Heritage Air Private Pilot Procedures

PASSENGER BRIEF

1. **S** – Seatbelts: Show the location, operation, and its required use.
2. **A** – Air vents: Show the location and operation.
3. **F** – Fire extinguisher: Show the location and operation.
4. **E** – Exits: Show the location and operation.
5. **T** – Traffic/Talking/Transfer of controls: Ask for assistance in looking for other aircraft and describe the method of calling it out to PIC with reference to clock.
6. **Y** – Any questions?

TAXING

1. Immediately after the airplane begins moving during initial taxi, pull throttle to idle and check brakes.
2. Control safe taxi speed with throttle and without excessive use of brakes. Speed should be comparable to a fast paced walk.
3. Position the flight controls for existing wind conditions. "**Turn into a headwind; dive away from a tailwind.**"
4. Minimize heads-down time. Always be on the alert for people, aircraft, and taxi/runway signs.

WHEN CLEARED ON TO RUNWAY FOR TAKEOFF

"*Lights, Camera, Action, Traffic and Time*"

5. Landing and strobe lights on. —"Lights"
6. Transponder to ALT. —"Camera"
7. Mixture full rich. —"Action"
8. Check traffic clear. —"Traffic"
9. Start timer. —"Time"

NORMAL TAKE-OFF & CLIMB

(Complete Normal Takeoff Checklist)

1. Flaps to 0°.
2. When aligned on centerline, compare runway #, compass and heading indicator.
3. Check windsock, deflect ailerons into the wind and elevator neutral.
4. Smoothly apply full power, check for/callout "*2300 RPM, oil pressure green, airspeed alive.*"
5. Maintain runway centerline with rudder (mostly right). Slowly decrease aileron deflection as the aircraft accelerates.
6. At 55 knots apply backpressure to lift off the nosewheel. Allow the aircraft to fly off the ground and raise the top edge of the cowling onto the horizon for a climb speed.
7. With a crosswind, maintain runway alignment by keeping the upwind wingtip down low and opposite rudder until a climb safely above the pavement is assured.
8. Establish wind correction angle (crab) to stay over the runway extended centerline, wings level.
9. If remaining in the traffic pattern, turn crosswind when 300' below traffic pattern altitude (TPA). If departing the pattern, climb to the TPA and proceed straight ahead or make a left turn 45 ° off of the departure leg until clear of the airport area.

LEVEL OFF FROM CLIMB

"Pitch – Power – Trim"

1. **50' before reaching desired altitude,** reduce pitch to level attitude (about the top of the mag-compass on the horizon) and increase forward yoke pressure as airspeed increases.
2. Accelerate to 100 knots, keeping level attitude.
3. Reduce power to 2400 RPM.
4. Trim (nose down).
5. Perform "Cruise" checklist.

CLIMB

"Enrich – Pitch – Power – Trim"

1. Enrich mixture as required.
2. Pitch to raise the top edge of the cowling onto the horizon.
3. Smoothly apply full power. Apply right rudder.
4. Trim nose up as required (as airspeed decreases, more trim will be required to maintain pitch).

DESCENT

1. Reduce power to 2100 RPM.
2. Allow the pitch attitude to lower and stabilize (mag-compass below the horizon).
3. Adjust pitch for about 500' per min. descent.
4. At **50' above desired altitude**, increase power to 2400 RPM.

LEVEL TURN

1. Set heading bug to the desired heading.
2. Check for traffic by momentarily lifting wing in the direction of turn and simultaneously applying opposite rudder pressure to hold heading. Watch pitch and bank attitude over cowling.
3. Continue to hold rudder pressure in direction of turn and smoothly roll into the turn with aileron. (Slight left rudder pressure in left turn, more right rudder in right turn).
4. Watch pitch attitude during roll in, and throughout turn.
5. As aircraft banks, apply slight elevator back pressure proportional to steepness of bank to hold altitude.
6. When proper bank angle is established – adjust rudder and ailerons to maintain coordination.
7. At the outside edge if the heading bug (5° prior to desired heading), apply rudder and aileron in the direction of roll-out, while reducing elevator backpressure.

PRE-MANEUVER CHECKS

To be accomplished during clearing turns prior to each maneuver.

1. Fuel selector BOTH.
2. Mixture full RICH.
3. Ask passengers to help look for traffic.
4. Perform one 180° clearing turn, or two 90° clearing turns.
5. If within 10 miles of an airport, potentially communicate position over local CTAF.

STEEP TURNS

1. Reduce power to 2100 RPM for 95 knots entry speed. (Do this prior to or during clearing turns).
2. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
3. Choose an outside heading reference point and bug/note your entry heading.
4. Focus on the pitch attitude when rolling into the turn, power to 2300 RPM as you roll through 30° bank, and dial in 2 full turns of nose up trim.
5. Establish a 45° banked turn.
6. Adjust altitude primarily with pitch.
7. **20° before the entry heading**, begin a smooth rollout with rudder and ailerons. Hold pitch down to hold cowling below horizon, trim the nose down (2 turns), and reduce power to 2100 RPM.

SLOW FLIGHT - CLEAN (NO FLAPS) CONFIGURATION

1. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
2. Choose an outside reference point and bug/note your entry heading.
3. Carb. heat ON and reduce power to 1500 RPM.
4. Hold altitude with increasing back-pressure, heading with rudder.
5. Trim about 3 slow turns of trim while decelerating.
6. At 70 knots, gradually add enough power to hold altitude (approx. 1800 RPM) and adjust pitch to maintain 60 knots.
7. Increase and hold right rudder as required.
8. Adjust pitch and power to hold altitude and airspeed so that stall horn is constant.
   Remember: Power controls altitude, Pitch controls airspeed.
9. Maintain altitude while making shallow left and right turns as instructed (10° bank).
10. Remember right rudder is adjusted with any change in pitch, power, or bank.

SLOW FLIGHT – "DIRTY" (WITH FLAPS) CONFIGURATION

1. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
2. Choose an outside reference point and bug/note your entry heading.
3. Carb. heat ON and reduce power to 1500 RPM.
4. Hold altitude with increasing back-pressure, heading with rudder.
5. Trim about 3 slow turns of trim while decelerating.
6. When within the white arc, apply full flaps and hold more forward pressure.
7. At approx. 70 knots, gradually add enough power to hold altitude (approx. 2000 RPM) and adjust pitch to maintain 65.
8. Increase and hold right rudder as required.
9. Adjust pitch and power to hold altitude and airspeed.
   Remember: Power controls altitude, Pitch controls airspeed.
10. Maintain altitude while making shallow left and right turns (10° bank).
11. Remember right rudder is adjusted with any change in pitch, power, or bank.

SLOW FLIGHT TRANSITION TO CRUISE

1. Smoothly add full power, carb. heat OFF, add right rudder and forward elevator pressure to hold altitude and heading.
2. Incrementally retract flaps.
3. Trim nose down as aircraft accelerates.
4. Accelerate to 100 knots.
5. Reduce power to 2400 RPM and trim for cruise.

POWER OFF STALL "DIRTY" (WITH FLAPS)

1. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
2. Choose an outside reference point and bug/note your entry heading.
3. Carb. heat ON and reduce power to 1500 RPM.
4. Hold altitude with increasing back-pressure, heading with rudder.
5. Lower flaps to 10° holding altitude with forward elevator pressure as flaps come down. Apply full flaps and hold more forward pressure. No trimming.
6. When at final approach speed (about 65 knots), establish a descent as you would if coming in for landing (do not exceed 200 feet).
7. After descent is established, pull power to idle and raise pitch smoothly (NOT rapidly) until reaching the critical angle.
8. At the stall:
    a. Callout "*Stalling.*"
    b. Simultaneously reduce pitch and add full power and carb. heat OFF.
    c. Level wings (with mostly rudder).
    d. Retract flaps to 20° immediately and set a climb pitch attitude (cowling on horizon).
    e. Apply right rudder pressure.
9. As the aircraft stabilizes and airspeed is increasing about 60 knots, raise flaps to 10°.
10. Above 70 knots, flaps up.
11. Climb to original altitude and transition to cruise.

POWER ON STALL (in the Clean Takeoff Configuration)

1. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
2. Choose an outside reference point and bug/note your entry heading.
3. Carb. heat ON and reduce power to 1500 RPM.
4. Maintain zero rate of sink by increasing back-pressure until within 5 knots of rotation speed. Hold heading with rudder.
5. At 55 knots, smoothly apply full power and carb. heat OFF.
6. Apply more right rudder to hold the heading (or rudder as necessary while establishing a 20° bank if directed to make a turning stall.)
7. Raise pitch smoothly (NOT rapidly) until reaching the critical angle ("toes on the horizon.")
8. At the stall:
    a. Call out "*Stalling.*"
    b. Lower pitch below the horizon.
    c. Level wings using rudder. Do not use the ailerons.
9. Smoothly raise pitch to climb attitude (cowling on horizon) and apply right rudder. Transition to cruise at original altitude.

ACCELERATED STALL

1. Pre-Maneuver Checks. Begin the maneuver at least 2,000 ft. AGL.
2. Choose an outside reference point and bug/note your entry heading.
3. Carb. heat ON and reduce power to 1500 RPM.
4. Maintain zero rate of sink by increasing back-pressure
5. At approx. 80 knots begin a 45° banked turn and reduce power to idle.
6. Continue applying back pressure to maintain altitude until the aircraft stalls.
7. At the stall:
    a. Call out "*Stalling.*"
    b. Simultaneously lower pitch and roll wings level using coordinated controls (mostly rudder).
    c. Add full power and carb. heat OFF.
8. Smoothly raise pitch to climb attitude (cowling on horizon) and apply right rudder. Transition to cruise at original altitude.

SPIN RECOVERY

7. P – Power IDLE.
8. A – Ailerons NEUTRAL.
9. R – Rudder HOLD FULL opposite to the direction of rotation.
10. E – Elevator push FORWARD briskly.
11. As the rotation stops, neutralize rudder and begin pitching up to make a smooth recovery from the resulting dive.

UNUSUAL ATTITUDE RECOVERY

NOTE: Look at the attitude indicator. "*In the blue - push it through. In the black - pull it back*"

1. High Pitched and Turning Unusual Attitude:
    a. Push nose down to level attitude.
    b. Push power full in.
    c. Wings level.
    d. Transition to cruise.
2. Diving and Turning Unusual Attitude:
    a. Pull power to idle.
    b. Wings level.
    c. Pull nose up to level attitude.
    d. Transition to cruise.

TURNS AROUND A POINT

1. Locate a reference landmark. Ensure you will be in a position to glide to a landing at a suitable field throughout the maneuver.
2. Pre-Maneuver Checks to begin maneuver at 1,000 ft. AGL.
3. Maintain 95 KIAS (about 2100 RPM).
4. Enter the maneuver on a downwind heading, and bug/note the heading.
5. Begin the steepest turn just as the point passes off your left wing.
6. Adjust your bank proportionately as your ground speed changes due to wind.
7. Roll out on your entry heading after 2 complete turns.

RECTANGULAR COURSE

1. Locate a square/rectangular area approx. the length/width of a runway (1 mile). Ensure you will be in a position to glide to a landing at a suitable field throughout the maneuver.
2. Pre-Maneuver Checks to begin maneuver at 1,000 ft. AGL.
3. Maintain 95 KIAS (about 2100 RPM).
4. Enter at a 45° angle to the downwind toward the center of the reference area.
5. Bug/note your entry heading.
6. Turn a parallel course, keeping the reference on your left side.
7. Maintain a constant distance to the border of the rectangle, considering the wind's effect on both crab angle, and timing of the next turn.
    a. The faster your ground speed, the earlier you must start the turn.
    b. The bank will vary through each turn.
    c. Your aircraft nose must always point somewhat into the direction of the wind to compensate for drift.
8. Complete one full lap around the course.
9. Exit on a 45° angle to the downwind (90° from your entry heading).

S-TURNS ACROSS A ROAD

8. Locate a reference road or straight landmark, ensuring it is plenty long for two 180° turns, and runs perpendicular to the wind. Ensure you will be in a position to glide to a landing at a suitable field throughout the maneuver.
9. Pre-Maneuver Checks to begin maneuver at 1,000 ft. AGL.
10. Maintain 95 KIAS (about 2100 RPM).
11. Enter the maneuver on a downwind heading, and bug/note the heading.
12. Begin your steepest turn to the left as the road passes underneath.
13. Adjust your bank through the first turn, shallowing the bank to roll out 180° from the entry heading.
14. As you cross the road again, **slowly** roll into a shallow bank to the right, and gradually increase the bank throughout the second turn.
15. Rollout as you cross the road, on your entry heading.

EMERGENCY DESCENT

1. Pre-Maneuver Checks to begin maneuver at 3,000 ft. AGL.
2. Power to idle. Carb. heat ON.
3. Smoothly roll into a 30° - 45° bank to the left.
4. Pitch approx. 20° nose down for a minimum speed of Va and a maximum of Vne in smooth air.
5. Resume level flight no lower than 1500 ft. AGL (or until the engine fire is out/ conflict with air traffic is clear/ hypoxic conditions eliminated)

EMERGENY LANDING

1. **A**irspeed – Adjust pitch and dial in 3 turns of nose up trim to hold 65 KIAS.
2. **B**est place to land – Select a field close by considering length, obstructions, surface, and wind direction. Continue toward the point of intended landing and circle around that point, strategically maneuvering to arrive at the downwind or base key positions at approximately 1000' – 1300' AGL.
3. **C**hecklist – Attempt to fix the problem:
    a. Fuel Selector – BOTH.
    b. Fuel Shutoff Valve – FULL IN.
    c. Mixture – RICH.
    d. Throttle – FULL.
    e. Carb. heat – ON.
    f. Fuel Pump – ON.
    g. Mags – CHECK LEFT, RIGHT, and BOTH.
4. **D**eclare – Transponder to 7700 and announce "*Mayday*" 3 times and state your position via the local CTAF/ATC frequency or 121.5.
5. **E**xit – Prepare within 1,000' AGL of landing:
    a. Fuel Shutoff Valve – PULL OUT
    b. Mixture – IDLE CUTOFF
    c. Fuel Pump – OFF
    d. Mags – OFF
    e. Master switch – HOLD, then OFF (wait to turn OFF only after you are finished with flaps, lights and radio)
    f. Doors – UNLATCH and push levers forward to prevent them from closing again.

- Gliding to a specific point can be accomplished using several "tools" for **losing** altitude: circling, s-turns, adjusting the length of base, forward slips and flaps. Flaps should not be used until within 1,000 ft. AGL and touchdown with the first 1/3 is certain "to be made."
- To allow for the greatest distance to be flown for any given altitude, maintain the best glide speed (68 knots). If a restart cannot be accomplished, pitch up and slow down your airspeed enough to stop the propeller to reduce the drag of a windmilling prop, then return to best glide speed again.
- Execute landing slightly tail low, and with full backpressure after touchdown.

NORMAL LANDING

(Complete "Descent/Approach" and "Pre-Landing" checklists, as well as radio calls as appropriate)

1. On downwind, abeam the point of intended touch-down, carb. heat ON, reduce power to 1500 RPM and hold altitude with backpressure.
2. Within the white arc, lower flaps to 10° and dial in trim to begin a gradual descent and maintain approx. 75 knots.
3. When threshold is 45° behind the aircraft, turn base and apply 20° of flaps. Radio call if at non towered airport.
4. Maintain approx. 70 knots with pitch. Check altitude referencing the known field elevation, and visual cues. Adjust with power as needed.
5. Check the opposite base leg and extended final approach course to clear traffic and turn final. (Plan to roll out on extended runway centerline considering the wind's effect on the turn.) Make radio call if at non-towered field.
6. Extend 30° of flaps when landing is assured unless winds preclude full flaps. Check altitude and sink rate, adjusting with power as needed.
7. Adjust pitch to hold 65 knots (plus gust factor) and TRIM. Adjust position on glide path with power.
8. Over threshold, reduce power to idle and transition to a side slip if crosswinds require it.
9. Level off at 10' AGL and increase elevator back pressure incrementally in coordination as the aircraft sinks.
10. Reference the far end of the runway to know if the aircraft is level/sinking/ballooning.
11. Touchdown on the main wheels and hold elevator back pressure through the roll out, increasing crosswind correction as the aircraft slows.
12. Smoothly apply brake pressure AFTER weight has gently transferred to the nose wheel with elevator control full back.
13. Clear the runway and stop past the hold short line.
14. Complete the "After Landing" flow and then checklist.

GO AROUND PROCEDURE (BALKED LANDING)

NOTE: Make go -around decisions early. A good go-around is better than a bad landing.

1. Simultaneously add full power and set the top of the cowling on the horizon.
2. Carb. heat OFF.
3. Add right rudder.
4. Retract flaps to 20° immediately.
5. As the aircraft stabilizes and airspeed increases through 60 knots, raise flaps to 10°.
6. Clear of obstacles, flaps up.
7. Establish climb speed of 75 KIAS and trim nose up.
8. Establish wind correction angle to stay over the runway.
9. Make radio call to ATC or CTAF.

FORWARD SLIP TO LANDING

(Complete "Descent/Approach" and "Pre-Landing" checklists, as well as radio calls as appropriate)

1. Plan final approach slightly higher and steeper than normal landing.
2. Lower one wing (in the direction of the crosswind).
3. At the same time, apply opposite rudder to yaw the nose in the opposite direction enough to maintain the ground track.
4. Reduce power to idle.
5. Lower the pitch to increase rate of descent and maintain a minimum airspeed of 70 knots.
6. Discontinue slip prior to landing round-out by smoothly leveling the wings and release rudder pressure to realign the longitudinal axis with the runway centerline.
7. Touchdown normally within 400 ft. of specified touchdown point and apply brake pressure as required.
8. Clear the runway and stop past the hold short line.
9. Complete the "After Landing" flow then checklist.

SOFT FIELD TAKE OFF

(Complete Soft Field Takeoff Checklist)

1. Flaps to 10°.
2. Taxi with elevator full aft and use minimal brakes.
3. Line up on runway without stopping; compare runway #, compass and heading indicator.
4. Check windsock, deflect ailerons into the wind and slowly apply full power.
5. Release some of the back pressure to prevent tail scraping. Check for at least 2300 RPM, oil pressure in the green, and airspeed "alive".
6. Hold elevator backpressure to raise the top edge of the cowling onto the horizon.
7. As main wheels come off the ground, smoothly apply light forward pressure to level aircraft just above the runway within ground effect.
8. Accelerate to 60 KIAS, then raise pitch to begin a normal climb of 75 knots (top edge of cowling onto the horizon).
9. When clear of obstacles (or at 100 ft.), retract flaps.
10. Establish a wind correction angle to stay over the extended runway centerline.

SOFT FIELD LANDING

(Complete "Descent/Approach" and "Pre-Landing" checklists, as well as radio calls as appropriate)

1. Fly approach the same as a normal landing with full flaps.
2. On short final, push carb. heat OFF.
3. In the flare add power slightly above idle.
4. Hold aircraft off the ground in the flare as long as possible.
5. At touch-down – POWER IDLE, hold full aft elevator.
6. Use minimal braking to keep weight off of the nose wheel.
7. Clear the runway and stop past the hold short line.
8. Complete the "After Landing" flow then checklist.

SHORT FIELD TAKE OFF

(Complete Short Field Takeoff Checklist)

1. Flaps UP.
2. Line up on runway as close to the threshold as possible and compare runway #, compass and heading indicator.
3. Check windsock, deflect ailerons into the wind and hold elevator with gust lock hole 1" back from collar.
4. Hold brakes and apply full power.
5. Check for at least 2300 RPM and oil pressure in the green.
6. Release brakes. Accelerate to 55 knots and then firmly raise the pitch to climb at 59 knots (approx. the middle of the "6 pack instruments" on the horizon).
7. When clear of obstacles (or at 100 ft.), lower pitch for normal climb of 75 knots (top edge of cowling onto the horizon), and retract flaps.
8. Establish a wind correction angle to stay over the extended runway centerline.

SHORT FIELD LANDING

(Complete "Descent/Approach" and "Pre-Landing" checklists, as well as radio calls as appropriate)

1. Verbalize intended touchdown point for simulated short field. Establish aim point short of the touchdown point.
2. Fly approach slightly higher and steeper than normal landing.
3. On final apply full flaps, pitch to maintain 60 knots (plus gust factor) and control the rate of descent with power. Any excess airspeed will cause floating.
4. When clear of 50 ft. obstacle and touchdown point is made, power to idle and reduce pitch.
5. Round out just above the runway to touchdown within 200 feet of specified point.
6. Immediately after touchdown, lower the nose gear and apply brakes (remember to SIMULATE and callout "*max braking*" on a simulated short field), pull yoke aft, and retract flaps.
7. Clear the runway and stop past the hold short line.
8. Complete the "After Landing" flow then checklist.