
- POH – **utility category** is *required*
- **HASEL**, recovery at or above ***4000 ft AGL***
- Recovery sequence has to be *decisive* and *prompt*
- *Significant* loss of **altitude** (about ***1000 ft***)



Spin Entry using Adverse Yaw

Enter Imminent Stall



Full Aft Elevator



Full Left Rudder

- Perform **HASEL** checks at *sufficient altitude* ahead of the maneuver
- Reduce **power** to *low power setting* (**1500 RPM**)
- Apply **elevator** back-pressure to increase **nose-up attitude** as required controlling **yaw** with **rudder** while maintaining **altitude**
- During the *imminent stall* simultaneously apply and hold full **elevator** back-pressure and full **left-rudder**



Spin Entry

Enter Imminent Stall



Full Aft Elevator

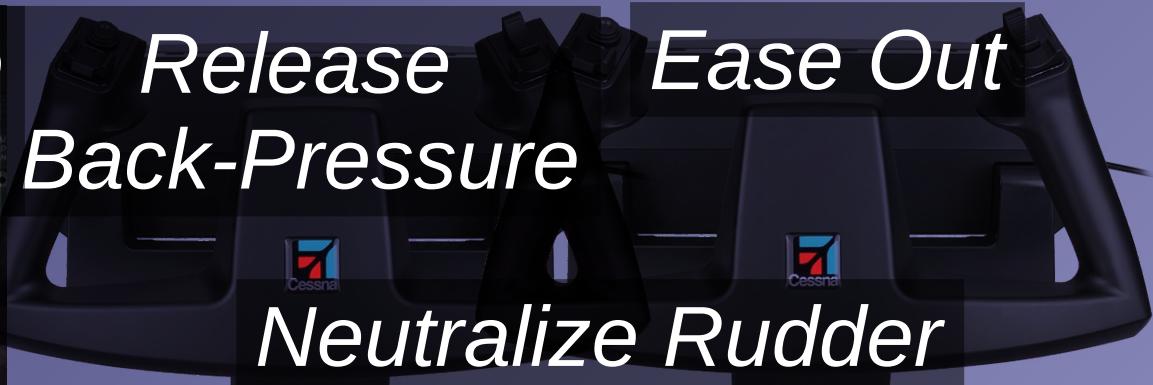
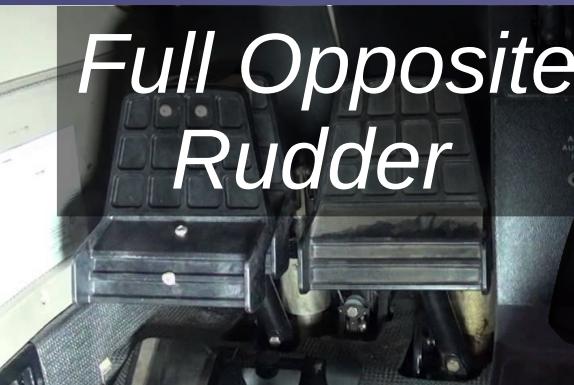
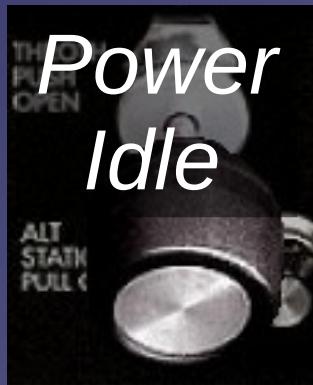


Full Rudder

- Perform **HASEL** checks at *sufficient altitude* ahead of the maneuver
- Reduce **power** to *idle*
- Apply **elevator** back-pressure to increase **nose-up attitude** as required controlling **yaw** with **rudder** while maintaining **altitude**
- During the *imminent stall* simultaneously apply and hold full **elevator** back-pressure and **full rudder**



Spin Recovery



- Reduce **power** to *idle* and keep **ailerons** *neutral*
- Apply *full* opposite **rudder** (opposite spin direction) and release **elevator** back-pressure (*briskly forward*) until turn stops, then *neutralize* **rudder**
- *Ease out* of dive and increase **power** to recover **altitude**
- Establish **cruise attitude**, set **cruise power** and **trim**



Spin Recovery – Factors

- *Incipient* versus *fully developed* spin – rate of turn and recovery time
- **Power** – additional yaw and flatter spin
- **Flaps** – flatter spin, reduced elevator effectiveness and potential structural damage
- **Weight and Balance** – forward versus rearward center of gravity, load factor and inertia
- **Altitude** – density and control effectiveness



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Incipient versus Fully Developed Spin

Power on stall recovery Pitch down to break the stall

Roll wings level

Resume normal climb



Instruments



- **Turn coordinator** may help to determine direction of spin
- **Airspeed** should *not* increase significantly
- *High* airspeed (acceleration) could indicate a **spiral dive**
- **Rate of descent** should be *stable* – constant **altitude loss**



Summary / Quiz

- Define spinning and explain the difference between incipient and fully developed spin.
- Mentally perform a spin entry and recovery and state all observations and required actions.
- Why can ailerons not be used for the recovery of a spin?
- What situation can potentially lead to an inadvertent spin at low altitude?



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 Spins
- Flight Instructor Guide – Exercise 13, Lesson Plan 6