SIU

Southern Illinois University

CARBONDALE

CESSNA 172R

TRAINING PROCEDURES

Change 3
Effective 08/22/2016

RECORD OF CHANGES

Change 3 (08/22/2016)

- Changed Slow Flight procedure to match the procedure from the Private Pilot Airman Certification Standards.
- Removed references to Private PTS and replaced with Private ACS references.

Change 2 (08/21/2015)

- Removed redundancy of HELP-T checklist from all takeoffs.
- Changed wording of Short-Field Takeoff to better match PIM.
- Changed Go-Around procedure to get airplane climbing soon in procedure.
- Changed Stall recovery procedures to get airplane climbing in recovery sooner.
- Clarified Turns Around a Point entry heading.
- Changed Lazy Eight to include 45°, 90°, and 135° reference points.
- Removed the configuration of the airplane in the last 90° of clearing turn.
- Corrected multiple typographical errors.

Change 1 (07/12/2013)

Power Off Stall

- Changed the wording of step #7.
- Added step #1 to the recovery procedures.

Power On Stall

- Changed the wording of step #7.
- Added step #1 to the recovery procedures.

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Normal Takeoff

1. Complete the **BEFORE TAKEOFF** checklist and review the **TAKEOFF** checklist.
2. Note the time, turn the landing lights **ON**, **check the wind indicator,** and turn the transponder to **ALT** before taxing onto the active runway.
3. When aligned on the runway centerline: add full power and verify that full power is being developed by the tachometer (per the POH) and that the engine instruments are in the green arcs.
4. Rotate at 55 KIAS to a pitch attitude that will yield 79 KIAS (V_y).

Crosswind Takeoff

1. Complete the **BEFORE TAKEOFF** checklist and review the **TAKEOFF** checklist.
2. Note the time, turn the landing lights **ON**, **check the wind indicator,** and turn the transponder to **ALT** before taxing onto the active runway.
3. When aligned on the runway centerline: **TURN THE AILERONS FULLY INTO THE WIND,** add full power and verify that full power is being developed by the tachometer (per the POH) and that the engine instruments are in the green arcs.
4. During the takeoff run, reduce the aileron deflection as appropriate.
5. **While having an appropriate amount of aileron deflection into the wind,** rotate at an airspeed above 55 KIAS, as appropriate, to a pitch attitude that will yield 79 KIAS (V_y)
6. Establish a crab angle to maintain the extended runway centerline.

Short-Field Takeoff

1. Complete the **BEFORE TAKEOFF** checklist and review the **SHORT FIELD TAKEOFF** checklist.
2. **Deploy 10° of flaps,** note the time, turn the landing lights **ON**, **check the wind indicator,** and turn the transponder to **ALT** before taxing onto the active runway.
3. When aligned on the runway centerline at the end of the runway: **Apply full brakes,** add full power and verify that full power is being developed by the tachometer (per the POH) and that the engine instruments are in the green arcs.
4. Release the brakes.
5. Accelerate tail low until aircraft comes off the ground, then pitch to an attitude that will yield 57 KIAS (V_x).
6. At 50' AGL (or obstacle clearance) reduce to a pitch attitude that will yield 79 KIAS (V_x)
7. Above 60 KIAS, retract the flaps.

Soft-Field Takeoff

1. Complete the **BEFORE TAKEOFF** checklist.
2. **Deploy 10° of wing flaps**, note the time, turn the landing light ON, **check the wind indicator**, and turn the transponder to **ALT** before taxiing onto the active runway.
3. Taxi onto the runway with **full aft elevator** and align the airplane with the runway centerline; **DO NOT COME TO A STOP ON THE RUNWAY.**
4. Add full power and verify that full power is being developed by the tachometer (per the POH) and that the engine instruments are in the green arcs.
5. When the nose wheel leaves the ground, release backpressure so that forward visibility is maintained and the nose wheel remains off the ground.
6. When the aircraft becomes airborne level off in ground effect until the aircraft reaches 79 KIAS (57 KIAS if on a short or obstructed runway) and then begin climb out.
7. At 50 ft. (or obstacle clearance) and above 60 KIAS, retract the flaps.

Enroute Climb

1. When above 500’ AGL, reduce to a pitch attitude that will yield 70-85 KIAS (per the POH) (trim as required).
2. When above the traffic pattern altitude and clear of other traffic, review the **ENROUTE CLIMB** checklist.
3. When above 3000’ MSL, lean the mixture per the POH.

Cruise

1. Reduce the pitch attitude to a straight and level.
2. Trim the elevator.
3. When above 100 KIAS, reduce the throttle to 2000-2400 RPM (as appropriate).
4. Lean the mixture per the POH (re-adjust throttle as necessary).
5. Turn the landing light OFF.
6. Review the **CRUISE** checklist.

Descent

1. Mixture full rich below 3000’.
2. Reduce the power to maintain the desired airspeed (cruise airspeed is recommended) while reducing pitch to attain desired rate of descent. (trim elevator as required).
3. Review the **DESCENT** checklist.

Normal Landing

1. Descend to traffic pattern altitude and accomplish the **BEFORE LANDING** and the **LANDING** checklists before arriving within 5 miles of the airport.
2. Arrive at the traffic pattern altitude 1 to 2 miles before entering the pattern.
3. **Verify the wind conditions**, and verify that the landing light is ON.
4. At midfield downwind **specify touchdown point.**
5. Abeam the point of intended touchdown, reduce power to 1500-1700 RPM, as appropriate.
6. Maintain altitude with backpressure and allow the airspeed to fall below 110 KIAS (V_{fe}).
7. Extend 10° of flaps, establish 75 KIAS and begin descending (trim as required).
8. On base, extend the flaps to 20° (as appropriate), establish a 70 KIAS pitch attitude and trim as necessary.
9. On final, re-verify the wind conditions, extend the flaps to 30° (as appropriate), maintain 65 KIAS pitch attitude, and trim as necessary.
10. Reduce the throttle to idle when appropriate.

Crosswind Landing

1. Descend to traffic pattern altitude and accomplish the **BEFORE LANDING** and the **LANDING** checklists before arriving within 5 miles of the airport.
2. Arrive at the traffic pattern altitude 1 to 2 miles before entering the pattern.
3. **Verify the wind conditions** and verify that the landing light is ON.
4. At midfield downwind specify touchdown point.
5. Opposite the point of intended touchdown, reduce power to 1500-1700 RPM (as appropriate)
6. Maintain altitude with backpressure and allow the airspeed to fall below 110 KIAS (V_{fe})
7. Extend 10° of flaps (**if appropriate)**
8. Establish 75 KIAS (as appropriate) and begin descending (trim as required).
9. On base, extend the flaps to 20° (**if appropriate)**, establish a 70 KIAS pitch attitude and trim as necessary.
10. On final, extend the flaps to 30° (if appropriate) when landing is assured, maintain 65 KIAS + ½ **the gust factor** (as appropriate) and **re-verify the wind conditions.**
11. Add rudder to align the longitudinal axis of the airplane with the runway centerline and add aileron to maintain the airplane's flight path on the runway centerline.
12. Reduce the power to idle when appropriate.
13. Touchdown on the upwind main gear fist, then the other main, and then the nose wheel.
14. Gradually, **TURN THE AILERONS FULLY INTO THE WIND.**

Short-Field Landing

1. Descend to traffic pattern altitude and accomplish the **BEFORE LANDING** and the **LANDING** checklists before arriving within 5 miles of the airport.
2. Arrive at the traffic pattern altitude 1 to 2 miles before entering the pattern.
3. **Verify the wind conditions** and verify that the landing light is ON.
4. At midfield downwind specify touchdown point.
5. Opposite the point of intended touchdown, reduce power to 1500-1700 RPM (as appropriate)
6. Maintain altitude with backpressure and allow the airspeed to fall below 110 KIAS (V_{fe})
7. Extend 10° of flaps
8. Establish 75 KIAS (as appropriate) and begin descending (trim as required).
9. On base, extend the flaps to 20°, establish a 70 KIAS pitch attitude and trim as necessary.
10. On final, extend the flaps to 30° when landing is assured, maintain 62 KIAS (as appropriate)
11. Reduce the power to idle when appropriate.
12. Touchdown on the upwind main gear fist, then the other main, and then the nose wheel.

Soft-Field Landing

1. Descend to traffic pattern altitude and accomplish the **BEFORE LANDING** checklist before arriving within 5 miles of the airport.
2. Arrive at the traffic pattern altitude 1 to 2 miles before entering the pattern.
3. **Verify the wind conditions** and verify that the landing light is ON.
4. At midfield downwind specify touchdown point.
5. Opposite the point of intended touchdown, reduce power to 1500-1700 RPM (as appropriate)
6. Maintain altitude with backpressure and allow the airspeed to fall below 110 KIAS (V_{fe})
7. Extend 10° of flaps
8. Establish 75 KIAS (as appropriate) and begin descending (trim as required).
9. On base, extend the flaps to 20°, establish a 70 KIAS pitch attitude and trim as necessary.
10. On final, extend the flaps to 30° when landing is assured, maintain 62 KIAS (as appropriate).
11. When the runway is made, reduce the power to just above idle, flare, and land; OR reduce the power to idle and add power during the flare.
12. Touch down gently on the main wheels and gradually add backpressure to protect the nose wheel.
13. Allow the nose wheel to touch down gently and use **MINIMAL** braking.

180° Power-Off Landing

1. When abeam the point of intended landing on downwind close the throttle.
2. Add backpressure to maintain altitude and establish 65 KIAS (best glide).
3. Allow the airplane to descend when best glide is established.
4. **Trim as necessary.**
5. Using a medium to slightly steeper banked turn, turn base at an appropriate distance from the runway **based on the strength of the wind.**
6. Deploy 10° to 20° of flaps as necessary.
7. **Re-trim to maintain best glide.**
8. While on final, use **SLIGHT** adjustments of the pitch attitude and the flap setting (up to full flaps) to maintain a constant glide angle to the point of intended landing.
9. **NEVER TRY TO STRETCH THE GLIDE OR RETRACT THE FLAPS** to reach the point of intended landing.

Go Around (Balked Landing)

1. Apply full power.
2. Pitch to a climb attitude.
3. Retract the flaps to 20° if full flaps were being used.
4. When a positive rate of climb is achieved, and above 60 KIAS, retract the flaps to 10°.
5. With a positive rate of climb, and above 65 KIAS, retract the flaps to 0°.
6. Climb at 79 KIAS (V_y).

Slow Flight

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **1500-1700 RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **10°** (below 110 KIAS)
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
   - Flaps ..... **20° to 30°** (10° increments)
4. When below 65 KIAS, gradually add power to approximately 2200 RPM to continue to slow the aircraft and continue adding backpressure to hold altitude (as required)
5. Add right rudder as necessary to maintain coordination.
6. Slow the aircraft to approximately 5-10 knots above the 1G stall speed, at which the aircraft is capable of maintaining controlled flight without activating the stall warning horn (per the ACS).

Recovery

1. Throttle to full power and reduce the pitch attitude to allow airspeed to increase.
2. Retract the flaps to 20°
3. Above 60 KIAS, retract the remaining flaps in 10° increments.
4. Above 100 KIAS, return to cruise flight per the Cruise procedure.

Power-Off Stall (Arrival or Landing Stall)

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **1500-1700 RPM**
   - Mixture ..... **Adjsuted per POH**
   - Flaps ..... **10°** (below 110 KIAS)
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
   - Flaps ..... **20° to 30°** (10° increments)
4. **Establish a descent at 65 KIAS for 100'**.
5. Maintain wings level or establish up to a 20° bank **coordinated** turn as instructed.
6. Reduce the power to idle and add backpressure until the critical angle of attack is reached.
7. Recognize the first aerodynamic indication of the oncoming stall

Recovery

1. Recover promptly after a full stall has occurred (Private ACS) or buffeting has occurred (Commercial PTS).
2. Decrease the angle of attack.
3. Apply full power.
4. Pitch to a climb attitude.
5. Retract the flaps to 20° if full flaps were being used.
6. When a positive rate of climb is achieved, and above 60 KIAS, retract the flaps to 10°.
7. With a positive rate of climb, and above 65 KIAS, retract the flaps to 0°.
8. Climb at 79 KIAS (V_y) for 100'.
9. Return to cruise flight per the Cruise procedure.

Power-On Stall (Departure Stall)

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **1500-1700 RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
3. At 55 KIAS, add back pressure and full power until the critical angle of attack is reached.
4. Maintain wings level or establish up to a 20° bank **coordinated** turn as instructed.
5. Recognize the first aerodynamic indication of the oncoming stall.
6. **MAINTAIN COORDINATION THROUGHOUT THE MANEUVER.**

Recovery

1. Recover promptly after a full stall has occurred (Private ACS) or buffeting has occurred (Commercial PTS).
2. Decrease the angle of attack.
3. Apply full power.
4. Level the wings.
5. Establish a climb at 79 KIAS (V_y) for 100'.
6. Return to cruise flight per the Cruise procedure.

Steep Turns

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, either alternate 90° turns or one 180° (recommended) turn.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2300' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
4. At or below 95 KIAS, smoothly roll into a 45° (50° for commercial standards) bank.
5. Add power as necessary to maintain airspeed and backpressure as necessary to maintain altitude.
6. Perform one 360° turn in each direction with no straight-and-level in between
7. **Re-establish cruising flight.**

Rectangular Course

1. Maintain an altitude between 600'-1000' AGL.
2. Find an area that is clear of obstructions and has a suitable emergency landing area.
3. Complete clearing turns, either alternate 90° turns or one 180° (recommended) turn.
4. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2300' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
5. At 95 KIAS, enter the maneuver at a 45° angle to the downwind.
6. Maintain a constant distance away from the course at all times by crabbing into the wind and varying the bank angle during the turns according to the groundspeed.
7. **Re-establish cruising flight.**

Turns Around a Point

1. Maintain an altitude between 600'-1000' AGL.
2. Find an area that is clear of obstructions and has a suitable emergency landing area.
3. Complete clearing turns, either alternate 90° turns or one 180° (recommended) turn.
4. Configure the aircraft:
   - Primer ..... **Locked**
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2300' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
5. At 95 KIAS, enter the maneuver downwind.
6. Maintain a constant distance away from point at all times by varying the bank angle during the turns according to the groundspeed.
7. Complete at least one circuit around the point.
8. **Re-establish cruising flight.**

S-Turns

1. Maintain an altitude between 600'-1000' AGL.
2. Find an area that is clear of obstructions and has suitable emergency landing areas.
3. Complete clearing turns, either alternate 90° turns or one 180° (recommended) turn.
4. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2200' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
5. Find a reference line (road, railroad, field line, etc.) running perpendicular to the wind.
6. At 95 KIAS, enter the maneuver downwind.
7. Complete one equal radius semi-circle on each side of the road.
8. **Re-establish cruising flight.**

Steep Spirals

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, two 90° or one 180°
3. Establish an altitude from which three 360° turns can be made.
4. Begin maneuver upwind.
5. Configure aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **1800 RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **Up**
   - Fuel Shutoff Valve ..... **On**
   - Fuel Selector ..... **Both**
6. Select a point so that the radius of the turn will not exceed 60° of bank.
7. Pull the throttle to idle just before being abeam the point.
8. Maintain a constant airspeed through the maneuver (60-70 KIAS).
9. Maintain a constant radius turn by adjusting bank angle on upwind and downwind sides.
10. Recover at least 1000' AGL on specified or entry heading.
11. **Re-establish cruise flight or climb to specified altitude.**

Chandelles

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2200' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
4. At 105 KIAS, smoothly roll into a bank not to exceed 30° (per the PTS).
5. Add backpressure and full power.
6. Maintain a constant bank angle while increasing the pitch attitude until the 90° point. Attain a pitch attitude that will yield V_s (+5 kts.) at the 180° point.
7. **MAINTAIN COORDINATION THROUGHOUT THE MANEUVER.**
8. At the 180°, return to cruise flight within 50' of the new altitude.
9. **Re-establish cruising flight.**

Lazy Eight

1. Select an altitude to allow for the maneuver to be completed no lower than 1500' AGL.
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 2300' RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shut Off Valve ..... **On**
   - Fuel Selector ..... **Both**
4. Select a prominent 45°, 90°, & 135° reference points.
5. At 105 KIAS, smoothly increase the bank angle and the pitch attitude to achieve 15° of bank and maximum pitch up at the 45° point.
6. From the 45° point, decrease the pitch attitude and increase the bank.
7. From the 90° point, decrease the pitch attitude and the bank angle to achieve 15° of bank and maximum pitch down at the 135° point.
8. From the 135° point, increase the pitch attitude and decrease the bank angle to achieve straight and level flight at the entry altitude and airspeed at the 180° point.
9. Repeat in the opposite direction.
10. **MAINTAIN COORDINATION THROUGHOUT THE MANEUVER.**
11. **Re-establish cruise flight.**

Eights on Pylon

1. Establish and maintain pivotal altitude.
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft during the last 90° of turn:
   Ignition ..... **Both**
   Throttle ..... **approx. 2300' RPM**
   Mixture ..... **Adjusted per POH**
   Flaps ..... **0°**
   Fuel Shut Off Valve ..... **On**
   Fuel Selector ..... **Both**
4. Select two pylons along a line perpendicular to the wind that will briefly allow for straight and level flight between them.
5. Maintain airspeed at or below V_a.
6. Enter the maneuver on a diagonal downwind between the pylons.
7. Maintain pivotal altitude by pitching to vary altitude in response to anticipated groundspeed changes.
8. Maintain coordination throughout maneuver.
9. **Re-establish cruising flight.**

Secondary Stall

1. Select an altitude to allow for the maneuver to be completed no lower than 3000' AGL (for safety reasons).
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft during the last 90° of turn for a **Power Off Stall** (clean or dirty configuration) or a **Power On Stall** according to the procedure manual.
4. Induce a stall according to the procedures manual.
5. After initiating a partial recovery with elevator control **only**; induce another stall.

Recovery

1. Reduce the angle of attack while bringing the throttle to full power (if at idle) and leveling the wings.
2. Retract flaps to 20° degrees (if starting from full dirty configuration).
3. Retract flaps to 0° in 10° increments.
4. Establish a climb at $V_{y,}$ leveling off at starting altitude.
5. Re-establish cruise flight using the **Cruise** procedure.

Accelerated Stall

1. Select an altitude to allow for the maneuver to be completed no lower than 3000' AGL (per the PTS).
2. Complete clearing turns, either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **approx. 1500 RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shutoff Valve ..... **On**
   - Fuel Selector ..... **Both**
4. Maintain altitude with backpressure and allow airspeed to stabilize at approximately 80 KIAS.
5. Establish a bank angle of 45°.
6. Add backpressure as necessary to maintain altitude.
7. After the bank is established, increase back elevator pressure firmly to induce a stall.
8. Recover at the first indication of a stall; **under no circumstance allow a prolonged stall condition.**
9. **MAINTAIN COORDINATION THROUGHOUT THE MANEUVER.**

Recovery

1. Reduce the angle of attack while bring the throttle to full power and leveling the wings.
2. Climb at V_y to starting altitude.
3. Re-establish cruise flight using the **Cruise** procedure.

Cross-Control Stall

1. Select an altitude to allow for the maneuver to be completed no lower than 3000' AGL (for safety reasons).
2. Complete clearing turns either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft during the last 90° of turn:
   - Ignition ..... **Both**
   - Throttle ..... **Idle**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **0°**
   - Fuel Shutoff Valve ..... **On**
   - Fuel Selector ..... **Both**
4. Establish a descent at 65 KIAS.
5. Establish a medium bank angle turn.
6. During the turn, add excessive rudder in the direction of the turn, maintain a constant bank angle using opposite direction aileron, and add back elevator pressure to keep the nose from lowering.
7. Add more control pressure until an **imminent stall** is induced.

Recovery

1. Reduce the angle of attack, release the control pressures, and add full power.
2. Establish a climb at V_y leveling off at the starting altitude.
3. Re-establish cruise flight using the **Cruise** procedure.

Elevator Trim Stall

1. Select an altitude to allow for the maneuver to be completed no lower than 3000' AGL (for safety reasons).
2. Complete clearing turns either alternate 90° turns or one 180° turn, moderate bank.
3. Configure the aircraft:
   - Ignition ..... **Both**
   - Throttle ..... **1500 RPM**
   - Mixture ..... **Adjusted per POH**
   - Flaps ..... **10°**
   - Fuel Shutoff Valve ..... **On**
   - Fuel Selector ..... **Both**
   - Flaps ..... **20° to 30°**
4. Establish a descent at 65 KIAS.
5. **Trim the aircraft to maintain the descent (nose up trim)**
6. Add full power and allow the aircraft to attain a pitch attitude that will exceed the critical angle of attack.
7. When it is apparent that a stall is approaching, recover.
   (Recover when the airplane comes to an "unusual climb attitude")

Recovery

1. Return the airplane to a normal climb pitch attitude. Adjust the trim as necessary to relieve the heavy control pressure.
2. Retract the flaps to 20°.
3. Retract the flaps to 0° in 10° increments.
4. Establish a climb at V_y leveling off at the starting altitude.
5. Re-establish cruise flight using the **Cruise** procedure.

Emergency Descent

1. Complete clearing turns either alternate 90° turns or one 180° turn, moderate bank.
2. Configure the aircraft during the last 90° of turn:
   - Ignition ..... **Both**
   - Throttle ..... **Idle**
   - Mixture ..... **Adjusted per POH**
   - Fuel Shutoff Valve ..... **On**
   - Fuel Selector ..... **Both**
3. Establish a descent at 100 KIAS.
   ***Note:** For training purposes, airspeed should not exceed 100 KIAS. However, in a true emergency descent, a higher airspeed (not to exceed V_{ne}) would be used.
   -If minimal stress on the airframe is required or if more drag is required, then the descent should incorporate the use of flaps. (Refer to page 16-6 in the AFH)
4. Add full power and return to cruise flight using the **Cruise** procedure.

Instrument Procedures

Instrument Preflight

1. During the taxi to the runway, check the following items:
   Magnetic Compass ..... **Fluid full, moves freely,**
   ..... **Indicates known heading**
   Attitude Indicator ..... **Stable and erect within 5 minutes,**
   ..... **Does not bank more than 5° in level turns**
   Altimeter ..... **Correct setting, within 75' of elevation**
   Turn Coordinator ..... **Mini plane turns to the inside**
   ..... **Ball moves to outside, during turns**
   Directional Gyro ..... **Spins the correct direction in turns**
   VSI ..... **Note the level indication**

Constant Airspeed Climb

1. Complete the following flow to begin the climb:
   Throttle ..... **Full**
   Mixture ..... **Adjusted per POH**
   Fuel Selector ..... **Both**
2. Pitch for 95 KIAS (or as assigned by instructor).
3. Climb to desired altitude (as assigned by instructor).
4. Maintain the airspeed assigned, using the instruments maintain the heading and coordination.
5. When 50' prior to assigned altitude, apply forward pressure to level the attitude.
6. Return to cruise flight using the **Cruise** procedure.

Constant Airspeed Descent

1. Complete the following flow to begin the descent:
   Throttle ..... **Reduce as desired**
   Mixture ..... **Adjusted per POH**
   Fuel Selector ..... **Both**
   Flaps ..... **As desired**
2. Pitch for 95 KIAS (or as assigned by instructor).
3. Descend to desired altitude (as assigned by instructor).
4. Maintain the airspeed assigned, using the instruments maintain the heading and coordination.
5. When 50' prior to assigned altitude, apply back pressure to level the attitude.
6. Return to cruise flight using the **Cruise** procedure.

Constant Rate Climb

1. Complete the following flow to begin the climb:
   Throttle ..... **Full**
   Mixture ..... **Adjusted per POH**
   Fuel Selector ..... **Both**
2. Pitch up for a 500 FPM climb (or as assigned by instructor).
3. Climb to desired altitude (as assigned by instructor).
4. Maintain the airspeed assigned, using the instruments maintain the heading and coordination.
5. When 50' prior to assigned altitude, apply forward pressure to level the attitude.
6. Return to cruise flight using the **Cruise** procedure.

Constant Rate Descent

1. Complete the following flow to begin the descent:
   Throttle ..... **Reduce as desired**
   Mixture ..... **Adjusted per POH**
   Fuel Selector ..... **Both**
   Flaps ..... **As desired**
2. Pitch down for a 500 FPM descent (or as assigned by instructor).
3. Descend to desired altitude (as assigned by instructor).
4. Maintain the airspeed assigned, using the instruments maintain the heading and coordination.
5. When 50' prior to assigned altitude, apply back pressure to level the attitude.
6. Return to cruise flight using the **Cruise** procedure.

Holds

1. Complete the following flow to begin the descent:
   Throttle ..... **Set for desired airspeed**
   Mixture ..... **Adjusted per POH**
   Fuel Selector ..... **Both**
2. Upon crossing the holding fix perform the "5Ts":
   Turn ..... **Correct heading for entry or outbound leg**
   Time ..... **Start the timer**
   Twist ..... **CDI needle to correct course**
   Throttle ..... **Confirm the desired airspeed**
   Talk ..... **Report to ATC (if applicable)**
3. Upon completing the assigned hold, return to cruise flight using the **Cruise** procedure.

Non-Precision Approach

1. Before reaching the IAF, brief the approach and complete the before landing and landing checklists.
2. Ensure that the correct NAVAIDs are tuned and identified, and the courses are selected appropriately.
3. When established on a published segment, maintain desired approach speed for category of aircraft.
4. Upon reaching the FAF perform the "5Ts":
   - Turn ..... **If required**
   - Time..... **As required**
   - Twist..... **If required**
   - Throttle ..... **Reduce to maintain airspeed/descent rate**
   - Talk..... **Report to ATC**
5. Descend at an airspeed of 90 KIAS if using 10° of flaps, or use 100 KIAS if flaps are not used.
6. Use a descent rate of about 600-100 FPM till the MDA.
7. Upon reaching the MDA, hold the MDA until the MAP, or land (as directed by instructor).
8. At the MAP, execute the missed approach procedures.

Precision Approach

1. Before reaching the IAF, brief the approach and complete the before landing and landing checklists.
2. Ensure that the correct NAVAIDs are tuned and identified, and the courses are selected appropriately.
3. When established on a published segment, maintain desired approach speed for category of aircraft.
4. Upon reaching the FAF perform the "5Ts":
   - Turn ..... **If required**
   - Time..... **As required**
   - Twist..... **If required**
   - Throttle ..... **Reduce to maintain airspeed/descent rate**
   - Talk..... **Report to ATC**
5. Descend at an airspeed of 90 KIAS if using 10° of flaps, or use 100 KIAS if flaps are not used.
6. Use the vertical guidance of the approach for the descent.
7. Upon reaching the DA, land (as directed by instructor) or execute the missed approach.

Circling Approach

1. Before reaching the IAF, brief the approach and complete the before landing and landing checklists.
2. Ensure that the correct NAVAIDs are tuned and identified, and the courses are selected appropriately.
3. When established on a published segment, maintain desired approach speed for category of aircraft.
4. Upon reaching the FAF perform the "5Ts":
   - Turn ..... **If required**
   - Time..... **As required**
   - Twist..... **If required**
   - Throttle ..... **Reduce to maintain airspeed/descent rate**
   - Talk..... **Report to ATC**
5. Descend at an airspeed of 90 KIAS if using 10° of flaps, or use 100 KIAS if flaps are no used.
6. Depending on the approach type either use a descent of 600-1000 FPM till the circling minimums, or follow the vertical guidance of the approach to the circling minimums.
7. At the MAP, execute the missed approach procedures.