

# Private Pilot Maneuvers

# Slow Flight

## Pre-Maneuver Check

- Fuel Selector – Both or Proper Tank
- Cowl Flap – As Required
- Mixture – Full or As Required
- Prop – Forward or As Required
- Carb Heat – As Required

\* “As Required” means to exercise your judgment with these items. Cowl flaps should be opened if the airflow through the engine compartment is going to be reduced. If the airflow won't appreciably change, then they can be left alone. If you will need to go to full power, the mixture should be enriched. However, if operating at a high density altitude, you may not want a full rich mixture. In preparation of adding power, the prop control should be forward, but if no appreciable increase in power is anticipated then it could be left alone. Carb heat should be applied during prolonged, low power settings, particularly when temperature conditions dictate.

## Standards

Standards are from the private pilot practical test standards (PTS). The listed standards are not comprehensive, only the ones that are measurable are listed. Consult the PTS for all standards that apply to each maneuver.

## Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 1500' Minimum
- Heading: select visual reference

## Configure

- Power 15" or 1500 rpm
- Flaps < Vfe.
- Airspeed near Vso
- Power 20" or 2000 rpm (as required)
- Trim

## Recover

- Power – Full
- Flaps - 10°
- Accelerate
- Flaps – Up

## Standards

- Altitude: ±100'
- Heading: ±10°
- Airspeed: +10/-0
- Bank: ±5°

## Steep Turn

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: Note
- Heading: select visual reference

### Configure

- Power: Cruise
- Airspeed:  $<V_a$
- Bank:  $45^\circ$
- Increase Back Pressure
- Advance Power if needed

### Recover

- Start roll out  $20^\circ$  prior to original heading
- Forward Elevator Pressure
- Power – Reduce to Cruise

### Standards

- Altitude:  $\pm 100'$
- Heading:  $\pm 10^\circ$
- Airspeed:  $\pm 10$ kts
- Bank:  $\pm 5^\circ$

## Power Off Stall (Approach)

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 1500' Minimum
- Heading: select visual reference

### Configure

- Power: 15" or 1500 rpm
- Carb Heat On
- Flaps down  $< V_{fe}$
- Descend and trim for approach speed
- Power idle as pitch up
- Rudder: keep directional control and level wings

### Recover

- Pitch: release back pressure
- Power: Full
- Carb Heat Off
- Flaps to  $10^\circ$
- Pitch for  $V_y$  attitude
- Flaps Up – with positive rate of climb

### Standards

- Heading:  $\pm 10^\circ$
- Bank: max  $20^\circ$ ,  $\pm 10^\circ$

## Power On Stall (Departure)

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 1500' Minimum
- Heading: select visual reference

### Configure

- Power: 15" or 1500 rpm
- Carb Heat On
- Flaps Up
- Hold Altitude, Slow to Vr
- Power: Full (or 65% if high performance a/c)
- Carb Heat Off
- Pitch Up, Right Rudder

### Recover

- Pitch: nose to horizon
- Airspeed: build
- Pitch for Vy attitude
- Resume Cruise

### Standards

- Heading:  $\pm 10^\circ$
- Bank: max  $20^\circ$ ,  $\pm 10^\circ$

## Engine Failure

### Entry

- **Clearing Turns**
- Throttle to idle

### A: Airspeed

- Fly the plane
- Establish best glide speed and Trim

### B: Best Field

- Select a suitable landing site
- Head towards your selected site
- Dissipate extra altitude by circling over your site

### C: Cockpit Checks (follow procedure in POH)

- Fuel selector On / Both / or fullest tank
- Mixture rich
- Carb heat On
- Aux fuel pump On (if it applies)
- Mags check
- Primer in and locked

### D: Distress

- Declare an emergency on 121.5 or nearest ATC freq.
- Who you are, Where you are, What your situation is
- Squawk 7700

### E: Exit

- Seat belts tightened
- Doors ajar
- Passengers reminded to exit aircraft and get away
- Fuel and electrical off

### Standards

- Airspeed:  $\pm 10$  kts

## Rectangular Course

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 600-1000' AGL
- Heading: Downwind
- Select reference and emergency landing site
- Enter on the downwind leg

### Downwind

- Highest groundspeed
- Steepest turn when turning to base leg

### Base

- Crab into wind
- Less groundspeed and less bank in next turn

### Final / Upwind

- Slowest groundspeed
- Shallow bank when turning crosswind

### Crosswind

- Crab into wind
- More groundspeed and more bank in next turn

### Standards

- Altitude  $\pm 100'$
- Airspeed  $\pm 10$ kts

## S-Turns

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 600-1000' AGL
- Heading: Downwind
- Select reference and emergency landing site

### Downwind

- Highest groundspeed
- Steepest bank when crossing reference line

### Crosswind

- Crab into wind
- Medium bank
- Note the distance from reference line

### Upwind

- Slowest groundspeed
- Shallower bank
- Complete turn and level wings at the line
- Roll into shallow bank in opposite direction

### Crosswind

- Crab into wind
- Medium bank
- Should be the same distance from the line as previous turn

### Downwind

- Higher groundspeed
- Steeper bank
- Complete turn and level wings at the reference line

### Standards

- Altitude  $\pm 100'$
- Airspeed  $\pm 10$ kts

## Turns Around a Point

### Entry

- **Clearing Turns**
- Pre-Maneuver Check
- Altitude: 600-1000' AGL
- Heading: Downwind
- Select reference point and emergency landing site
- Pick 4 "flyover" points equidistant from reference point to aid in tracking a constant radius around the reference point

### Downwind

- Abeam reference point (note distance from point)
- Highest groundspeed, steepest bank
- Think and look ahead to the crosswind "flyover" point

### Crosswind

- Medium bank
- Crab into wind
- Look and plan ahead to the upwind "flyover" point

### Upwind

- Lowest groundspeed, shallowest bank
- Look and plan ahead to the crosswind "flyover" point

### Crosswind

- Medium bank
- Crab into wind
- Look and plan ahead to the downwind "flyover" point

### Downwind

- Increasing groundspeed, steeper bank
- Rollout on original heading abeam reference point

### Standards

- Altitude  $\pm 100'$
- Airspeed  $\pm 10$ kts

## Unusual Attitude Recovery

### Nose High

#### Indications

- Attitude: High pitch, possibly banked
- Airspeed: Decreasing
- Altitude: Increasing
- Vertical Speed: Positive

#### Recovery

- Reduce pitch, Increase power (simultaneously)
- Level wings
- Resume straight and level flight

### Nose Low

#### Indications

- Attitude: Low pitch, possibly banked
- Airspeed: Increasing
- Altitude: Decreasing
- Vertical Speed: Negative

#### Recovery

- Reduce power
- Level wings
- Increase pitch (smoothly)
- Resume straight and level flight