



VICTORIA FLYING CLUB

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Slipping

- Review *Coordinated Flight*
- Definition and Motivation
- **Slips**
- Summary and Questions
- Pre-Flight Briefing



Review Coordinated Flight

- Define *coordinated flight* and what needs to be done to remain *coordinated*.
- What instrument helps to remain *coordinated*?
- Give examples of when control inputs need to be more pronounced to remain *coordinated*.
- What would you feel during a turn with too little or too much rudder application?



Definition and Motivation

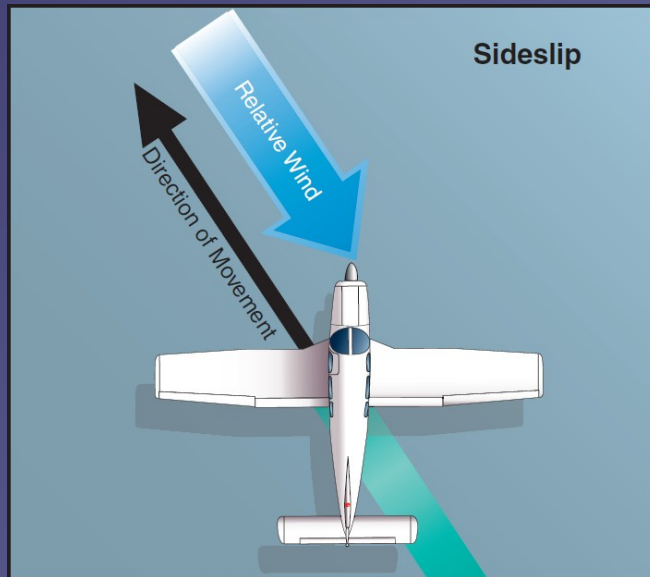


- **Uncoordinated flight** with insufficient rate of turn
- Sideward **force** (inside) can be felt and **drag** is increased
- Types: *Side Slip* and *Forward Slip*
- Applications: *Crosswind Landings* and *Descents*



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Side Slip

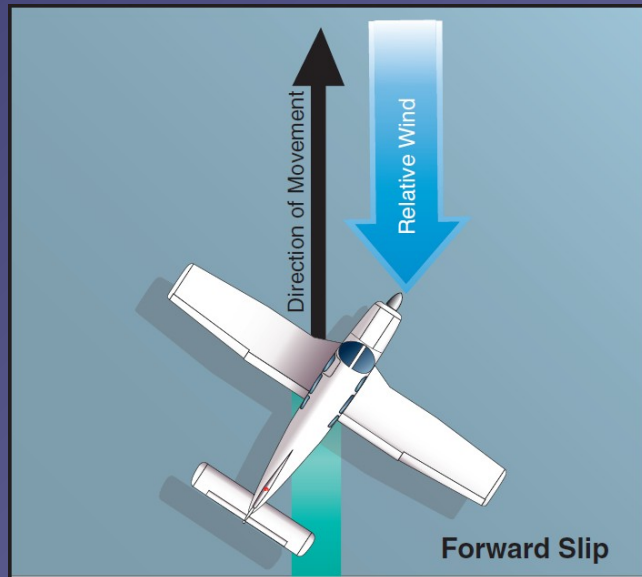


- Longitudinal axis is **parallel** to original flight path
- *Just enough* opposite rudder to prevent **turn**
- Aircraft does *not* fly straight ahead (without wind)
- *Compensates* **drift** during crosswind landings



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Forward Slip



- Longitudinal axis is **offset** from original flight path
- *Just enough* **opposite rudder** to prevent **drift**
- Aircraft *does* fly straight ahead (without wind)
- *Increased* **rate of descent** without increasing airspeed



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Entering a Side Slip

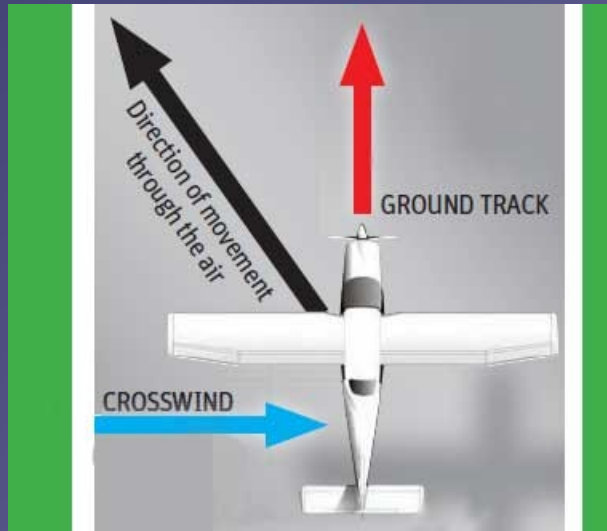


- **Roll** one wing **into the wind** using **aileron**s, *simultaneously*
- Apply *just enough* **opposite rudder** to prevent **turn**
- Apply **elevator** forward-pressure to maintain pitch **attitude**
- *Balance* **aileron** and **rudder** input for **desired heading**



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Maintaining a Side Slip



- Continuously balance **aileron** and **rudder** for desired **heading**
- Adjust *balance* to obtain desired **track** over ground
- Steer like a car and keep straight with rudder
- Apply more (less) **aileron** to adjust **drift** → **track**
- Apply more (less) **rudder** to keep **straight** → **heading**
- Use **elevator** to maintain desired **airspeed** and pitch **attitude**



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Recovering a Side Slip



- Release **rudder** pressure, *simultaneously*
- Level wings using **ailerons**
- Adjust pitch attitude with **elevator**
- Resume normal descent and **trim**



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Entering a Forward Slip



- **Roll** one wing **into the wind** using **ailerons**, *simultaneously*
- Apply *just enough* **opposite rudder** to prevent **drift**
- Apply **elevator** forward-pressure to maintain pitch **attitude**
- *Balance* **aileron** and **rudder** input for **desired track**



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Maintaining a Forward Slip



- *Continuously balance **aileron** and **rudder** for desired **track***
- *More **aileron** and **opposite rudder** increases **rate of descent***
- *Less **aileron** and **opposite rudder** decreases **rate of descent***
- *Use **elevator** to maintain desired **airspeed** and pitch **attitude***



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Recovering a Forward Slip

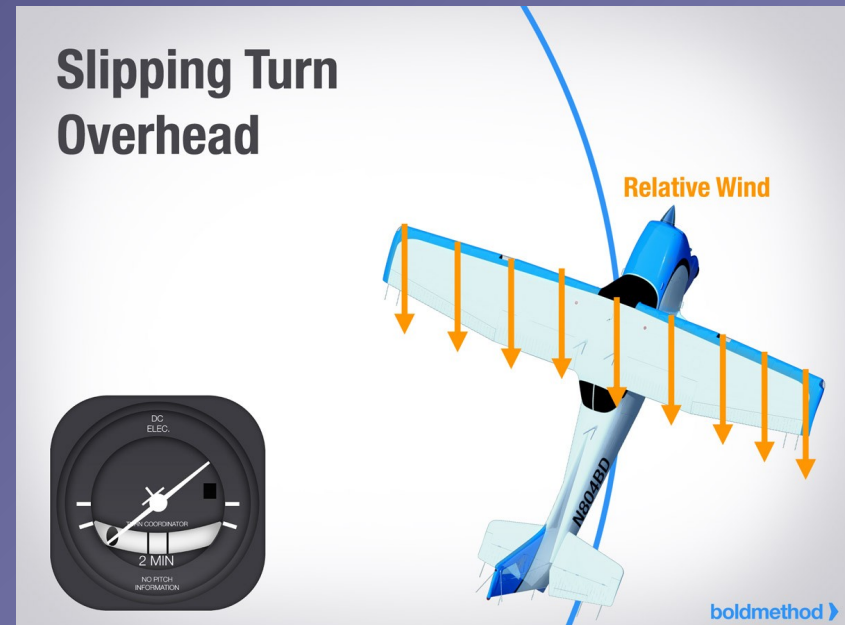
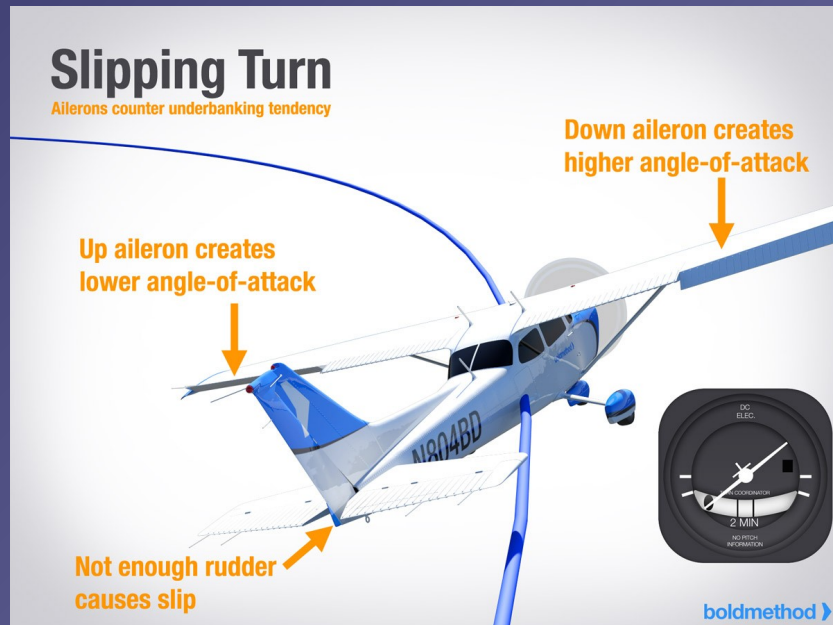


- Release **rudder** pressure, *simultaneously*
- Level wings using **ailerons**
- Adjust pitch attitude with **elevator**
- Resume normal descent and **trim**



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Slipping Turns



- Apply rudder opposite to the turn as required
- More **opposite rudder** decreases **rate of turn**
- More **opposite rudder** increases **rate of descent**
- Higher rate of descent during turn to final



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Instruments



- **Turn coordinator** and inclinometer – **slip** versus **skid**
- **Airspeed** indications are erroneous (*position error*)
- **Rate of descent** increases during forward slips



Safety Considerations

- Maximum **30s** slip or skid duration one tank dry
- With $\frac{1}{4}$ tank *prolonged uncoordinated* flight is **prohibited** when operating with left / right tank
- Elevator **oscillations** with more than **20°** flaps
- *Incorrect* fuel gauges



Summary / Quiz

- Define a slip and explain the difference between a side and a forward slip and their applications.
- Mentally perform a side slip and state all observations and actions.
- Mentally perform a forward slip and state all observations and actions.
- Define a slipping turn and give an application example.



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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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Slipping (Ex. 15, LP. 7/8)

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