

Flight Lesson: Steep Spirals

Objectives:

1. to develop the pilot's coordination, orientation, planning, and feel for maximum performance flight
2. to develop positive control techniques at varying airspeeds and attitudes
3. to understand the elements relating to the steep spirals maneuver, and be able to perform it to the standards of the PTS

Justification:

1. Required for the commercial checkride.

Schedule:

Activity	Est. Time
Ground	0.25
Preflight/Taxi	0.25
Flight	1.5
Debrief	0.25
Total	2.25

Elements Ground:

- steep spirals overview
- procedure
- notes

Recommended Readings:

AFH	Ch. 9: 9-3 to 9-4 Steep Spirals
WEB	http://www.youtube.com/watch?v=SSzOEHAWhY

Elements Air:

- steep spirals

Completion Standards:

1. When the student is able to complete the maneuver to the requirements of the commercial PTS

Common Errors:

- failure to maintain constant airspeed
- poor coordination
- improper wind drift corrections
- failure to maintain orientation

Presentation Ground:

Steep Spirals Overview

1. *constant gliding turn, during which a constant radius around a point on the ground is maintained*
2. draw overhead and demonstrate with airplane

PTS Standards			
Initial airspeed	90 knots (C172RG)	final airspeed	
initial altitude	at least 3 turns	Max Bank	60°

3. key to the maneuver is picking a spot close enough, and configuring the aircraft properly

Procedure

1. entry configuration

- (1) set up to enter maneuver at appropriate altitude
 - i. in C172RG loss of approximately 1000-1500 ft per turn
 - ii. must roll out above 1500 AGL
 - iii. 4500-5000 ft AGL works as a starting altitude
- (2) Chop, Drop, Prop - to achieve appropriate descent configuration
 - i. occurs just before abeam your point
 - ii. Chop - power to idle or near idle
 - iii. Drop - lower the gear
 - iv. Prop - prop full forward increased drag
- (3) Airspeed should remain constant at 90 knots (C172RG)
- (4) Trim as needed to reduce workload during changing bank angles

2. during circling

- (1) maintain constant distance
- (2) judge changing wind as altitude is lost

3. exit

- (1) rollout after 3 turns and continue glide to 1000 AGL

Notes

1. pitch attitude will change based on bank angle since airspeed should remain constant
 - (1) theoretically, and trim plane will do the work, but in actuality airspeed needs to be monitored
2. pay attention to altitude, and verify completion of maneuver by 1000 AGL

Presentation Air:

1. steep spirals over practice area
2. continue practice until check ride as maneuver is easily forgotten