Aeropro Pre-Solo Maneuvers/Procedures Manual

Clear for Traffic!
Normal Takeoff and Climb: Chapter 5 FAA Airplane Flying Handbook (ACS IV. Task A)
1. Before takeoff check and takeoff brief – Complete
2. Takeoff Clearance – As required
3. Taxi into position while aligning nose wheel with centerline
4. Heels on floor and feet off the brakes.
5. Yoke slightly AFT of neutral to reduce weight on nose
6. Full power (advance smoothly within 3 seconds)
7. Rudder to maintain centerline and control yaw
8. Check engine instruments/airspeed/engine rpm
9. Consider abort if any malfunctions are noted.
10. Allow aircraft to accelerate to Vr
11. Rotate gently and allow the plane to lift off in ground effect
12. Do not force the plane to lift off – let it lift off on its own
13. Set climb sight picture, nose slightly above horizon
14. Accelerate to Vy
15. Maintain pitch attitude for Vy to desired altitude
16. Trim as needed
17. Climb checklist—-complete
Be sure to apply right rudder when applying power and in climb to offset P-factor

Crosswind Takeoff and Climb (ACS IV. Task A)
Clear for Traffic!
1. Before takeoff check and takeoff brief – Complete
2. Takeoff clearance – As required
3. Apply wind correction while taxing onto runway and lining up on runway centerline
4. Heels on floor and feet off the brakes
5. Aileron – Full into the wind
6. Full power (advance smoothly within 3sec)
7. Decrease aileron input as airspeed increases
8. Rudder – As required to maintain directional control
9. Vr plus 5 kts for better aircraft control
10. After liftoff, then establish crab angle to track runway centerline
11. Climb speed Vy
12. Climb checklist— complete
Be sure to apply right rudder when applying power and in climb to offset P-factor

Abort and Takeoff considerations
This will be a (normal/short field/soft field) takeoff.
For any malfunction prior to rotation we will announce, "ABORT ABORT ABORT," bring the power to idle, and stop on the runway.
Our Go/No-Go point is 1000 ft.
If we lose the engine below 600 AGL, we will land ahead.
For any engine malfunction after 600 AGL we will consider a circle back to the airport.

Level Off (from climb or decent)

Pitch, Power, Trim!

1. **Adjust pitch to level (horizon approx. four fingers above the dash)**
2. **Add or reduce power as necessary to a cruise setting.**
3. **Trim to relieve control pressure.**
4. **Cruise checklist—complete**

Normal Approach and Landing: Chapter 8: FAA Airplane Flying Handbook (ACS IV. TASK B)

Pattern Altitude: 1000 'AGL Airspeed: 90 kts Entry: From traffic pattern

1. Before landing check – Complete
2. Carb heat - On
3. Power – 1500 RPM
4. Flaps (when airspeed permits) – As desired see notes below
5. Glide path – Maintain pitch—for airspeed & altitude on approach path use slight power adjustments.
6. Round out / Flare – As required
7. Touchdown on the main gear, slightly nose high, airspeed Vso + 5 kts.
8. Roll-out – maintain back elevator pressure to enhance directional control and deceleration, maintain centerline

Don't Forget to Clear!

Flaps and Airspeed:

10° abeam the 1000 'markers and 85 kts 20°Base and 75 kts
30° Final and 65-70 kts
Bank angle NTE 30°

Crosswind Approach and Landing (ACS IV. TASK B)

Pattern Altitude: 1000 'AGL Airspeed: 90 kts

1. Wind correction angle – Apply as applicable
2. Sideslip – Establish on final prior to rounding out (Aileron into wind and opposite rudder), power as required
3. Track to runway – Maintain center alignment
4. Ailerons are for side drift and Rudder is for nose alignment with runway centerline
5. Flare – As required, maintain slip attitude (Touchdown upwind main gear first, then downwind
main, then nose gear), do not drop the nose!!!
6. Gradually increase aileron into wind as airspeed decreases
7. Touchdown – Nose high, airspeed Vso + 5 kts plus wind adjustment (1/2 gust factor)
8. Roll-out – Aileron into wind; use rudder to track runway centerline

Don't Forget to Clear!

Flaps and Airspeed:

10° abeam the numbers and 85 kts
20°Base and 75 kts 30° Final and 70 kts
Bank angle NTE 30°
Stronger winds/gusts may require use of higher airspeed and/or less flaps.

Go-Around/Rejected Landing (ACS IV. TASK N)

Don't Forget to Clear!

Altitude: TPA 1000 'AGL Airspeed: Vx or Vy Entry: From final approach

1. **Approach – Decision to abort or go around (make as early as possible during approach)**
2. **Once committed to a go-around, do not change your mind**
3. **Full throttle, Carb heat off, and Pitch up to Vy (nose on horizon)**
4. **Retract flaps incrementally and allow the airplane to accelerate; do not sink**
5. **Establish Vx (with obstacles) or Vy (without obstacles) as**
6. **Maneuver – As necessary if traffic is a factor**

Emergency Approach and Landing (ABC123) (ACS IX. TASK B-D)

A—Aircraft control stabilized and establish best glide airspeed and trim

B—Suitable landing field – Select and turn toward, note wind direction, set up to land into the wind.

Maneuver to downwind 1000 'abeam the touchdown point if altitude permits.

C—- checklist

1. Check emergency immediate action items (These are memory items):

a. Fuel Selector to BOTH
b. Mixture FULL RICH – As Required
c. Throttle FULL (SIMULATE)
d. Carb Heat ON
e. Mags BOTH (or START if prop isn't wind milling)
f. Master ON
g. Ignition ON
h. Primer IN/LOCKED
i. Engine restart – If prop not turning
j. If engine restarts land at nearest suitable airfield

IF ENGINE FAILS TO RESTART:

2. Squawk 7700 on transponder. Declare emergency on 121.5 or local frequency. Mayday, Mayday, Mayday, Cessna 5727E engine is out, 6 miles northwest of Jack Edwards Airport off-field landing, two souls on board"

3. Perform Securing checklist (simulate unless this is an actual emergency):

a. Fuel Selector to OFF
b. Mixture IDLE/ CUT OFF
c. Mags OFF
d. Master ON
e. Seat belts—tighten, Doors--unlatched
f. Landing approach – Establish
g. Emergency landing check – Complete (time permitting – review checklist)
h. Flaps as required
i. Master off after extending full flaps
j. Touchdown (simulated) – Initiate go-around by 500 'AGL
k. Touchdown (actual) – Nose slightly high, airspeed Vso + 5 kts.
l. Brakes - Apply as appropriate

Don't Forget to Clear!

Forward Slip (ACS IV. TASK M)

To steepen the airplanes descent angle and increase altitude loss without changing track or airspeed:

1. Power - Idle
2. Aileron - into wind or as desired
3. Opposite rudder – Full
4. Adjust ailerons as necessary to maintain ground track
5. Airspeed – Maintain with pitch
6. Recover when back on glide path, prior to round-out

CAUTION: Check pilot's operating handbook for limitations before attempting this maneuver. NOTE: Airspeed indicator may be unreliable during a slip.
Don't Forget to Clear!

Side Slip (ACS IV. TASK B)

To compensate for wind drift during crosswind landings and maintain centerline

1. Rudder – As required to maintain alignment with runway centerline
2. Aileron into wind – As required, opposite direction of drift
3. Airspeed and descent – Maintain with pitch for airspeed and power for altitude/glide path
4. Constant control adjustments may be required due to changes in wind direction and velocity
5. Maintain Side Slip during round-out, flare, and touchdown
6. Increase aileron crosswind correction during rollout / ground roll.
7. See Crosswind Approach and Landing

CAUTION: Check pilot's operating handbook for crosswind limitations Don't Forget to Clear!

Slow Flight MCA Chapter 4: FAA Airplane Flying Handbook (ACS VII. TASK A)

3 phases: Entry, Maintaining, Reconfiguration to Cruise.

Pre-maneuver checklist: Clearing turns, Fuel both, Mixture rich, carb heat on, lights on.

Entry:

1. Carb heat - ON
2. Power – Reduce (1500 RPM)
3. Pitch and Trim – As required to maintain altitude
4. Flaps (as speed permits) – Extend to full (anticipate the nose up tendency and add slight forward pressure on the elevator

Maintaining:

5. Airspeed Vso + 5 kts – Maintain altitude using approximately 2000 RPM. Use pitch to maintain airspeed and power to maintain altitude
6. Increase Right Rudder as additional power is applied.
7. For Turns at MCA – Use 10 deg. bank, Increase RPM by approximately 100 RPM when banking & reduce power as you return to level flight

Reconfiguration to Cruise:

1. Power – Maximum /Carb heat off
2. Pitch – As required to maintain altitude – Look outside! (If not under Foggles)
3. Flaps – Retract to 0° in increments of 10°
4. Maintain heading and altitude

Don't Forget to Clear!

Power Off Stall- Simulated Approach to Landing-Chapter 4: FAA Airplane Flying Handbook (ACS VII. TASK B)

Pre-maneuver checklist: Clearing turns, Fuel on both, Mixture rich, carb heat on, lights on.

Entry:

1. Note Heading and pick an outside reference point
2. Carb heat – On
3. Power – 1500
4. Flaps – Extend to 30° in increments
5. Establish a stabilized descent at 70 kts/65 Kts
6. Power – Idle
7. Straight Ahead or Bank – As desired (NTE 20°)
8. Smoothly increase pitch attitude to maintain altitude and induce stall (approx. 5-10° above horizon)
9. Maintain coordinated flight (Ball centered - Turn Coordinator)

Recovery:

1. Power – Maximum
2. Carb Heat off
3. Elevator – Relax (slight nose down)
KEEP NOSE STRAIGHT WITH RUDDER
DO NOT POWER DIVE, MINIMUM ALTITUDE LOSS
4. Wings – Roll level (RUDDER!)
5. Pitch – Positive rate of climb (LOOK OUTSIDE!)
6. Wing flaps – Retract in increments
7. Accelerate to Vx or Vy
8. Establish climb – Maintain a Vx or Vy climb until told to level off
9. Maintain heading
Don't Forget to Clear!

As the airplane approaches a stall, the control feel is "mushy" or "soft". As the airplane slows you will notice a decrease in engine sound as well as the tone and intensity of slipstream noise. The stall warning will usually sound 4 to 8 Kts. above stall speed. You may notice buffeting and further loss of control effectiveness just before stall occurs.

Power On Stall Simulated Departure Stall (ACS VII. TASK C)

Pre-maneuver checklist: clearing turns, Fuel on both, Mixture rich, carb heat, lights

Entry:

1. Note Heading and pick an outside reference point
2. Carb heat – On
3. Power – 1500
4. Slow to Vr by steadily increasing pitch with trim, maintain altitude.
5. Carb heat - Off
6. Power – Full (anticipate the need for right rudder)
7. Straight Ahead or Bank – As desired (NTE 20°)
8. Smoothly increase pitch attitude to induce stall (approx. 20-25° above horizon)
9. Maintain coordinated flight (Ball centered - Turn Coordinator)

Recovery:

1. Elevator – Relax (Decrease angle of attack)
KEEP NOSE STRAIGHT WITH RUDDER
DO NOT POWER DIVE, MINIMUM ALTITUDE LOSS

2. Wings – Roll level (Rudder)
3. Pitch – Positive rate of climb – LOOK OUTSIDE!
4. Accelerate to Vx/Vy
5. Establish climb – Maintain a Vx/Vy climb until told to level off
6. Maintain heading
Don't Forget to Clear!
As the airplane approaches a stall, the control feel is "mushy" or "soft". As the airplane slows you will notice a decrease in engine sound as well as the tone and intensity of slipstream noise. The stall warning will usually sound 4 to 8 kts. above stall speed. You may notice buffeting and further loss of control effectiveness just before stall occurs.

<u>Steep Turns (ACS V. TASK A)</u>
Pre-maneuver checklist: clearing turns, Fuel on both, Mixture rich, carb heat, lights
Entry: Pick a visual reference outside and note heading
Check Airspeed-at or below Va
1. Roll-in – 45° angle of bank, ±5°, maintain
2. Add trim (approximately 2 smooth top to bottom rotations) and Power (50-150RPM) when rolling in
3. Look outside for bank and pitch in relation to horizon – peek inside to verify altitude etc.
4. Elevator pressure – As required to maintain altitude, trim as required (use small corrections)
5. Maintain airspeed + or – 10 kts, altitude + or – 100', rollout on original heading + or - 10° or visual reference point, reduce power and trim as required to maintain entry altitude and airspeed. Don't Forget to Clear!

<u>Turns Around a Point: Chapter 6 FAA Airplane Flying Handbook (ACS V. TASK B)</u>
Altitude: 1000 'AGL Airspeed: 90 Kts.
Pre-maneuver checklist:
Entry: Abeam point (downwind entry)
1. **Pick a point and enter downwind, a distance from the point approx. equal to the distance of the downwind lateral distance from a runway (no more than halfway up the strut)**
2. **Initial bank – Smoothly roll-in bank to steepest angle NTE 30°- 40°**
3. **Downwind to crosswind – Decrease bank slowly (medium bank angle)**
4. **Crosswind to upwind – Slowly decrease to shallowest bank angle**
5. **Upwind to crosswind – Increase bank slowly (medium bank angle)**
6. **Crosswind to downwind – Increase bank slowly to steepest bank angle**

Don't Forget to Clear! Maintain your radius around the point.

S-Turns (ACS V. TASK B)

Altitude: 1000 ’AGL Airspeed: 90 kts

Pre-maneuver checklist.

Entry: Downwind, reference line perpendicular to wind

1. **Pick a reference and enter downwind**
2. **Cross the reference line wings level and longitudinal axis perpendicular to the line.**
3. **Initial bank – Smooth rate to steepest bank angle NTE 30°- 40°**
4. **Downwind to crosswind – Decrease bank slowly to shallowest bank angle**
5. **Crosswind to upwind – Decrease bank to wings level crossing reference line**
6. **Cross the reference line wings level and longitudinal axis perpendicular to the line.**
7. **Upwind to crosswind – Increase bank slowly shallowest bank angle**
8. **Crosswind to downwind – Increase bank slowly to steepest angle NTE 30°- 40°**
9. **Roll-out – Wings level crossing reference line**

Don’t Forget to Clear!

IR (Attitude Instrument Reference) (ACS VIII. TASK A-D)

180 deg. Turn

Clearing turns

1. **Positive exchange of controls**
2. **Put on view limiting device**
3. **Positive exchange of controls**
4. **Scan flight instruments, maintain altitude +/- 200 ft., assigned headings +/-20 deg., airspeed +/- 10 kts**
5. **Conduct a standard rate turn (approx. 20 deg. Bank). In the direction assigned by the instructor. Maintain altitude.**

Unusual Attitude Recovery (ACS VIII. TASK E)

Pre-maneuver checklist:

Nose-High Attitude:

1. Simultaneously, lower the nose to place the miniature airplane on the horizon bar of the attitude indicator and add power full to prevent loss of airspeed

2. Level wings

INDICATIONS: Nose high on attitude indicator, increasing altimeter, positive rate of climb, change of heading on heading indicator if aircraft is in a bank, and decreasing airspeed

Nose- Low Attitude:

1. Simultaneously, reduce power idle and level wings

2. Smoothly raise the nose to a level flight attitude without excessive back pressure

INDICATIONS: Nose low on attitude indicator, decreasing altimeter, high rate of decent on VSI, change of heading on heading indicator if aircraft is in a bank, increasing airspeed.