BE-76 Beechcraft Duchess
Maneuvers Checklist
Revised: May 1, 2006

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Introduction

Power Settings

This document is intended to introduce to you the standard method of performing maneuvers in Air America’s BE-76 Beechcraft Duchess aircraft. Each maneuver has been written to reduce the amount of steps and aid in memorization.

The Beechcraft Duchess has six simple power settings each pilot should remember. They are:

1) **Climb Power:** Full Power, 2600 RPM.
2) **Normal Cruise:** 23” MP, 2300 RPM.
3) **Slow Cruise:** 19” MP, 2300 RPM.
4) **Pattern / Landing:** 17” MP, 2300 RPM.
5) **Slowing During Clearing Turns:** 12” MP, 2300 RPM.
6) **Sustained Single-Engine:** 25” MP, 2500 RPM.

The sustained single-engine power setting is meant to reduce engine wear if practicing single-engine maneuvers and enable you to maintain altitude. If you are unable to maintain altitude at $V_{YSE}$, use full power and full operating RPM.

While practicing single-engine operations all pilots should monitor engine gauges with increased attention. Consider closing the cowl flap on the inoperative engine and opening the operating engine’s cowl flap.

When recovering from single-engine operations, pilots should “scissor” the throttles together. Incrementally add power on the inoperative engine while reducing power on the operative engine. This is meant to allow the engines to slowly warm and cool, respectively.

As always, if the approved Airplane Flight Manual and this Maneuvers Checklist disagree, the procedure in the AFM should be followed in the interest of safety.

Landing Speed Considerations

Note that there are slight differences in the speeds in our procedures and those specified in the Pilot’s Operating Handbook. Our speeds are slightly higher in order to add a margin of safety should an engine fail while in the landing phase. Accordingly, when calculating landing distances, you should account for the extra speed needed to come to a complete stop.
Clearing Turns

Objective: To visually clear the area surrounding the aircraft so as to not pose a collision hazard to any other traffic.

Restrictions | Minimum | Optimum | Maximum
--- | --- | --- | ---
Altitude | | | |
Speed | | | |

Procedure

1. Establish power setting for appropriate speed for maneuver to be followed by clearing turns.
2. Visually clear the areas to the right, front, left, and behind the aircraft. Also look for traffic above and below your altitude.
3. Turn 90° to the left.
4. Visually scan the area again.
5. Turn 90° to the right.
6. Scan the area one last time.
7. Announce intentions on Practice Area Advisory Frequency.
Normal / Crosswind Takeoff

Objective: To depart an airport during normal or crosswind conditions with more than adequate clearance of obstacles on departure.

<table>
<thead>
<tr>
<th>Practical Test Standards</th>
<th>Private Multi Add-On:</th>
<th>V_Y +10/-5 knots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm. Multi Add-On:</td>
<td>V_Y ±5 knots</td>
<td></td>
</tr>
<tr>
<td>ME Instructor:</td>
<td>V_Y ±5 knots</td>
<td></td>
</tr>
</tbody>
</table>

Restrictions

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td>Liftoff: 71 KIAS</td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td>Climb: 85 KIAS</td>
<td></td>
</tr>
</tbody>
</table>

Procedure

1. Visually scan for traffic on final and down the departure end of runway.
2. Taxi into position for takeoff. Position aileron controls for crosswind.
3. Smoothly increase throttles to takeoff power while maintaining directional control. If a crosswind exists, the upwind throttle should be lead slightly.
4. Scan engine instruments, manifold pressure and tachometers.
5. Verify indicated airspeed is functioning.
6. Announce “Engine instruments in the green, Airspeed alive.”
7. Maintain enough aileron pressure to keep wings level if a crosswind exists.
8. At 71 KIAS, smoothly pitch up to rotate (Approximately 3°/second).
9. Establish climb attitude (Approximately 10° up) while accelerating to 85 KIAS.
10. When there is no longer enough runway to land on in the event of an aborted takeoff, Gear UP, and announce “Positive rate, no runway remaining, Gear UP.”
11. Crab into the wind if necessary.
12. At 500’ AGL, lower nose to check for traffic and accelerate to 100 KIAS.
13. Set 2600 RPM. (Throttle remains full open)
14. If staying the pattern: Check for traffic and turn crosswind at 700’ AGL. Follow noise abatement procedures if applicable.
15. If exiting the pattern: At 1000’ AGL turn fuel pumps off one at a time, complete Climb checklist.
Short Field Takeoff

Objective: To depart an airport during with obstacles on departure demanding a maximum performance takeoff and climbout.

Practical Test
- Private Multi Add-On: $V_x +10/-5$ knots until clear, then $V_Y +10/-5$ knots
- Comm. Multi Add-On: $V_x +5/-0$ knots until clear, then $V_Y \pm 5$ knots
- ME Instructor: $V_x +5/-0$ knots until clear, then $V_Y \pm 5$ knots

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
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<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td>Liftoff: 71 KIAS</td>
<td>50-Ft Speed: 80 KIAS</td>
</tr>
</tbody>
</table>

Procedure

1. Visually scan for traffic on final and down the departure end of runway.
2. Taxi into position for takeoff utilizing maximum available runway. Position aileron controls for crosswind.
3. Stand on the brakes and increase the power to 20" of Manifold Pressure.
4. Check engine instruments, Manifold Pressure, and Tachometers.
5. Announce “Engine instruments in the green” and release brakes.
6. Quickly increase throttles to takeoff power while maintaining directional control.
7. Scan engine instruments and verify indicated airspeed is functioning.
8. Announce “Engine instruments in the green, Airspeed alive.”
9. Maintain enough aileron pressure to keep wings level if a crosswind exists.
10. At 71 KIAS, lift the nosewheel off the runway.
11. Establish climb attitude (Approx 15° up).
12. Maintain 80 KIAS until clear of obstacles, then lower the nose slightly to accelerate to 85 KIAS.
13. When there is no longer enough runway to land on in the event of an aborted takeoff, Gear UP, and announce “Positive rate, no runway remaining, Gear UP.”
14. Crab into the wind if necessary.
15. At 500’ AGL, lower nose to check for traffic and accelerate to 100 KIAS.
16. Set 2600 RPM. (Throttle remains full open)
17. If staying the pattern: Check for traffic and turn crosswind at 700’ AGL. Follow noise abatement procedures if applicable.
18. If exiting the pattern: At 1000’ AGL turn fuel pumps off one at a time, complete Climb checklist.
Normal / Crosswind Landing

**Objective:** To arrive at an airport and land safely where there is a limited length of runway and/or obstacles on approach.

**Practical Test**
- **Private Multi Add-On:** $V_{REF} +10/-5$ knots (plus wind factor)
- **Comm. Multi Add-On:** $V_{REF} \pm 5$ knots (plus wind factor)
- **ME Instructor:** $V_{REF} \pm 5$ knots (plus wind factor)

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>85 KIAS</td>
<td>Downwind: 100 KIAS</td>
<td>Pattern: 120 KIAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base: 90 KIAS</td>
<td>Final: 85 KIAS</td>
</tr>
</tbody>
</table>

**Procedure**

1. Complete the Approach checklist 5 NM prior to entering pattern.
2. Slow to desired pattern entry speed 2 NM prior to entering pattern.
3. Enter the pattern on a 45° downwind entry at least 2 NM from the runway, at pattern altitude. Set power to 17”/2300 RPM.
4. Maintain ½ to ¾ mile separation from the runway and turn downwind. *(Runway should appear about ¾ up wing)*
5. Abeam your selected point of landing, lower gear handle and leave hand on handle until 3 Green/No Red has been confirmed. Announce “3 Green, No Red.”
6. Extend flaps to 10°. Descend at 100 KIAS.
7. 45° from your point of landing, extend flaps to 20° and turn base.
8. Visually clear opposite base and extended final.
9. Set prop levers full forward, complete GUMP check.
10. Visually clear final, runway area, and upwind.
11. Turn final. Set flaps to 35° *(Full Down)*.
12. Slow to 85 KIAS, adjusting power if necessary. Complete final GUMP check.
13. At 500’ AGL, verify cleared to land.
14. Clearing the fence, begin slowing to touchdown speed, verify 3 Green/No Red, and cleared to land.
15. During flare, reduce throttles to idle (some power may be left on upwind engine in a crosswind), and touch down smoothly.
16. Maintain back pressure and initiate braking after nosewheel has touched down.
Short Field Landing

**Objective:** To arrive at an airport and land safely where there is a limited length of runway and/or obstacles on approach.

**Private Multi Add-On:** $V_{REF} +10/-5$ knots (plus wind factor), within 200 ft. of touchdown point, on centerline, no side drift

**Comm. Multi Add-On:** $V_{REF} \pm 5$ knots (plus wind factor), within 100 ft. of touchdown point, on centerline, no side drift

**Practical Test Standards**
- ME Instructor: $V_{REF} \pm 5$ knots (plus wind factor), within 100 ft. of touchdown point, on centerline, no side drift

**Restrictions**

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td>Downwind: 100 KIAS Base: 90 KIAS Final: 80 KIAS</td>
<td>Pattern: 120 KIAS</td>
</tr>
<tr>
<td>Speed</td>
<td>80 KIAS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. Complete the Approach checklist 5 NM prior to entering pattern.
2. Slow to desired pattern entry speed 2 NM prior to entering pattern.
3. Enter the pattern on a 45° downwind entry at least 2 NM from the runway, at pattern altitude. Set power to 17”/2300 RPM.
4. Maintain ½ to ¾ mile separation from the runway and turn downwind. (*Runway should appear about ¾ up wing*)
5. Abeam your selected point of landing, lower gear handle and leave hand on handle until 3 Green/No Red has been confirmed. Announce “3 Green, No Red.”
6. Extend flaps to 10°. Descend at 100 KIAS.
7. 45° from your point of landing, extend flaps to 20° and turn base.
8. Visually clear opposite base and extended final.
9. Set prop levers full forward, complete GUMP check.
10. Visually clear final, runway area, and upwind.
11. Turn final. Set flaps to 35° (*Full Down*).
12. Slow to 80 KIAS by setting Manifold Pressure to 15” or as necessary. Complete final GUMP check.
13. At 500’ AGL, verify cleared to land.
14. Clearing the fence/obstacle, begin slowing to touchdown speed, verify 3 Green/No Red and cleared to land.
15. During flare, reduce throttles to idle (some power may be left on upwind engine in a crosswind), and touch down smoothly.
16. Maintain back pressure and initiate maximum braking after nosewheel has touched down.
17. Retract flaps immediately after nosewheel has touched down.
Go-Around / Rejected Landing

**Objective:** To safely abort a landing and establish climb configuration as quickly as possible.

**Practical Test Standards**

- **Private Multi Add-On:** $V_Y +10/-5$ knots
- **Comm. Multi Add-On:** $V_Y \pm 5$ knots
- **ME Instructor:** $V_Y \pm 5$ knots

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>85 KIAS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. Apply full power.
2. Pitch up for $V_Y$ (85 KIAS).
3. Verify props and mixtures full forward.
4. Verify airspeed is in the green arc, Flaps UP.
5. Sidestep to the left or right (*as appropriate*) and announce intentions to CTAF/ATC.
Steep Turns

Objective: To maintain two opposite-direction, level turns while rolling out on entry heading for both turns.

Practical Test Standards

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>3000’ AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td>125 KIAS</td>
<td></td>
</tr>
</tbody>
</table>

Procedure

1. Perform clearing turns.
2. Set power to 19”/2300 RPM and maintain approximately 125 KIAS.
3. Fly towards reference point and bug heading indicator.
4. Roll left into the turn.
5. Passing 30° of bank, bump power 2” to 21” of Manifold Pressure. Roll trim wheel one turn up if necessary.
6. Maintain altitude by pitching up, maintain coordination with rudder pressure, and monitor VSI, altimeter, heading indicator, and airspeed to coordinate rollout.
7. Using your reference point to lead rollout, reduce power again to 19” MP past 30° of bank and maintain altitude with forward pressure on yoke.
8. Roll out on reference point.
9. Repeat procedure in opposite direction.
10. After rolling out again, return airplane to cruise configuration.
Emergency Descent

**Objective:** To quickly gain airspeed and lose altitude. Simulation of putting out an engine fire is appropriate for this maneuver and should be practiced.

| Practical Test Standards | Private Multi Add-On: | Comm. Multi Add-On: | ME Instructor: |

<table>
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<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>Entry: 4000' AGL Loss: No greater than 2000'</td>
<td>5000' AGL</td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td>135 KIAS</td>
<td>140 KIAS</td>
</tr>
</tbody>
</table>

**Procedure**

1. Brief altitudes and passengers.
2. Perform clearing turns, with increased emphasis on traffic below your position.
3. Retract cowl flaps.
4. Turn carb heat ON.
5. Throttle IDLE, Gear DOWN below 140 KIAS.
6. Reaching 100 KIAS, props full forward.
7. Bank 30° in direction away from simulated burning engine (if simulating burning engine), and pitch down past 15°.
8. Maintain 135 KIAS.
9. After 90° of turn, begin shallow S-Turns to continually clear for traffic and continue to maintain 135 KIAS.
10. Approaching level-off altitude, begin pitching up to arrest descent rate.
11. At target altitude, maintain altitude while slowing to landing gear retraction speed ($V_{LO}$).
12. Carb heat off.
13. Retract landing gear.
Maneuvering During Slow Flight

**Objective:** To maneuver the aircraft safely at minimum possible airspeed.

**Practical Test Standards**

- **Private Multi Add-On:** Bank ±10°, Altitude ±100 feet, Heading ±10°, Airspeed +10/−0 kts
- **Comm. Multi Add-On:** Bank ±5°, Altitude ±50 feet, Heading ±10°, Airspeed +5/−0 knots
- **ME Instructor:** Bank ±5°, Altitude ±50 feet, Heading ±10°, Airspeed +5/−0 knots

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>3000' AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>65 KIAS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Reduce power to 10” Manifold Pressure. Maintain altitude.
4. Below 100 KIAS: Prop Levers Full Forward.
   a. If performing maneuver in dirty configuration: Gear DOWN, flaps to 35°.
5. At first sign of approaching stall (buffet, horn, or airspeed indicator), add power to maintain level flight at altitude.
6. Pitch to maintain airspeed, add or reduce power to maintain altitude.
7. Maintain coordinated flight, add slight power during turns.
8. Recover:
   a. Add full power.
   b. Positive rate, Gear UP.
   c. In Green Arc: Flaps UP.
   d. After 85 KIAS, establish climb configuration.
   e. Establish Cruise configuration. Complete Cruise checklist.
Power On Stall

Objective: To demonstrate recovery from a stall in the takeoff configuration.

Practical Test Standards

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>3000' AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Procedure

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Reduce power to 10” Manifold Pressure. Maintain altitude.
4. Below 100 KIAS: Prop Levers Full Forward.
5. At 71 KIAS, set power to 20” Manifold Pressure.
6. Pitch up to stalling airspeed (Max 20°).
7. At first sign of stall (buffet or horn), add Full Power and pitch down. Maintain coordination and level the wings.
8. Pitch for \( V_Y \).
9. Recovery:
   a. Pitch for level flight.
   b. Establish cruise configuration.
   c. Complete cruise checklist.
**Power Off Stall**

**Objective:** To demonstrate recovery from a stall in the landing configuration.

**Practical Test Standards**
- Private Multi Add-On: Heading ±10°, Bank not to exceed 20° ±10°, $V_Y$ before Flaps 0°
- Comm. Multi Add-On: Heading ±10°, Bank not to exceed 20° ±5°, $V_Y$ before Flaps 0°
- ME Instructor: Heading ±10°, Bank not to exceed 20° ±5°, $V_Y$ before Flaps 0°

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Altitude</td>
<td>3000' AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Below 100 KIAS: Prop Levers Full Forward.
4. Extend Gear, flaps to 35°.
5. At 85 KIAS, begin descent for no more than 200’.
6. Reduce power to idle and pitch up to simulate over-rotation on flare.
7. At first sign of stall (*buffet or horn*), add Full Power and pitch down. Maintain coordination and level the wings.
8. Above $V_{SO}$, Retract flaps to 10° and pitch for $V_Y$.
9. Positive rate, Gear UP.
10. Retract flaps to 0° after $V_Y$.
Engine Failure During Takeoff Before $V_{MC}$

**Objective:** To demonstrate a successful aborted takeoff in the event of an engine failure before liftoff.

**Practical Test**
- Private Multi Add-On:
- Comm. Multi Add-On:

**Standards**
- ME Instructor:

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
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<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td></td>
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<tr>
<td>Speed</td>
<td></td>
<td></td>
<td>32 KIAS</td>
</tr>
</tbody>
</table>

**Procedure**

1. Reduce throttles to idle.
2. Maintain directional control.
3. Apply sufficient braking to stop on the runway.
4. Notify ATC/CTAF.
Engine Failure After Liftoff (Simulated)

**Objective:** To demonstrate a successful engine-failure procedure after liftoff.

### Practical Test Standards
- **Private Multi Add-On:** Heading ±10°, Airspeed ±5 knots
- **Comm. Multi Add-On:** Heading ±10°, Airspeed ±5 knots
- **ME Instructor:** Heading ±10°, Airspeed ±5 knots

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>500’ AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>85 KIAS</td>
<td>85 KIAS</td>
<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. Maintain Directional Control of the aircraft.
2. Maintain $V_{XSE}$ or $V_{YSE}$ as appropriate.
   a. Sufficient yaw into operating engine.
   b. 2°-3° of bank into operating engine.
   c. Ball ½ length towards operating engine.
4. Verify Maximum Thrust:
   a. Mixtures full forward.
   b. Prop Levers full forward.
   c. Throttles full forward.
5. Verify flaps up.
6. Verify gear up.
7. Identify inoperative engine ("Dead foot, dead engine").
8. Verify inoperative engine by reducing throttle on suspected engine.
9. Simulate feather on inoperative engine by moving prop control to feather detent (half travel back). Instructor will set Zero Thrust (8” MP).
10. Clear of obstacles, maintain $V_{YSE}$.
11. Simulate declaring emergency, return for landing.
Approach & Landing with Inoperative Engine

**Objective:** To approach and airport and land safely with one engine inoperative. This maneuver should only be attempted with a simulated failure.

**Practical Test**

- Private Multi Add-On: Stabilized Approach, Airspeed $V_{REF} + 10/-5$ knots
- Comm. Multi Add-On: Stabilized Approach, Airspeed $V_{REF} \pm 5$ knots
- ME Instructor: Stabilized Approach, Airspeed $V_{REF} \pm 5$ knots

**Restrictions**

<table>
<thead>
<tr>
<th>Restrictions</th>
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<tbody>
<tr>
<td>Altitude</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Speed</td>
<td>90 KIAS</td>
<td></td>
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</tr>
</tbody>
</table>

**Procedure**

1. Complete Engine Failure In Flight checklist.
2. Complete the Approach checklist 5 NM prior to entering pattern.
3. Enter the pattern on a 45° downwind entry at least 2 NM from the runway, at pattern altitude. Set power to 25”/2500 RPM. If more power is required to maintain $V_{SE}/altitude$, more may be used. Attempt to maintain 100 KIAS.
4. Maintain ½ to ¾ mile separation from the runway and turn downwind. *(Runway should appear about ¾ up wing)*
5. Abeam your selected point of landing, lower gear handle and leave hand on handle until 3 Green/No Red has been confirmed. Announce “3 Green, No Red.”
6. 45° from your point of landing, turn base.
7. If able to descend to landing set Flaps 10°.
8. Visually clear opposite base and extended final.
9. Set prop levers full forward, complete GUMP check.
10. Visually clear final, runway area, and upwind.
11. Turn final. Set flaps to 20° if needed.
12. Slow to 90 KIAS, adjusting power if necessary. Complete final GUMP check.
13. At 500’ AGL, verify cleared to land.
14. Clearing the fence, begin slowing to touchdown speed, verify 3 Green/No Red, and verify cleared to land.
15. During flare, reduce throttles to idle, maintain directional control, and touch down smoothly.
16. Maintain back pressure and initiate braking after nosewheel has touched down.
Maneuvering With One Engine Inoperative (Feathered)

**Objective:** To demonstrate the aircraft’s behavior and performance during operations with one engine inoperative.

**Objective:** To demonstrate the aircraft’s behavior and performance during operations with one engine inoperative.

**Private Multi Add-On:** Altitude ±100 feet or minimum sink, Heading ±10°

**Comm. Multi Add-On:** Altitude ±100 feet or minimum sink, Heading ±10°

**ME Instructor:** Altitude ±100 feet or minimum sink, Heading ±10°

### Restrictions

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altitude</td>
<td>3000' AGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>85 KIAS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Procedure

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Below 100 KIAS, set prop levers full forward.
4. Stabilize the aircraft at 85 KIAS and maintain altitude.
5. Set cowl flaps open on the operating engine. Close inoperative engine’s cowl flap.
6. Move power to idle on inoperative engine.
7. Move mixture to idle-cutoff.
8. Use rudder pressure to counteract yawing tendency.
9. Establish zero sideslip.
10. Feather inoperative engine.
12. Maintain altitude or $V_{SE}$ if unable. If able to maintain altitude, set 25” MP and 2500 RPM.
13. Perform climbs, descents, and turns as directed.
15. Return to cruise configuration. Complete cruise checklist.

**Notes:** If you are unable to restart the inoperative engine, it is to be considered an emergency and the flight will be discontinued.
**VMC Demonstration**

**Objective:** To demonstrate the aircraft’s behavior during simulated V_{MC} conditions. The instructor will block the rudder in order to induce V_{MC} conditions before stalling speed. See notes at end of procedure.

**Practical Test Standards**
- Private Multi Add-On: Heading ±20°, Recover to V_{YSE} +10/-5 knots
- Comm. Multi Add-On: Heading ±20°, Recover to V_{YSE} ±5 knots
- ME Instructor: Heading ±20°, Recover to V_{YSE} ±5 knots

<table>
<thead>
<tr>
<th>Restrictions</th>
<th>Minimum</th>
<th>Optimum</th>
<th>Maximum</th>
</tr>
</thead>
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<tr>
<td>Altitude</td>
<td>5000' AGL</td>
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<tr>
<td>Speed</td>
<td>70 KIAS</td>
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</tbody>
</table>

**Procedure**

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Below 100 KIAS, set prop levers full forward.
4. Stabilize the aircraft at 85 KIAS and maintain altitude.
5. Cowl flaps open.
6. Reduce power on simulated inoperative engine. Engine should remain windmilling.
7. Set full power on operating engine.
8. Establish zero sideslip.
9. Being pitching up and slowing 1 knot per second.
10. Use rudder pressure to counteract yawing tendency.
11. At 75 KIAS, instructor will block the rudder to maintain safe margin from stall speed.
12. Initiate recovery at the first sign of uncontrolled roll, stall horn, stall buffet, or stall airspeed:
   a. Reduce power on operating engine quickly to regain control.
   b. Maintain maximum available rudder pressure.
   c. Lower nose to regain airspeed.
   d. As airspeed increases, increase power on available engine.
   e. With sufficient airspeed, maintain V_{YSE} and full power on operating engine.
13. Increase power on inoperative engine and return to cruise configuration.

**Notes:** In addition to blocking rudder, bank into inoperative engine may be used to raise V_{MC} significantly above stall speed.
Drag Demonstration

Objective: To demonstrate the associated drag penalties with different configurations during single-engine operations.

Practical Test Standards
Private Multi Add-On:
Comm. Multi Add-On:
ME Instructor:

<table>
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<tr>
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<tbody>
<tr>
<td>Altitude</td>
<td>3000’ AGL</td>
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<tr>
<td>Speed</td>
<td>85 KIAS</td>
<td>85 KIAS</td>
<td>85 KIAS</td>
</tr>
</tbody>
</table>

Procedure

1. Set power to 15”/2300 RPM.
2. Perform clearing turns.
3. Prop levers full forward below 100 KIAS.
4. Slow to 85 KIAS.
5. Close throttle on simulated inoperative engine. Set zero thrust.
6. Advance operating engine to full power.
7. Establish zero sideslip.
8. Note VSI indication.
9. Slow to 75 KIAS. Note VSI indication.
10. Speed up to 95 KIAS. Note VSI indication.
11. Gear DOWN, maintain 85 KIAS. Note VSI indication.
12. Extend flaps to 10°, 20°, and full down. For each, note VSI indication.
13. Retract flaps, Gear UP.
14. Reduce power on inoperative engine to idle to windmill propeller. Note VSI indication.
15. Recover and return to cruise configuration.
Precision Approach, Single-Engine

**Objective:** To safely execute a precision instrument approach procedure with one engine inoperative.

<table>
<thead>
<tr>
<th>Practical Test Standards</th>
<th>Private Multi Add-On:</th>
<th>Comm. Multi Add-On:</th>
<th>ME Instructor:</th>
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<tbody>
<tr>
<td></td>
<td>Altitude ±100', Airspeed ±10 knots, Heading ±10°, CDI ¾ scale</td>
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**Restrictions**

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</tr>
<tr>
<td>Speed</td>
<td>85 KIAS</td>
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<td></td>
</tr>
</tbody>
</table>

**Procedure**

1. At FAF, Gear DOWN.
2. Set 17” MP, 2300 RPM or more if needed.
3. Maintain 100 KIAS, or if unable to maintain glidescope use $V_{YSE}$.
4. Complete GUMP check by 500’ AGL, verify cleared to land.
   a. Use maximum of 20° flaps.
Non-Precision Approach, Single-Engine

**Objective:** To safely execute a non-precision instrument approach procedure with one engine inoperative.

<table>
<thead>
<tr>
<th>Practical Test Standards</th>
<th>Private Multi Add-On:</th>
<th>Altitude ±100', Airspeed ±10 knots, Heading ±10°, CDI ¾ scale</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Comm. Multi Add-On:</td>
<td>Altitude ±100', Airspeed ±10 knots, Heading ±10°, CDI ¾ scale</td>
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<tr>
<td>Speed</td>
<td>85 KIAS</td>
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<td></td>
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</tbody>
</table>

**Procedure**

1. At FAF, Gear should remain UP.
2. Set 17” MP, 2300 RPM or more if needed.
3. Maintain 100 KIAS, or if unable to maintain altitude use $V_{YSE}$.
4. When runway is in sight, Gear DOWN.
5. Complete GUMP check by 500’ AGL, verify cleared to land.
   a. Use maximum of 20° flaps.