

Objectives: Steep Turns (Commercial)

Upon completion of this lesson, the student will:

- Be able to perform steep power turns to commercial pilot standards.
- Continue to develop situational awareness and division of attention skills.

Equipment:

- Chalkboard or paper and pencil
- Model Airplane

Elements:

1. Ground - Pre-flight briefing
 - Review vertical and horizontal components of lift; explain need for increased power and elevator back pressure to compensate for loss of vertical lift.
 - Explain over-banking tendency.
 - Explain proper procedure to correct for loss of altitude (reduce bank, apply back pressure).
 - Explain the effect of steep banks on load factor and importance of entering the maneuver at VA or the airplane manufacturers recommended airspeed.
 - Explain effect of increased load factor on stall speed.
 - Explain how to lead the rollout.
2. Flight - Steep turns
 - Review the procedures for steep turns prior to the student starting the maneuver.
 - Entry altitude > 1,500 AGL.
 - Perform clearing turns prior to starting the maneuver.
 - Establish airspeed at VA or as recommended by the POH.
 - Maintain altitude +/- 100 ft., airspeed +/- 10 Knots; bank 50 +/- 5; roll out on heading +/- 10.
 - Perform the maneuver to the left and to the right (immediately to next turn).
 - Demonstrate and have student practice steep power turns to right and left

Completion Standards:

This lesson is complete when the student can perform steep turns within the tolerances in then *Elements* section.

Common Errors:

- Improper Coordination; particularly on right turns.
- Fixating on the instruments.
- Altitude control: Improper recovery when losing altitude, altitude when changing direction and during exit

References:

FTH; Pages 159 160 / COMM-ASEL PTS Area of Operation V Task A.
Jeppesen Instrument/Commercial Manual 14-11 to 14-13

Possible Review Questions:

1. VA is the airplanes _____ . What is it for the airplane? Why is it important?
2. Back pressure and an increase in power is needed in the steep turn because of the loss of _____ .
3. The airplane turns because of the _____ of lift.
4. When performing a steep turn, opposite aileron is needed because of the airplanes _____ .
5. When you lose altitude in the steep turn, the proper procedure to return to the desired altitude is to _____ the bank, and increase the _____ .