

Bristell Standardization Manual

Sebring Flight Academy, Sebring, FL

LANDING DOCTOR
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BRISTELL STANDARDIZATION MANUAL

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BRISTELL STANDARDIZATION MANUAL

INTRODUCTION

This manual is a compilation of standardized flight training maneuvers and procedures for the BRM Aero Bristell NG5. It is desired to provide standardized procedures for each flight maneuver listed in the respective flight course syllabus. We strongly suggest other references to be used to help develop a complete understanding of each maneuver prior to attempting the maneuver in flight.

The purpose of the standardization manual is to help students understand how to fly each maneuver. The pitch attitudes and power settings are approximate and some changes may be required to get the expected performance. The pitch attitudes referenced in the standardization manual are not intended to be used in conjunction with the attitude indicator. The individual flight instructor is required to demonstrate to the student the referenced pitch attitudes using the natural horizon. During all visual maneuvers, the student is expected to use outside references. Collision avoidance during these maneuvers cannot be understated. While performing instrument maneuvers under simulated instrument meteorological conditions, the student is expected to set the pitch attitudes in reference to the attitude indicator.

All students must use a combination of the airplane standardization manual, FAA Airmen Certification Standards, FAA Flight Training Handbook and other approved aviation sources to guide them through each maneuver.

SPECIAL NOTE

The V speeds presented within this Standardization Manual may differ from the published V speeds from the manufacturer. Special attention should be paid prior to each flight to familiarize yourself with the V speeds of the specific aircraft you will be flying. If the AOI of the specific aircraft has a different published V speed, that published V speed shall override this Standardization Manual.

The Bristell AOI's available for reference while writing this Standardization Manual all reference a normal take off with flaps "As Needed," and so for the purpose of training, this Manual was written for a normal takeoff to have flaps set to 10°. It is important to note that while teaching, the student is made aware of this difference between the Manual and the AOI, and a 0-flap takeoff should be taught after the first few lessons, so the student is well versed in all takeoff configurations.

SECTION I: TAKEOFF PROCEDURES

NORMAL AND CROSSWIND TAKEOFF

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's ability to safely takeoff during both normal and crosswind conditions.

Set-up:

1. Review takeoff performance and consider obstructions and conditions
2. Set flaps to 10°

NOTE:

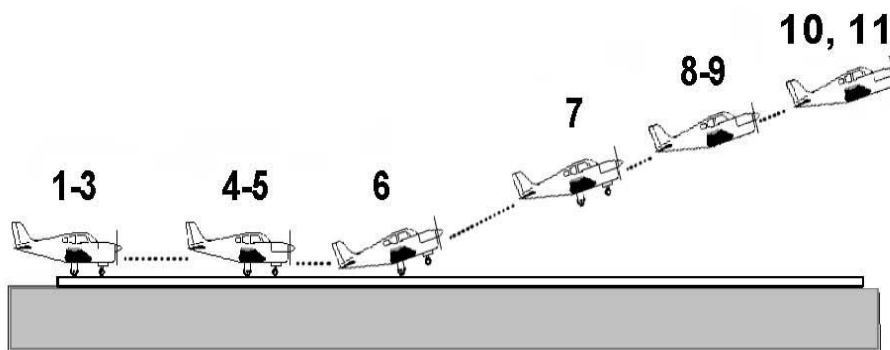
The AOI states flaps are to be set “as needed,” but we recommend for at least the first few lessons to use a 10° flap setting to help keep the nose lower, and then transition to a 0° flap takeoff after the student gains experience.

3. Verify the final approach and takeoff path are clear of other aircraft and/or FOD
4. Ensure the Before Takeoff checklist is complete
5. Taxi into takeoff position, utilizing all available runway, and applying full aileron correction
6. Cross check the HSI is aligned with the correct runway
7. Cross check that the runway heading corresponds with the intended runway of use

Maneuver Execution:

1. Smoothly and continuously apply full power and use the rudder to maintain the runway centerline.
2. Check engine instruments and tachometer and call out “Engine Instruments in the Green, Airspeed Alive.”
3. At 30 KIAS, increase control yoke back pressure to allow the nose wheel to lift off, and hold the nose wheel off the runway about 3”
4. Upon reaching V_r (50 KIAS), increase control yoke back pressure to allow for the main wheels to lift off and gradually accelerate in Ground Effect until reaching V_y .
5. After liftoff, establish and maintain V_y while continuing to maintain the flight path over the runway centerline. Trim as necessary.
6. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
7. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
8. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
9. At 1,000' AGL, verify the Takeoff checklist is complete.

NORMAL TAKEOFF AND CLIMB



SHORT FIELD TAKEOFF

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To teach the student to obtain maximum performance during the takeoff phase so as to minimize runway length required for takeoff and clear a 50' obstacle.

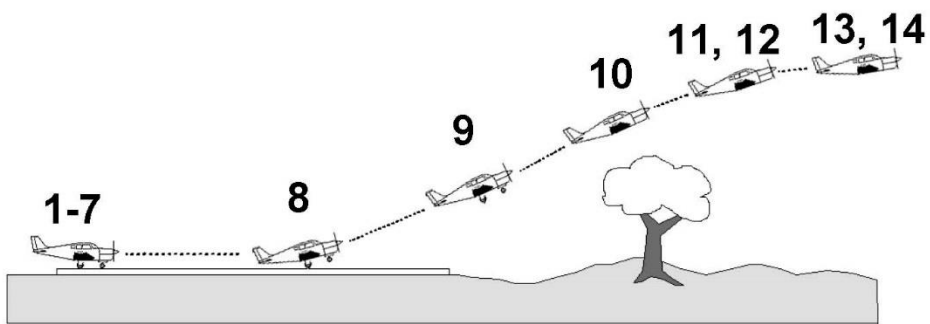
Set-up:

1. Review takeoff performance and consider obstructions and conditions
2. Set flaps to 30°
3. Verify the final approach and takeoff path are clear of other aircraft and/or FOD
4. Ensure the Before Takeoff and Short Field Takeoff Checklists are complete
5. Taxi into takeoff position, utilizing all available runway, and applying full aileron correction
6. Cross check the HSI is aligned with the correct runway
7. Cross check that the runway heading corresponds with the intended runway of use

Maneuver Execution:

1. Apply full brakes
2. While continuing to hold the brakes, smoothly and continuously apply full power and use the rudder to maintain the runway centerline.
3. Check engine instruments and tachometer and call out "Engine Instruments in the Green, Brake Release."
4. Release brakes
5. At V_r (40 KIAS), increase control yoke back pressure to lift off.
6. Accelerate to V_x and maintain airspeed until obstacle is clear, or at least 50' AGL
7. After clearing the obstacle, maintain positive rate of climb and retract flaps to 10° while accelerating to V_y
8. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
9. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
10. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
11. At 1,000' AGL, verify the Takeoff checklist is complete

SHORT-FIELD TAKEOFF



SOFT FIELD TAKEOFF

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's ability to properly transfer the aircraft's weight to the wings as quickly as possible when taking off from other than a smooth, hard surfaced runway.

Set-up:

1. Review takeoff performance and consider obstructions and conditions
2. Set flaps to 30° and apply full back pressure
3. Verify the final approach and takeoff path are clear of other aircraft and/or FOD
4. Ensure the Before Takeoff and Soft Field Takeoff Checklists are complete
5. Align the airplane on runway centerline without coming to a complete stop
6. Cross check the HSI is aligned with the correct runway
7. Cross check that the runway heading corresponds with the intended runway of use

Maneuver Execution:

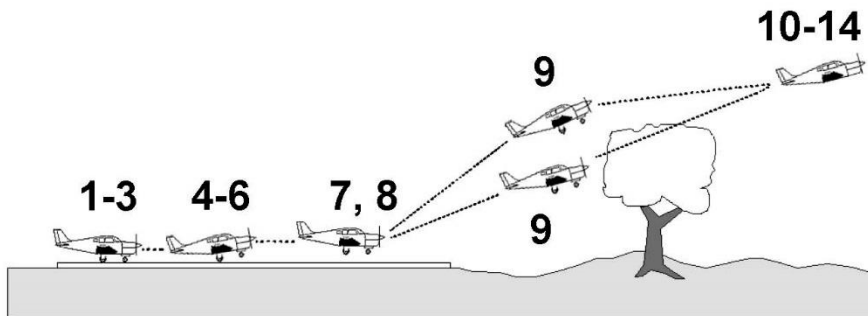
1. Smoothly and continuously apply full power and use the rudder to maintain the runway centerline.
2. Check engine instruments and tachometer and call out "Engine Instruments in the Green, Airspeed Alive."

NOTE:

Do not allow the airplane to pitch up excessively causing a tail strike.

3. Maintain directional control and runway centerline with the rudder pedals.
4. As the main wheels lift off the runway, lower the pitch attitude to establish and maintain a level flight attitude while remaining in ground effect and accelerate to V_x (With obstacle) or V_y (Without an obstacle)
5. Upon reaching V_x or V_y , establish the pitch attitude to maintain desired airspeed
6. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
7. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
8. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
9. At 1,000' AGL, verify the Takeoff checklist is complete.

SOFT-FIELD TAKEOFF



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TOUCH AND GO

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To safely transition the airplane from the landing phase to the takeoff phase of flight.

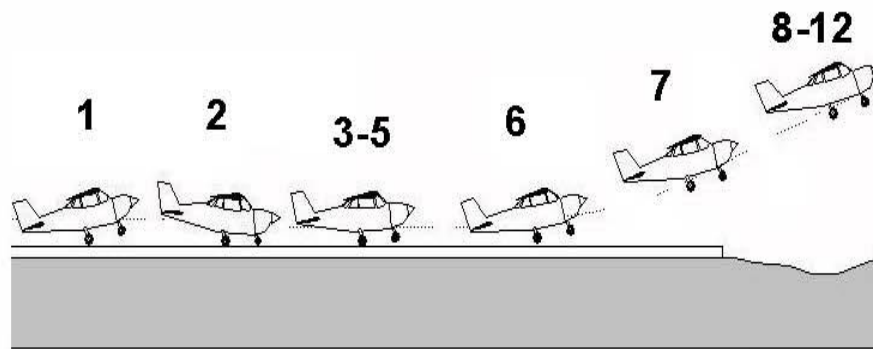
Set-up:

1. Complete the appropriate landing procedures and checklists
2. Set flaps to 30°
3. Verify wind conditions

Maneuver Execution:

1. Do not allow the nose wheel to touch the ground
2. Retrim as necessary
3. Smoothly and continuously apply full power.
4. Check engine instruments and tachometer and call out “Engine Instruments in the Green, Airspeed Alive.”
5. At V_r (40 KIAS), increase control yoke back pressure to pitch up until the top of the instrument panel meets the horizon.
6. After liftoff, establish and maintain V_y while continuing to maintain the flight path over the runway centerline. Trim as necessary.
7. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
8. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
9. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
10. At 1,000' AGL, verify the Takeoff checklist is complete

TOUCH AND GO OPERATIONS



SECTION II: TRAFFIC PATTERN

TRAFFIC PATTERN ARRIVAL

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the ability to conduct safe and efficient arrival and departure procedures at controlled and uncontrolled airports.

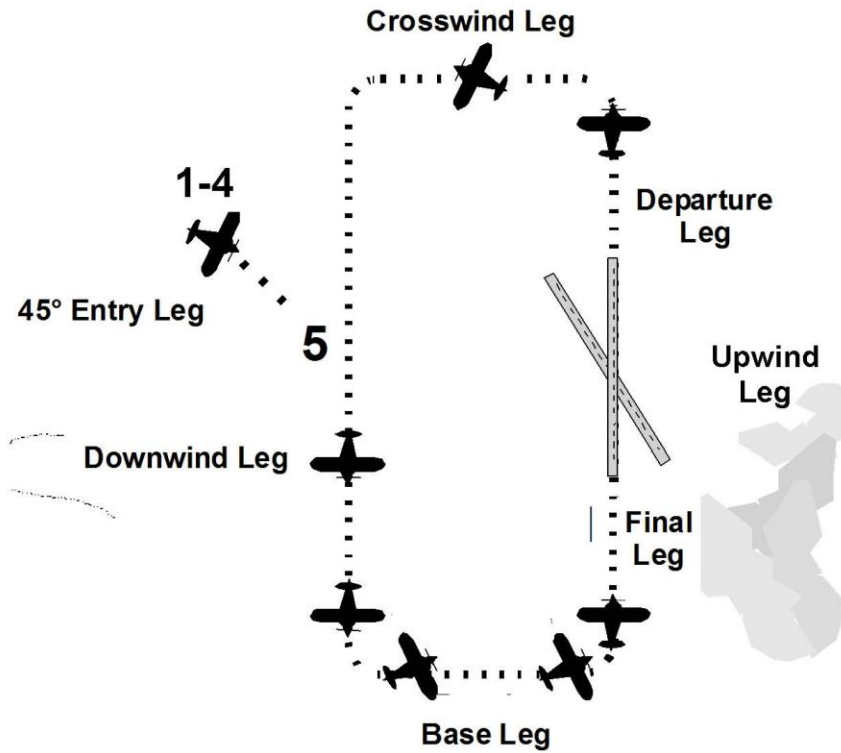
Set-up:

1. Complete the Before Descent checklist before beginning the descent
2. Determine the Traffic Pattern Altitude (TPA)
3. Determine the wind direction, active runway, traffic pattern direction, and any existing traffic using any or all of the following:
 - a. ATIS, ASOS, AWOS, windsock, etc.
 - b. Radio communications.
 - c. Airport overflight at least 500' above the TPA. Do not descent to TPA until well clear of the pattern.

Maneuver Execution:

1. Establish traffic pattern altitude at least 2 nm prior to entry.
2. Slow the aircraft to 85 KIAS.
3. Enter at a 45° angle to the midpoint of the downwind leg or as advised by ATC.
4. Turn onto downwind leg approx. ½ to 1 mile from the active runway and maintain 85 KIAS.
5. Initiate the Before Landing checklist by midfield downwind or 2 miles from the runway threshold if entering on a base or final leg.
6. When abeam the point of intended landing, reduce power to idle. Maintain back pressure to allow the airplane to slow to V_{fe} (75 KIAS), set flaps to 10°, and begin descent (approx. 500 fpm descent rate).
7. When the touchdown point is positioned 45° behind the wing of the aircraft, turn onto base leg.
8. Maintain 70 KIAS on base. Determine if you can safely make the field if the engine was to quit, if so, set flaps to 20°.
9. Turn final and maintain runway centerline and proper crosswind correction.
10. Slow to 65 KIAS.
11. When landing is assured set the flaps to 20° for a powered approach or 30° for a powered off approach.
12. Perform the appropriate landing procedure.

TRAFFIC PATTERN ARRIVAL



TRAFFIC PATTERN DEPARTURE

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the ability to conduct safe and efficient arrival and departure procedures at controlled and uncontrolled airports.

Set-up:

1. Determine the Traffic Pattern Altitude (TPA)
2. Determine the wind direction, active runway, traffic pattern direction, and any existing traffic using any or all the following:
 - a. ATIS, ASOS, AWOS, windsock, etc.
 - b. Radio communications.
 - c. Airport overflight at least 500' above the TPA. Do not descent to TPA until well clear of the pattern.

Maneuver Execution:

Closed Traffic:

1. Perform the appropriate takeoff procedure.
2. After liftoff, establish and maintain V_y while continuing to maintain the flight path over the runway centerline. Trim as necessary.
3. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
4. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
5. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
6. At 1,000' AGL, verify the Takeoff checklist is complete
7. At traffic pattern altitude or as directed by ATC, exit the pattern in the appropriate direction of flight, either by continuing straight ahead or departing at a 45° left turn (right turn for right hand traffic) after reaching TPA.

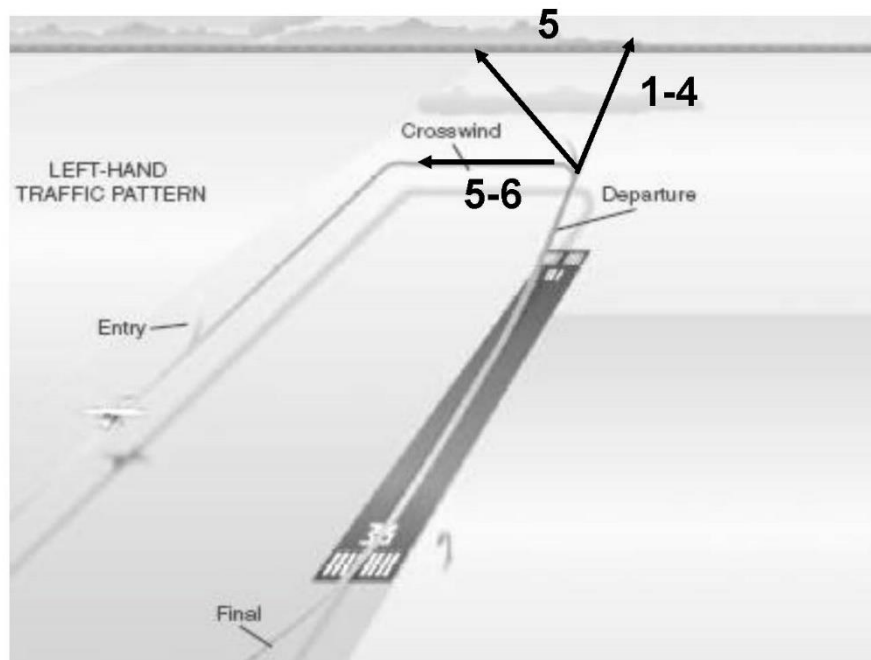
NOTE:

You must follow all local Noise Abatement Procedures for any airport of departure. You can familiarize yourself with these from the Chart Supplement.

NOTE:

When operating at a tower-controlled airport, ATC may alter standard traffic operations.

TRAFFIC PATTERN DEPARTURE



SECTION III: VFR MANEUVERS

CLEARING TURNS

REF: AERONAUTICAL INFORMATION MANUAL (AIM)

Objective:

To teach the student to exercise continuous surveillance of the airspace prior to the performance of a maneuver, as well as to provide the student with a means to configure the aircraft prior to each maneuver.

Set-up:

1. Select an altitude which will assure recovery above minimum recovery altitude for selected maneuver.
2. Select a cardinal heading to initiate maneuver.
3. Set Power to 4,000 RPM.
4. Use PGL
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights

Maneuver Execution:

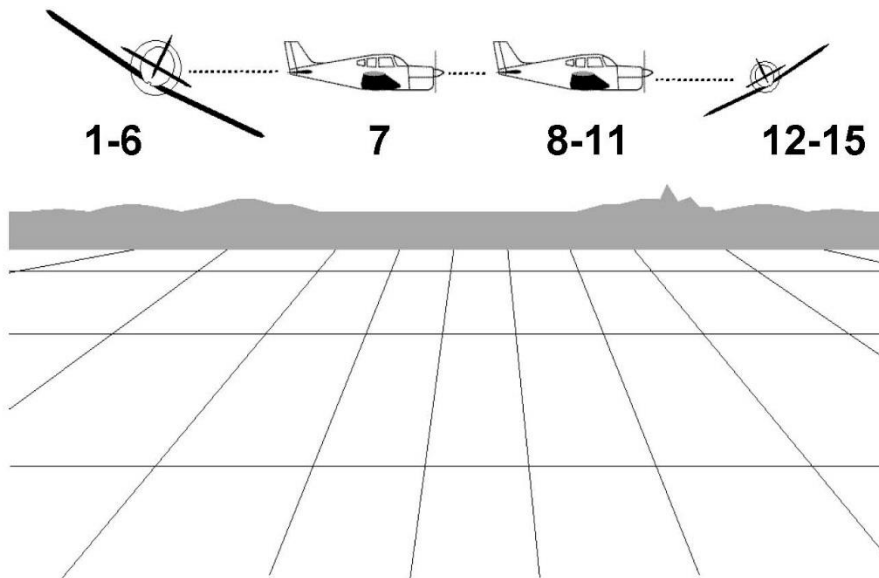
First 90° clearing turn:

5. Visually clear the area to the left and right.
6. Announce “clear left, center and right.”
7. Pick a visual reference point off the wingtip in the direction of turn to roll out on.
8. Clear area by entering a 30° bank turn while looking for traffic and maintaining altitude.
9. After first 90° turn is complete, roll out wings level on your selected visual landmark.

Second 90° clearing turn:

10. Visually clear the area to the left and right.
11. Announce “clear left, center and right.”
12. Pick a visual reference point off the wingtip in the direction of turn to roll out on.
13. Clear area by entering a 30° bank turn while looking for traffic and maintaining altitude.
14. Roll out on original cardinal heading.

CLEARING TURNS



SLOW FLIGHT

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to recognize changes in aircraft flight characteristics and control effectiveness at minimum controllable airspeeds in various configurations.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 2,000' AGL.
2. Perform two clearing turns
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise

Maneuver Execution:

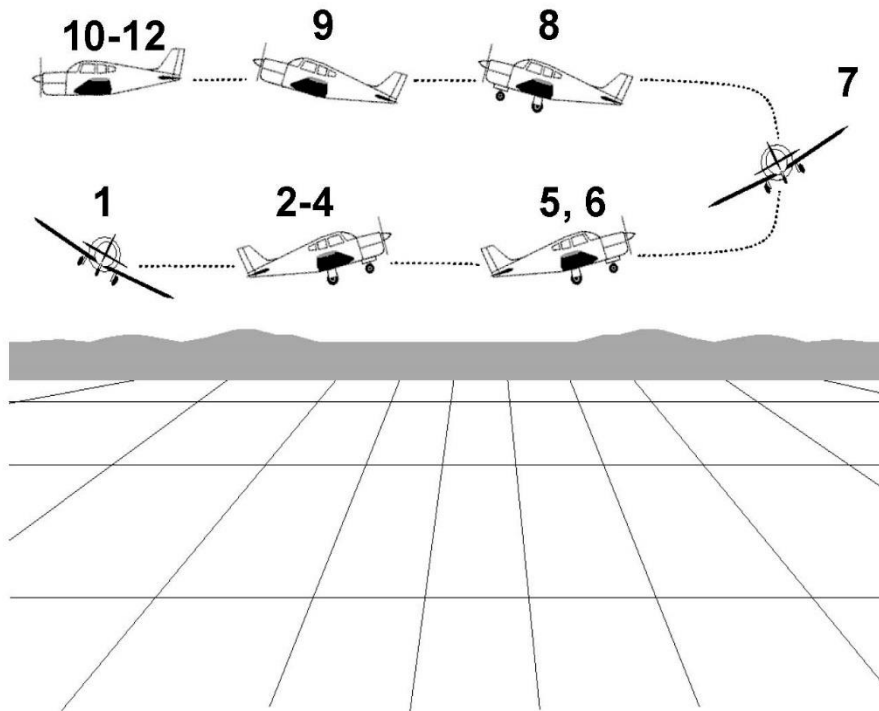
The instructor shall specify airspeed if less than cruise and flap setting.

1. Gradually reduce the throttle from cruise to 3,000 RPM
2. As airspeed decreases, raise the nose as necessary to maintain altitude.
3. At V_{fe} (75 KIAS) set flaps to specified setting, and slightly apply forward pressure to adjust pitch to maintain altitude.
4. Apply rudder as necessary to maintain coordinated flight.
5. Establish an airspeed 5 KIAS above target airspeed and adjust power as necessary. (3,500 RPM Clean, 4,000 RPM Dirty)
6. Perform various climbs, descents, and turns.

Recovery:

1. Return power to cruise setting.
2. Maintain coordination.
3. If flaps are set to 30°, retract to 20°
4. After accelerating to a minimum of 70 KIAS, retract flaps up to 0°
5. Return to cruise power setting when the airplane is in normal level flight

MANEUVERING DURING SLOW FLIGHT



POWER ON STALL

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to recognize the flight conditions that are conducive to a power on stall and how to apply the necessary corrective action for a prompt, positive and effective recovery with a minimum loss of altitude.

NOTE:

In accordance with the current Airmen Certification Standards for PPL no full power on stalls are to be performed as this leads to an excessively high nose up attitude.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

The instructor shall specify full or impending stall and bank angle (maximum 20°).

1. Reduce power to 3000 RPM and increase backpressure to maintain altitude.
2. Verify trim is neutral and flaps are 10 degrees. **KEEP THE BALL CENTERED.**
3. At V_r (50 KIAS) set power to 4000 RPM and increase pitch attitude to an attitude which will induce a stall.
4. Do another power on stall with 20° bank and recover at first sign of a stall.
5. Continue to maintain coordination through use of rudder to prevent a spin.

NOTE:

Special attention should be paid to keeping ailerons neutral and NOT using aileron input to maintain coordination.

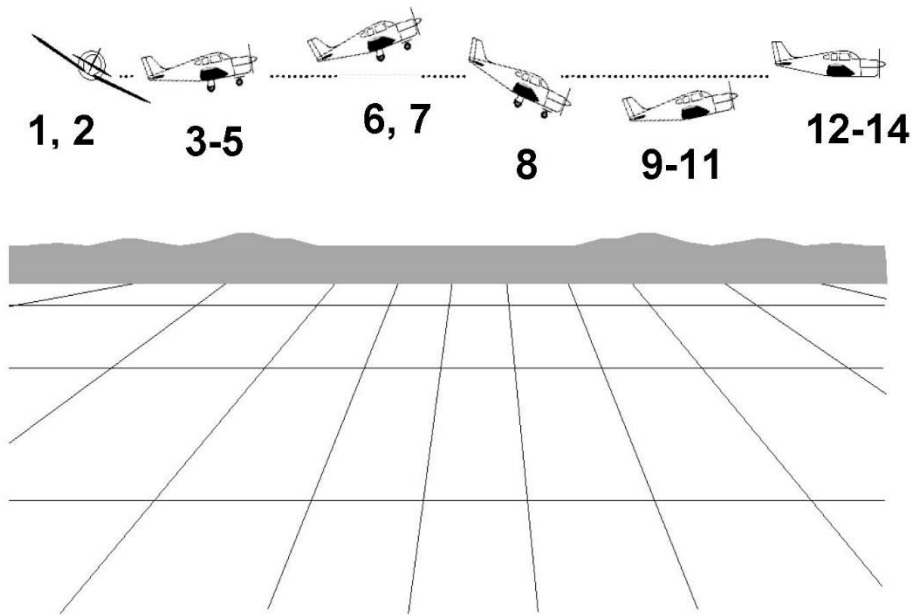
Recovery:

Full Stall: Recognize stall indications and recover promptly after a fully developed stalls occurs.

Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out “stalling.”
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Level the wings.
4. Maintain coordinated flight.
5. Establish a positive rate of climb while accelerating to V_y .
6. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.
7. Re-trim as necessary.
8. Perform the Cruise Checklist.

POWER-ON STALL



POWER OFF STALL

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to recognize the flight conditions that are conducive to a power off stall and how to apply the necessary corrective action for a prompt, positive and effective recovery with a minimum loss of altitude.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

The instructor shall specify full or impending stall and bank angle (maximum 20°).

1. Reduce power to idle and increase backpressure to maintain altitude.
2. Continue to maintain coordination through use of rudder to prevent a spin.
3. Maintain heading.
4. Below V_{fe} (75 KIAS) set flaps to 20° and apply slight forward pressure to lower the nose and maintain altitude.
5. At 65 KIAS lower the nose and begin a no more the 200' stabilized descent to simulate an approach to landing.
6. Once stabilized increase back pressure to obtain a pitch attitude that will induce a stall. Initiate a bank up to 20° as directed.
7. Continue to maintain coordination through use of rudder to prevent a spin.

NOTE:

Special attention should be paid to keeping ailerons neutral and NOT using aileron input to maintain coordination.

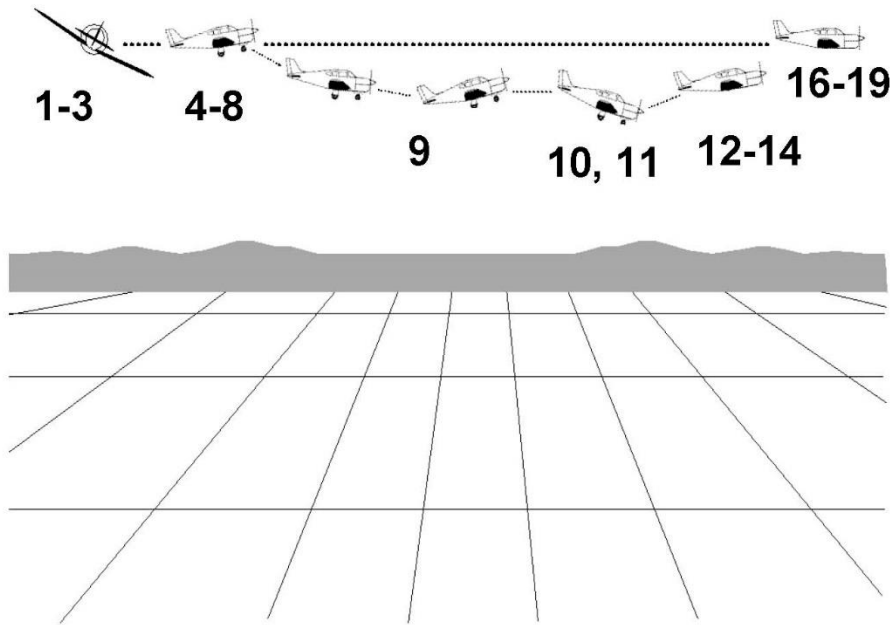
Recovery:

Full Stall: Recognize stall indications and recover promptly after a fully developed stalls occurs.

Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out “stalling.”
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Apply full power smoothly and swiftly.
4. Level the wings.
5. Maintain coordinated flight.
6. Establish a positive rate of climb while accelerating to V_y .
7. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.
8. Re-trim as necessary.
9. Perform the Cruise Checklist.

POWER-OFF STALL



SECONDARY STALL (CFI APPLICANTS ONLY)

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To demonstrate to the student the negative effects of improper stall recovery procedures.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A
2. Perform two clearing turns
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise

Maneuver Execution:

The instructor shall specify full or impending stall

1. Perform a Power off stall and begin an improper recovery.
2. Begin the recovery procedures by applying full power.
3. Maintain coordinated use of rudder to prevent a spin.
4. Immediately increase the pitch attitude to induce another (secondary) stall.

Recovery:

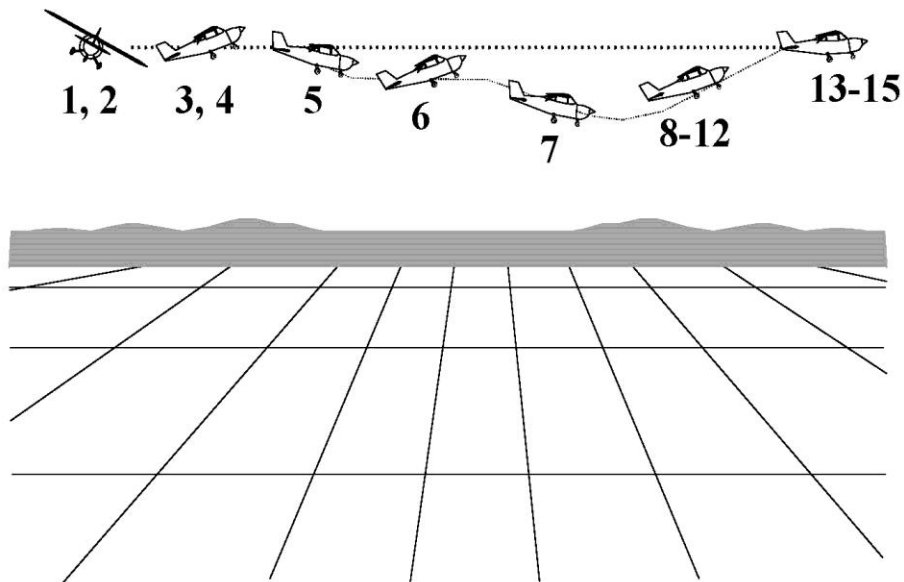
Full Stall: Recognize stall indications and recover promptly after a fully developed stalls occurs.

Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out "stalling."
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Apply full power smoothly and swiftly.
4. Level the wings.
5. Maintain coordinated flight.
6. Establish a positive rate of climb while accelerating to V_y .

7. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.
8. Re-trim as necessary.
9. Perform the Cruise Checklist.

SECONDARY STALL



ACCELERATED STALLS (COMMERCIAL PILOTS ONLY)

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student the factors of an accelerated stall and to demonstrate that a stall is a function of an angle of attack rather than airspeed.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A
2. Perform two clearing turns
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

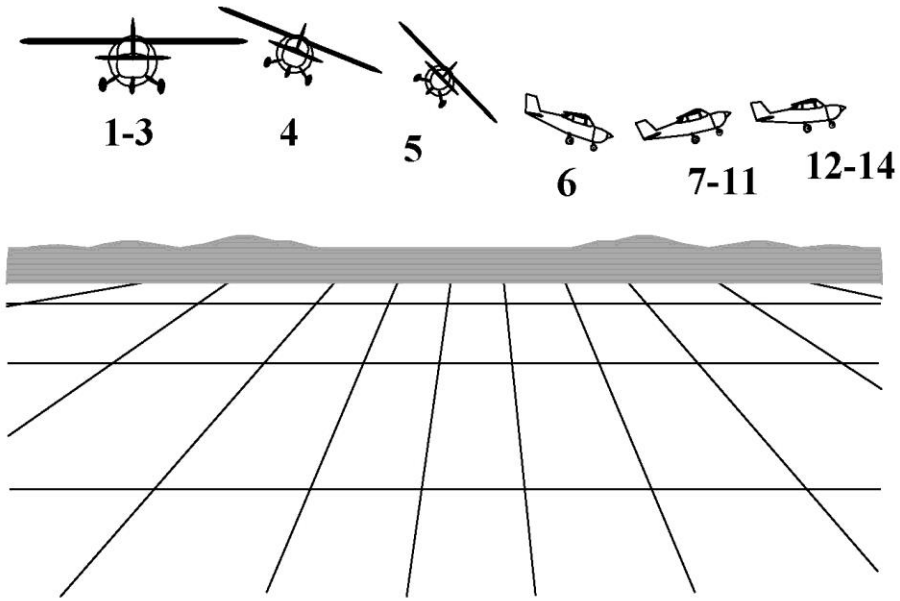
1. Reduce power and establish straight and level flight at 75 KIAS and maintain this power settings until recovery.
2. Upon stabilizing 75 KIAS, roll into a 45° banked turn (do not exceed 50° of bank) and neutralize the ailerons and rudder.
3. While banked, increase back elevator back pressure smoothly yet firmly and progressively, until an imminent stall occurs.

Recovery:

Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out "stalling."
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Apply full power smoothly and swiftly.
4. Level the wings.
5. Maintain coordinated flight.
6. Establish a positive rate of climb while accelerating to V_y .
7. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.

ACCELERATED STALL



CROSS-CONTROL STALL (CFI APPLICANTS ONLY)

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To demonstrate to the student the effect of improper control techniques and to emphasize the importance of using coordinated control pressures when making turns.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A
2. Perform two clearing turns
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

1. Reduce power to 3000 RPM and increase elevator back pressure to maintain altitude.
2. At 65 KIAS establish a trimmed simulated approach to landing.
3. Roll into a medium banked turn to simulate a base to final leg in the traffic pattern and reduce power to idle.
4. While in the turn, add excessive rudder pressure in the direction of turn while maintaining a constant angle of bank and apply opposite aileron pressure.
5. Increase back elevator pressure to maintain a level pitch attitude.
6. Increase all control deflections until the aircraft stalls.

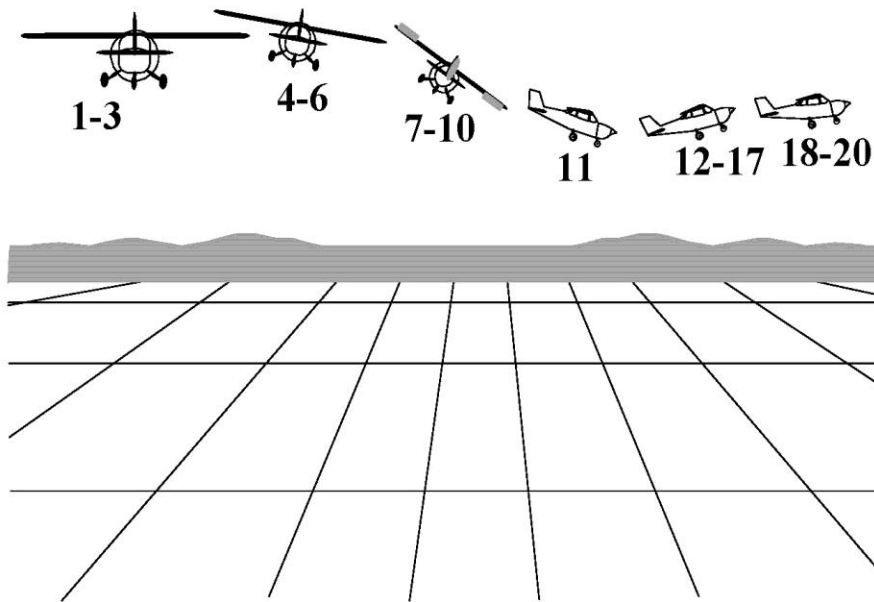
Recovery:

Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out "stalling."
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Apply full power smoothly and swiftly.
4. Level the wings.

5. Maintain coordinated flight.
6. Establish a positive rate of climb while accelerating to V_y .
7. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.
8. Re-trim as necessary.
9. Perform the Cruise Checklist.

CROSS-CONTROL STALL



ELEVATOR TRIM STALL (CFI APPLICANTS ONLY)

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to recognize the importance of making smooth power applications, overcoming strong trim forces and maintaining positive control of the airplane to hold safe flight attitudes while using proper and timely trim techniques.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 4,000' AGL.
 - b. MRA (Solo) N/A.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

1. Reduce power to idle, increase back pressure to maintain altitude.
2. Below V_{fe} (75 KIAS) set flaps to 30°.
3. At 65 KIAS establish a trimmed simulated approach to landing.
4. Descending no lower the 200' from the entry altitude, apply full throttle, allowing the airplane to roll left and the pitch to increase to a V_x pitch attitude.

Recovery:

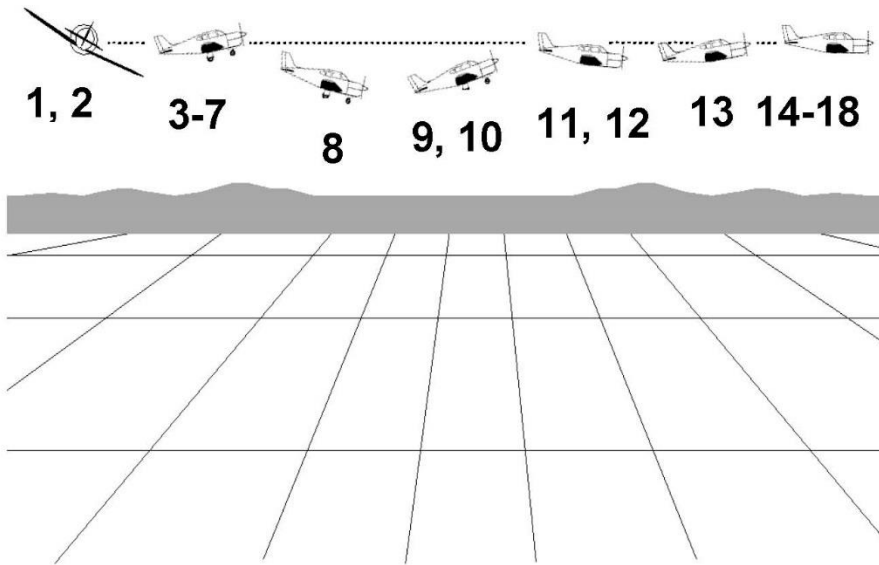
Impending Stall: Recognize and recover promptly at the first indication of a stall (stall warning or buffeting).

1. At stall, call out "stalling."
2. Immediately reduce the angle of attack by decreasing back-elevator pressure.
3. Re-trim the airplane to relieve control pressure.
4. Check power is set to full.
5. Level the wings.
6. Retract flaps to 20°

BRISTELL STANDARDIZATION MANUAL

7. Maintain coordinated flight.
8. Establish a positive rate of climb while accelerating to V_y .
9. Retract flaps up to 0° at or above 70 KIAS and after a positive rate of climb is established.
10. Return to cruise power setting when the airplane is in normal level flight at a specified altitude.
11. Re-trim as necessary.
12. Perform the Cruise Checklist.

ELEVATOR TRIM STALL



STEEP TURNS

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To teach the student's smoothness, coordination, orientation, division of attention and control techniques, while executing high performance maneuvers.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 2,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 95 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.

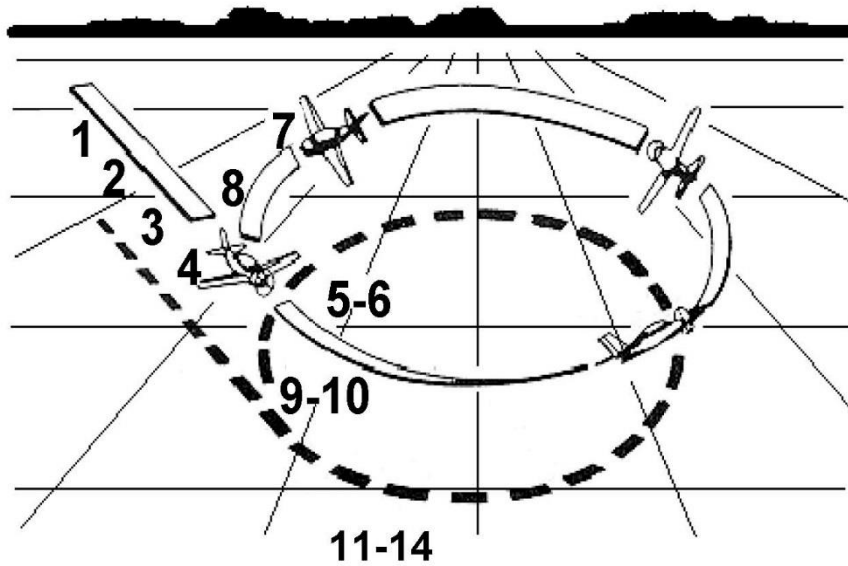
Maneuver Execution:

1. Roll into a 45° bank (Private) or 50° bank (Commercial) in the direction previously cleared.
2. Rolling through 30° of bank, increase power to maintain airspeed and altitude (approximately 200 RPM).
3. Approximately 25-30° before entry heading begin roll out.
4. While rolling through 30° of bank reduce the power to maintain airspeed and altitude (approximately 200 RPM).
5. Upon reaching entry heading level the wings.
6. Repeat steps 1-5 in the opposite direction.

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

STEEP TURNS



LAZY EIGHT

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the pilot's feel for varying control forces and the ability to plan and remain oriented, while maneuvering the airplane with positive, accurate control.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 2,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 95 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.

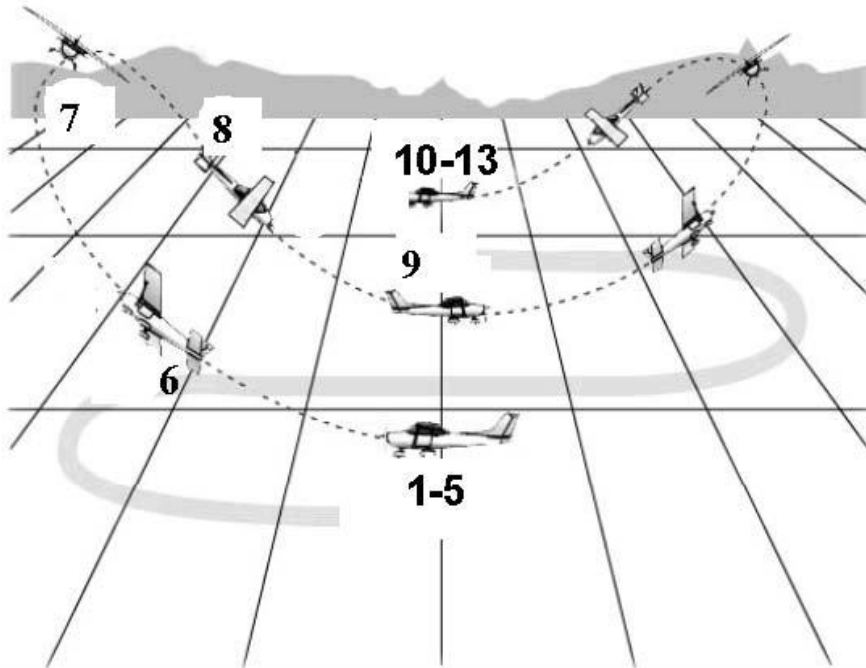
Maneuver Execution:

1. Select 45°, 90°, and 135° reference points in the direction the maneuver is being performed.
2. Maintain entry altitude and 95 KIAS (approximately 3500 RPM).
3. From straight and level flight, initiate a climbing turn (simultaneously increase bank and pitch slowly) in the direction of the 45° reference point. At the 45° reference point the airplane should be at max pitch up (highest) attitude and a 15° bank angle continuing to increase to 30°.
4. From the 45° reference point, while allowing the bank angle to continue increasing, allow the pitch to decrease. At the 90° reference point you should be at maximum bank angle (30°) and the attitude is passing through level flight at minimum airspeed (5-10 kts above V_s).
5. From the 90° reference point, allow the pitch attitude to continue to decrease while initiating a slow decrease in the bank angle. At the 135° reference point the aircraft should be at maximum pitch down (lowest) attitude with a 15° angle of bank.
6. From the 135° reference point, continue decreasing the bank angle and increasing the pitch attitude. At the 180° point the airplane should be returned to the initial entry airspeed and altitude in straight and level flight.
7. From the 180° reference point repeat steps 3-8.

Recover:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

LAZY EIGHT



STEEP SPIRAL

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the pilot's technique for airspeed control, wind drift control, planning, orientation and division of attention.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA) and for three 360° turns before the MRA.
 - a. MRA (Dual) 1,500' AGL unless performing a simulated emergency landing at an airport.
 - b. MRA (Solo) N/A.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Make note of power settings and attitude while in cruise.

Maneuver Execution:

1. Determine the wind direction.
2. Select a reference point in an area where an emergency landing can be made.
3. Maintain 90 KIAS and entry altitude.
4. Abeam the reference point on the downwind, reduce the power to idle, and roll into a steep bank (50-55°) to maintain 90 KIAS and a constant radius around the point.

NOTE:

The bank angle is not to exceed 60°.

Operating the engine at idle for prolonged periods of time may result in excessive cooling. Check engine operation on the upwind leg by "clearing" the engine when headed into the wind.

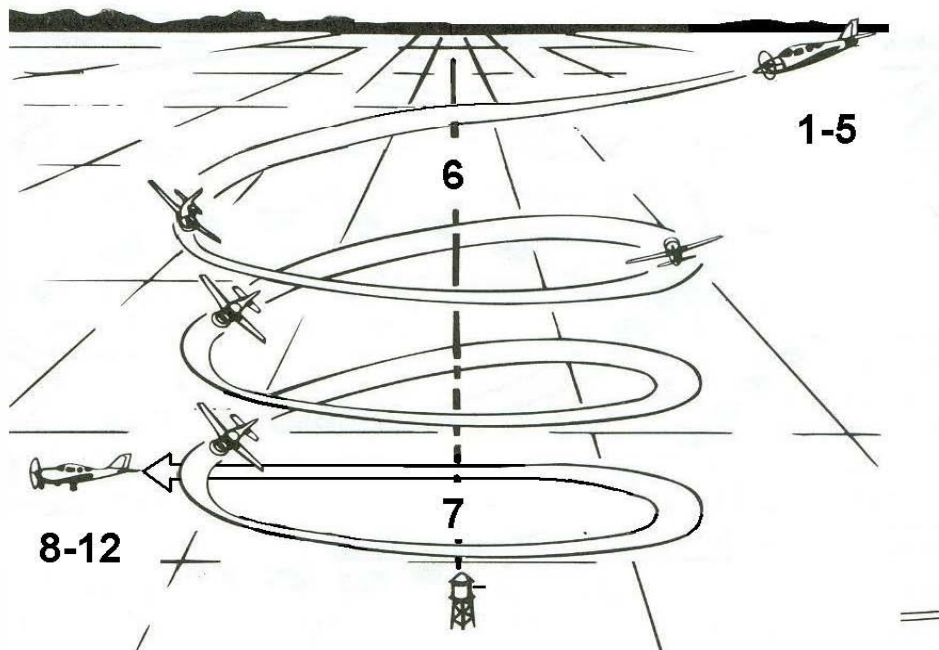
5. Complete at least three 360° turns.

Recovery:

1. Roll out on entry heading.
2. Return to the altitude, heading, and airspeed specified.

3. Set Cruise Power.
4. Re-trim as necessary.
5. Perform the Cruise Checklist.

STEEP SPIRAL



CHANDELLE

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the pilot's coordination, orientation, planning and feel for maximum performance flight and to develop positive control techniques at varying airspeeds and attitudes.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 2,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 95 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.

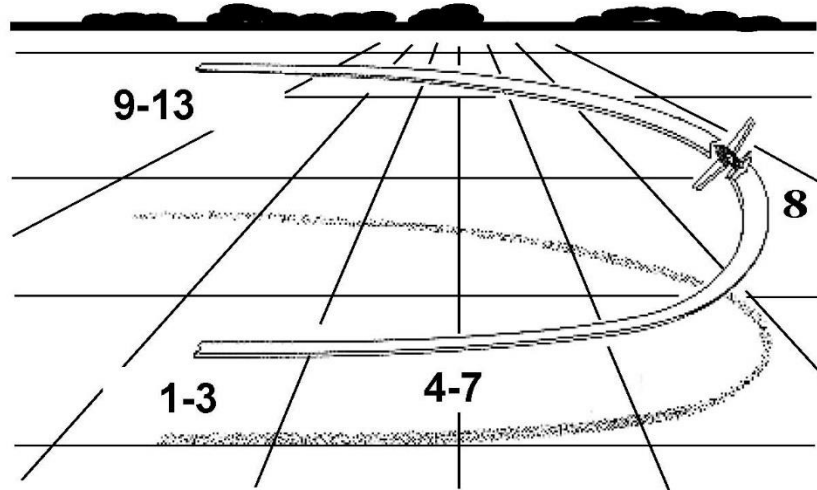
Maneuver Execution:

1. Select an altitude that will allow the maneuver to be completed no lower than 1500'AGL.
2. Perform clearing turns and the Pre-Maneuver Checklist.
3. Adjust the pitch and power to maintain altitude and 95 KIAS (approximately 3500 RPM).
4. Select a visual reference point directly off the wing tip in either direction.
5. Initiate a roll into a 30° bank in the direction of the reference point.
6. After the bank is established, initiate a climbing turn by smoothly applying back elevator pressure to increase the pitch attitude, and smoothly apply power to 4,000 RPM
7. While maintaining a 30° bank, continue increasing the pitch attitude at a constant rate so as to be at max pitch up (highest) at the 90° point from the reference point.
8. At the 90° point in the turn, maintain the pitch attitude by continuing to increase backpressure, initiate a slow rollout so as to arrive at the 180° reference point with the wings level and at minimum controllable airspeed (stall warning) Vs+5 Knots.

Recovery:

1. To recover, maintain level flight while slowly decreasing the pitch attitude, allowing the airplane to accelerate while maintaining the assigned altitude and heading.
2. Return to the altitude, heading, and airspeed specified.
3. Set Cruise Power.
4. Re-trim as necessary.
5. Perform the Cruise Checklist.

CHANDELLE



SECTION III: GROUND REFERENCE MANEUVERS

WIND DRIFT CIRCLES

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the student's ability to recognize the effect of wind on the aircraft's ground track and determine the wind direction and strength while in flight.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,000' AGL.
 - b. MRA (Solo) 1,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 100 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.

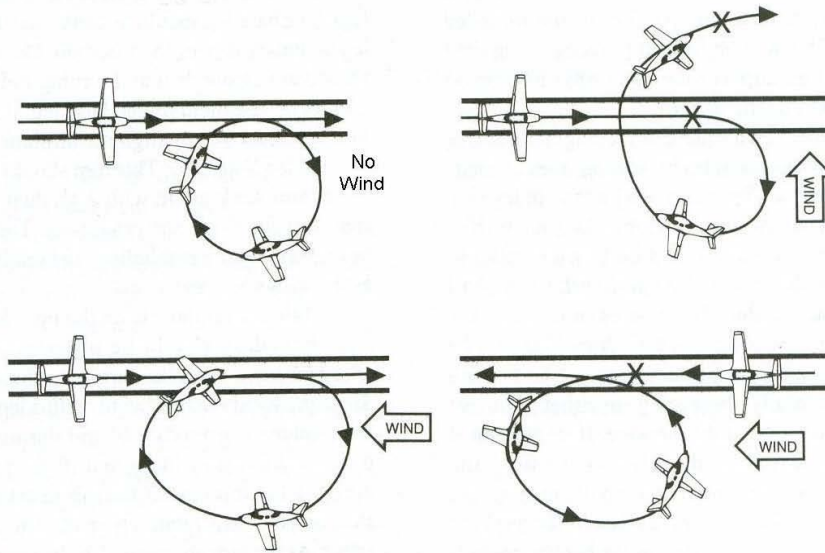
Maneuver Execution:

1. Select a reference point that is near the area where an emergency landing can be made.
2. Over the reference point, perform a 360° turn using 30° of bank.
3. Initiate a rollout at a point where the wings will be level when completing the turn.
4. Note any difference in positions between the starting and finishing positions.
5. Determine the approximate wind direction and strength based on any differences in the starting and finishing positions.

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

WIND DRIFT CIRCLE



Draw an imaginary line from the point where the wind drift circle began to the point where the airplane ended up when the wind drift circle was completed.

**The imaginary line represents the direction the wind is coming from.
The length of the imaginary line gives information about the wind velocity.**

RECTANGULAR COURSE

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to maneuver the aircraft over a predetermined ground path while correcting for drift and dividing attention inside and outside the cockpit.

Rectangular Course:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,000' AGL.
 - b. MRA (Solo) 1,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 100 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.
6. Determine the wind direction.
7. Select a rectangular area where an emergency approach to landing can be made that is bounded by four sides by section lines or roads, approximately 1 mile in length.

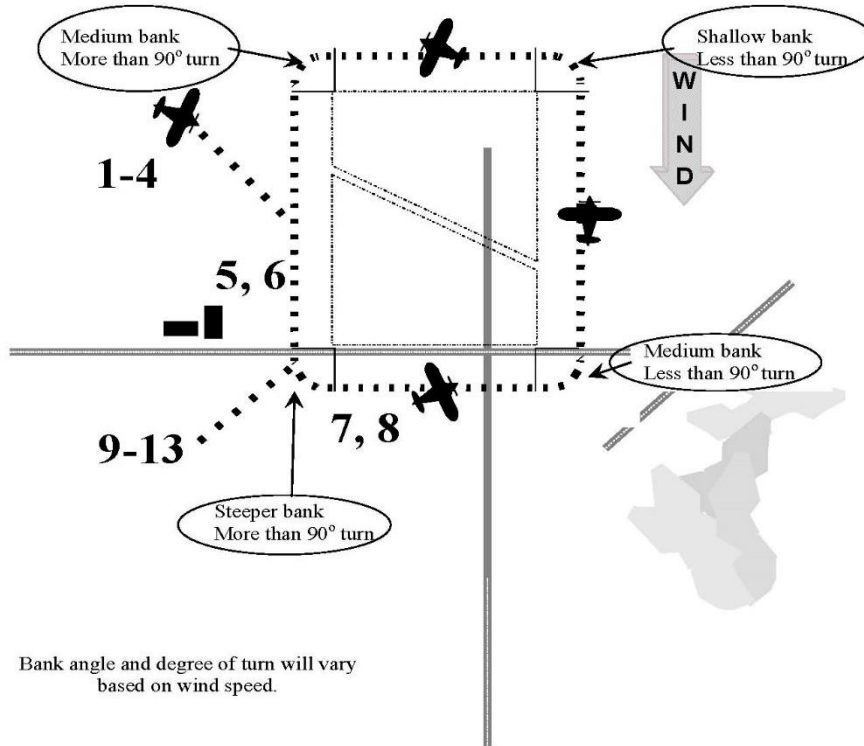
Maneuver Execution:

1. Enter at a 45° angle to the downwind leg.
2. Establish a crab angle to maintain a uniform distance from the area (approximately ½ mile).
3. When the airplane is abeam the corner of the area begin the next turn.
4. Vary the bank angle to maintain a constant radius during turns.
5. Depart on a 45° angle from the downwind at the downwind boundary.
6. Return to the altitude, heading, and airspeed specified.

Recovery:

1. Set Cruise Power.
2. Re-trim as necessary.
3. Perform the Cruise Checklist.

RECTANGULAR COURSE



S TURNS

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to maneuver the aircraft over a predetermined ground path while dividing attention inside and outside the cockpit.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,000' AGL.
 - b. MRA (Solo) 1,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 100 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.
6. Determine the wind direction.
7. Select a straight-line ground reference line or road in an area where an emergency landing can be made if necessary, and that lies 90° (perpendicular) to the direction of the wind.

Maneuver Execution:

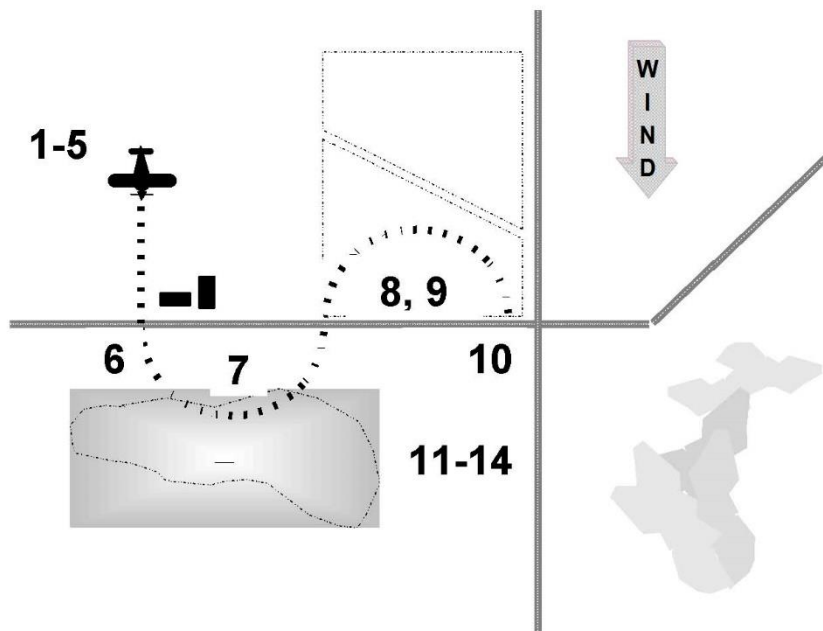
1. Enter the maneuver on downwind, perpendicular to the reference line.
2. When directly over the line or road (highest groundspeed), roll into the steepest bank (not to exceed 45°) to initiate maintaining a constant radius.
3. As the turn continues (groundspeed decrease), begin to shallow the bank as necessary to continue maintaining a constant radius.
4. Begin to rollout the wings so as the aircraft crosses the reference line the wings are level.
5. Then complete steps 1-4 again to the opposite direction of turn as the first one.
6. Depart the maneuver on the entry heading.

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.

3. Re-trim as necessary.
4. Perform the Cruise Checklist.

S TURNS ACROSS A ROAD



TURNS AROUND A POINT

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to maneuver the aircraft over a predetermined ground path while dividing attention inside and outside the cockpit.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,000' AGL.
 - b. MRA (Solo) 1,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 100 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.
6. Determine the wind direction.
7. Select a ground reference point or road in an area where an emergency landing can be made if necessary.

Maneuver Execution:

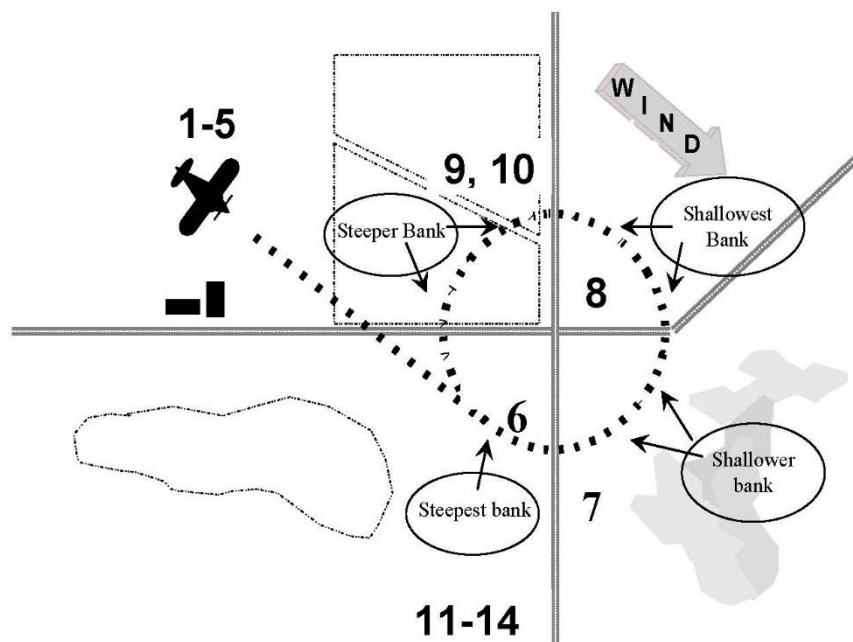
1. Enter maneuver on downwind at a distance equal to the desired radius of turn, between $\frac{1}{4}$ to $\frac{1}{2}$ mile.
2. Directly downwind (highest groundspeed) and abeam the reference point, roll into the steepest bank (not to exceed 45°) to initiate maintaining a constant radius.
3. As the turn continues (groundspeed decreases) begin to shallow the bank as necessary to maintain a constant radius.
4. As you reach the upwind leg (lowest groundspeed), the bank should be at its shallowest.
5. As the turn continues (groundspeed increase), begin to steepen the bank angle to maintain a constant radius.
6. Complete two complete circles, or as directed, and depart on the entry heading.

Recovery:

7. Return to the altitude, heading, and airspeed specified.
8. Set Cruise Power.

9. Re-trim as necessary.
10. Perform the Cruise Checklist.

URNS AROUND A POINT



EIGHTS ON PYLONS

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To teach the student to maneuver the aircraft at a precise altitude and airspeed that a line parallel to the airplane's lateral axis, and extending from the pilot's eye, appears to pivot on each of the pylons, while dividing attention inside and outside the cockpit.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,000' AGL.
 - b. MRA (Solo) 1,000' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 100 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.
6. Determine the wind direction.
7. Select two (2) reference points (pylons) in an area where an emergency landing can be made if necessary and that lies 90° (perpendicular) to the direction of the wind.

Maneuver Execution:

Note

Power should remain set (fixed) during the maneuver.

To determine Pivotal Altitude, calculate the following:

Pivotal Altitude = $GS^2 / 11.3$ + Field Elevation = Pivotal Altitude

1. Enter the maneuver on a 45° (diagonally) to the downwind and at a distance from the pylons that will require a 30° to 40° angle of bank at the steepest point during the maneuver.

2. At the position where the pylon appears to be just ahead of the wingtip, smoothly roll into a coordinated turn to the left so that the line of sight can be placed on the pylon.
3. As the turn around the pylon progresses, maintain the line-of-sight reference point by doing the following.
4. Groundspeed decreasing (pylon forward) – decrease pivotal altitude
5. Groundspeed increasing (pylon rearward) – increase pivotal altitude
6. As aircraft drifts closer to pylon, decrease bank angle
7. As aircraft drifts away from pylon, increase bank angle
8. When three-quarters around the pylon (perpendicular to the original entry heading), depart on a 45° angle towards the second pylon, allowing 3-5 seconds of straight and level flight.
9. When a beam the second pylon, repeat steps 6 and 7.
10. After completing the turn around the second pylon, depart on the entry heading.

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

SECTION IV: EMERGENCY PROCEDURES

EMERGENCY DESCENT

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To descend the airplane as rapidly as possible, within the structural limitations of the airplane and prepare for a possible engine fire in flight.

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 1,500' AGL.
2. Perform two clearing turns.
3. Use PGL:
 - a. Pump: On
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights

Maneuver Execution:

1. **Throttle – Idle** – Reduce the throttle to idle to allow for a steep descent angle without building excessive airspeed.
2. **Bank - 45°** - A steep bank angle greatly decreases the vertical component of lift, allowing the pilot to establish a high rate of descent while maintaining positive load factors on the airplane.
3. **Fuel Pump – On** – Turn on the fuel pump switch to ensure positive fuel flow throughout the descent.
4. **Airspeed – Do not exceed 120 KIAS** – Increase airspeed to achieve the maximum rate of descent. Exceeding V_{no} can increase the probability of causing structural damage to the airframe.
5. **Rollout – Pilot Option** – Rollout of the descent as appropriate for the specific situation.

NOTE:

The fuel selector valve should not be placed in the off position unless in an actual emergency.

Recovery:

1. Roll out on the heading of the reference point.
2. Return to the altitude, heading, and airspeed specified.
3. Set Cruise Power.
4. Re-trim as necessary.
5. Perform the Cruise Checklist.

LOST PROCEDURES

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

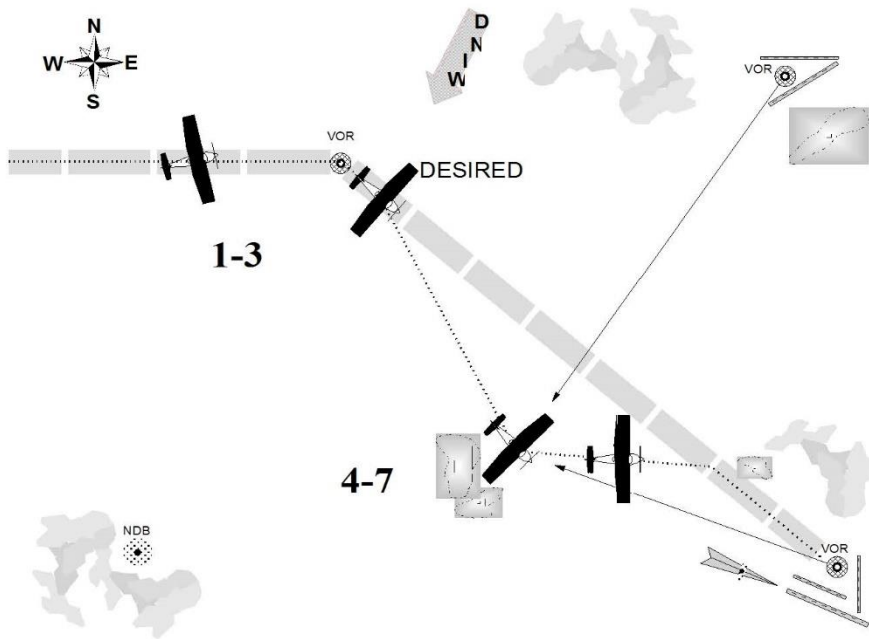
Objective:

To develop the student's proficiency in determining aircraft position and the corrections needed to reestablish the aircraft on its proper course.

Maneuver Execution:

1. Maintain positive aircraft control at all times. **Aviate, Navigate, Communicate.**
2. Remain calm.
3. Regain situational awareness, using a sectional chart and NAVAIDS as follows:
Sectional Chart:
 4. Check the heading indicator and magnetic compass.
 5. Turn the sectional chart to match your heading.
 6. Use prominent landmarks and match them to the sectional chart.NAVAIDS:
 7. Check the heading indicator and magnetic compass.
 8. Locate the aircraft position by looking at the Chart page of the G3X.
 9. Plot a course to proceed direct to your destination or to intercept the planned course.
10. Use the GPS to determine your distance from the nearest airport or navaid.
11. If you are still unsure of your position and unable to contact anyone, squawk 7700 and complete the 5 C's:
 - a. Confess - Admit to yourself that you are lost.
 - b. Climb - Climb to avoid obstructions, clouds and to achieve better visibility and/or radio reception.
 - c. Circle - Pick a nearby landmark and remain in the general vicinity.
 - d. Communicate - Talk to ATC or FSS and ask for help.
 - e. Comply - Follow ATC or FSS instructions.
12. Carefully monitor fuel consumption.

LOST PROCEDURES



DIVERSION

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

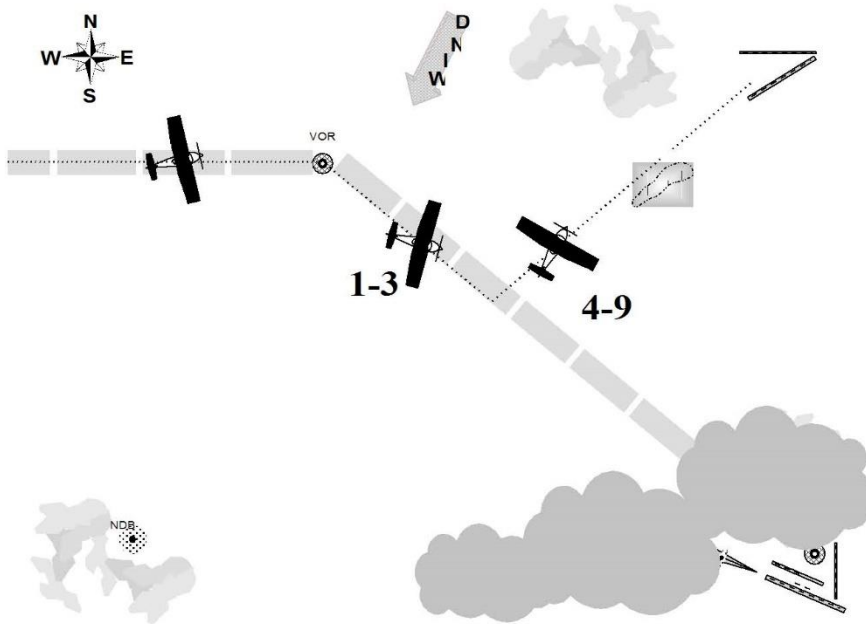
Objective:

To develop skills necessary for diverting to another airport while en route.

Maneuver Execution:

1. Note the time.
2. Verify the current position of the aircraft.
3. Determine the location of the new destination.
4. Turn in the appropriate direction to an estimated heading.
5. Calculate the time, fuel, distance, and compass heading to the new destination.
6. Turn to the new compass heading.
7. Select visual reference points to ensure you remain on course.
8. Calculate time, fuel, and distance to new checkpoints.
9. Contact ATC and FSS to amend your destination.

DIVERSION



SECTION V: IFR PROCEDURES

INSTRUMENT TAKEOFF

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To develop the skills necessary to perform a takeoff solely by reference to instruments.

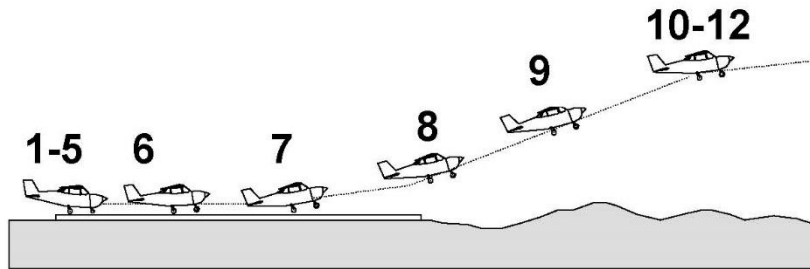
Set-up:

8. Review takeoff performance and consider obstructions and conditions
9. Set flaps to 10°
10. Verify the final approach and takeoff path are clear of other aircraft and/or FOD
11. Ensure the Before Takeoff checklist is complete
12. Taxi into takeoff position, utilizing all available runway, and applying full aileron correction
13. Cross check the HSI is aligned with the correct runway
14. Cross check that the runway heading corresponds with the intended runway of use

Maneuver Execution:

10. Smoothly and continuously apply full power and use the rudder to maintain the runway centerline.
11. Check engine instruments and tachometer and call out “Engine Instruments in the Green, Airspeed Alive.”
12. At 30 KIAS, increase control yoke back pressure to allow the nose wheel to lift off, and hold the nose wheel off the runway about 3”
13. Upon reaching V_r (50 KIAS), increase control yoke back pressure to allow for the main wheels to lift off and gradually accelerate in Ground Effect until reaching V_y .
14. After liftoff, establish and maintain V_y while continuing to maintain the flight path over the runway centerline. Trim as necessary.
15. At a minimum of 300’ AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
16. After flaps are fully retracted, and at a minimum of 500’ AGL, lower the nose and pitch for 80 KIAS
17. At no lower than 700’ AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
18. At 1,000’ AGL, verify the Takeoff checklist is complete

INSTRUMENT TAKEOFF (ITO)



STEEP TURNS (INSTRUMENT REFERENCE)

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To enter and recover from turns greater than standard rate when operating under IMC.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) 2,000' AGL.
2. Perform two clearing turns as appropriate.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights
4. Adjust power setting to attain an airspeed of 95 KIAS in straight and level flight.
5. Make note of power settings and attitude while in cruise.

Maneuver Execution:

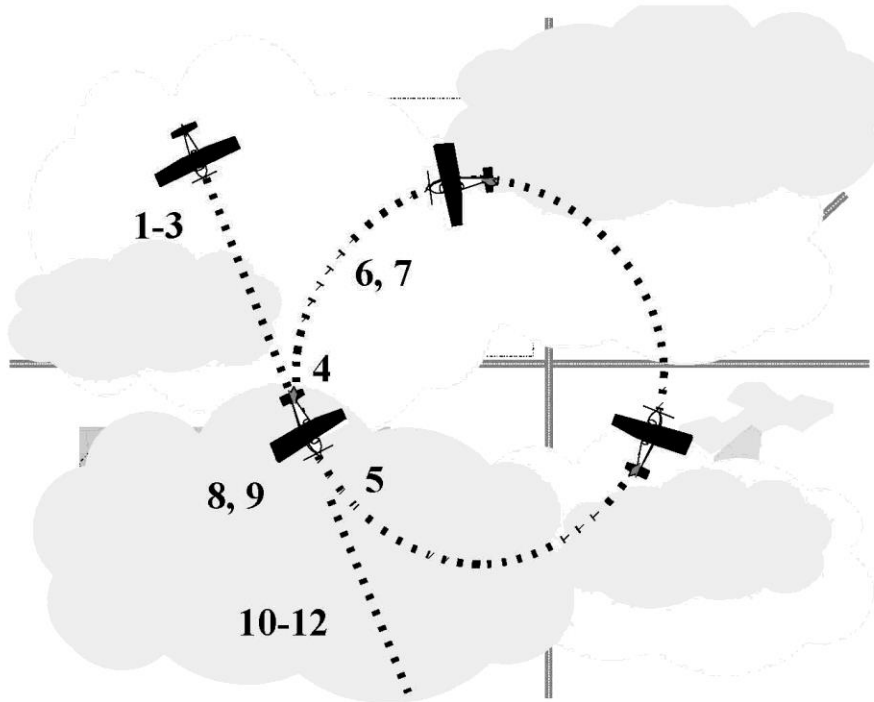
1. Roll into a 45° bank in the direction previously cleared.
2. To maintain a steep turn, the primary instruments are:
 - a. Pitch – Altimeter tape.
 - b. Bank – Attitude indicator.
 - c. Power – Airspeed tape.
3. Rolling through 30° of bank, increase power to maintain airspeed and altitude (approximately 200 RPM).
4. Approximately 25-30° before entry heading begin roll out.
5. While rolling through 30° of bank reduce the power to maintain airspeed and altitude (approximately 200 RPM).
6. Upon reaching entry heading level the wings.
7. Repeat steps 1-5 in the opposite direction.

BRISTELL STANDARDIZATION MANUAL

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

STEEP TURNS (IR)



UNUSUAL ATTITUDE

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To teach the student to recognize and promptly recover from both nose high and nose low unusual attitudes.

Set-up:

1. Select an entry altitude that will allow all recoveries to be completed no lower than the Minimum Recover Altitude (MRA).
 - a. MRA (Dual) 1,500' AGL.
 - b. MRA (Solo) N/A.
2. Perform two clearing turns as appropriate.
3. Use PGL:
 - a. Pump: Off
 - b. Gas: Fullest tank
 - c. Lights: Strobe, Nav, Landing Lights

Maneuver Execution/Recovery:

Note

All control inputs should be made simultaneously, in the sequence they are given below for recovery.

Recovery should be initiated by reference to the airspeed indicator, altimeter, vertical speed indicator, and turn coordinator.

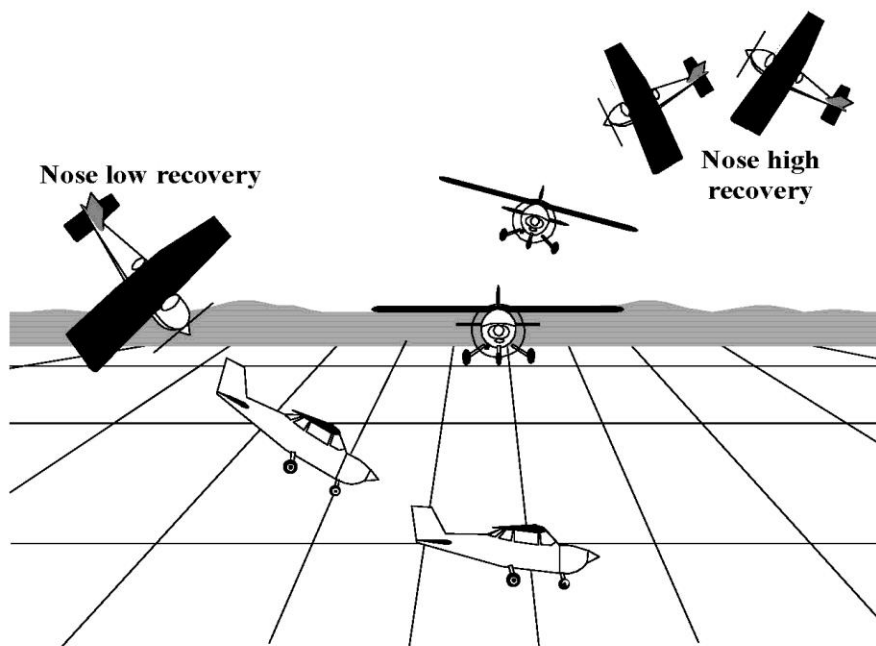
Nose - Low

1. Reduce power as necessary to prevent excessive airspeed build up and loss of altitude.
2. Level the wings by applying coordinated aileron and rudder pressure.
3. Raise the nose to level flight attitude by smoothly applying back elevator pressure.
4. Return to the altitude, heading, and airspeed specified.
5. Set Cruise Power.
6. Re-trim as necessary.
7. Perform the Cruise Checklist.

Nose – High

1. Increase power to full.
2. Lower the nose to prevent a stall by applying forward elevator pressure.
3. Level the wings by applying coordinated aileron and rudder pressure.
4. Return to the altitude, heading, and airspeed specified.
5. Set Cruise Power.
6. Re-trim as necessary.
7. Perform the Cruise Checklist.

RECOVERY FROM UNUSUAL FLIGHT ATTITUDES



TIMED TURNS TO MAGNETIC COMPASS HEADINGS

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

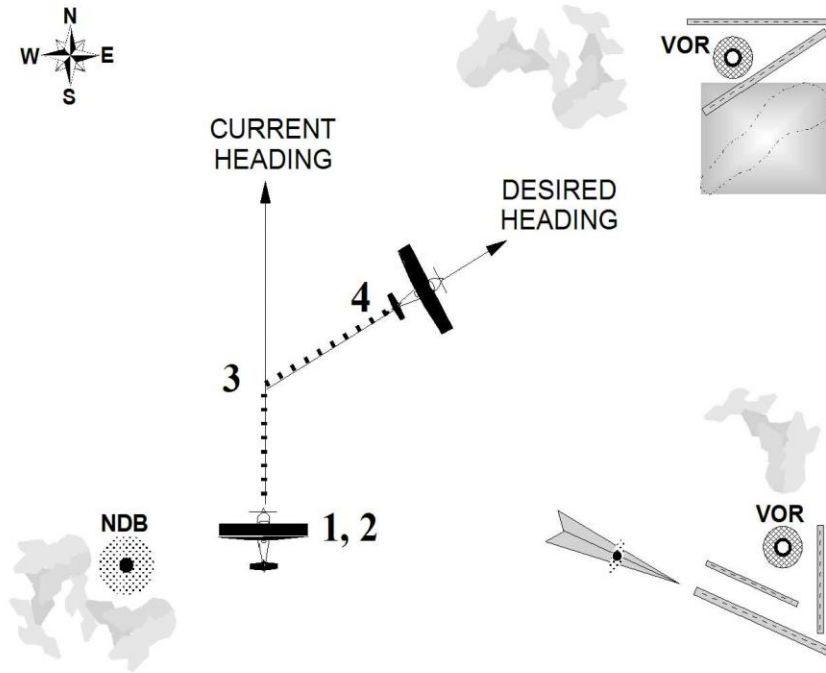
Objective:

To accomplish turns to specific compass headings without the use of the altitude and heading indicator.

Maneuver Execution:

1. Ensure the turn coordinator is operating correctly on the ground.
2. Determine the number of degrees to be turned and compute the time needed to accomplish a standard rate turn (3° per second).
3. Note the time as the roll in to a standard rate turn is initiated.
4. When the computed time to turn expires initiate a roll out.

TIMED TURNS TO MAGNETIC COMPASS HEADINGS



VOR TRACKING

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

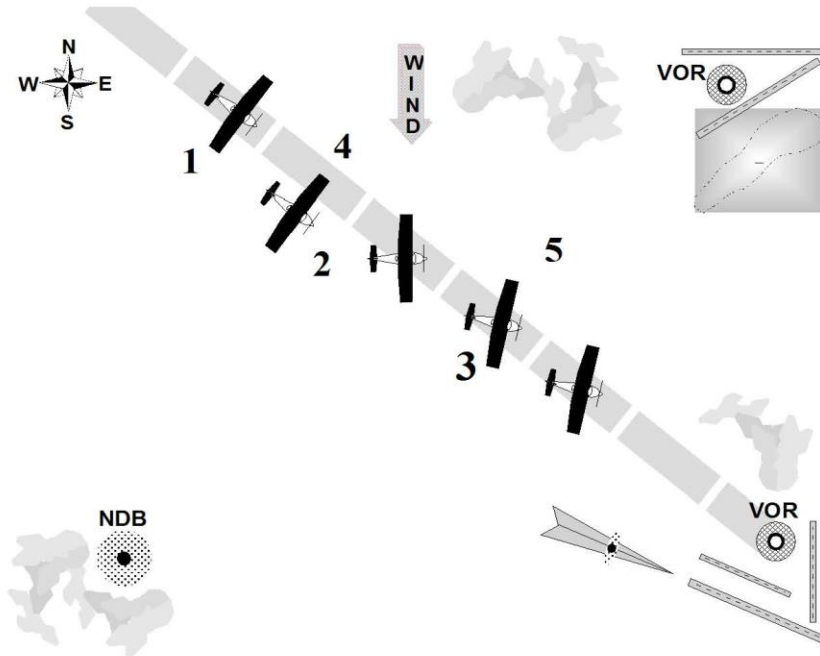
Objective:

To develop the student's proficiency in tracking a VOR radial while making necessary corrections for wind.

Maneuver Execution:

1. Tune and identify the appropriate VOR frequency.
2. Intercept the desired radial.
3. After the course has been intercepted maintain a heading that keeps the CDI centered on the desired radial.
4. If the CDI is to move off center begin re intercepting at a minimum 20° in the direction of deflection.
5. Repeat 3 and 4 until you determine the appropriate wind correction angle.

VOR RADIAL TRACKING



VOR COURSE INTERCEPTION

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

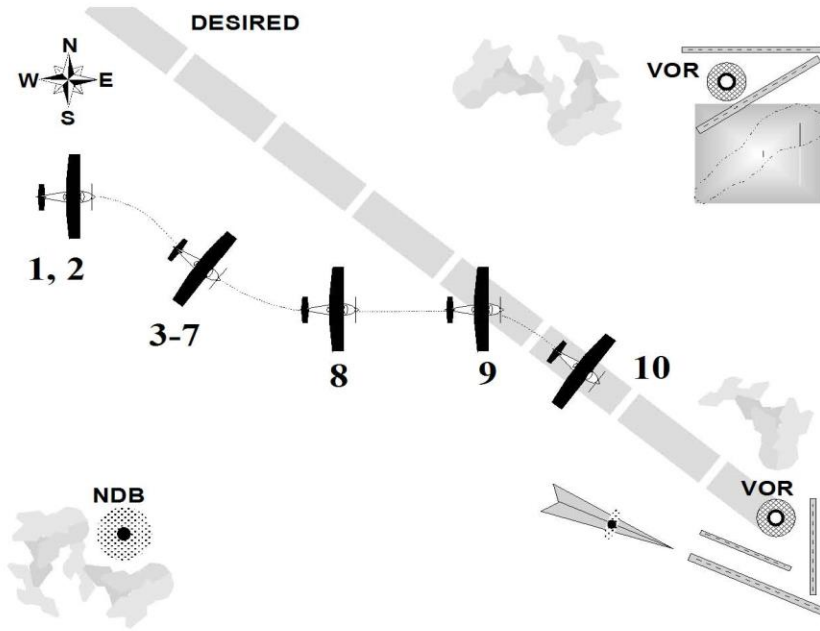
Objective:

To teach the student to establish the airplane on a predetermined VOR radial.

Maneuver Execution:

1. Tune and identify appropriate VOR facility.
2. Rotate the OBS to determine the radial the aircraft is currently on.
3. Turn to a heading to parallel the desired course in the same direction as the course to be flown.
4. Determine the difference between the radial to be intercepted and the radial on which you are currently located.
5. Double the difference to determine the interception angle (may not be less than 20° and no more than 90°).
6. Rotate the OBS to desired radial or inbound course.
7. Turn to the interception heading.
8. Hold this heading constant until the CDI centers.
9. As the needle begins to center turn at a rate equal to the needles movement.
10. Track the radial following the tracking procedures.

VOR RADIAL INTERCEPT



VOR TIME AND DISTANCE CHECK

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To develop proficiency in the use of the VOR while making computations for determining time and distance to the station.

Maneuver Execution:

1. Maintain a constant TAS.
2. Tune and identify the appropriate VOR.
3. Center the CDI with a TO indication.
4. Rotate the OBS 10° to the right or left.
5. Turn the airplane to a heading 80° in the direction of deflection.
6. Maintain heading and note the time when the CDI centers.
7. Rotate the OBS 10 more degrees in the same direction as previously turned.
8. Note the time when the CDI centers.
9. Turn the airplane to track directly to the station.
10. Compute time and distance to the station using the following formulas:

$$\text{Minutes to station} = \frac{60 \times \text{Minutes between radials}}{\text{Degrees of radial change}}$$

$$\text{Distance to station} = \frac{\text{TAS} \times \text{Minutes between radials}}{\text{Degrees of radial change}}$$

HOLDING PROCEDURES

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To develop the student's ability to determine the recommended entry and maneuver the aircraft over a predetermined fix, while correcting for the wind.

Maneuver Execution:

1. Tune and identify the appropriate navaid.
2. Determine the holding pattern position relative to the holding fix.
3. Determine the aircraft position relative to the holding fix.
4. Determine the appropriate holding pattern entry (Direct, Teardrop, Parallel) relative to the aircraft position and the holding pattern position.
5. Within 3nm of the fix reduce speed to 90 KIAS (approximately 3500 RPM)
6. Crossing the holding fix perform the 5 T's.
 - a. Time: Start the time.
 - b. Turn: At a standard rate to the entry heading.
 - c. Twist: Verify that the OBS is set to the inbound course.
 - d. Throttle: Maintain 90 KIAS.
 - e. Talk: Make required reports.
7. After one minute outbound in the entry procedure, turn at a standard rate to intercept the inbound course to return to the holding fix.
8. Start the inbound time when wings are level OR intercepting the inbound course whichever happens FIRST.
9. When over the fix turn to the outbound heading.
10. Start the outbound time when wings are level or abeam the fix whichever happens LAST.
11. Adjust the outbound time to achieve a one-minute inbound leg.
12. Adjust outbound heading considering wind so that the course to intercept occurs at the completion of the inbound turn.

Note

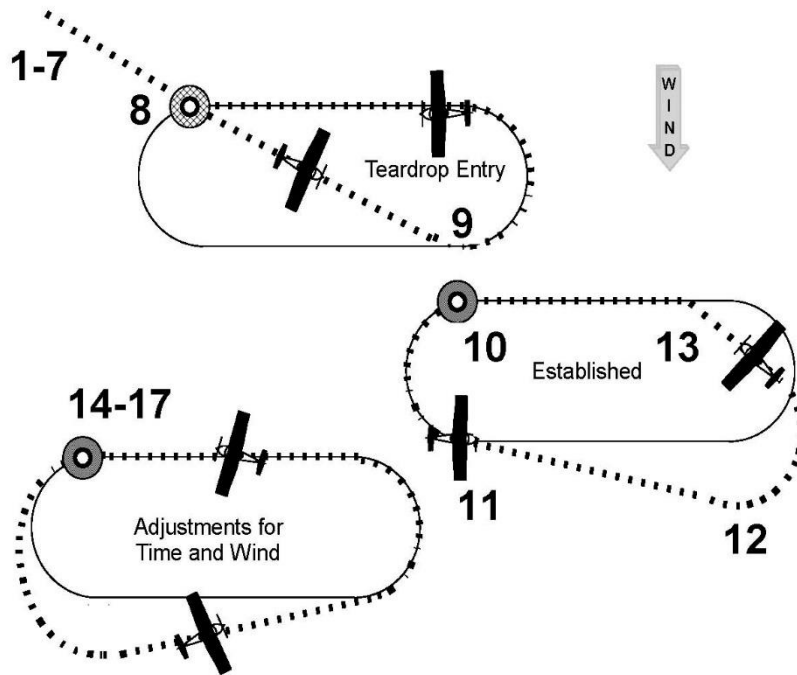
Triple the inbound wind correction angle in order to determine the outbound wind correction angle.

BRISTELL STANDARDIZATION MANUAL

Recovery:

1. Return to the altitude, heading, and airspeed specified.
2. Set Cruise Power.
3. Re-trim as necessary.
4. Perform the Cruise Checklist.

HOLDING



PRECISION APPROACH

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To safely and accurately maneuver the airplane along a continuous vertical and lateral path.

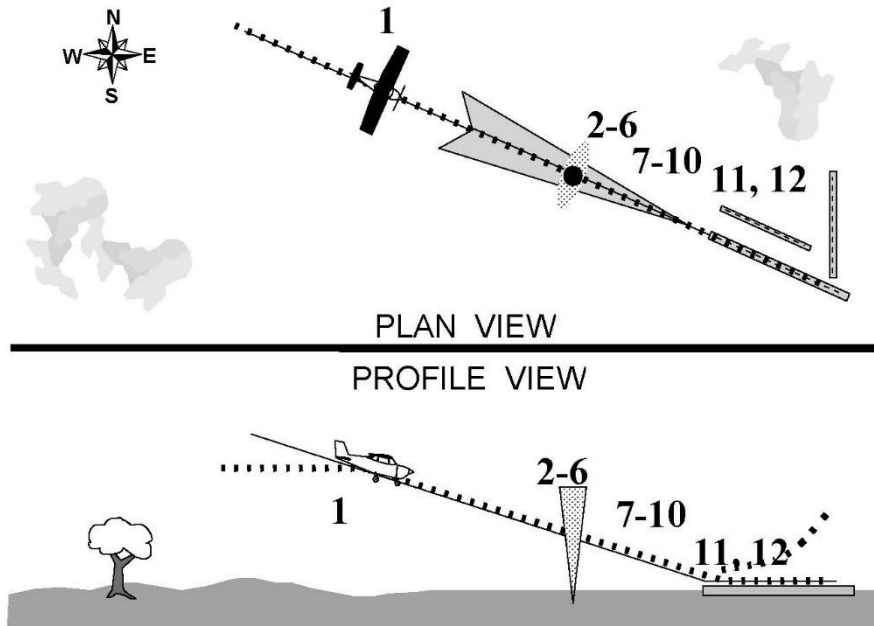
Maneuver Execution:

1. Complete the Before Descent Checklist prior to the IAF
 2. Complete the Before Landing Checklist by 1 dot below the glideslope
 3. At ½ dot below the glideslope, slow to 90 KIAS (approximately 3500 RPM).
 4. Adjust pitch to maintain the glide slope.
 5. Check and confirm the altitude of the Glide slope.
 6. Perform appropriate callouts in accordance with the approach profile.
 7. To continue the descent at least one visual reference for the intended runway must be distinctly visible and identifiable, and the flight visibility is not less than prescribed in the instrument approach being used.
 8. With the runway environment insight continue to land and set the flaps as appropriate.
- OR**
9. If no visual reference is in sight at DA, or if the reference is lost execute the appropriate missed approach procedure.

Precision Approach Callouts

Cue	Pilot
Localizer/Course Movement	"LOCALIZER/COURSE ALIVE"
Glideslope/Glidepath Movement	"GLIDESLOPE/GLIDEPATH ALIVE"
At 1,000' Above Minimums	"1,000' TO MINIMUMS, INSTRUMENTS CROSS-CHECKED"
At 500' Above Minimums	"500' TO MINIMUMS, CLEARED _____"
When Appropriate	"APPROACH LIGHTS IN SIGHT, CONTINUING" OR "RUNWAY IN SIGHT, ____ O'CLOCK, LANDING"
At 100' Above Minimums	"100' TO MINIMUMS"
At Minimums/No Visual Contact	"MINIMUMS, NO CONTACT GO-AROUND"

PRECISION APPROACH



NON-PRECISION APPROACH

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To develop the student's ability to safely and accurately maneuver the airplane vertically and laterally on a non-precision approach.

Maneuver Execution:

1. Complete the Before Descent Checklist prior to the IAF or intercepting the final approach course if being radar vectored.
2. Complete the Before Landing Checklist by 1 NM prior to the FAF
3. At ½ NM prior to the FAF, slow to 90 KIAS (approximately 3500 RPM).
4. Fly the published approach procedure.
5. Establish a rate of descent and track that will ensure arrival at the MDA at or immediately before reaching the VDP.
6. Perform appropriate callouts in accordance with the approach profile.
7. Maintain the MDA.
8. Descent from the MDA should be made no earlier than the VDP.
 - a. To calculate the VDP, divide the minimum descent height (AGL) by 300. This is a distance from the runway threshold and NOT necessarily a DME distance.
9. To continue the descent at least one visual reference for the intended runway must be distinctly visible and identifiable, and the flight visibility is not less than prescribed in the instrument approach being used.
10. With the runway environment insight continue to land and set the flaps as appropriate.

OR

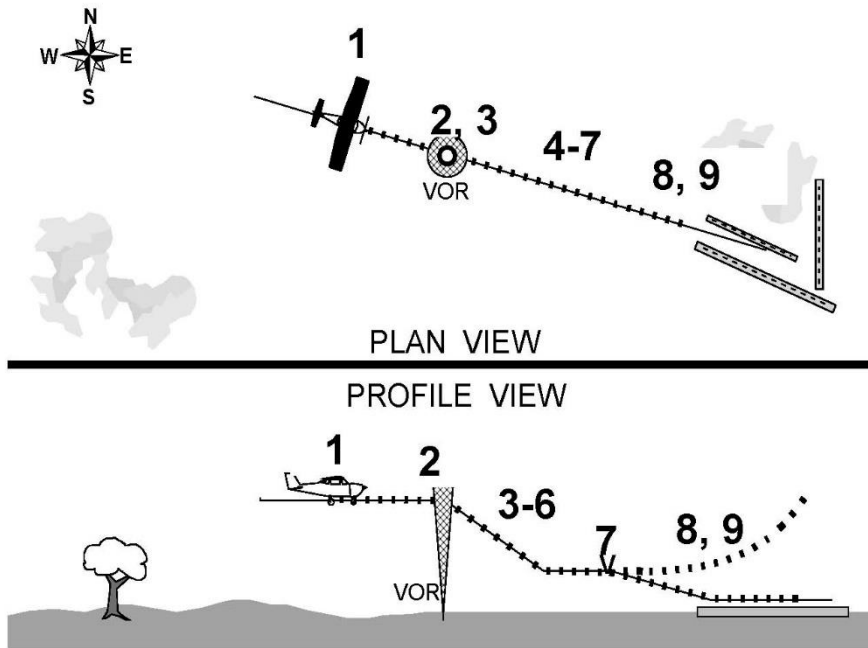
11. If no visual reference is in sight at MDA, or if the reference is lost execute the appropriate missed approach procedure.

BRISTELL STANDARDIZATION MANUAL

Non-Precision Approach Callouts

Cue	Pilot
Course Movement	"COURSE ALIVE"
At 1,000' Above Minimums	"1,000' TO MINIMUMS, INSTRUMENTS CROSS-CHECKED"
At 500' Above Minimums	"500' TO MINIMUMS, CLEARED _____"
When Appropriate	"APPROACH LIGHTS IN SIGHT, CONTINUING" OR "RUNWAY IN SIGHT, ____ O'CLOCK, LANDING"
At 100' Above Minimums	"100' TO MINIMUMS"
At Minimums	"MINIMUMS"
At VDP	"VDP, NO CONTACT"
At MAP/Execution of Missed Approach	"MISSED APPROACH POINT, GO-AROUND"

NON-PRECISION APPROACH



CIRCLING APPROACH

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

Objective:

To safely and accurately maneuver the airplane from the instrument approach procedure to the runway where a normal landing can be made.

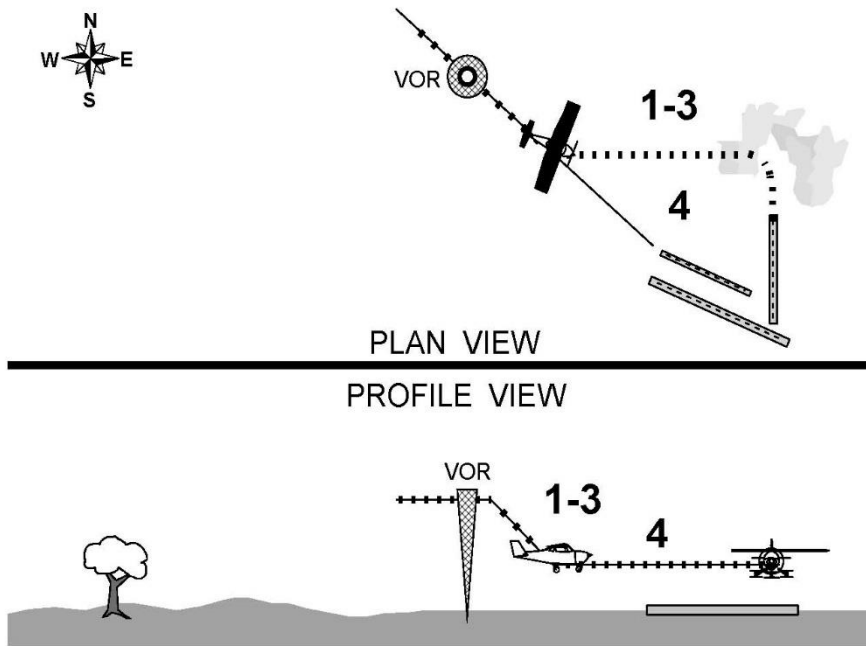
Maneuver Execution:

1. Perform the appropriate Precision or Non-precision approach.
2. At the circling minimums depicted on the approach, level off and continue to enter a downwind or base to the landing runway.
3. Maintain the circling minimums until a normal descent to landing can be made.
4. Complete the appropriate landing procedure.

Note

If at any point visual reference with the runway is lost you must execute a Missed Approach.

CIRCLING APPROACH



MISSED APPROACH

REF: FAA-H-8083-15A (INSTRUMENT FLYING HANDBOOK)

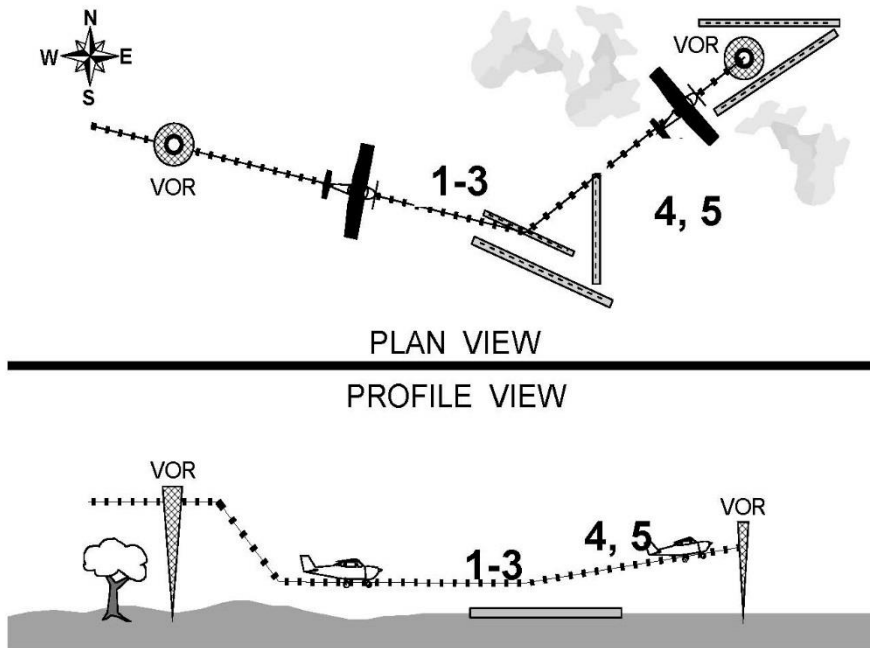
Objective:

To comply with the published missed approach procedure or as directed by ATC while maintaining positive aircraft control.

Maneuver Execution:

1. At the Missed Approach Point (MAP) without the appropriate visual references to continue.
2. Establish a positive rate of climb and add full power.
3. Maintain a V_y climb and retract the flaps.
4. Perform the appropriate missed approach procedure and contact ATC with intentions.
5. Complete the Enroute Climb Checklist.

MISSED APPROACH PROCEDURE



SECTION VI: APPROACH AND LANDING

NORMAL AND CROSSWIND APPROACH AND LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's proficiency in normal and crosswind approaches and landings.

Set-up:

1. Complete the Before Landing Checklist.
2. The aim point is a specific point on the runway, use the following prioritized list to select the aim point:
 - a. The runway marking abeam the PAPI or VASI (if operational).
 - b. The runway aiming point (1,000' markers).
 - c. A runway marking that is at least 200' beyond the runway threshold and within the first 1/3 of the runway.
3. Verify the windsock or other wind direction indicators to determine the appropriate crosswind technique.

Maneuver Execution:

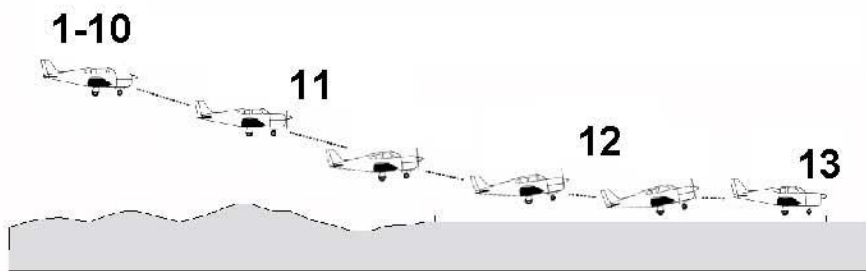
1. Apply proper crosswind correction for landing.
2. Established a stabilized approach and complete the Final Check prior to 200' AGL.
 - a. Configured for Landing.
 - b. On Airspeed.
 - c. On Glideslope.
 - d. On Centerline.

NOTE:

If not stabilized on the runway centerline, correct airspeed, and desired configuration you MUST GO AROUND!

3. At the round out approximately 10' above the runway, smoothly reduce the power to idle and continue to flare to touchdown on the main wheel into the wind first, then the adjacent main wheel, holding the nose wheel off with back pressure to allow it to settle on the runway gently.
4. Roll the ailerons into the wind as appropriate, while using the rudders to keep the nose straight and maintain directional control.

NORMAL APPROACH AND LANDING



SHORT FIELD APPROACH AND LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's ability to perform and maintain a stabilized descent while obtaining maximum performance and to stop in a minimal distance.

Set-up:

1. Complete the Before Landing Checklist.
2. The aim point is a specific point on the runway, use the following prioritized list to select the aim point:
 - a. The runway marking abeam the PAPI or VASI (if operational).
 - b. The runway aiming point (1,000' markers).
 - c. A runway marking that is at least 200' beyond the runway threshold and within the first 1/3 of the runway.
3. Verify the windsock or other wind direction indicators to determine the appropriate crosswind technique.

Maneuver Execution:

1. Apply proper crosswind correction for landing.
2. Established a stabilized approach and complete the Final Check prior to 200' AGL.
 - a. Configured for Landing.
 - b. On Airspeed.
 - c. On Glideslope.
 - d. On Centerline.

NOTE:

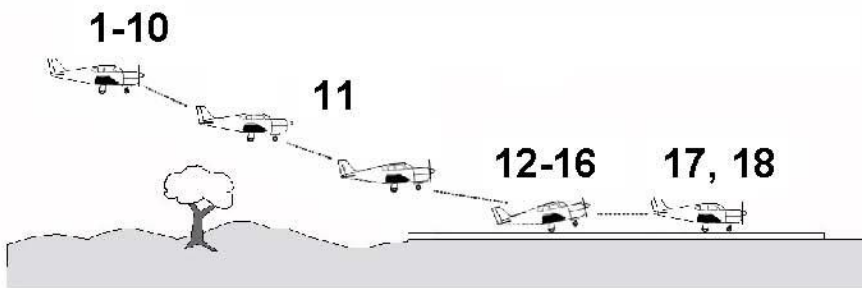
If not stabilized on the runway centerline, correct airspeed, and desired configuration GO AROUND!

3. At the round out approximately 10' above the runway, smoothly reduce the power to idle.
4. Continue to flare to touchdown at minimum controllable airspeed with a power-off stall attitude, on the main wheel into the wind first, then the adjacent main wheel.
5. Immediately after touchdown, lower the nose wheel to touch down.
6. Retract flaps to the up position.
7. Hold full aft elevator back pressure to apply maximum aerodynamic braking.
8. Apply braking as necessary to stop within the shortest distance possible, consistent with safety and controllability.

BRISTELL STANDARDIZATION MANUAL

9. Maintain ailerons into the wind and directional control through use of the rudders until slow enough to taxi off the runway.

SHORT-FIELD APPROACH AND LANDING



SOFT FIELD APPROACH AND LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's proficiency in being able to touchdown at slowest possible speed to simulated an approach to landing on a grass or muddy field.

Set-up:

1. Complete the Before Landing Checklist.
2. The aim point is a specific point on the runway, use the following prioritized list to select the aim point:
 - a. The runway marking abeam the PAPI or VASI (if operational).
 - b. The runway aiming point (1,000' markers).
 - c. A runway marking that is at least 200' beyond the runway threshold and within the first 1/3 of the runway.
3. Verify the windsock or other wind direction indicators to determine the appropriate crosswind technique.

Maneuver Execution:

1. Apply proper crosswind correction for landing.
2. Established a stabilized approach and complete the Final Check prior to 200' AGL.
 - a. Configured for Landing.
 - b. On Airspeed.
 - c. On Glideslope.
 - d. On Centerline.

Note:

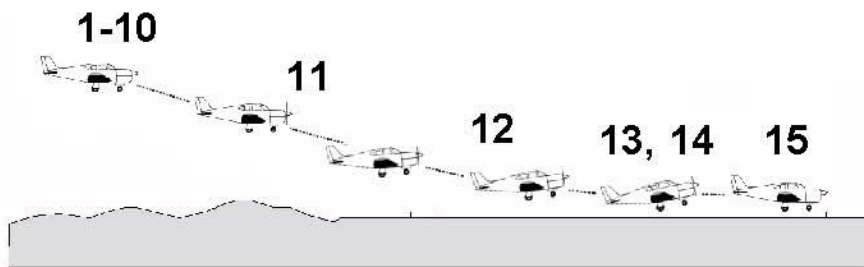
If not stabilized on the runway centerline, correct airspeed, and desired configuration GO AROUND!

3. At the round out approximately 10' above the runway, smoothly reduce the power to idle and initiate the flare to hold the airplane in ground effect as long as possible.
4. Add approximately 100 RPM during the touchdown ensuring to touchdown on the main wheel into the wind first then the adjacent main wheel.

BRISTELL STANDARDIZATION MANUAL

5. Immediately return the power to idle and continue to hold full back elevator pressure, while maintaining directional control through use of the rudders.
6. Allow the nose to touchdown, gently on its own.

SOFT-FIELD APPROACH AND LANDING



POWER OFF 180° APPROACH AND LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK), PILOT'S OPERATING HANDBOOK

Objective:

To develop the student's knowledge and proficiency of the elements related to a power-off 180° accuracy approach, landing and touching down in a normal landing attitude, at on and within 200' beyond a predetermined point on the runway.

Set-up:

1. The airplane must be established on the downwind leg parallel to the landing runway, at the same distance from the landing surface as in a normal traffic pattern and no greater than 1,000' AGL.
2. The aim point is a specific point on the runway, use the following prioritized list to select the aim point:
 - a. The runway marking abeam the PAPI or VASI (if operational).
 - b. The runway aiming point (1,000' markers).
 - c. A runway marking that is at least 200' beyond the runway threshold and within the first 1/3 of the runway.
3. Verify the windsock or other wind direction indicators to determine the appropriate crosswind technique.

Maneuver Execution:

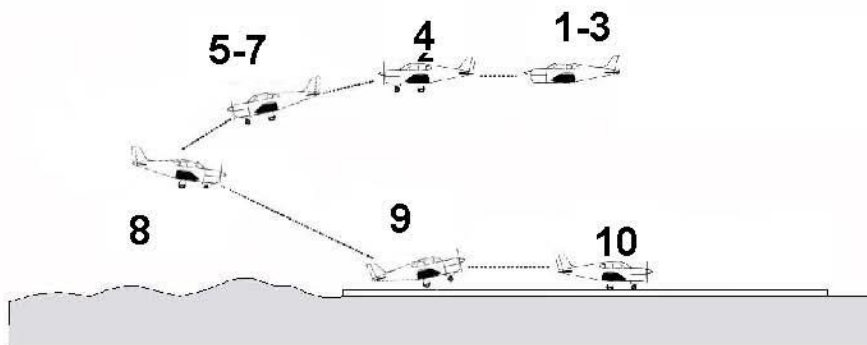
1. Abeam the point of intended landing smoothly reduce the power to idle.
2. Maintain best glide speed (65 KIAS).
3. On the base leg, if necessary to steepen the descent angle lower the flaps to 10°.
4. Visually verify the final approach and opposite base leg are clear and turn final.
5. When landing is assured, maintain 65 KIAS and set flaps as necessary.

NOTE:

Do NOT remove flaps to try and stretch out the glide. If a safe landing cannot be made, GO AROUND!

6. Complete the round out and flare to touchdown holding the nose wheel off with back pressure throughout the rollout.
7. Maintain directional control and proper crosswind correction through the use of the rudders and ailerons respectively.

**180° POWER-OFF ACCURACY
APPROACH AND LANDING**



FORWARD SLIP TO LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

Objective:

To develop the student's proficiency on a forward slip to a landing, and to explain the situations for which a forward slip is useful.

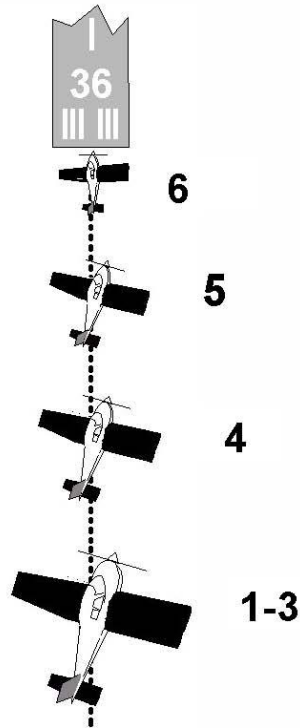
Maneuver Execution:

NOTE:

Avoid doing slips with the Flaps Extended

1. Determine the wind direction while on final approach.
2. Lower the upwind wing.
3. Apply opposite rudder to prevent the airplane from turning in the direction of the lowered wing.
4. Allow the nose of the aircraft to point away from the runway, while the aircraft track maintains alignment with the runway centerline.
5. Use the Elevator to maintain 65 KIAS and the ailerons to maintain the runway centerline.
6. Once an acceptable altitude is reached, the slip may be discontinued.
7. Continue with the predetermined landing. (Normal, short, soft, etc.)

FORWARD SLIP TO A LANDING



GO AROUND AND REJECTED LANDING

REF: FAA-H-8083-3A (AIRPLANE FLYING HANDBOOK)

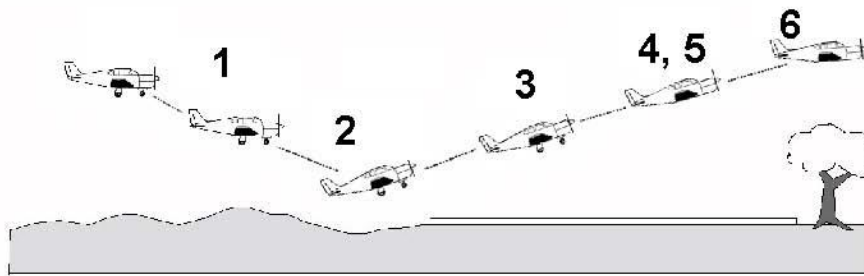
Objective:

To develop the student's ability to recognize the need to go-around and the importance of making good, timely decisions in relation to flaps, pitch and coordination during a go-around.

Maneuver Execution:

1. Smoothly apply full power, level the wings, and transition to a climb pitch attitude that will slow or stop the descent.
2. Retract flaps to 25° if fully extended.
3. Established a positive rate of climb while accelerating to V_x (65 KIAS) or V_y as appropriate.
4. At a minimum of 300' AGL, pitch for no less than 70 KIAS, and retract flaps up to 0°
5. After flaps are fully retracted, and at a minimum of 500' AGL, lower the nose and pitch for 80 KIAS
6. At no lower than 700' AGL execute a departure procedure, or remain in the traffic pattern, as appropriate.
7. At 1,000' AGL, verify the Takeoff checklist is complete

GO-AROUND/REJECTED LANDING



GROUND PROXIMITY AWARENESS (GPA)

Objective:

To develop the student's ability to land in crosswinds while maintaining runway centerline, proper control inputs, and soft field techniques.

Maneuver Execution:

NOTE:

This maneuver is never to be practiced by solo students or at runways where a touch and go cannot be executed

1. Complete the Before Descent and Before Landing Checklist.
2. Complete the traffic pattern for the desired runway.
3. On final maintain a stabilized approach (65 KIAS) with full flaps until entering Ground Effect.
4. Once in Ground Effect continue to fly down the runway while maintaining runway centerline using proper crosswind deflection.

NOTE:

All tires should be kept off the runway

5. Execute a go around.
6. Repeat steps 2-4, this time allowing the main wheels to touchdown on the runway starting with the upwind main first.
7. While keeping the nose off the ground maintain runway centerline for no more than 500'.
8. Execute a go around.
9. Repeat step 6, this time allowing the nose wheel to gradually come down onto the runway.