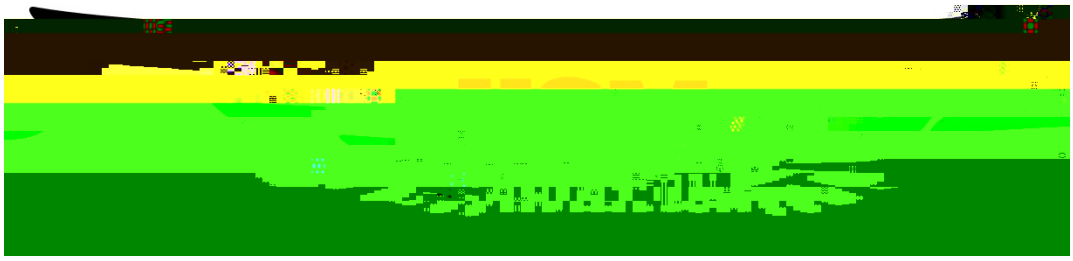

University of Central Missouri
Version 12.5

8/9/2019

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Section 1 – REVISIONS

Revision Instructions

1)

Section 2 – COURSES

This standardization manual is designed as a reference source for all flight training courses. Flight course information, UCM policies and procedures, and flight maneuvers are explained.

It is understood that there are acceptable variations to different maneuvers, some more so than others. UCM has developed the most effective and efficient training methods for our program. Remember this text was created for the students' benefit and should be the primary reference for all maneuvers done at UCM.

Each maneuver will include a list of references indicating where further information about the maneuver may be obtained. UCM strongly suggests the references be used to help develop a complete understanding of each maneuver prior to attempting them in flight.

Jeppesen Flight Syllabi

All of the courses listed below follow the Jeppesen Flight Syllabus. (If you are in the UCM Commercial Syllabus please see the Chief Flight Instructor or the SOF.) These are available for purchase at the airport terminal building. If further assistance is needed, please feel free to speak with the Chief Flight Instructor, Assistant Chief Flight Instructor; Supervisor of Flight, or one of the Check Instructors.

FLYA 1320 Private Flight A 1.0 SH Credit

The student will progress from Unit 1 through Unit 13. PVT 1 Oral/Flight (comes after Unit 8) is the Stage 1 Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will complete the Private A written test in Blackboard prior to signing up for the Stage 1 Exam. The student will complete the FAA Written Test Exam for Private Pilot prior to signing up for Private Flight B.

FLYA 1321 Private Flight B 1.0 SH Credit

The student will progress from Unit 14 through Unit 26. PVT 2 Oral/Flight is the Stage 2 Check. PVT Final Oral/Final Flight 26 is the End of Course Check. All Checks are administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will complete the Private Flight B written test in Blackboard prior to signing up for End of Course Check. At the completion of this course the student will have met the requirements for the Private Pilot Practical Test.

FLYA 3310 Commercial Flight A 1.0 SH Credit

The student will progress from Unit 30 through Unit 36. COM 1 Oral/Flight is the Eval 1 Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Commercial Flight A written test in Blackboard prior to signing up for the Eval 1 Check.

FLYA 3311 Commercial Flight B 1.0 SH Credit

The student will progress from Unit 37 through Unit 40. COM 2 Oral/Flight is the Eval 2 Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Commercial Flight B written test in Blackboard prior to signing up for the Eval 2 Check.

FLYA 2313 Instrument Flight A 1.0 SH Credit

The student will progress from Unit 1 through Unit 13. INST 1 Oral/Flight is the Stage 1 Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Instrument Flight A written test in Blackboard prior to signing up for the Stage 1 Check.

FLYA 2314 Instrument Flight B 1.0 SH Credit

The student will progress from Unit 14 through Unit 29. INST 2 Oral/Flight is the Stage 2 Check. INST Final Oral/Flight is the End of Course Check. All Checks are administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will complete the Instrument B written test in Blackboard prior to signing up for the Stage 2 Check and the FAA Written Test Exam for Instrument Airplane prior to signing up for the End of Course Check. At the completion of this course the student will have met the requirements for the Instrument Rating Practical Test.

FLYA 3312 Commercial Flight C 1.0 SH Credit

The student will progress from Unit 41 through Unit 51. COM 3 Oral/Flight is the Stage IV Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Commercial Flight C written test in Blackboard prior to signing up for the Stage IV Check.

FLYA 3315 Commercial Flight D 1.0 SH Credit

The student will progress from Unit 52 through Unit 67. COM V Oral/Flight is the Stage V Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Commercial Flight D written test in Blackboard prior signing up for to Stage 4 Check.

FLYA 3316 Commercial Flight E 1.0 SH Credit

The student will progress from Unit 68 through Unit 76. COM 5 Oral/Flight (comes after Unit 45) is the Eval 3 Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will also complete the Commercial Flight E written test in Blackboard prior to signing up for the Eval 3 Check.

FLYA 3317 Commercial Flight F 1.0 SH Credit

The student will progress from Unit 77 through Unit 87. COM Final Oral/Flight is the End of Course Check administered by the Chief Flight Instructor, Assistant Chief Flight Instructor, or Check Instructor. The student will complete the Commercial F written exam in Blackboard and the FAA Written Exam for Commercial Pilot Airplane prior to signing up for the End of Course Check. At the completion of this course the student will have met the requirements for the Commercial Pilot Practical Test.

5) The **student** is responsible for monitoring the flight accoun

Training vs. Rental

1) All training flights must be:
   a.

10)

Rental Checkout Qualifications

IFR Privileges Chart

Dispatch Operations

Aircraft Priority List

Aircraft are dispatched to flight students and renters on a priority basis. Anytime there is an aircraft shortage due to

Servicing Operations

1) Notify line service when fuel is needed.
2) Fuel sampling:
   a. If clean, fuel should be returned to the fuel tank.
   b. If contaminated and using GATS jar, filter fuel bank into tank, otherwise fuel should be placed into red fuel cans positioned along the flight line.
   c. Under **NO** circumstances will fuel be dumped onto the ground.
3) Notify line service when oil is needed.
   a. Do not mix makes or grades of oil.
   b. The grade of oil currently in use can be found on the right side window of single engine aircraft and both sides on multi engine aircraft, or in the engine logbooks.
4) Student b

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u

General Information

iii. Eastern – Highway 13
iv. Western – Highway 131

f. Area 6 includes Clinton Airport for landing practice. This area is **not** available for student pilots.
i. Northern – Abandoned railroad
ii. Southern – Highway 7
iii. Eastern – Highway 13
iv. Western – Highway 131 and a line from Holden to Urich

Minimum Training Altitudes

1) Altitudes selected will depend upon type of training and aircraft utilized.
2) Practice area altitudes are normally 2,500 ft to 4,000 ft MSL for single engine.
3) Multi engine practice area altitudes are 4,000 ft to 8,000 ft MSL
4) Ground reference maneuvers will be performed at approximately 1,000 ft AGL or 1800 ft MSL.
5) No flight over Warrensburg at less than 3,000 AGL is allowed.
6) Minimum altitudes of 500 ft AGL will be observed at all times, except during takeoff and landing at approved airports.

Non-Paved Airports/Runways

1) UCM aircraft operations on other than hard surface runways are allowed only on public use airports identified on FAA publications and approved by the Chief Flight Instructor. Operations on other than hard surface runways that are not for public use must receive prior permission from the Chief or Assistant Chief Flight Instructor. The following procedures will be used in order to land on a non-paved runway:
   a. Call the field operator to determine the status of the runway.
   b. Check applicable notams.
   c. Check ap43.952-24.4(a l)3dble notams.

Student pilot landing restrictions:

1) Dual:
   a. Touch and go and stop and go landings are authorized **only** when flying dual.
      i. Prior to students practicing touch and go and stop and go

Fuel and Oil Requirements

1) All flight planning concerning fuel requirements will be in accordance with the POH of the training aircraft being used.
2) Local flights within the designated flight training areas will depart with no less than 20 gallons of fuel in the single engines, and 70 gallons in the Baron.
3) Cross-country flights will refuel as necessary:
   a. VFR Day flights will depart with enough fuel to reach destination plus 1 hour fuel at cruise power.
   b. VFR night flight will depart with enough fuel to reach destination plus 1 ½ hours fuel at cruise power.
   c. All IFR flights will depart with enough fuel to reach destination, fly to alternate and have minimum reserve of 1 ½ hours minimum fuel after reaching the planned alternate airport at cruise power.
4) Student Pilots will refer to the Private pilot section 4 for fuel requirements.
5) Oil requirements allow for operation to terminate with no less than two quarts below full capacity.

Cold Weather Flight Operations

All temperatures listed below are surface temperatures for aircraft other than the Baron.

1) Operating at low power settings during cold temperatures is limited as follows:
   a.

General Information

Fire Precautions and Procedures

1) Know and understand the systems of your aircraft. Following procedures as outlined by the aircraft manual is essential to safety!
2)

Section 4 – PRIVATE PILOT

The Private Pilot rating is divided into two flight courses and a ground school. All degree seeking students will conduct training under CFR 14 Part 141 unless approved by the Chief Flight Instructor.

This section contains references to both the C-172R and C-172S.

Student Pilots

Student pilots have restrictions to solo flight training.

1) All student pilot solo flights must be approved by the flight instructor and proper endorsements received prior to dispatch.
   a. Local flights will be released when dispatcher confirms:
      i. Weather limitations on endorsements are not exceeded.
      ii. Solo endorsement from instructor has been given for the type of flight and aircraft and has not expired.
      iii. Aircraft has at least 20 gallons of fuel.
   b. Cross country flights will be released when dispatcher confirms:
      i. Weather limitations on endorsements are not exceeded.
      ii. Solo endorsement from instructor has been given for the type of flight and aircraft and has not expired.
      iii. Initial cross country endorsement from instructor has been issued for type of aircraft.
      iv. Cross country planning endorsed for current day and weather conditions.
      v. Aircraft has full fuel tanks upon departure and meets UCM fuel reserve requirements.
2) Student pilots may not operate aircraft solo if the following wind limitations are exceeded.
   a. Steady wind of 15 kts.
   b. Crosswind of 10 kts.
   c. Gust factor of 5 kts.
   d. Any condition that exceeds the students' solo endorsement limitations given by assigned flight instructor which

Re-Dispatch Procedures

1) **All student pilot solo flights must be** re-dispatched after landing (scheduled or unscheduled) at any location other than Skyhaven.
2) Student Pilot cross country training flights must
   a. Close the flight plan.
   b. Call (660) 543-8664 for a re-dispatch of the aircraft.
   c. Receive an updated weather briefing.
   d. Open next leg of flight plan.
   e. Depart with fuel levels in accordance with UCM policies.
3) Any delay in returning to Skyhaven requires notification to the UCM Dispatcher (if able) and Flight Service Station.

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Passenger Briefing (C-172R)

Objective:

To provide a standard pre-flight briefing to passengers.

Description:

The pilot in command is required by the Federal Aviation Regulations to provide a passenger briefing.

Setup Procedure:

1) Before starting the engine the Pilot-in-Command will provide the passenger safety briefing to include, but not limited to:
    a. Designation of Pilot-in-Command.
    b. Procedures for positively exchanging flight controls.

S

i. Seat belts and shoulder harnesses (location and operation).
ii. Seat belts & shoulder harnesses fastened for taxi, takeoff and landing.
iii. Seat position adjusted and locked in place (controls and operation).

A

iv. Air vents (location and operation).
v. All environmental controls (discussed).
vi. Action in case of any passenger discomfort.

F

vii. Fire extinguisher (location and operation).
viii. Smoking is prohibited.

E

ix. Exit doors (how to secure; how to open).
x. Emergency evacuation plan.
xi. Emergency/survival kit (location and contents).
xii. Equipment (location & operation, i.e., ELT, flight controls).

T

xiii. Traffic (scanning, spotting, notifying pilot).
xiv. Talking ("sterile cockpit" expectations).

Y

xv. Your questions?

Flight Proficiency Standards:

- Briefs occupants on the use of safety belts, shoulder harnesses, doors, and emergency procedures.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the importance and regulatory requirement for providing a passenger briefing.

Common Errors:

Normal & Crosswind Takeoff & Climb (C-172R)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and establishes a pitch attitude to climb away from the runway.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete takeoff checklist and takeoff briefing.
3) Use aircraft lighting as recommended by the current version of AC 91-73.
4) Ensure runway is clear, align aircraft with runway [illegible]
Ceck

Private Pilot

Short-Field Takeoff & Climb (C-172R)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude when the takeoff area is short or restricted by obstructions.

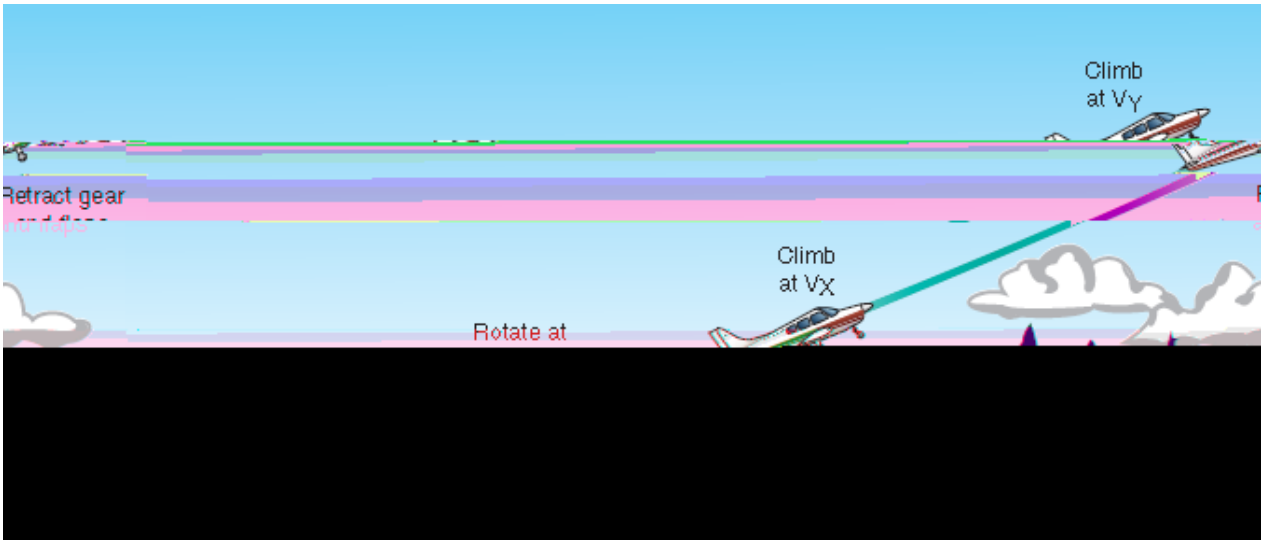
Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and a pitch attitude is established to climb away from the runway and clear a 50 foot obstacle.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete Short-Field takeoff checklist and takeoff briefing.
3) Set flaps to 10°.
4) Use aircraft lighting as recommended by the current version of AC 91-73.
5) Back taxi and align aircraft with runway centerline, confirm DG is aligned with runway, and ensure nose wheel is straight.
6) Ensure runway is clear, advance throttle smoothly to takeoff power while holding brakes; check engine instruments.
7) Release brakes and ensure toes are resting on rudder pedals, not brakes.
8) Maintain directional control with rudder pedals and appropriate aileron deflection.
9) Upon reaching rotation speed, 55 kts (V_R), increase back elevator pressure to establish lift-off attitude and allow aircraft to fly off ground.
10) Accelerate the aircraft to 57 kts (V_X) until obstacle is cleared or 50 feet above takeoff surface is attained and then accelerate to 79 kts (V_Y).
11) Retract flaps after a safe altitude of at least 200 ft. and an airspeed of 79 kts are attained.
12) At 500 ft., or as workload permits, complete climb checklist.



Private Pilot

Private Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
- Complies with proper traffic pattern procedures.
- Maintains proper spacing from other aircraft.
- Corrects for wind drift to maintain the proper ground track.
- Maintains orientation with the runway/landing area in use.
- Maintains traffic pattern altitude, C1y(alnc)-8.9. ( )Tj p.3eTc (5 0 313 -1.157 Td <0083>Tj /TT0 1 Tf ( )Tj -0.002 Tc 0

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
- Maintain proper airspeed at all times.
- Use proper crosswind correction to avoid drifting from runway centerline.

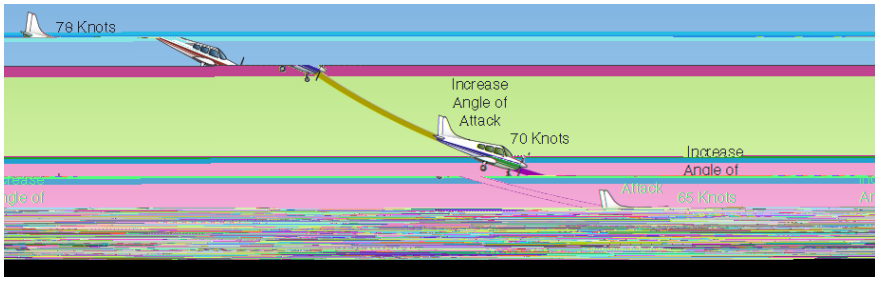
Common Errors:

- Improper use of landing performance data and limitations.
- Failure to establish proper crosswind correction.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Improper procedure during round out and touchdown.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

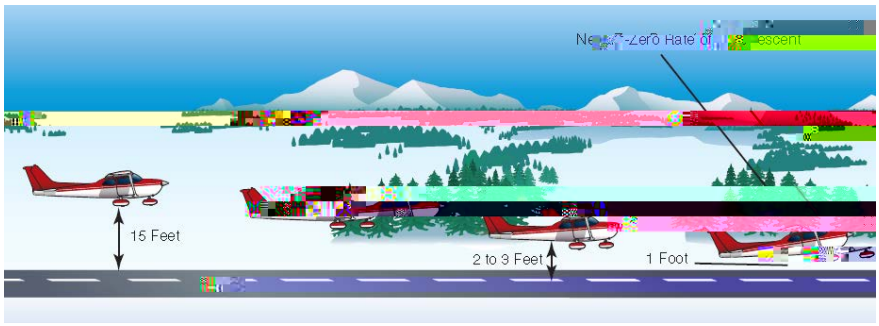
Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

Changing angle of attack during round out



Aiming point of a stabilized approach

Example of a well-executed round out and proper landing attitude



Crosswind Approach & Landing (C-172R)

Private Pilot

Short-Field Approach & Landing (C-172R)

Objective:

To safely transition from flight to ground operations at an airport with a relatively short runway or where an approach is made over obstacles.

Description:

The airplane is configured for a stabilized approach with or without a 50 foot obstacle. There will be little or no float during

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a short-field approach and landing.
-

Soft-Field Approach & Landing (C-172R)

Touch and Go (C-172R)

Objective:

To transition from a landing rollout to a takeoff roll while remaining on the runway.

Description:

A touch and go is a landing which transitions into a takeoff while the aircraft remains rolling on the runway.

Setup Procedure:

1) Perform a normal landing.
2) Upon touchdown:
    a. Allow the aircraft to continue rolling.
    b. Maintain runway centerline.
    c. Apply proper crosswind correction.
3) Reconfigure the aircraft for takeoff.
    a. Retract flaps to desired value (10^{o} or less).
    b. Set trim to the takeoff position.
4) Smoothly apply full-power.
5) Upon reaching rotation speed, 55 kts (V_R), increase back elevator pressure to establish the lift-off attitude that is approximately V_Y or V_X

Emergency Approach & Landing (C-172R)

Objective:

Private Pilot

Go-Around (C-172R)

Objective:

To safely discontinue the landing approach if unstable or other unsatisfactory conditions exist.

Description:

As full power is applied, the aircraft attitude is adjusted to accelerate to V_Y and climb. As a safe airspeed is attained, flaps are retracted 10° at a time allowing stabilization between each retraction.

Setup Procedure:

1) Simultaneously apply maximum power and establish a go-around pitch attitude.
2) Set flaps to 20°.
3) Establish a pitch attitude to accelerate to 55 kts.
4) Allow the airplane to accelerate to V_X or V_Y and climb.
5) If there is an aircraft on the runway, sidestep to clear the departure path of the airplane and allow the pil.ds.151:.1(s2s)-8(p

Maneuvering During Slow Flight (C-172R)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Slow flight consists of slowing the aircraft to a minimum controllable airspeed in the landing configuration and maneuvering the aircraft while maintaining altitude and airspeed.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500’ AGL.
2) Perform clearing turns.
3) Set mixture to rich.
4) Reduce power to 1,500 RPM or less.
5) Below 110 kts, set flaps to 10°.
6) Adjust pitch and power as necessary to maintain altitude.
7) Below 85 kts, set flaps to 20° and 30° allowing the aircraft to stabilize between each setting.
8) Establish and maintain an airspeed that may intermittently activate the stall warning horn.
    a. Slow flight should be practiced at varying speeds and configurations above the 1G stall speed of the aircraft as specified by the instructor.
9) Maneuver as instructed.
10) Recover when instructed by:
    a. Adding full power
    b. Set flaps to 20° and allow the aircraft to stabilize.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the relationship between pitch and power in maintaining airspeed and altitude during slow flight.
- Discuss how flight at minimum airspeeds develops the ability to estimate the margin of safety above the stalling speed.
- Compare the practice of slow flight to various phases of flight such as; takeoffs, climbs, descents, go-arounds, and approaches to landing.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified gear and flap configuration.
- Improper entry technique.
- Failure to establish and maintain the specified airspeed.
- Excessive variations of altitude and heading.
- Rough or uncoordinated control technique.
- Improper correction for left turning tendency.

ff

Power – Off Stall (C-172R)

Objective:

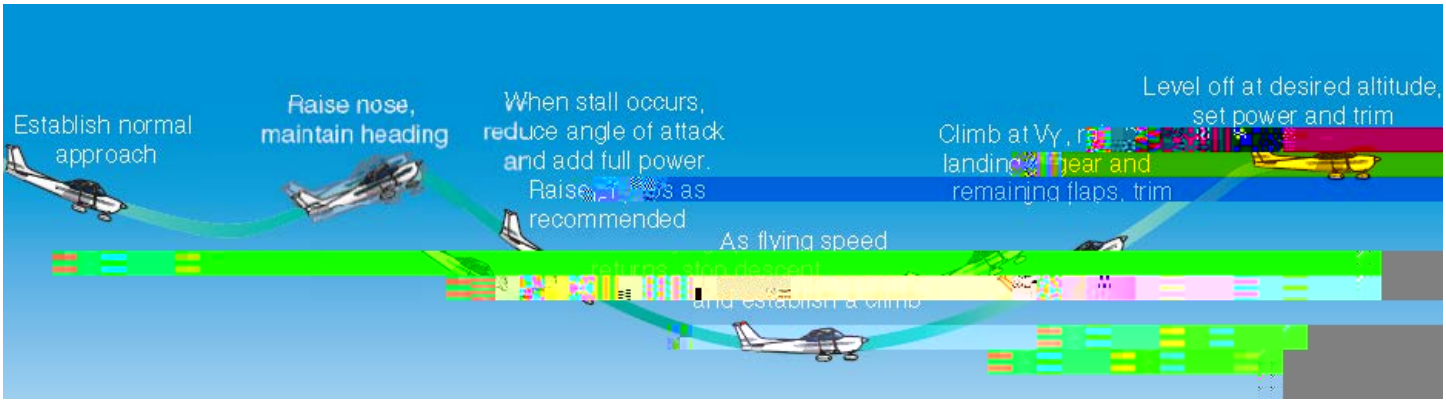
To familiarize the pilot with the conditions that produce stalls, to assist in recognizing an approaching stall, and to develop the skills to prevent and recover from stalls in the landing configuration.

Description:

The aircraft is slowed down and placed in the landing configuration after which a stall is induced and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500' AGL.
2) Perform clearing turns.
3) Set mixture to rich.
4) Reduce power to 1,500 RPM or less allowing the aircraft to slow to approach speed while maintaining altitude.
5) Below 110 kts, set flaps to 10°.
6) Below 85 kts, set flaps to 20° and 30° allowing the aircraft to stabilize between each setting.
7) Establish a stabilized descent at 65 kts.
8) Reduce power to idle.
9) Maintain coordinated flight and altitude until recognition of the stall. As the stall occurs, recover from the stall by simultaneously reducing the angle of attack, adding full power, and leveling the wings.
10) Set flaps to 20°.
11) Accelerate the aircraft to V_X (recommended) or V_Y and climb while retracting the remaining flaps in 10° increments.
12) Return to cruise flight and complete cruise checklist to include leaning procedures.



Flight Proficiency Standards:

- Exhibits knowledge of the elements related to power-off stalls.
- Selects an entry altitude that allows the task to be completed no lower than 1,500'AGL.
- Establishes a stabilized descent in the approach or landing configuration, as specified by the instructor.
- Transitions smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
- Maintains a specified heading, ±10°, in straight flight; maintains a specified angle of bank not to exceed 20°, ±10°; in turning flight, while inducing the stall.
- Recognizes and recovers promptly after the stall occurs by simultaneously reducing the angle of attack, increasing power to maximum allowable and leveling the wings to return to a straight and level flight attitude with minimum loss of altitude appropriate for the airplane.
- Retract the flaps to the recommended setting; retracts the landing gear, if retractable, after a positive rate of climb is established.
- Accelerates to V_X or V_Y speed before the final flap retraction; returns to the altitude, heading, and airspeed specified by the instructor.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss the aerodynamics of a stall.
- Describe the indications of an impending stall and how to prevent a stall from occurring.
- Describe the steps in recovering from a stall.
- Discuss the factors that affect the stalling characteristics of the airplane.
- Explain how to avoid a spin.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

Recovery from Unusual Flight Attitudes (C-172R)

Objective:

To safely re-establish control of the airplane after recognition of an unusual attitude.

Description:

The aircraft is maneuvered with the proper use of pitch, power, and bank to safely recover from a nose-high or nose-low unusual attitude.

Setup Procedure:

1) The instructor will position the aircraft into a level or banked nose-high or nose-low unusual attitude while the student has his or her eyes closed.
2) The instructor will instruct the student to recover from the unusual attitude visually or by using a view limiting device.
3) trDCI u-Sdure:

Private Pilot

Tracking A Straight Line (C-172R)

Objective:

To maintain a uniform ground track along a selected straight line or road with a constant airspeed and altitude while controlling the effect of wind drift on the airplane and the proper correction using varying crosswind correction.

Description:

Tracking a straight line is a training maneuver, in which the ground track of the airplane is flown following a straight line on the ground correcting for wind drift.

Setup Procedure:

1) Select a straight line at least 1 mile in length with a crosswind in an area free of obstructions.
2) Perform clearing turns and establish 1,000’ AGL.
3) Adjust the mixture in accordance with the POH.
4) Position the airplane to follow a path over or parallel to a straight line.
5) Maintain an equal distance from the straight line as you fly along it crabbing as necessary.
6) Return to cruise flight and perform the cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to tracking a straight line.
- Selects a suitable reference area.
- Plans the maneuver so as to track the straight line, 1,000’ AGL at an appropriate distance from the selected

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Rectangular Course (C-172R)

Objective:

To maintain a uniform ground track around a selected rectangular ground reference with a constant airspeed and altitude while controlling the effect of wind drift on the airplane and the proper correction using varying crosswind correction.

Description:

The rectangular course is a training maneuver, in which the ground track of the airplane is equidistant from all sides of the selected rectangular area [illegible]

Private Pilot

S-Turns (C-172R)

Objective:

To maintain a uniform ground track of semicircles along a selected reference line with a constant airspeed and altitude while demonstrating the effect of wind drift on the airplane and the proper correction using varying bank angle.

Description:

The airplane's ground track describes semicircles of equal radii on each side of a selected straight line on the ground.

Setup Procedure:

1) Select a prominent line on the ground perpendicular to the wind.
2) Perform clearing turns and establish 1,000' AGL.
3) Adjust the mixture in accordance with the POH.
4) Maintain a safe airspeed (recommended 95 kts).
5) Enter the maneuver on the downwind.
6) Initiate the first turn upon reaching the reference line.
7) Apply wind correction, as necessary, to maintain a constant radius around a point on the reference line.
8) After a 180° turn, reverse the turn.
9) After two 180° turns are completed, exit on the downwind.
10) Return to cruise flight and perform the cruise checklist to include leaning procedures.

Flight Proficiency Standards:

C-172S

Taxiing (C-172S)

Objective:

To safely maneuver the airplane on the surface of the airport.

Description:

Taxiing is the controlled movement of the airplane under its own power while on the ground.

Setup Procedure:

1) Complete before taxi checklist.
2) Set heading bug to the wind direction.
3) After engine start, check for traffic in both directions, increase power and allow the airplane to roll slight forward and apply brakes.
4)

Private Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a normal and crosswind takeoff, climb operations, and rejected takeoff procedures.
- Positions the flight controls for the existing wind conditions.
- Clears the area; taxies into the takeoff position and aligns the airplane on the runway centerline.
- Lifts off at the recommended airspeed and accelerates to V_Y.
- Establishes a pitch attitude that will maintain V_Y +10/-5 kts.
- Retracts the landing gear, if appropriate, and flaps after a positive rate of climb is established.
- Retracts flaps at 200' or a safe altitude.
- Maintains takeoff power and V_Y +10/-5 kts to a safe maneuvering altitude.
- Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
- Complies with noise abatement procedures.
- Completes the appropriate checklist.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain runway selection criteria.
- Discuss how to maintain directional control during the ground roll.
- Discuss proper lift-off technique.
- Explain how to use ailerons during crosswind situations.
- Describe how to correct for wind-drift.

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back on the runway.
- Do not allow upwind wing to rise during takeoff.
- Do not exceed maximum demonstrated crosswind.
- Consider the effect of density altitude on performance.

Common Errors:

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Short-Field Takeoff & Climb (C-

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a short-field takeoff and maximum performance climb.
- Positions the flight controls for the existing wind conditions; set the flaps as recommended.
- Clears the area; taxies into takeoff position utilizing maximum available takeoff area and aligns the airplane on the runway center/takeoff path.
- Applies brakes (if appropriate), while advancing throttle smoothly to takeoff power.
- Lifts off at the recommended airspeed, and accelerates to the recommended obstacle clearance airspeed or V_X.
- Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or V_X, +10/-5 kts, until the obstacle is cleared, or until the airplane is 50 feet above the sut-24.5(u)]ah 3.1 [(,)-5.1(.3(Eb)-5.1(.31(e)-12.2(ar)-6

Traffic Pattern (C-172S)

Objective:

To assure that air traffic flows into and out of an airport in an orderly manner.

Description:

The airplane is flown on a rectangular course around a runway at an altitude specified in the current Airport/Facility Directory.

Setup Procedure:

Departures

1) Upwind, Easterly and Westerly departures:
    a. Fly the departure leg straight out until reaching traffic pattern altitude.
    b. Once reaching traffic pattern altitude, continue climbing and turn on course.
2) Downwind departures:
    a. Fly the departure, crosswind and downwind legs of the traffic pattern while remaining at traffic pattern altitude.
    b. Upon reaching a point abeam the approach end of the runway, resume climb out and turn on course.

Arrivals

1) Prior to reaching 5 NM from the airfield, complete the following:
    a. Monitor local AWOS/ASOS/ATIS
    b. Ask “Is there any traffic between me and the airport?” and cancel flight following (if applicable)
    c. Before landing checklist
2) Slow down below the approach flap airspeed prior to pattern entry.

    If already established on the downwind side, skip to step 4.*

3) For a midfield entry:
    a. Cross midfield 500’ above traffic pattern altitude, observing traffic flow and wind direction.
    b. Fly 2-3 miles beyond the downwind leg.
    c. Complete a descending, tear-drop shaped turn to the right or left as necessary to position the aircraft at traffic pattern altitude (TPA) at a 45 degree angle to the downwind leg.

    If less than two aircraft are currently in the pattern, the alternate method may be used – consult your instructor for more information.

4) Enter the traffic pattern at the designated traffic pattern altitude (normally 1,000’ AGL) at a 45 degree angle to the downwind leg at midfield.
5) Apply appropriate crosswind correction to allow for a parallel flight path approximately ½ mile from the runway
6) Allow for proper spacing from other aircraft in the pattern as to prevent runway incursions upon landing.
7) Maintain airspeed below the flap speed required for each configuration change.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
- Complies with proper traffic pattern procedures.
- Maintains proper spacing from other aircraft.
- Corrects for wind drift to maintain the proper ground track.
- Maintains orientation with the runway/landing area in use.
- Maintains traffic pattern altitude, ±100 feet and the appropriate airspeed, ±10 kts.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss traffic patterns at controlled and uncontrolled airports.
- Explain traffic pattern procedures.
- Explain how to maintain the proper ground track.

Safety Considerations:

- Maintain proper traffic pattern altitude.
-

Normal Approach & Landing (C-172S)

Objective:

To safely transition from flight to ground operations during normal conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.
3) Select touchdown and aiming points.
4) Set flaps to 10° no later than abeam the touchdown point.
5) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
6) Turn on the base leg when 45° from the touchdown point:
    a. At key position, assess approach position.
    b. With wings level, set flaps to 20° as required.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
7) Turn on final as to align the aircraft with the extended runway center line:
    a. Set flaps to 30° as required.
    b. Adjust pitch and power as Tj -0.0028 Tj -6t2(as)-8(Tj -0.0028)7.9(,)-1.1(s)-1.157 Td (a.)Tj 034(af)-1(400)]TJa

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
- Maintain proper airspeed at all times.
- Use proper crosswind correction to avoid drifting from r(ee59a-6.3(253.40T /C3.40T /7l59a-6.3(W8.1(pl ea-6.3(W8.1(p T

Crosswind Approach & Landing (C-172S)

Objective:

To safely transition from flight to ground operations during crosswind conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

2) Complete the before landing and normal landing checklist at least 3 nm before the airport.
3) Enter and fly the appropriate pattern.
4) Select touchdown and aiming points.
5) Set flaps to 10° no later than abeam the touchdown point.
6) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
7) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    c. With wings level, set flaps to 20° as required.
    d. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
8) Turn on final as to align the aircraft with the extended runway center line:
    a. Apply appropriate crosswind correction to maintain the extended runway centerline.
    b. Set flaps to 30° as required.
    c. Adjust pitch and power as required to maintain a stabilized approach, at 65 kts, toward the selected aiming point until flare to land.
    d. Add crosswind control by lowering the upwind wing and applying opposite rudder as appropriate to maintain longitudinal axis of aircraft with extended centerline of runway.
    e. Complete the GUMPS check.
9) During the flare to land simultaneously reduce power to idle and maintain aircraft approximately one foot above runway until it slows to stall speed and touches down on the runway centerline.
10) Maintain positive pitch attitude for aero(ai)-8.91(i)3.1(tb-12.2(n3(y)16.1(c)-8.1(e)-3ye)-12.2(r)-6.b)-1.1(ak2.3(ul)3.2((l)g3.3

Private Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a short-field approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects the most suitable touchdown point.
- Establishes the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.
- Maintains a stabilized approach and recommended approach airspeed, or in its absence not more than 1.3 V_{SO}, +10/-5 kts, with wind gust factor applied.
- Makes smooth, timely, and correct control applications during the round out and touchdown.
- Touches down smoothly at minimum control airspeed.
- Touches down at or within 200 feet beyond a specified point, with no side drift, minimum float and with the airplane's longitudinal axis aligned with and over the runway center/landing path.
- Maintains crosswind correction and directional control throughout the approach and landing sequence.
- Applies brakes, as necessary, to stop in the shortest distance consistent with safety.
- Completes the appropriate checklist.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to compensate for obstacles and shortened runway lengths.

Safety Considerations:

- Maintain proper airspeed at all times.
- Compensate for crosswind.
- Do not skid tires.
- Use of aerodynamic braking as available.

Common Errors:

- Excessive airspeed on final approach.
- Slow airspeed prior to touchdown.
- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Improper procedure during round out and touchdown.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

Soft-Field Approach & Landing (C-172S)

Objective:

To safely transition the airplane from flight to ground operations on a rough or soft surface.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a soft-field approach and landing.
- Considers the wind conditions, landing surface and obstructions, and selects the most suitable touchdown area.
- Establishes the recommended approach and landing configurations, and airspeed; adjusts pitch attitude and power as required.
- Maintains a stabilized approach and recommended airspeed, or in its absence not more than 1.3 V_{SO}, +10/-5 kts, with wind gust factor applied.
- Makes smooth, timely, and correct control applications during the round out and touchdown.
- Touches down softly with no drift, and with the airplane's longitudinal axis aligned with the runway/landing path.
- Maintains crosswind correction and directional control throughout the approach and landing sequence.
- Maintains proper position of the flight controls and sufficient speed to taxi on the soft surface.
- Completes the appropriate checklist.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- Only land on public, published, unimproved runways with UCM aircraft.
- Use caution when landing on wet grass.

Common Errors:

- Failure to maintain elevator back-a]TJ -0.00 -

Touch and Go (C-172S)

Objective:

To transition from a landing rollout to a takeoff roll while remaining on the runway.

Description:

A touch and go is a landing which transitions into a takeoff while the aircraft remains rolling on the runway.

Setup Procedure:

1) Perform a normal landing.
2) Upon touchdown:
    a. Allow the aircraft to continue rolling.
    b. Maintain runway centerline.
    c. Apply proper crosswind correction.
3) Reconfigure the aircraft for takeoff.
    a. Retract flaps to 10°.
    b. Set trim to the takeoff position.
4) Smoothly apply full-power.
5) Upon reaching rotation speed, 55 kts (V_R), increase back elevator pressure to establish the lift-off attitude that is approximately V_Y or V_X and allow the aircraft to fly off the ground.
6) Apply adequate drift correction to maintain runway centerline.
7) At 500 ft., or as workload permits, complete the climb checklist.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to touch and go procedures.
- Maintains runway centerline upon touchdown.
- Applies proper crosswind controls upon touchdown, reconfiguration and climb out.
- Demonstrates proper aircraft reconfiguration.
- Lifts off at the recommended airspeed and accelerates to V_X or V_Y, as appropriate.
- Retracts flaps at 200' or a safe altitude, if appropriate.
- Maintains directional control and proper wind-drift correction throughout the takeoff and climb.
- Complies with noise abatement procedures.
- Completes the appropriate checklist.

Note: These are the UCM standards. The aforementioned standards are not found in the Airman Certification Standards.

Learning Outcomes:

- Explain the purpose(s) of touch and go's.
- Discuss how crosswind correction will change throughout the maneuver.
- Discuss the importance of maintaining runway centerline during aircraft reconfiguration.

Safety Considerations:

- Maintain runway centerline.
- Proper crosswind correction.
- Maintain situational awareness.
- Proper reconfiguration.

Common Errors:

- Failure to maintain runway centerline.
- Touchdown beyond the first 1/3rd of the runway and attempting a touch and u8not found in the

Private Pilot

Emergency Approach & Landing (C-172S)

Objective:

To develop accuracy, judgment, planning, procedures, and confidence when little or no power is available.

Description:

An engine failure is simulated by the instructor after which the airplane is safely maneuvered to a landing.

Setup Procedure:

1) The instructor will reduce engine power to idle and announce “simulated emergency landing.”
2) Establish an airspeed of 68 kts ($V_{L/D}$) and trim to maintain airspeed.
3) Select a suitable landing location and spiral over it.
4) Complete an engine restart flow.
5) Complete the engine failure checklists as time permits.
6) Establish communication to report emergency situation.
7) Configure and maneuver the aircraft to fly a normal traffic pattern as applicable.

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Forward Slip to a Landing (C-172S)

Objective:

To dissipate altitude without increasing airspeed.

Description:

The upwind wing is lowered and opposite rudder is used to maintain the ground track bringing the aircrafts longitudinal axis at an angle to its flight path. The pitch is adjusted to maintain the desired airspeed.

Setup Procedure:

1) Determine the wind direction.
2) Reduce power to idle.
3) Simulta

Go-Around (C-172S)

Objective:

To safely discontinue the landing approach if unstable or other unsatisfactory conditions exist.

Description:

As full power is applied, the aircraft attitude is adjusted to accelerate to V_Y and climb. As a safe airspeed is attained, flaps are retracted 10° at a time allowing stabilization between each retraction.

Setup Procedure:

1) Simultaneously apply maximum power and establish a go-around pitch attitude.
2) Set flaps to 20°.
3) Establish a pitch attitude to accelerate to 55 kts.
4) Allow the airplane to accelerate to V_X or V_Y and climb.
5) If there is an aircraft on the runway, sidestep to clear the departure path of the airplane and allow the pilot to view the landing or departing traffic.
6) Set flaps to 10° and stabilize in between configuration changes then flaps to 0°.
7) Verify Go Around checklist is complete.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a go-around/rejected landing.
- Makes a timely decision to discontinue the approach to landing.
- Applies takeoff power immediately and transitions to climb pitch attitude for V_X

Safety Considerations:

- Maneuver the airplane to the side of the runway.
- Do not establish a pitch up attitude too quickly.
- Maintain coordination.
- Timely decision making.
- Be watchful for situation which may require a go-around.

Common Errors:

- Delayed decision to make a go-around.
- Improper application of power.
- Failure to control pitch attitude.
- Improper trim technique.
- Failure to compensate for torque effect.
- Failure to maintain 79 kts (V_Y).

Maneuvering During Slow Flight (C-172S)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Slow flight consists of slowing the aircraft to a minimum controllable airspeed in the landing configuration and maneuvering the aircraft while maintaining altitude and airspeed.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500’ AGL.
2) Perform clearing turns.
3) Set mixture to rich.
4) Reduce power to 1,500 RPM or less.
5) Below 110 kts, set flaps to 10°.
6) Adjust pitch and power as necessary to maintain altitude.
7) Below 85 kts, set flaps to 20° and 30° allowing the aircraft to stabilize between each setting.
8) Establish and maintain an airspeed that may intermittently activate the stall warning horn.
    a. Slow flight should be practiced at varying speeds and configurations about the 30° flap setting.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the relationship between pitch and power in maintaining airspeed and altitude during slow flight.
-

Power – Off Stall (C-172S)

Objective:

To familiarize the pilot with the conditions that produce stalls, to assist in recognizing an approaching stall, and to develop the skills to prevent and recover from stalls in the landing configuration.

Description:

The aircraft is slowed down and placed in the landing configuration after which a stall is induced and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

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Power – On Stall (C-172S)

Objective:

To familiarize the pilot with the conditions that produce stalls, to assist in recognizing an approaching stall, and to develop skills to prevent and recover from stalls in the takeoff configuration.

Description:

The aircraft is slowed down and placed in the takeoff configuration after which a stall is induced and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500' AGL.
2) Perform clearing turns.
3) Set mixture to rich.
4) Reduce power to 1200 RPM or less, allowing the aircraft to slow to takeoff speed while maintaining altitude.
5) Add full power at 55 kts (V_R).
6) Transition smoothly to the pitch attitude that will induce a stall.
7) Recognize and recover promptly after a fully developed stall occurs by simultaneously reducing the angle of attack, confirming full power, and leveling the wings.
8) Accelerate the aircraft to 74 kts (V_Y) and climb.
9) Return to cruise flight and complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to power-

Learning Outcomes:

- Discuss the aerodynamics of a stall.
- Describe the indications of an impending stall and how to prevent a stall from occurring.
- Describe the steps in recovering from a stall.
- Discuss the factors that affect the stalling characteristics of the airplane.
- Explain how to avoid a spin.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

Private Pilot

Steep Turns (C-172S)

Objective:

To develop coordination, orientation, division of attention and smooth control techniques while executing high performance turns.

Description:

The maneuver consists of a 360° turn using a bank angle of approximately 45° while maintaining a constant airspeed and altitude.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500' AGL.
2) Perform clearing turns.
3) Adjust the mixture in accordance with the POH.
4) Reduce power to establish an airspeed of 95 kts.
5) Enter a coordinated 45° banking turn to the left or right.
6) Increase power and adjust trim and pitch as required to maintain altitude and airspeed.
7) Begin rollout at ½ the bank angle prior to rollout heading.
8) Reduce power and pitch on rollout as needed to remain at 95 kts.
9) Return to cruise flight and complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to steep turns.
- Establishes the manufacturer's recommended airspeed (95 kts) or if one is not stated, a safe airspeed not to exceed V_A.
- Rolls into a coordinated 360° turn; maintains a 45° bank.
- Perform the task in the opposite direction, as specified by the instructor.
- Divide attention between airplane control and orientation.
- Maintain the entry altitude, ±100 feet, airspeed, ±10 kts, bank, ±5°; and roll out on the entry heading, ±10°.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain why load factor increases as bank angle increases.
- Discuss the relationship between load factor and stall speed.
- Discuss the principle of over-banking tendency.
- Explain how to maintain altitude and airspeed.
- Explain limit load factor and what happens if it's exceeded.

Safety Considerations:

- Do not exceed manufacturer's recommended airspeed or Va.
- Always clear the area before initiating the maneuver.
- The maneuver is to be completed no lower than 1,500' feet AGL.
- Division of attention between maneuver and scanning for traffic.

Common Errors:

- Improper pitch, bank, and power coordination during entry and rollout.
- Uncoordinated use of flight controls.
- Improper procedure in correcting altitude deviations.
- Loss of orientation.

Rectangular Course (C-172S)

Objective:

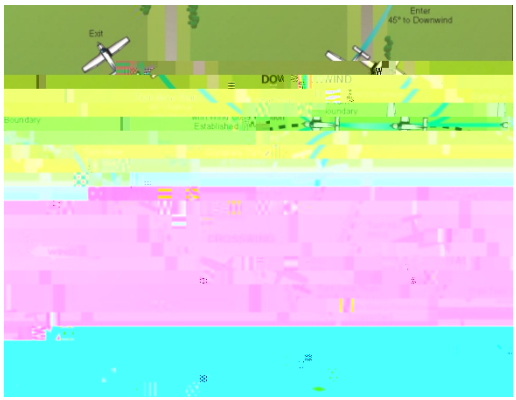
To maintain a uniform ground track around a selected rectangular ground reference with a constant airspeed and altitude while controlling the effect of wind drift on the airplane and the proper correction using varying crosswind correction.

Description:

The rectangular course is a training maneuver, in which the ground track of the airplane is equidistant from all sides of the selected rectangular area on the ground.

Setup Procedure:

1) Select a rectangular area approximately 1 mile in length in an area free of obstructions.
2) Perform clearing turns and establish 1,000' AGL.
3) Adjust the mixture in accordance with the POH.
4) Maintain a safe airspeed (recommended 95 kts).
5) Enter the pattern at a 45° angle to midfield of the downwind approximately ½ mile from the field.
6) Maintain an equal distance from the field as you fly around it crabbing as necessary.
7) Exit the maneuver at a 45° angle to midfield of the downwind.
8) Return to cruise flight and perform the cruise checklist to include leaning procedures.



Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a rectangular course.
- Selects a suitable reference area.
- Plans the maneuver so as to enter a left or right pattern, 1,000' AGL at an appropriate distance from the selected reference area, 45° to the downwind leg.
- Applies adequate wind-drift correction during straight and turning flight to maintain a constant ground track around the rectangular reference area.
- Divides attention between airplane control and the ground track while maintaining coordinated flight.
- Maintains altitude, ±100 feet; maintains airspeed, ±10 kts.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Describe proper division of attention.
- Explain the correlation between the maneuver and a traffic pattern at an airport.
- Predict amount of wind correction based on conditions.

Safety Considerations:

- Avoid tall obstacles and populated areas.
- Locate a landing area to use in the event of an emergency
- Maintain separation from other aircraft.

Common Errors:

- Improper crab angle.
- Fixation on one aspect of the maneuver.
- Uncoordinated flight.

References:

Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

C-152

Passenger Briefing (C-152)

Objective:

To provide a standard pre-flight briefing to passengers.

Description:

The pilot in command is required by the Federal Aviation Regulations to provide a passenger briefing.

Setup Procedure:

2) Before starting the engine the Pilot-in-Command will provide the passenger safety briefing to include, but not limited to:
    a. Designation of Pilot-in-Command.
    b. Procedures for positively exchanging flight controls.

S

i. Seat belts and shoulder harnesses (location and operation).
ii. Seat belts & shoulder harnesses fastened for taxi, takeoff and landing.
iii. Seat position adjusted and locked in place (controls and operation).

A

iv. Air vents (location and operation).
v. All environmental controls (discussed).
vi. Action in case of any passenger discomfort.

F

vii. Fire extinguisher (location and operation).
viii. Smoking is prohibited.

E

ix. Exit doors (how to secure; how to open).
x. Emergency evacuation plan.
xi. Emergency/survival kit (location and contents).
xii. Equipment (location & operation, i.e., ELT, flight controls).

T

xiii. Traffic (scanning, spotting, notifying pilot).
xiv. Talking ("sterile cockpit" expectations).

Y

xv. Your questions?

Flight Proficiency Standards:

- Briefs occupants on the use of safety belts, shoulder harnesses, doors, and emergency procedures.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the importance and regulatory requirement for providing a passenger briefing.

Common Errors:

- Failure to perform a passenger briefing.
- Incomplete passenger briefing.

References:

Airman Airman Certification Standards, Federal Aviation Regulations, AC 121-24, AOPA Passenger Safety Briefing Video

Taxiing (C-152)

Objective:

To safely maneuver the airplane on the surface of the airport.

Description:

Taxiing is the controlled movement of the airplane under its own power while on the ground.

Setup Procedure:

8) Complete before taxi checklist.
9) Set heading bug to the wind direction.
10) After engine start, check for traffic in both directions, increase power and allow the airplane to roll slight forward and apply brakes.
11) To turn right, use right rudder. To turn left, use left rudder. Differential braking can be used to make a sharper turn.
12) Taxi at a speed consistent with safety, but no faster than a brisk walk. Use power to control taxi speed before using brakes.
13) Apply proper crosswind taxi control deflections.
14) To come to a stop, reduce power to idle and smoothly apply brakes.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to safe taxi procedures.
- Performs a brake check immediately after the airplane begins moving.
- Positions the flight controls properly for the existing wind conditions.
- Controls direction and speed 5(r)-2(6 <</MCID 50 >>BDC /C2_0 1

Private Pilot

Flight Proficiency Standards:

Private Pilot

Learning Outcomes:

- Discuss proper soft-field takeoff technique.
- Explain runway selection criteria.
- Predict the height of ground effect and discuss its relevance.
- Discuss how to maintain directional control during ground roll.

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not allow the airplane to climb above ground effect too soon, causing it to settle back onto the runway.

Common Errors:

- Improper runway incursion avoidance procedures.
- Improper use of controls during a soft-field takeoff.
- Improper lift-off procedures.
- Improper climb attitude, power setting and airspeed.
- Improper use of checklist.

References:

Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

Traffic Pattern (C-152)

Objective:

To assure that air traffic flows into and out of an airport in an orderly manner.

Description:

The airplane is flown on a rectangular course around a runway at an altitude specified in the current Airport/Facility Directory or as outlined in the FAR/AIM.

Setup Procedure:

Departures

4) Upwind, Easterly and Westerly departures:
    a. Fly the departure leg straight out until reaching traffic pattern altitude.
    b. Once reaching traffic pattern altitude, continue climbing and turn on course.
5) Downwind departures:
    a. Fly the departure, crosswind and downwind legs of the traffic pattern while remaining at traffic pattern altitude.
    b. Upon reaching a point abeam the approach end of the runway, resume climb out and turn on course.

Arrivals

8) Prior to reaching 5 NM from the airfield, complete the following:
    d. Monitor local AWOS/ASOS/ATIS
    e. Ask “Is there any traffic between me and the airport?” and cancel flight following (if applicable)
    f. Before landing checklist
9) Slow down below the approach flap airspeed prior to pattern entry.

***If** */P <</C* */Tll(i)3.1(r)-6.e</C* */Tldy(s)-84(es)-ght ablishnd po(t)-13.1(hd(p)-12.22(w)-2.9w(N)-14.3(i)3.1d(p)-12. 3(s)-8.4*

Normal Approach & Landing (C-152)

Objective:

To safely transition from flight to ground operations during normal conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

11) Complete the before landing and normal landing checklist at least 3 nm before the airport.
12) Enter and fly the appropriate pattern.
13) Select touchdown and aiming points.
14) Set flaps to 10° no later than abeam the touchdown point.

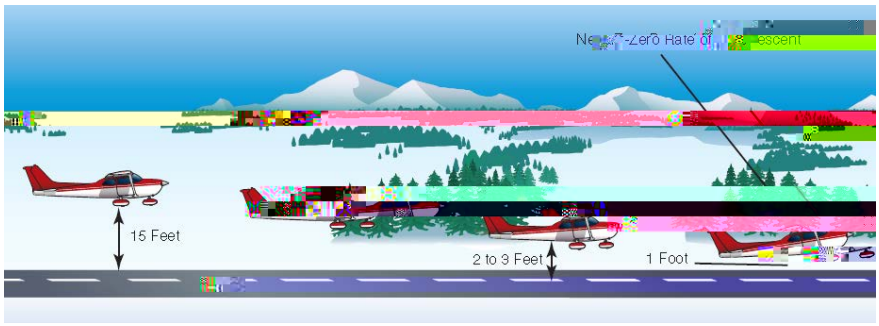
Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
- Maintain proper airspeed at am T2(m)-cacmi12.2(eds)-8(.)]TJont9sProd ( )Tj EMC /LBody <</MCID 19 >>BDC /C2_0

Example of a well-executed round out and proper landing attitude



Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
-

Short-Field Approach & Landing (C-152)

Objective:

To safely transition from flight to ground operations at an airport with a relatively short runway or where an approach is made over obstacles.

Description:

The airplane is configured for a stabilized approach with or without a 50 foot obstacle. There will be little or no float during the round out, allowing the airplane to touch down at a specified point, and be stopped in a shorter than normal distance.

Setup Procedure:

13) Complete the before landing and normal landing checklist at least 3 nm before the airport.
14) Enter and fly the appropriate pattern.
15) Select touchdown and aiming points.
16) Set flaps to 10° no later than abeam the touchdown point.
17) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 65 kts.
18) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    c. With wings level, set flaps to 20° as required.
    d. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 60 kts.
19) Turn final on the extended runway center line:
    a. Apply appropriate crosswind correction to maintain the extended runway centerline.
    b. Set flaps to 30° as required.
    a. Adjust pitch and power as required to maintain a stabilized approach, at 54 kts, toward the selected aiming point until flare to land.
    c. Add crosswind control by lowering the upwind wing and applying opposite rudder as appropriate to maintain longitudinal axis of aircraft with extended centerline of runway.

Private Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a soft-field approach and landing.
- Considers the wind conditions, landing surface and obstructions, and selects the most suitable touchdown area.
- Establishes the recommended approach and landing configurations, and airspeed; adjusts pitch attitude and power as required.
- Maintains a stabilized approach and recommended airspeed, or in its absence not more than 1.3 V_{SO}, +10/-5 kts, with wind gust factor applied.
- Makes smooth, timely, and correct control applications during the round out and touchdown.
- Touches down softly with no drift, and with the airplane's longitudinal axis aligned with the runway/landing path.
- Maintains crosswind correction and directional control throughout the approach and landing sequence.
- Maintains proper position of the flight controls and sufficient speed to taxi on the soft surface.
- Completes the appropriate checklist.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- Only land on public, published, unimproved runways with UCM aircraft.
- Use caution when landing on wet grass.

Common Errors:

- Failure to maintain elevator back-pressure after touchdown.
- Improper use of brakes.
- Failure to consider effect of wind and landing surface.

References:

Airplane Flying Handbook; POH/AFM; Private Pilot ACS; CFI PTS

Emergency Descent (C-152)

Objective:

To descend the airplane as soon and as rapidly as possible, within the structural limitations of the airplane.

Description:

The emergency descent is a maneuver for descending as rapidly as possible to a lower altitude or to the ground for an emergency landing.

Setup Procedure:

17) Perform clearing turns.
18) If utilizing flight following, contact ATC for traffic advisories below.
19) Reduce power to idle.
20) Confirm flaps 0^{o}
21) Set mixture to rich.
22) Roll into a 30^{o} - 45^{o} bank to the left and pitch down to achieve 105 kts (If in turbulent air, maintain an airspeed below V_A).
23) Initiate recovery to level flight at least 300' prior to assigned altitude by:
    e. Rolling out the bank.
    f. Pitching up.
24) Return to cruise flight and complete the cruise checklist to include leaning procedures

Emergency Approach & Landing (C-152)

Objective:

To develop accuracy, judgment, planning, procedures, and confidence when little or no power is available.

Description:

An engine failure is simulated by the instructor after which the airplane is safely maneuvered to a landing.

Setup Procedure:

9) The instructor will reduce engine power to idle and announce “simulated emergency landing.”
10) Establish an airspeed of 60 kts ($V_{L/D}$) and trim to maintain airspeed.
11) Select a suitable landing location and spiral over it.
12) Complete an engine restart flow.
13) Complete the engine failure checklists as time permits.
14) Establish communication to report emergency situation.
15) Configure and maneuver the aircraft to fly a normal traffic pattern as applicable.
16) Initiate a go-around no lower than 500 feet AGL.

Flight Proficiency Standards:

- Exhibit knowledge of the elements related to emergency approach and landing procedures.
- Establish and maintain the recommended best-glide airspeed, ±10 kts.
- Select a suitable landing area.
- Plan and follow a

Forward Slip to a Landing (C-152)

Objective:

To dissipate altitude without increasing airspeed.

Description:

Go-Around (C-152)

Objective:

To safely discontinue the landing approach if unstable or other unsatisfactory conditions exist.

Description:

As full power is applied, the aircraft attitude is adjusted to accelerate to V_Y and climb. As a safe airspeed is attained, flaps are retracted 10° at a time allowing stabilization between each retraction.

Setup Procedure:

1) Simultaneously apply maximum power and establish a go-

Safety Considerations:

- Maneuver the airplane to the side of the runway.
- Do not establish a pitch up attitude too quickly.
- Maintain coordination.
- Timely decy <</MCISubtyp3.1(onET 18tQ 0 Td 4(eakup)-12.2(at)-H(on.)]Td)Tj EMC /LBody <</MCID 3 >>BDC /C2

Maneuvering During Slow Flight (C-152)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Note: These are the ACS standards

Power – Off Stall (C-152)

Objective:

To familiarize the pilot with the conditions that produce stalls, to assist in recognizing an approaching stall, and to develop the skills to prevent and recover from stalls in the landing configuration.

Description:

The aircraft is slowed down and placed in the landing configuration after which a stall is induced and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

13) Select an altitude which allows recovery to be completed no lower than 1,500' AGL.
14) Perform clearing turns.
15) Set mixture to rich.
16) Reduce power to 1,500 RPM or less allowing the aircraft to slow to approach speed while maintaining altitude.
17) Below 85 kts, set flaps to 10°.
18) Set flaps to 20° and 30° allowing the aircraft to stabilize between each setting.
19) Establish a stabilized descent at 55 kts.
20) Reduce power to idle.
21) Maintain coordinated flight and altitude until recognition of the stall. As the stall occurs, recover from the stall by simultaneously reducing the angle of attack, adding full power, and leveling the wings.
22) Set flaps to 20°.
23) Accelerate the aircraft to V_X (recommended) or V_Y and climb while retracting the remaining flaps in 10° increments.
24) Return to cruise flight and complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to power-off stalls.
- Selects an entry altitude that allows the task to be completed no lower than 1,500'AGL.
- Establishes a stabilized descent in the approach or landing configuration, as specified by the instructor.
- Transitions smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
- Maintains a specified heading, ±10°, in straight flight; maintains a specified angle of bank not to exceed 20°, ±10°; in turning flight, while inducing the stall.
- Recognizes and recovers promptly after the stall occurs by s

Learning Outcomes:

- Discuss the aerodynamics of a stall.
- Describe the indications of an impending stall and how to prevent a stall from occurring.
- Describe the steps in recovering from a stall.
- Discuss the factors that affect the stalling characteristics of the airplane.
- Explain how to avoid a spin.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indi2.3(i807 0 x.002 Tc 04s)-8.1(of)-13.1(a s)-8(t)-1.1(al)-8.9(l)3.1(.)]TJ 0 Tc 0 Tw 18.133 0 Td ( )Tj

Learning Outcomes:

- Discuss the aerodynamics of a stall.
- Describe the indications of an impending stall and how to prevent a stall from occurring.
- Describe the steps in recovering from a stall.
- Discuss the factors that affect the stalling characteristics of the airplane.
- Explain how to avoid a spin.

Safety Considerations:

- Altitude selection too low.
-

Recovery from Unusual Flight Attitudes (C-152)

Steep Turns (C-152)

Objective:

To develop coordination, orientation, division of attention and smooth control techniques while executing high performance turns.

Description:

The maneuver consists of a 360° turn using a bank angle of approximately 45° while maintaining a constant airspeed and altitude.

Setup Procedure:

10) Select an altitude which allows recovery to be completed no lower than 1,500’ AGL.
11) Perform clearing turns. Priid9.1(soa0nbe)-12uhe morl 4msh0m

Tracking A Straight Line (C-152)

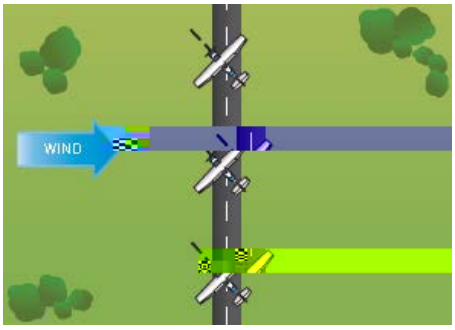
Objective:

To maintain a uniform ground track along a selected straight line or road with a constant airspeed and altitude while controlling the effect of wind drift on the airplane and the proper correction using varying crosswind correction.

Description:

Tracking a straight line is a training maneuver, in which the ground track of the airplane is flown following a straight line on the ground correcting for wind drift.

Setup Procedure:



7) Select a straight line at least 1 mile in length with a crosswind in an area free of obstructions.
8) Perform clearing turns and establish 1,000' AGL.
9) Adjust the mixture in accordance with the POH.
10) Position the airplane to follow a path over or parallel to a straight line.
11) Maintain an equal distance from the straight line as you fly along it crabbing as necessary.
12) Return to cruise flight and perform the cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to tracking a straight line.
- Selects a suitable reference area.
- Plans the maneuver so as to track the straight line, 1,000' AGL at an appropriate distance from the selected reference area.
- Applies adequate wind-drift correction during straight and turning flight to maintain a constant ground track along the straight line reference area.
- Divides attention between airplane control and the ground track while maintaining coordinated flight.
- Maintains altitude, ±100 feet; maintains airspeed, ±10 kts.

Learning Outcomes:

- Describe proper division of attention.
- Explain the correlation between the maneuver and a traffic pattern at an airport.
- Predict amount of wind correction based on conditions.

Safety Considerations:

- Avoid tall obstacles and populated areas.
- Locate a landing area to use in the event of an emergency.
- Maintain separation from other aircraft.

Common Errors:

- Improper crab angle.
- Fixation on one aspect of the maneuver.
- Uncoordinated flight.

References:

Airplane Flying Handbook; POH/AFM;

Rectangular Course (C-152)

Objective:

To maintain a uniform ground track around a selected rectangular ground reference with a constant airspeed and altitude

Turns Around a Point (C-152)

Objective:

To maintain a uniform ground track around a reference point with a constant airspeed and altitude while demonstrating the effect of wind drift on the airplane and the proper correction using varying bank angle.

Description:

The airplane's ground track makes two complete circles, with a constant radius, around a selected point on the ground.

Setup Procedure:

10) Select a prominent reference point on the ground.
11) Perform clearing turns and establish 1,000' AGL.
12) Adjust the mixture in accordance with the POH.
13) Maintain a safe airspeed (recommended 95 kts).
14) Enter the maneuver on the downwind.
15) Initiate the turn when abeam the point.
16) Apply wind correction, as necessaryC 7 >>BDC -0.002 k -0.002 80da .361 0 T6(2)-8(k (n a)-qA(47(nd c)-80da .3614 .
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S-Turns (C-152)

Objective:

To maintain a uniform ground track of semicircles along a selected reference line with a c

Section 5 – INSTRUMENT RATING

The Instrument Rating is divided into two flight courses and a ground school. All degree s

Instrument Cockpit Check (C-172R)

Objective:

To develop good habits for checking the operation of flight instruments and their power source prior to takeoff in instrument meteorological conditions (IMC).

Description:

Each instrument relating to Instrument Flight Rules (IFR) is checked for proper indications during the taxi to the run up area or runway.

Setup Procedure:

1) Check the magnetic compass for freedom of movement; confirm that it is full of fluid and showing known headings.
2) Check clock for correct digital display.
3) The airspeed indicator should indicate zero.
4) Allow 5 minutes for the gyro of the attitude indicator to spin up and then it should remain erect to the horizontal position and not dip more than 5° while turning on the ground.
5) With the altimeter set to the current altimeter setting, note any variation between field elevation and the altimeter indication. Discrepancies of 75 feet or more indicate questionable reliability.
6) Check engine instruments for proper indications.
7) During taxi turns, check the turn coordinator for turns in direction of the turn and the ball should move opposite to the direction of turns.
8) Allow 5 minutes for the gyro of the heading indicator to spin up and set it according to the magnetic compass.
9) Note VSI needle position. The VSI should read zero. If it does not, the ground indication should be interpreted as the zero position.

Flight Proficiency Standards:

- Exhibit adequate knowledge of the elements related to the preflight check of instruments, avionics, and navigation equipment.
- Perform the preflight on instruments, avionics, and navigation equipment.
- Determine that the aircraft is in condition for safCIgora3.1(o)ntF n2.3(oes)083>01 Twb18(o)-6.3(u -12.3(e a)-48Ia7.4(o)-143

Turns (C-172R)

Objective:

To fly by reference to instruments while changing direction.

Constant Airspeed Climbs and Descents (C-172R)

Objective:

To change the airplane's altitude while maintaining a constant airspeed.

Description:

Raise or lower the miniature aircraft to the approximate indication for the predetermined climb speed by applying light elevator pressure.

Setup Procedure:

1) Adjust power as required for a climb or descent configuration.
2) Apply elevator pressure to move the attitude indicator to the approximate indication.
3) Complete climb or descent checklist.
4) Cross check with airspeed indicator for proper airspeed making pitch adjustments if necessary.
5) Level off at desired altitude.
6) Complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits adequate knowledge of the elements related to attitude instrument flying during climbs and descents while conducting various instrument flight procedures.
- Maintains altitude within ±100 feet during level flight, headings within ±10°, airspeed within ±10 kts, and bank angles within ±5° during turns.
- Uses proper instrument crosscheck and interpretation, and apply the appropriate pitch, bank, power, and trim corrections when applicable.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss proper instrument scan techniques including the primary and supporting method and the performance method.
- Explain instrument scan techniques including the primary and supporting method and the control and performance method.
- Explain instrument cross-check and interpretation.

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Recovery from Unusual Flight Attitudes (C-172R)

Objective:

To safely re-establish control of the airplane after recognition of an unusual attitude.

Description:

The aircraft is maneuvered with the proper use of pitch, power, and bank to safely recover from a nose-high or nose-low unusual attitude.

Setup Procedure:

1) The instructor will position the aircraft into a level or banked nose-high or nose-low unusual attitude while the student has his or her eyes closed.
2) The instructor will instruct the student to recover from the unusual attitude using a view limiting device.
3) Check airspeed indicator and altimeter for indications and attitude interpretation.
4) For a nose-high attitude:
    a. Simultaneously add full power and lower the pitch.
    b. Level the wings.
5) For a nose-low attitude:
    a. Reduce power.
    b. Level the wings.
    c. Increase pitch.
6) Return to cruise flight and complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibit adequate knowledge of the elements relating to attitude instrument flying during recovery from unusual attitudes (both nose-high and nose-low).
- Use proper instrument cross-check and interpretation, and apply the appropriate pitch, bank, and power corrections in the correct sequence to return the aircraft to a stabilized level attitude.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss the importance of quickly and accurately determining an unusual attitude.
- Explain proper control inputs to recover from an unusual attitude.

Safety Considerations:

- Maintain positive aircraft control.
- Observe aircraft limitations with respect to airspeed and load factors.

Common Errors:

- Incorrect interpretation of the flight instruments.
- Inappropriate applications of controls.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Common Errors:

- Failure to maintain orientation in relation to holding fix.
- Improper hold entry.
- Improper direction of turns.
- Not adjusting outbound timing to achieve a one minute inbound leg.
- Improperly using wind correction angle outbound.
- Not identifying the abeam point.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

VOR DME ARCS (C-172R)

Objective:

To intercept and track a circular path around a VOR.

Description:

The aircraft is maneuvered to intercept a circular path around a VOR at a specified distance from the VOR.

Setup Procedure:

1) Positively identify the VOR station and DME facility.
2) Visualize the aircraft's position relative to the VOR and track "TO" or "FROM" the VOR as required to the specified DME distance.
3) Lead the turn to intercept the arc by approximately a ½ mile.
4) Turn approximately 90° to the radial from the VOR in the proper direction.
5) Rotate OBS to center CDI with a "TO" or "FROM" indication ("TO" when final approach course is towards the VOR and "FROM" when the final approach course is away from the VOR). Turn OBS 10° toward final approach course heading.
6) When the CDI centers, turn the aircraft approximately 10° and rotate the OBS 10° more.
7) Repeat step 6) around the arc.
8) Apply wind correction as necessary to maintain the specified DME distance.
9) Exit the arc at the specified location and continue on course.

Flight Proficiency Standards:

- Exhibits adequate knowledge of the elements related to intercepting and tracking navigational systems and DME arcs.
- Tunes and correctly identifies the navigation facility.
- Sets and correctly orients the course to be intercepted into the course selector or correctly identifies the course on the RMI.
- Intercepts the specified course at a predetermined angle, inbound or outbound from a navigational facility.
- Maintains the airspeed within ±10 kts, altitude within ±100 feet, and selected headings within ±5°.
- Applies proper correction to maintain a course, allowing no more than ¾ scale deflection of the CDI or within ±10° in case of an RMI.
- Determines the aircraft position relative to the navigational facility or from a waypoint in the case of GPS.
- Intercepts a DME arc and maintain that arc within ±1 nautical mile.
- Recognizes navigational receiver or facility failure, and when required, reports the failure to ATC.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss how to plan an intercept to a DME ARC using VOR, DME, and GPS equipment.
- Explain how to intercept, track, and correct for wind while tracking the arc.
- Discuss why visualization is important instead of blindly following CDI either left or right.

Safety Considerations:

- Avoid spatial disorientation by relying on instrument reference.
- Do not navigate aircraft into airspace without clearance.

Common Errors:

- Incorrect orientation of aircraft to VOR facility.
- Turning aircraft wrong direction for interception.
- Choosing an inappropriate intercept angle.
- Overshooting the on course turn.
- Not correcting for wind while tracking the arc.
- Not being able to intercept an arc from the inside of the arc.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Non-Precision Approach (C-172R)

Objective:

To safely navigate the aircraft from the enroute environment to align it with the final approach course while maintaining obstruction clearance.

Description:

The non-precision instrument approach allows you to navigate from the IAF to the MAP with lateral navigation and obstruction clearance.

Setup Procedure:

1) Complete the Before IAF checklist.
    a. NAV Source – Set & Check
    b. DG – Align With Compass
    c. Weather – Check
    d. Approach – Brief
2) Prior to the final approach fix (FAF):
    a. 3 Miles – Complete checklist.
        i. Seat Backs & Seat Belts – Sip

- Applies the necessary adjustments to the published DA/DH and visibility criteria for the aircraft approach category when required, such as –
  - NOTAMs
  - Inoperative aircraft and ground navigation equipment
  - Inoperative visual aids associated with the landing environment
  - NWS reporting factors and criteria
- Establishes a predetermined rate of descent at glide slope intercept which approximates that required for the aircraft to follow the glide slope.
- Maintains a stabilized final approach, from the FAF to DA/DH allowing no more than ¾ scale deflection of either the glide slope or localizer indications and maintains the desired airspeed within ±10 kts.
- A missed approach or transition to a landing shall be initiated at DA/DH.
- Immediately initiates the missed approach at DA/DH when the required visual references for the intended runway are not distinctly visible, the visibility minimums prescribed by the approach procedure are not met, or the aircraft is not in a position to make a landing using a normal descent rate and normal maneuvers.
- Transitions to a normal landing approach only when the aircraft is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal maneuvering.
- Maintains localizer and glide slope within ¾ scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where glide slop must be abandoned to accomplish a normal landing.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain how to read the instrument approach charts.
- Discuss how to fly the approach.
- Identify symbols on the instrument approach chart.
- Discuss the importance of a stabilized approach.
- Explain how to estimate the rate of descent required to follow the glide slope.

Safety Considerations:

- Fly a stabilized approach.
- Avoid spatial disorientation by relying on instrument reference.
- Do not navigate aircraft into airspace without clearance.
- Do not descend below DA/DH prior to having required visual references.
- Do not attempt a landing from a point where such attempt should not be made.
- Identify the missed approach point and fly appropriate missed approach procedures.

Common Errors:

- Not properly identifying the navigation stations.
- Not performing required checklists.
- Not configuring the aircraft appropriately.
- Chasing the course.
- Descending at an inappropriate rate.
- Failure to start timing when appropriate.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Circling Approach (C-172R)

Object

Common Errors:

- Selecting incorrect approach category.
- Descends below DH or MDA without having the airport environment in sight.
- Attempting a descent to landing that would be considered abnormal.
- Losing visual reference to runway.
-

Missed Approach (C-172R)

Objective:

To determine when it is necessary to execute the missed approach procedures and safely execute the published missed approach procedures.

Description:

If the decision is made to execute a missed approach procedure, the aircraft will be reconfigured to the departure configuration. Precisely follow the missed approach procedure to ensure terrain and obstruction clearance and repositioning of the aircraft to attempt another approach or proceed to a new destination.

Setup Procedure:

1) Initiate the missed approach and configure the aircraft for a Go Around.
2) Advise ATC of the missed approach.
3) Follow the missed approach instructions on the instrument approach chart unless otherwise instructed by ATC.
4) Verify the Go-Around checklist and complete the climb checklist as workload permits.
5) Follow any clearance issued by ATC and advise them of any preferred course of action, i.e. attempt another approach at the same airport, depart the area.

Flight Proficiency Standards:

- Exhibits adequate knowledge of the elements related to missed approach procedures associated with standard instrument approaches.
- Initiates the missed approach promptly by applying power, establishing a climb attitude, and reducing drag in accordance with the aircraft manufacturer's recommendations.
- Reports to ATC the missed approach procedure.
- Complies with the published or alternate missed approach procedure.
- Advise ATC or instructor anytime that the aircraft is unable to comply with a clearance, restriction, or climb gradient.
- Follows the recommended checklist items appropriate to the Go Around procedure.
- Requests, if appropriate, ATC clearance to the alternate airport, clearance limit, or as directed by the instructor.
- Maintains the recommended airspeed within ±10 kts; heading, course, or bearing within ±10°; and altitude(s) ±100 feet during the missed approach procedure.

Common Errors:

- Turns prior to the missed approach point.
- Does not establish a climbing attitude.
- Allows the aircraft to get too slow.
- Flies past the missed approach point without executing the missed approach procedure.
- Is not familiar enough with the missed approach procedure to execute the first few steps without referring to the approach chart.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

C-172S

Instrument Cockpit Check (C-172S)

Objective:

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Straight and Level Flight (C-172S)

Objective:

To fly by reference to instruments while maintaining a constant altitude and heading.

Description:

In straight and level flight you must keep the wings level with the horizon and a pitch attitude which allows no climb or descent.

Setup Procedure:

1)

Turns (C-172S)

Objective:

VOR Navigation (C-172S)

Objective:

To develop the operational knowledge of how to use the VOR navigation equipment in instrument flight.

Description:

The location of the aircraft will be determined using VOR equipment and then maneuvered to most efficiently intercept the assigned radial. Tracking of the course will be maintained while adjusting for wind.

Setup Procedure:

1) Tune in the appropriate VOR frequency and positively identify the station using aural indications.
2) Determine where you are by rotating the OBS until the CDI centers with correct TO/FROM indication and visualize your position relative to the station.
3) Visualize where you want to go relative to the station and your location.
4) Determine what heading you need to intercept your desired course and track this heading.
5) Rotate the OBS until the desired course is indicated.
6) Interpreting CDI indications; turn as necessary to intercept and track course to include wind drift correction.

Flight Proficiency Standards:

- Exhibits adequate knowledge of the elements related to intercepting and tracking VORs.
- Tunes and correctly identifies the navigation facility.
- Sets and correctly orients the course to be intercepted into the course selector or correctly identifies the course on the RMI.
- Intercepts the specified course at a predetermined angle, inbound or outbound from a navigational facility.
- Maintains the airspeed within ±10 kts, altitude within ±100 feet, and selected headings within ±5°.
- Applies proper correction to maintain a course, allowing no more than ¾ scale deflection of the CDI or within ±10° in case of an RMI.
- Determines the aircraft position relative to the navigational facility or from a waypoint in the case of GPS.
- Recognizes navigational receiver or facility failure, and when required, reports the failure to ATC.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss how to orient the aircraft to a particular station using airborne VOR equipment.
- Explain how to intercept, track, and correct for wind while navigating with a VOR facility.
- Discuss why visualization is important rather than blindly following CDI deviations left or right.
- Explain what reverse sensing is and how to avoid it.

Safety Considerations:

- Avoid special disorientation by relying on instrument reference.
- Do not navigate aircraft into airspace without clearance.

Common Errors:

- Incorrect orientation of aircraft to VOR facility.
- Turning aircraft wrong direction for intercept.
- Choosing an inappropriate intercept angle.
- Overshooting the on course turn.
- Not correcting for wind while tracking the radial.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Holding

Instrument Rating

Common Errors:

- Incorrect orientation of aircraft to VOR facility.
- Turning aircraft wrong direction for interception.
- Choosing an inappropriate intercept angle.
- Overshooting the on course turn.
- Not correcting for wind while tracking the arc.
- Not being able to intercept an arc from the inside of the arc.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Non Precision Approach (C-172S)

Objective:

- Applies the necessary adjustments to the published DA/DH and visibility criteria for the aircraft approach category when required, such as –
  - NOTAMs
  - Inoperative aircraft and ground navigation equipment
  - Inoperative visual aids associated with the landing environment
  - NWS reporting factors and criteria
- Establishes a predetermined rate of descent at glide slope intercept which approximates that required for the aircraft to follow the glide slope.
- Maintains a stabilized final approach, from the FAF to DA/DH allowing no more than ¾ scale deflection of either the glide slope or localizer indications and maintains the desired airspeed within ±10 kts.
- A missed approach or transition to a landing shall be initiated at DA/DH.
- Immediately initiates the missed approach at DA/DH when the required visual references for the intended runway are not distinctly visible, the visibility minimums prescribed by the approach procedure are not met, or the aircraft is not in a position to make a landing using a normal descent rate and normal maneuvers.
- Transitions to a normal landing approach only when the aircraft is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal maneuvering.
- Maintains localizer and glide slope within ¾ scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where glide slop must be abandoned to accomplish a normal landing.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain how to read the instrument approach charts.
- Discuss how to fly the approach.
- Identify symbols on the instrument approach chart.
- Discuss the importance of a stabilized approach.
- Explain how to estimate the rate of descent required to follow the glide slope.

Safety Considerations:

- Fly a stabilized approach.
- Avoid spatial disorientation by relying on instrument reference.
- Do not navigate aircraft into airspace without clearance.
- Do not descend below DA/DH prior to having required visual references.
- Do not attempt a landing from a point where such attempt should not be made.
- Identify the missed approach point and fly appropriate missed approach procedures.

Common Errors:

- Not properly identifying the navigation stations.
- Not performing required checklists.
- Not configuring the aircraft appropriately.
- Chasing the course.
- Descending at an inappropriate rate.
- Failure to start timing when appropriate.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Non Precision Approach (Coupled) (C-172S)

Objective:

To safely navigate the aircraft from the enroute environment to align it with the final approach course while maintaining obstruction clearance.

Description:

The non-precision instrument approach allows you to navigate from the IAF to the MAP with lateral navigation and obstruction clearance.

Setup Procedure:

1) Engage autopilot mode (HDG, NAV, ROL).
2) Set target altitude. Select Flight Level Change (FLC) and UP or DN to capture target airspeed. Set power as required.
3) Verify correct (AP) modes.
4) Engage autopilot (AP).
5) Complete the Before IAF checklist.
    a. NAV Source – Set & Check
    b. HSI –

- Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as –
  - NOTAMs
  - Inoperative aircraft and ground navigation equipment
  - Inoperative visual aids associated with the landing environment
  - NWS reporting factors and criteria
- Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- Allows, while on the final approach segment, no more than ¾ scale deflection of the CDI or within 10° of an RMI, and maintains airspeed within ±10 kts of that desired.
- Maintains the MDA, when reached, within +100/– 0 feet to the MAP.
- Executes the missed approach procedure at the MAP when the required visual references for the intended runway are not distinctly visible, the visibility minimums prescribed by the approach procedure are not met, or the aircraft is not in a position to make a landing using a normal descent rate and normal maneuve

Straight in Approach (C-172S)

Objective:

To transition the aircraft from MDA or DH to landing on a runway aligned with the final approach course.

Description:

The aircraft will transi

Common Errors:

- Selecting incorrect approach category.
- Descends below DH or MDA without having the airport environment in sight.
- Attempting a descent to landing that would be considered abnormal.
- Losing visual reference to runway.
- Improper circling planning considering traffic flow.
- Circling to far from runway environment.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Common Errors:

- Turns prior to the missed approach point.
- Does not establish a climbing attitude.
- Allows the aircraft to get too slow.
- Flies past the missed approach point without executing the missed approach procedure.
- Is not familiar enough with the missed approach procedure to execute the first few steps without referring to the approach chart.

References:

Instrument Flying Handbook; POH/AFM; Instrument Pilot ACS; CFII PTS

Section 6 – COMMERCIAL PILOT

The Commercial Pilot rating is divided into six flight courses and a ground school. All degree seeking students will conduct training under CFR 14 Part 141 unless approved by the Chief Flight Instructor.

This section contains references to the C-172R, C-172S, and the C-172RG.

Normal & Crosswind Takeoff & Climb (C-172R)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and establishes a pitch attitude to climb away from the runway.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete takeoff checklist and takeoff briefing.
3) Use aircraft lighting as recommended by the current version of AC 91-73.
4) Ensure runway is clear, align aircraft with runway centerline, confirm DG is aligned with runway, and ensure nose wheel is straight.
5) Position flight controls for wind for existing conditions.
6) Adit6 0 Td [(P)-0.6(o)-3.3(s)-11(e.018 Tw es)-11(s)-i t to-11( )]T.1(ont)-1.14(l)3.1he6)rt to,4(t)-(t)2s tt sCompletakeoff che

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back on the runway.
- Consider the effect of density altitude on performance.
- Do not retract landing gear too soon.
-

Short-Field Takeoff & Climb (C-172R)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude when the takeoff area is short or restricted by obstructions.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and a pitch attitude is established to climb away from the runway and clear a 50 foot obstacle.

Setup Procedure:

Soft-Field Takeoff & Climb (C-172R)

Objective:

To align the airplane with the takeoff path, become airborne as quickly as possible, and establish a positive climb to a safe maneuvering altitude.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane enters the runways with full up elevator deflection and accelerates to an airspeed at which the airplane will lift off.
2) The acceleration to lift off speed while remaining in ground effect.
3) The initial climb when the airplane establishes a pitch attitude to climb away from the runway.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete Short-Field takeoff checklist and takeoff briefing.
3) Set flaps to 10°.
4) Use aircraft lighting as recommended by the current version of AC 91-73.
5) Ensure runway is clear, taxi onto runway with back elevator pressure and align nose with runway centerline, confirm DG is aligned with runway, without stopping or the use of brakes.
6) Smoothly advance throttle to takeoff power.
7) Ensure toes are resting on rudder pedals, not on brakes.
8) Check engine instruments during ground roll for normal indications.
9) Maintain directional control with rudder pedals and appropriate aileron deflection.
10) Use back elevator pressure to establish a positive pitch attitude and allow the aircraft to fly itself off the ground.
11) When the aircraft becomes airborne, reduce pitch to remain in ground effect while accelerating to 60 kts (V_X) then

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force the aircraft off runway too quickly.
- Do not retract landing gear too soon.
- Do not allow the airplane to climb above ground effect too soon, causing it to settle back onto the runway.

Common Errors:

- Improper runway incursion avoidance procedures.
- Improper use of controls during a soft-field takeoff.
- Improper lift-off procedures.
- Improper climb attitude, power setting and airspeed.
- Improper use of checklist.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Traffic Pattern (C-172R)

Objective:

To assure that air traffic flows into and out of an airport in an orderly manner.

Description:

The airplane is flown on a rectangular course around a runway at an altitude specified in the current Airport/Facility Directory or as outlined in the FAR/AIM.

Setup Procedure:

Departures

1) Upwind, Easterly and Westerly departures:
    a. Fly the departure leg straight out until reaching traffic pattern altitude.
    b. Once reaching traffic pattern altitude, continue climbing and turn on course.
2) Downwind departures:
    a. Fly the departure, crosswind and downwind legs of the traffic pattern while remaining at traffic pattern altitude.
    b. Upon reaching a point abeam the approach end of the runway, resume climb out and turn on course.

Arrivals

1) Prior to reaching 5 NM from the airfield, complete the following:
    a. Monitor local AWOS/ASOS/ATIS
    b.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence

Normal & Crosswind Approach & Landing (C-172R)

Objective:

To safely transition the aircraft from flight to ground operations during normal conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.
3) Select touchdown and aiming points.
4) Set flaps to 10° no later than abeam the touchdown point.
5) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
6) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    c. With wings level, set flaps to 20° as required.
    d. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
7) Turn on final as to align the aircraft with the extended runway center line:
    a. Apply appropriate crosswind correction to maintain the extended runway centerline.
    b. Set flaps to 30° as required.
    c. Adjust pitch and power as required to maintain a stabilized approach, at 65 kts, toward the selected aiming point until flare to land.
    d. Add crosswind control by lowering the upwind wing and applying opposite rudder as appropriate to maintain longitudinal axis of aircraft with extended centerline of runway.
8) During the flare to land simultaneously reduce power to idle and maintain aircraft approximately one foot above runway until it slows to stall speed and touches down on the runway centerline.
9) Maintain positive pitch attitude for aerodynamic braking.
10) Exit runway and complete after landing checklist.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to normal and crosswind approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects a suitable touchdown point.
- Establishes the recommended approach and landing configuration and airspeed and adjust pitch attitude and power as required.
- Maintains a stabilized approach and recommended airspeed, or in its absence, nor more than 1.3 V_{S0} ±5 kts, with wind gust factor applied.
- Makes smooth, timely, and correct control applications during the round out and touchdown.
- Touches down smoothly at a9 0 Td ( )Tj EMC /LBo.9(i)Tj -0.002 Tc 0.0013(i)3.124.3(y)16.1(a)-12.3(n(a9 0d7 >>BDC

Short-Field Approach & Landing (C-172R)

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to compensate for obstacles and shortened runway lengths.

Safety Considerations:

- Maintain proper airspeed at all times.
- Compensate for crosswind.
- Do not skid tires.
- Use of aerodynamic braking as available.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish and maintain a stabilized approach.
- [nt-1.2(ngt)-1.1(hs)-8(.)]TJ 0 Tnneston hn /C2_0ain a stabin4 -0 0 12 207 0 Td 0 Tc 0 Tw 24.506 0 Td ( )Tj EMC /u[(

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- UCM retractable gear aircraft can only land on paved, public, published runways.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to maintain elevator back-pressure after touchdown.
- Improper use of brakes.
- Failure to consider effect of wind and landing surface.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a power-off 180° accuracy approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects an appropriate touchdown point.
- Positions airplane on downwind leg, parallel to landing runway, and not more than 1,000 feet AGL.
- Abeam the specified touchdown point closes throttle and establishes appropriate glide speed.
- Completes final airplane configuration.
- Touches down in a normal landing attitude, at or within 200 feet beyond the specified touchdown point.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the effect of wind velocity on required altitude and bank angle.
- Discuss the importance of controlling glide angle and airspeed on final approach.

Safety Consideration:

- Maintain coordinated flight throughout the maneuver.
- Be aware of the position of other traffic in the pattern.
- Maintain appropriate airspeed throughout the maneuver.

Common Errors:

- Failure to touchdown within 200 feet of the intended touchdown point.
- Failure to maintain constant airspeed and glide angle.
- Failure to accurately determine the wind direction and velocity.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Touch and Go/Stop and Go (C-172R)

Objective:

To transition from a landing rollout to a takeoff roll while remaining on the runway.

Description:

- Attempting to lift-off prior to rotation speed.

Go-Around (C-172R)

Common Errors:

- Delayed decision to make a go-around.
- Improper application of power.
- Failure to control pitch attitude.
- Improper trim technique.
- Failure to compensate for torque effect.
- Failure to maintain V_Y as appropriate.
- Improper wing flap retraction.
- Improper gear retraction.
-

Emergency Descent (C-172R)

Objective:

To descend the airplane as soon and as rapidly as possible, within the structural limitations of the airplane.

Description:

The emergency descent is a maneuver for descending as rapidly as possible to a lower altitude or to the ground for an emergency landing.

Setup Procedure:

1) Perform clearing turns.
2) If utilizing flight following, contact ATC for traffic advisories below.
3) Reduce (C15jin0.002 84]

Maneuvering During Slow Flight (C-172R)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Slow flight consists of slowing the aircraft to a minimum controllable airspeed in the landing configuration and maneuvering the aircraft while maintaining altitude and airspeed.

Setup Procedure:

1) Select an altitude which allows recovery to be completed no lower than 1,500’ AGL.
2) Perform clearing turns.
3) Set mixture to rich.
4) Reduce power to 1,500 RPM or less.
5) Below 110 kts, set

Power – Off Stall (C-172R)

Objective:

To familiarize the pilot with the conditions that produce stalls, to assist in recognizing an approaching stall, and to develop

- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.

Commercial Pilot

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Accelerated Stall (C-172R)

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during reco-18.4a359 <0337contc3per Td56EMC /LBody <</MCID 15 >>I

Steep Turns (C-172R)

Objective:

To develop coordination, orientation, division of attention and smooth control techniques while executing high performance turns.

Description:

The maneuver consists of two 360° turns in opposite directions, using a bank angle of 50° while maintaining a constant airspeed and altitude.

Setup Procedure:

1) Select an altitude which allows performance of maneuver no lower than 1,500’ AGL.
2) Perform clearing turns.
3) Adjust the mixture in accordance with the POH.
4) Reduce power to establish an airspeed of 95 kts.
5) Enter a coordinated 50° banking turn to the left or right.
6) Incre

Learning Outcomes:

- Coordination during high power settings and high angles of attack.
- Maneuvering the aircraft at high performance levels.

Safety Considerations:

- This maneuver should be performed no lower than 1,500’ AGL.
- Divide attention between flying the airplane and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Improper pitch, bank, and power coordination during entry or completion.
- Uncoordinated use of flight controls.
- Improper planning and timing of pitch and bank attitude changes.
- Factors related to failure in achieving maximum performance.
- A stall during the maneuver.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Lazy Eights (C-172R)

Objective:

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to lazy eights.
- Selects an altitude that will allow the maneuver to be performed no lower than 1,500' AGL.
- Establishes the recommended entry configuration, power, and airspeed.
- Maintains coordinated flight throughout the maneuver.
- Achieves the following throughout the maneuver
    - Approximately 30° bank at the steepest point.
    - Constant change of pitch and roll rate.
    - Altitude tolerance at 180° points, ±100 feet from entry altitude.
    - Airspeed tolerance at the 180° point, ±10 kts from entry airspeed.
    - Heading tolerance at the 180° point ±10°.
- Continues the maneuver through the number of symmetrical loops specified and resumes straight and level flight.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the importance of proper power setting.
- Explain the need for differing amounts of rudder pressure between the left and right turn.
- Discuss the effects of torque at the top of the eight in both the right and left turns.

Safety Considerations:

- Always clear the area before beginning a maneuver.
- Maintain coordination at all times during the maneuver.

Steep Spiral (C-172R)

Objective:

To improve pilot techniques for airspeed control, wind drift control, planning, orientation, and division of attention.

Description:

A steep spiral is a constant gliding turn, during which a constant radius around a point on the ground is maintained.

Setup Procedure:

1) Begin the maneuver with sufficient altitude to allow for three 360° degree turns without descending below 1,500' feet AGL.
2) Perform clearing turns.
3) Select a point to perform the maneuver around.
4) Enter on a downwind heading.
5) Reduce power and slow to 75 kts.
6) Reduce the power to idle when abeam the point.
7) Maintain 75 kts ($V_{L/D}$ +10 kts).
8) Change bank angle as necessary to maintain an equal distance from the reference point 45-55° of bank at the steepest point in the turn, not to exceed 60°.
9) Clear the engine, momentarily advancing power to normal cruise power,

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a steep spiral.
- Selects an altitude sufficient to continue through a series of at least three 360° turns.
- Selects a suitable ground reference point.
- Applies wind-drift correction to track a constant radius circle around the selected reference point with bank not to exceed 60° at steepest point in turn.
-

Learning Outcomes:

- Explain how pivotal altitude is affected with changes in groundspeed.
- Compute pivotal altitude.
- Explain the relationship between pivotal altitude and angle of bank.

Safety Considerations:

- Clear the area of traffic and obstacles.
- Look for an emergency landing field nearby.
- Division of attention between maneuver and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Faulty entry technique.
- Poor planning, orientation, and division of attention.
- Uncoordinated flight.
- Use of improper line of sight reference.
- Improper timing of turn entries and rollouts.
- Improper wind-drift correction between pylons.
- Selection of pylons where there is no suitable emergency landing area within gliding distance.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

C-172S

Passenger Briefing (C-172S)

Objective:

To provide a standard pre-flight briefing to passengers.

Description:

0

The pilot in command is required by the Federal Aviation Regulations to provide a passenger briefing.

Setup Procedure:

4) Before starting the engine the Pilot-in-Command will provide the passenger safety briefing to include, but not limited to:
    a. Designation of Pilot-in-/a(l)3. e he [(/a(l)3 13 >>BD(i)3.1(3o-( )-1.1(i)-ahC /LBody <</MCID 13 >>BDC -0.002 Tc

Normal & Crosswind Takeoff & Climb (C-172S)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and establishes a pitch attitude to climb away from the runway.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete takeoff checklist and takeoff briefing.
3) Use aircraft lighting as recommended by the current version of AC 91-73.
4) Ensure runway is clear, align aircraft with runway centerline, confirm HSI is aligned with runway, and ensure nose wheel is straight.
5) Position flight controls for wind for existing conditions.
6) Advance throttle smoothly to takeoff power ensuring toes are resting on rudder pedals, not on brakes.
7) Check engine instruments during takeoff roll for normal indications.
8) Maintain directional control with rudder pedals and crosswind control with appropriate aileron deflection
9) Maintain a slightly tail low attitude.
10) Upon reaching rotation speed, 55 kts (V_R), increase back elevator pressure to establish the lift-off attitude that is approximately that for V_Y and allow the aircraft to fly off the ground.
11) Apply adequate drift correction to maintain runway centerline.
12) Accelerate to 74 kts (V_Y).
13) At 500 ft., or as workload permits, complete climb checklist.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to normal and crosswind takeoff, climb operations and rejected takeoff procedures.
- Positions the flight controls for the existing wind conditions.
- Clears the area, taxies onto the takeoff surface and aligns the airplane on the runway center/takeoff path.
- Lifts off at the recommended airspeed and accelerates to V_Y.
- Establishes a pitch attitude that will maintain V_Y ±5 kts.
- Retracts the landing gear if appropriate, and flaps after a positive rate of climb is established.
- Maintains takeoff power and V_Y ±5 kts.
- Maintains directional ommended aiimb de

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back on the runway.
- Consider the effect of density altitude on performance.
- Do not retract landing gear too soon.
- Do not allow upwind wing to rise during takeoo ƒ w

Short-Field Takeoff & Climb (C-172S)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude when the takeoff area is short or restricted by obstructions.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll, when the airplane is accelerated to an airspeed that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and a pitch attitude is established to climb away from the runway and clear a 50 foot obstacle.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete Short-Field takeoff checklist and takeoff briefing.
3) Set flaps to 10°.
4) Use aircraft lighting as recommended by the current version of AC 91-73.
5) Back taxi and align aircraft with runway centerline, confirm HSI is aligned with runway, and ensure nose wheel is straight.
6) Ensure runway is clear, advance throttle smoothly to takeoff power while holding brakes; check engine instruments.
7) Release brakes and ensure toes are resting on rudder pedals, not brakes.
8) Maintain directional control with rudder pedals and appropriate aileron deflection.
9) Upon reaching rotation speed, 55 kts (V_R), increase back elevator pressure to establish lift-off attitude and allow aircraft to fly off ground.
10) Accelerate the aircraft to 56 kts until obstacle is cleared or 50 feet above takeoff surface is attained and then accelerate to 74 kts (V_Y).
11) Retract flaps after

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back onto runway.
- Do not force aircraft to stay on the ground when it is ready to lift off, wheelbarrow.
- Back taxi to ensure use of entire runway length.
- Retraction of gear and flaps as recommended.

Common Errors:

- Failure to position the airplane for maximum utilization of available runway.
- Improper runway incursion avoidance procedures.
- Improper use of controls during a short-field takeoff.
- Inappropriate lift-off procedures.
- Improper initial climb attitude, power setting and airspeed to clear obstacle.
- Improper use of checklists.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Traffic Pattern (C-172S)

Objective:

To assure that air traffic flows into and out of an airport in an orderly manner.

Description:

Flight Proficiency Standards:

Safety Considerations:

- Maintain proper traffic pattern altitude.
- Maintain a distance from the runway that is within power-off gliding distance.
- Preferred bank of 30 degrees while in pattern (and not to exceed 30) while in pattern.
- Maneuver within 300 feet of traffic pattern altitude before turning crosswind to base.
- Maintain proper aircraft separation.
- Comply with standards traffic pattern procedures or ATC instructions.

Common Errors:

- Failure to comply with traffic pattern instructions, procedures, and rules.
- Improper correction for wind drift.
- Inadequate spacing from other traffic.
- Poor altitude or airspeed control.
- Flying too wide of a pattern.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Normal & Crosswind Approach & Landing (C-172S)

Objective:

To safely transition the aircraft from flight to ground operations during normal conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.
3) Select touchdown and aiming points.
4) Set flaps to 10° no later than abeam the touchdown point.
5) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
6) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    c. With wings level, set flaps to 20° as required.
    d. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
7)

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
- Maintain proper airspeed at all times.
- Use proper crosswind correction to avoid drifting from runway centerline.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Failure to establish and maintain a stabilized approach.
- Improper technique during round out and touchdown.
- Improper use of brakes.
-

Short-Field Approach & Landing (C-172S)

Objective:

To safely transition from flight to ground operations at an airport with a relatively short runway or where an approach is made over obstacles.

Description:

The airplane is configured for a stabilized approach over a 50 foot obstacle. There will be little or no float during the round out, allowing the airplane to touch down at a specified point, and be stopped in a shorter than normal distance.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.Enter aw e2(om1 Tf -0.002 Tc 0.002 Tw 15.c0 Td 5C -1.-12.3(v)-8(er)-6.4(a 50)-12.3(f)

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to compensate for obstacles and shortened runway lengths.

Safety Considerations:

- Maintain proper airspeed at all times.
- Compensate for crosswind.
- Do not skid tires.
- Use of aerodynamic braking as available.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish and maintain a stabilized approach.
- Improper technique in use of power, wing flaps, and trim.
- Excessive airspeed on final approach.
- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
-

Soft-Field Approach & Landing (C-172S)

Objective:

To safely transition the airplane from flight to ground operations on a rough or soft surface.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown on a field that is unimproved.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.
3) Select touchdown and aiming points.
4) Set flaps to 10° no later than abeam the touchdown point.
5) When abeam the intended touchdown point:
    a. Reduce power to approximately 1,300 RPM.
    b. Confirm flaps 10°.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
6) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    c. With wings level, set flaps to 20° as required.
    d. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
7) Turn on final as to align the aircraft with the extended runway center line:
    a. Apply appropriate crosswind correction to maintain the extended runway centerline.
    b. Set flaps to 30° as required.
    c. Adjust pitch and power as required to maintain a stabilized approach, at 65 kts toward the selected aiming point until flare to land.
    d. Add crosswind control by lowering the upwind wing and applying opposite rudder as appropriate to maintain longitudinal axis of aircraft with extended centerline of runway.
    e. Complete the GUMPS check.
8) During the flare to land simultaneously reduce power to maintain aircraft approximately one foot above runway until it slows to stall speed.
9) Touch down at approximate stall speed on the runway centerline as smoothly as possible.
10) Maintain back elevator pressure to keep nose wheel off the ground as long as possible.
11) 4002 Tw --8(l)-12.3(v)4(e r)-12.3(1373(un)-122 0 Td (24.3(-6.3(e dt)-1.1(al)-8.9(l)3.12.1(u 112.3(ppr)5.<</MCID 4(oun)-3.

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- UCM retractable gear aircraft can only land on paved, public, published runways.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to maintain elevator back-pressure after touchdown.
- Improper use of brakes.
- Failure to consider effect of wind and landing surface.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a power-off 180° accuracy approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects an appropriate touchdown point.
- Positions airplane on downwind leg, parallel to landing runway, and not more than 1,000 feet AGL.
- Abeam the specified touchdown point closes throttle and establishes appro(pprocC dnu.t45.4581.1g3.2(t)(a)-12.d5(t)-1.)-8

Common Errors:

- Delayed decision to make a go-around.
- Improper application of power.
- Failure to control pitch attitude.
- Improper trim technique.
- Failure to compensate for torque effect.
- Failure to maintain V_Y as appropriate.
- Improper wing flap retraction.
- Improper gear retraction.
- Failure to maintain well clear of obstructions and other traffic.
- Improper use of checklists.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Commercial Pilot

Maneuvering During Slow Flight (C-172S)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Slow flight consists of slowing the aircraft to a minimum controllable airspeed in the landing configuration and maneuvering the aircraft while maintaining altitude and airspeed.

Setup Procedure:

13) Select an altitude which allows recovery to be completed no lower than 1,500' AGL.
14) Perform clearing turns.
15) Set mixture to rich.
16) Reduce power to 1,500 RPM or less.
17) Below 110 kts, set flaps to 10°.
18) Adjust pitch and power as necessary to maintain altitude.
19) Below 85 kts, set flaps to 20° and 30° allowing the aircraft to stabilize between each setting.
20) Establish and maintain an airspeed that may intermittently activate the stall warning horn.
    a. Slow flight should be practiced at varying speeds and configurations above the 1G stall speed of the aircraft as specified by the instructor.
21) Maneuver as instructed.
22) Recover when instructed by:
    a. Adding full power
    b. Set flaps to 20° and allow the aircraft to stabilize.
23) Then set flaps to 10° and 0° allowing the aircraft to stabilize between each setting.
24) Return to cruise flight and perform the cruise c[S-8(e c)-8.1([S-8(e e(an)-12.3(d 0)-12.3(5 -0.00))3.1(o)-1(r)-6o)-12.2u(r

Common Errors:

- Failure to establish specified flap configuration.
- Improper entry technique.
- Failure to establish and maintain the specified airspeed.
- Excessive variations of altitude and heading when a constant altitude and heading are specified.
- Rough or uncoordinated control technique.
- Improper correction for left turning tendency.
- Improper trim technique.

References:

Airplane Flying Handbook; POH/AFM;

Power – Off Stall (C-172S)

Objective:

To familiarize the pilot with the conditions that produce stalls, to assist in recogni

- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Accelerated Stall (C-172S)

Objective:

To familiarize the pilot with the conditions that produce accelerated stalls, to assist in recognizing an approaching stall, and to develop skills to prevent and recover from stalls in an accelerated configuration.

Description:

The aircraft is slowed down and placed in the clean configuration. After which a steep turn is applied with excessive back elevator pressure and therefore a stall is induced at a higher than normal stalling speed and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

1) Select an altitude which allows recovery by at least 3,000' AGL.
2) Perform clearing turns.
3) Reduce power to 1500 RPM allowing the aircraft to slow below maneuvering speed while maintaining altitude.
4) Set mixture to rich.
5) Verify flaps up.
6) Upon reaching 75 kts, transition smoothly to an approximate 45 degree bank and apply back pressure to induce an accelerated stall.
7)

Steep Turns (C-172S)

Objective:

To develop coordination, orientation, division of attention

Chandelle (C-172S)

Objective:

To develop the pilot’s coordination, orientat

Lazy Eights (C-172S)

Objective:

To develop coordination of controls through a wide range of airspeeds and altitudes so that certain accuracy points are reached with planned attitude and bank.

Description:

Two 180° turns, in opposite direction, while making a climb and a descent in a symmetrical pattern during each of the turns. At no time is the airplane flown straight and level.

Setup Procedure:

1) Select an altitude to perform the maneuver no lower than 1,500' AGL.
2) Perform clearing turns.
3) Orient the airplane so that the first turn is to the left and into the wind.
4) Maintain an airspeed of 105 kts.
5) Begin the maneuver by constantly changing pitch and bank to achieve the following:
    a. 45° point – 15° of bank and max pitch up.
    b. 90° point – 30° of bank, level pitch attitude, minimum controllable airspeed.
    c. 135° point – 15° of bank and max pitch down.
    d. 180° point – back to starting airspeed, altitude, and reciprocal heading.
6) Repeat in opposite direction.
7) Return to cruise flight and complete cruise checklist to include leaning procedures.

Steep Spiral (C-172S)

Objective:

To improve pilot techniques for airspeed control, wind drift control, planning, orientation, and division of attention.

Description:

A steep spiral is a constant gliding turn, during which a constant radius around a point on the ground is maintained.

Setup Procedure:

1) Begin the maneuver with sufficient altitude to allow for three 360° degree turns without descending below 1,000' feet AGL.
2) Perform clearing turns.
3) Select a point to perform the maneuver around.
4) Enter on a downwind heading.
5) Reduce power and slow to 78 kts.
6)

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a steep spiral.
- Selects an altitude sufficient to continue through a series of at least three 360° turns.
- Selects a suitable ground reference point.
- Applies wind-

Eights On Pylons (C-172S)

Objective:

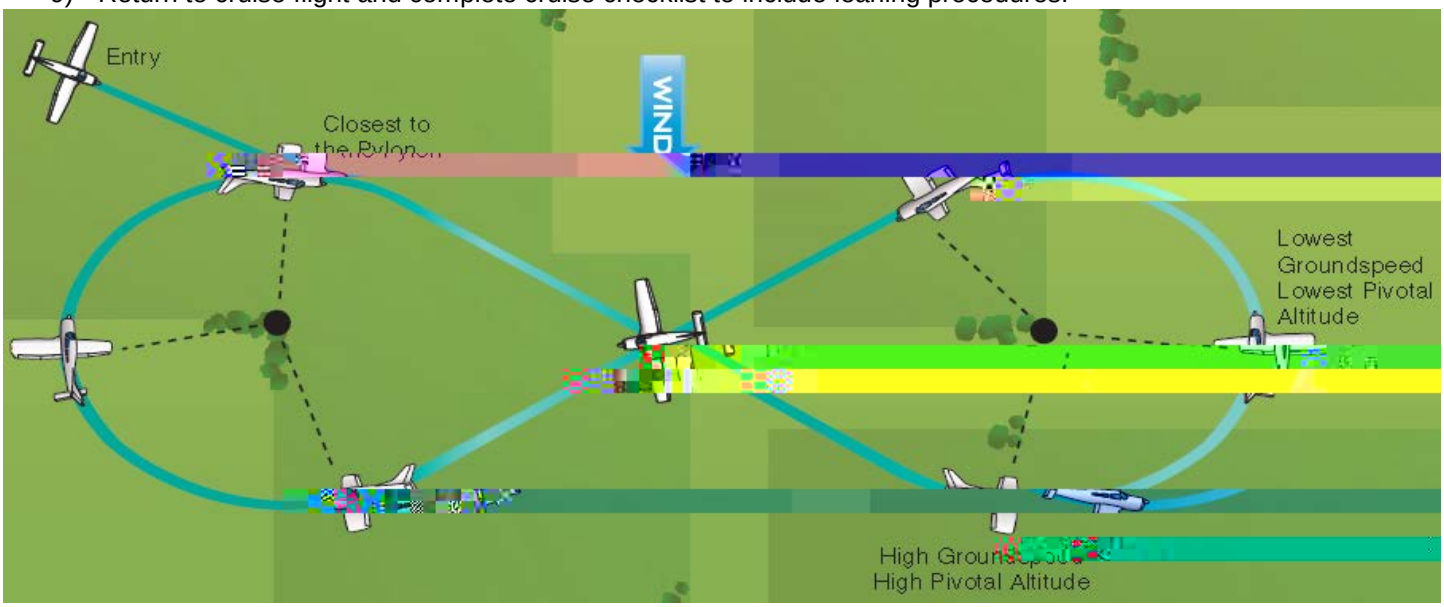
To develop a fine control touch, coordination, and the division of attention necessary for accurate and safe maneuvering of the airplane.

Description:

The airplane is flown in circular paths, alternately left and right, in the form of a figure 8 around two selected points on the ground at such a precise altitude and airspeed that a line parallel to the airplane's lateral axis appears to pivot on each of the pylons.

Setup Procedure:

1) Select two pylons perpendicular to the wind with suitable emergency landing area within gliding distance and a distant apart to obtain a 3 to 5 second straight and level flight segments.
1) Perform clearing turns.
2) Select appropriate emergency landing field.
3) Establish the appropriate pivotal altitude.
4) Establish airspeed below Va.
5) Enter the maneuver at a 45° to the downwind with the first turn to the left.
6) When abeam the pylon, begin your turn.
7) Maintain the point on your reference line by climbing or descending as the pivotal altitude changes.
8) Fly straight and level between pylons and repeat around the other pylon.
9) Return to cruise flight and complete cruise checklist to include leaning procedures.



Completion Standards:

- Exhibits knowledge of the elements related to eights on pylons.
- Determines the approximate pivotal altitude.
- Selects suitable pylons that will permit straight and level flight between the pylons.
- Enters the maneuver at the appropriate altitude and airspeed and at a bank angle of approximately 30° or 40° at the steepest point.
- Applies the necessary corrections so that the line of sight reference line remains on the pylon.
- Divides attention between accurate coordinated airplane control and outside visual references.
- Holds pylon using appropriate pivotal altitude avoiding slips and skids.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain how pivotal altitude is affected with changes in groundspeed.
- Compute pivotal altitude.
- Explain the relationship between pivotal altitude and angle of bank.

Safety Considerations:

- Clear the area of traffic and obstacles.
- Look for an emergency landing field nearby.
- Division of attention between maneuver and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Faulty entry technique.
- Poor planning, orientation, and division of attention.
- Uncoordinated flight.
- Use of improper line of sight reference.
- Improper timing of turn entries and rollouts.
- Improper wind-drift correction between pylons.
-

C-152

Normal & Crosswind Takeoff & Climb

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back on the runway.
- Consider the effect of density altitude on performance.
- Do not retract landing gear too soon.
- Do not allow upwind wing to rise during takeoff.
- Do not exceed maximum demonstrated crosswind velocity.

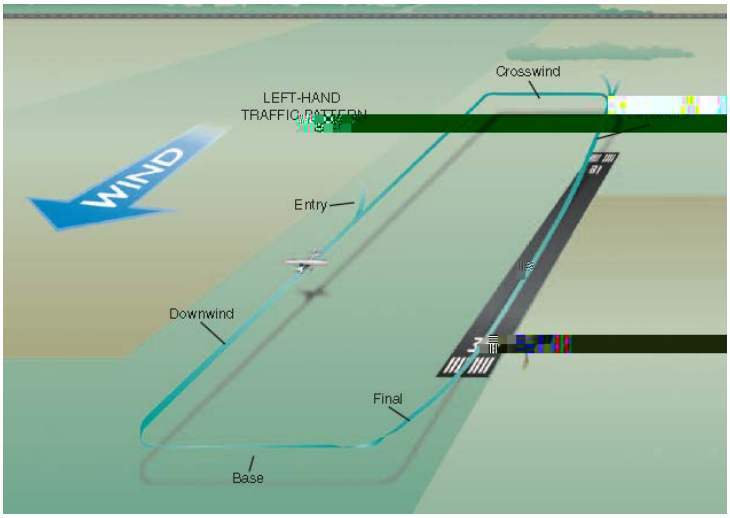
Common Errors:

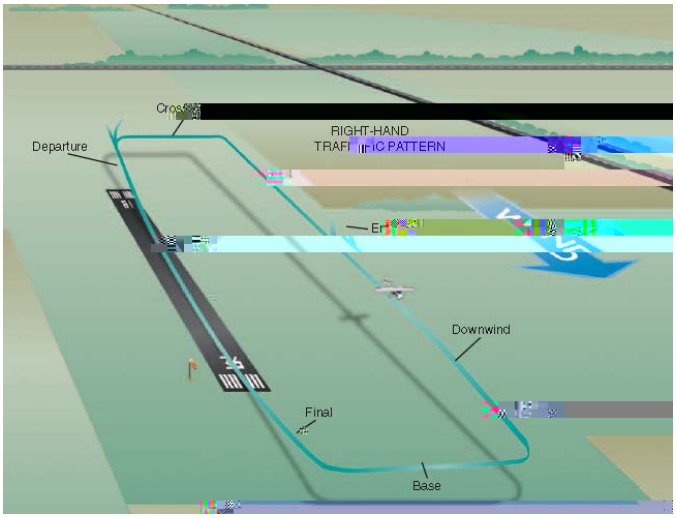
- Iemt.

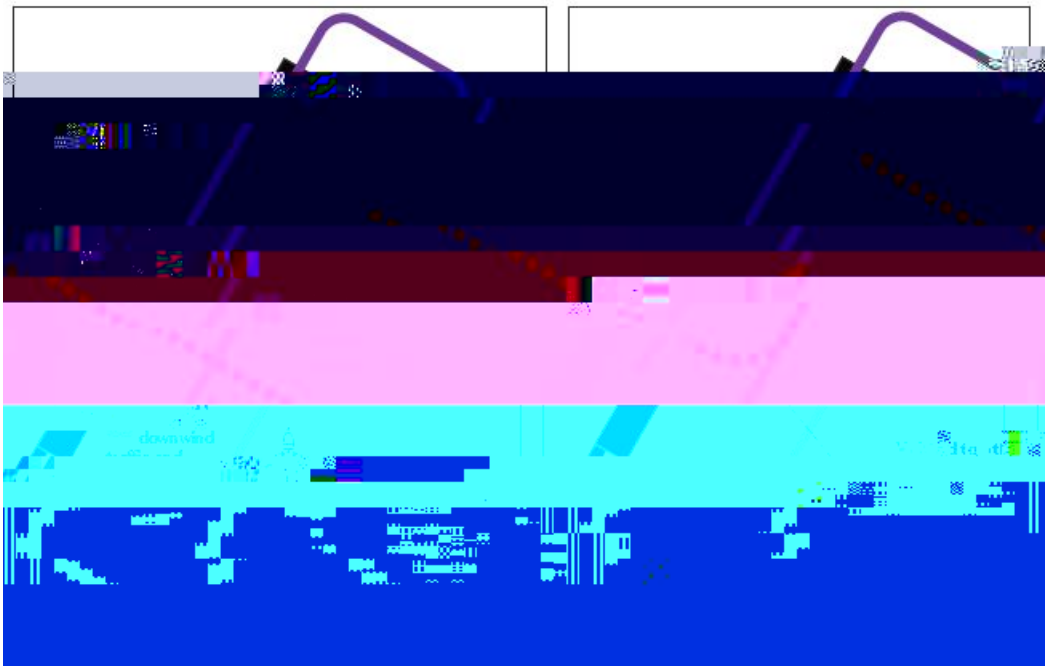
Commercial Pilot

Commercial Pilot

Commercial Pilot







Flight Proficiency Standards:

- Exhibits knowledge of the elements related to traffic patterns. This shall include procedures at airports with and without operating control towers, prevention of runway incursions, collision avoidance, wake turbulence avoidance, and wind shear.
- Complies with proper traffic pattern procedures.
- Maintains proper spacing from other aircraft.
- Corrects for wind drift to maintain the proper ground track.
- Maintains orientation with the runway/landing area in use.
- Maintains traffic pattern altitude, ±100 feet and the appropriate airspeed, ±10 kts.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss traffic patterns at controlled and uncontrolled airports.
- Explain traffic pattern procedures.
- Explain how to maintain the proper ground track.

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.

Safety Considerations:

- Observe flap extension speeds.
- Maintain proper airspeed at all times.
- Use proper crosswind correction to avoid drifting from runway centerline.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Failure to establish and maintain a stabilized approach.
- Improper technique during round out and touchdown.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Short-Field Approach & Landing (C-152)

Objective:

To safely transition from flight to ground operations at an airport with a relatively short runway or where an approach is made over obstacles.

Description:

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to compensate for obstacles and shortened runway lengths.

Safety Considerations:

- Maintain proper airspeed at all times.
- Compensate for crosswind.
- Do not skid tires.
- Use of aerodynamic braking as available.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish and maintain a stabilized approach.
- Improper technique in use of power, wing flaps, and trim.
- Excessive airspeed on final approach.
- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Soft-Field Approach & Landing (C-152)

Objective:

To safely transition the airplane from flight to ground operations on a rough or soft surface.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown on a field that is unimproved.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2)

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- UCM retractable gear aircraft can only land on paved, public, published runways.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to maintain elevator back-pressure after touchdown.
- Improper use of brakes.
- Failure to consider effect of wind and landing surface.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a power-off 180° accuracy approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects an appropriate touchdown point.
- Positions airplane on downwind leg, parallel to landing runway, and not more than 1,000 feet AGL.
- Abeam the specified touchdown point closes throttle and establishes appropriate glide speed.
- Completes final airplane configuration.
- Touches down in a normal landing attitude, at or within 200 feet beyond the specified touchdown point.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the effect of wind velocity on required altitude and bank angle.
- Discuss the importance of controlling glide angle and airspeed on final approach.

Safety Consideration:

- Maintain coordinated flight throughout the maneuver.
- Be aware of the position of other traffic in the pattern.
- Maintain appropriate airspeed throughout the maneuver.

Common Errors:

- Failure to touchdown within 200 feet of the intended touchdown point.
- Failure to maintain constant airspeed and glide angle.
- Failure to accurately determine the wind direction and velocity.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Touch and Go/Stop and Go (C-152)

Objective:

Common Errors:

Emergency Descent (C-152)

Objective:

To descend the airplane as soon and as rapidly as possible, within the structural limitations of the airplane.

Description:

The emergency descent is a maneuver for descending as rapidly as possible to a lower altitude or to the ground for an emergency landing.

Setup Procedure:

9) Perform clearing turns.
10) If utilizing flight following, contact ATC for traffic advisories below.
11) Reduce power to idle.
12) Roll into a 30º bank to the left and pitch down to achieve 105 kts (If in turbulent air, maintain an airspeed below V_A).
13) Set mixture to rich.
14) Confirm flaps 0º
15) Initiate recovery to level flight at least 300' prior to assigned altitude by:
    c. Rolling out the bank.
    d. Pitching up.
16) Return to cruise flight and complete the cruise checklist to include leaning procedures

Flight Proficiency Standards:

- Exhibit knowledge of the elements related to emergency descent.
- Recognizes situations, such as depressurization, cockpit smoke, and/or fire that require an emergency descent.
- Establish the appropriate airspeed and configuration for the emergency descent.
- Exhibit orientation, division of attention, and proper planning.
- Maintains positive load factors during the descent.
- Follow the appropriate checklist.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the purpose(s) of an emergency descent.
- Discuss engine cooling characteristics during an emergency descent.
- Discuss the importance of proper planning as it pertains to emergencies.

Safety Considerations:

- Maintain positive aircraft control.
- Clear the engine periodically
- Clear below then GO.
- Steep spiral over airport.
- Continue on to emergency approach and landing.

Common Errors:

- Failure to recognize the urgency of the emergency descent.
- Failure to use emergency checklist for situation.
- Failure to maintain appropriate configuration and airspeed.
- Poor orientation, planning, and division of attention.

Maneuvering During Slow Flight (C-152)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Common Errors:

- Failure to establish specified flap configuration.
- Improper entry technique.
- Failure to establish and maintain the specified airspeed.
- Excessive variations of altitude and heading when a constant altitude and heading are specified.
- Rough or uncoordinated control technique.
- Improper correction for left turning tendency.
- Improper trim technique.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Power – Off Stall (C-152)

Objective:

- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Accelerated Stall (C-152)

Objective:

To familiarize the pilot with the conditions that produce accelerated stalls, to assist in recognizing an approaching stall, and to develop skills to prevent and recover from stalls in an accelerated configuration.

Description:

The aircraft is slowed down

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Steep Turns (C-152)

Objective:

To develop coordination, orientation, division of attention and smooth control techniques while executing high performance turns.

Description:

Chandelle (C-152)

Objective:

To develop the pilot's coordination, orientation, planning and accuracy of control during maximum performance flight.

Description:

A chandelle is a maximum performance climbing turn beginning from approximately straight and level flight, and ending at the completion of a 180° turn in a wings level, nose high attitude at the minimum controllable airspeed.

Setup Procedure:

1) Select an altitude to perform the maneuver no lower than 1,500' AGL.
2) Perform clearing turns.
3) Orient the airplane so that the turn is into the wind.
4) Maintain an airspeed of 95 kts.
5) Establish a 30° bank turn.
6) Simultaneously apply full power and pitch to maintain a smooth coordinated climbing turn to the 90° degree point with a constant bank.
7) At the 90° point, gradually increase back pressure to maintain pitch attitude and begin a coordinated roll out to reach wings level at the 180° point, just above the stall speed.
8)

Learning Outcomes:

- Coordination during high power settings and high angles of attack.
- Maneuvering the aircraft at high performance levels.

Safety Considerations:

- This maneuver should be performed no lower than 1,500’ AGL.
- Divide attention between flying the airplane and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Improper pitch, bank, and power coordination during entry or completion.
- Uncoordinated use of flight controls.
- Improper planning and timing of pitch and bank attitude changes.
- Factors related to failure in achieving maximum performance.
- A stall during the maneuver.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Commercial Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to lazy eights.
- Selects an altitude that will allow the maneuver to be performed no lower than 1,500' AGL.
- Establishes the recommended entry configuration, power, and airspeed.
- Maintains coordinated flight throughout the maneuver.
- Achieves the following throughout the maneuver
    - Approximately 30° bank at the steepest point.
    - Constant change of pitch and roll rate.
    - Altitude tolerance at 180° points, ±100 feet from entry altitude.
    - Airspeed tolerance at the 180° point, ±10 kts from entry airspeed.
    - Heading tolerance at the 180° point ±10°.
- Continues the maneuver through the number of symmetrical loops specified and resumes straight and level flight.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the importance of proper power setting.
- Explain the need for differing amounts of rudder pressure between the left and right turn.
- Discuss the effects of torque at the top of the eight in both the right and left turns.

Safety Considerations:

- Always clear the area before beginning a maneuver.
- Maintain coordination at all times during the maneuver.
- Use proper division of attention to see and avoid traffic.

Common Errors:

- Uncoordinated use of flight controls.
- Inconsistent airspeed and altitude at key points in the maneuver.
- Loss of orientation.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Steep Spiral (C-

Eights On Pylons (C-152)

Objective:

To develop a fine control touch, coordination, and the division of attention necessary for accurate and safe maneuvering of the airplane.

Description:

The airplane is flown in circular paths, alternately left and right, in the form of a figure 8 around two selected points on the ground at such a precise altitude and airspeed that a line parallel to the airplane's lateral axis appears to pivot on each of the pylons.

Setup Procedure:

1) Select two pylons perpendicular to the wind with suitable emergency landing area within gliding distance and a distant apart to obtain a 3 to 5 second straight and level segment.
2) Perform clearing turns.
3) Select appropriate emergency landing field.
4) Establish the appropriate pivotal altitude.
5) Establish airspeed below V_A.
6) Enter the maneuver at a 45° to the downwind with the first turn to the left.
7) When abeam the pylon, begin your turn.
8) Maintain the point on your reference line by climbing or descending as the pivotal altitude changes.
9) Fly straight and level between pylons and repeat around the other pylon.
10) Return to cruise flight and complete cruise checklist to include leaning procedures.

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Learning Outcomes:

- Explain how pivotal altitude is affected with changes in groundspeed.
- Compute pivotal altitude.
- Explain the relationship between pivotal altitude and angle of bank.

Safety Considerations:

- Clear the area of traffic and obstacles.
- Look for an emergency landing field nearby.
- Division of attention between maneuver and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Faulty entry technique.
- Poor planning, orientation, and division of attention.
- Uncoordinated flight.
- Use of improper line of sight reference.
- Improper timing of turn entries and rollouts.
- Improper wind-drift correction between pylons.
- Selection of pylons where there is no suitable emergency landing area within gliding distance.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Commercial Pilot

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back on the runway.
- Consider the effect of density altitude on performance.
- Do not retract landing gear too soon.0.7928 -p73 /C2_0 1 Tf -25.928 -1.145 Td <00o nogPM..( )Tj ody upPM..( )Tj od

Learning Outcomes:

- Explain runway selection criteria.
- Discuss how to maintain directional control during ground roll.
- Discuss proper lift-off technique.
- Explain the difference between V_X and V_Y.

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force aircraft off runway too early, causing it to settle back onto runway.
- Do not force aircraft to stay on the ground when it is ready to lift off, wheelbarrow.
- Back taxi to ensure use of entire runway length.
- Retraction of gear and flaps as recommended.

Common Errors:

- Failure to position the airplane for maximum utilization of available runway.
- Improper runway incursion avoidance procedures.
- Improper use of controls during a short-field takeoff.
- Inappropriate lift-off procedures.
- Improper initial climb attitude, power setting and airspeed to clear obstacle.
- Improper use of checklists.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Commercial Pilot

- Discuss how to maintain directional control during ground roll.

Safety Considerations:

- Maintain runway centerline.
- Select appropriate runway based on conditions.
- Clear final approach path prior to entering runway.
- Do not force the aircraft off runway too quickly.
- Do not retract landing gear too soon.
- Do not allow the airplane to climb above ground effect too soon, causing it to settle back onto the runway.

Common Errors:

- Improper runway incursion avoidance procedures.
- Improper use of controls during a soft-field takeoff.
- Improper lift-off procedures.
- Improper climb attitude, power setting and airspeed.
- Improper use of checklist.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Safety Considerations:

- Maintain proper traffic pattern altitude.
- Maintain a distance from the runway that is within power-off gliding distance.
- Preferred bank of approximately 30 degrees (and not to exceed 30) while in pattern..
- Maneuver within 300 feet of traffic pattern altitude before turning crosswind to base.
- Maintain proper aircraft separation.
- Comply with standards traffic pattern procedures or ATC instructions.

Common Errors:

- Failure to comply with traffic pattern instructions, proced

Normal & Crosswind Approach & Landing (C-172RG)

Objective:

To safely transition the aircraft from flight to ground operations during normal conditions.

Description:

The aircraft is configured for a stabilized approach in the landing configuration and transitioned from the descent to touchdown.

Setup Procedure:

1) Complete the before landing and normal landing checklist at least 3 nm before the airport.
2) Enter and fly the appropriate pattern.
3) Select touchdown and aiming points.
4) When abeam midfield, apply carburetor heat and extend landing gear below 140 kts.
5) When abeam the intended touchdown point:
    a. Reduce power to approximately 15".
    b. Set flaps to 10° below 130 kts.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 75 kts.
6) Turn on the base leg when 45° from the touchdown point:
    a. Apply appropriate crosswind correction to fly perpendicular to the extended runway centerline.
    b. At key position, assess approach position.
    a. With wings level, set flaps to 20° as requried.
    c. Adjust pitch and power to establish a descent of 400-500 fpm and an airspeed of 70 kts.
7) Turn on final as to align the aircraft with the extended runway center line:
    a. Apply appropriate crosswind correction to maintain the extended runway centerline.
    b. Set flaps to 30° as required.
    c. Adjust pitch and power as required to maintain a stabilized approach, at 65 kts, toward the selected aiming point until flare to land.
    d. Add crosswind control by lowering the upwind wing and applying opposite rudder as appropriate to maintain longitudinal axis of aircraft with extended centerline of runway.
    e. Complete the GUMPS check.
    f. **Ensure 3 down and locked.**
8) During the flare to land simultaneously reduce power to idle and maintain aircraft approximately one foot above runway until it slows to stall speed and touches down on the runway centerline.
9) Maintain positive pitch attitude for aerodynamic braking.
10) Exit runway and complete after landing checklist.

Flight Proficiency Standards:

Short –

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to compensate for obstacles and shortened runway lengths.

Safety Considerations:

- Maintain proper airspeed at all times.
- Compensate for crosswind.
- Do not skid tires.
- Use of aerodynamic braking as available.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to establish and maintain a stabilized approach.
- Improper technique in use of power, wing flaps, and trim.
- Excessive airspeed on final approach.
- Failure to establish proper crosswind correction.
- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Commercial Pilot

Learning Outcomes:

- Discuss effect of flaps on an approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain how to touchdown and maneuver the aircraft on soft of unimproved surfaces.

Safety Considerations:

- Do not land on fields that exceed the capabilities of the aircraft or pilot.
- Fly over and visually check the field prior to landing.
- Check field length and density altitude.
- UCM retractable gear aircraft can only land on paved, public, published runways.
- Ensure landing gear is extended and locked.

Common Errors:

- Failure to maintain elevator back-pressure after touchdown.
- Improper use of brakes.
- Failure to consider effect of wind and landing surface.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Power – Off 180° Accuracy Landing (C-172RG)

Objective:

To instill in the pilot the judgment and procedures necessary for accurately flying the airplane, without power, to a safe landing.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a power-off 180° accuracy approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects an appropriate touchdown point.
- Positions airplane on downwind leg, parallel to landing runway, and not more than 1,000 feet AGL.
- Abeam the specified touchdown point closes throttle and establishes appropriate glide speed.
- Completes final airplane configuration.
- Touches down in a normal landing attitude, at or within 200 feet beyond the specified touchdown point.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the effect of wind velocity on required altitude and bank angle.
- Discuss the importance of controlling glide angle and airspeed on final approach.

Safety Consideration:

- Maintain coordinated flight throughout the maneuver.
- Be aware of the position of other traffic in the pattern.
- Maintain appropriate airspeed throughout the maneuver.

Common Errors:

- Failure to touchdown within 200 feet of the intended touchdown point.
- Failure to maintain constant airspeed and glide angle.
- Failure to accurately determine the wind direction and velocity.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Go-Around (C-172RG)

Objective:

To safely discontinue the landing approach when unsatisfactory conditions exist.

Description:

As full power is applied, the aircraft attitude is adjusted to accelerate to V_Y and climb. As a safe airspeed is attained, flaps are retracted 10° at a time allowing stabilization between each retraction. Landing gear is retracted after a positive rate of climb is attained and clear of any obstacles.

Setup Procedure:

1) Smoothly apply maximum allowable power.
2) Turn off carburetor heat.
3) Establish an attitude to accelerate to 55 kts.
4) Set flaps to 20° and stabilize in between configuration changes.
5) Allow the airplane to accelerate to V_X and climb.
6) Retract landing gear after a positive rate of climb is established and clear of any obstacles.
7) Set flaps to 10° and stabilize in between configuration changes.
8) Allow the aircraft to accelerate to V_Y.
9) Set flaps to 0° at a safe altitude above 200' AGL.
10) Open cowl flaps.
11) Verify the Go Around checklist is complete.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to a go-around/rejected landing.
- Mak[illegible]

Emergency Descent (C-172RG)

Objective:

To descend the airplane as soon and as rapidly as possible, within the structural limitations of the airplane.

Description:

The emergency descent is a maneuver for descending as rapidly as possible to a lower altitude or to the ground for an emergency landing.

Setup Procedure:

1) Perform clearing turns.
2) If utilizing flight following, contact ATC for traffic advisories below.
3) Apply carburetor heat.
4) Reduce power to idle.
5) Confirm flaps 0º.
6) Set mixture to rich.
7) Advance prop to high RPM.
8) Extend landing gear.
9) Roll into a 30º - 45 º bank to the left and pitch down to achieve 130 kts (If in turbulent air, maintain an airspeed below V_A)
10) Close cowl flaps.
11) Continue descent until instructed to recover or at assigned altitude.
12) Initiate recovery to levegontoverto 4irrtonas.1(A)2.4(T)- 6. 0 Tw 6’1.1(o)-13.1(tp-8(be)-12.3(r)-6.3(af)-1.-8(hi)3g)-12.3(ned)

- Poor orientation, planning, and division of attention.

Commercial Pilot

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified gear and flap configuration.
- Improper entry technique.
- Failure to establish and maintain the specified airspeed.
- Excessive variations of altitude and heading when a constant altitude and heading are specified.
- Rough or uncoordinated control technique.
- Improper correction for left turning tendency.
- Improper trim technique.

References:

Learning Outcomes:

- Discuss the aerodynamics of a stall.
- Describe the indications of an impending stall and how to prevent a stall from occurring.
- Describe the steps in recovering from a stall.
- Discuss the factors that affect the stalling characteristics of the airplane.
- Explain how to avoid a spin.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Power – On Stall (C-172RG)

Objective:

To familiarize the pilot with the conditions that

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Accelerated Stall (C-152)

Objective:

To familiarize the pilot with the conditions that produce accelerated stalls, to assist in recognizing an approaching stall, and to develop skills to prevent and recover from stalls in an accelerated configuration.

Description:

The aircraft is slowed down and placed in the clean configuration. After which a steep turn is applied with excessive back elevator pressure and therefore a stall is induced at a higher than normal stalling speed and recovery initiated returning the aircraft to normal cruise flight.

Setup Procedure:

9) Select an altitude which allows recovery by at least 3,000’ AGL.
10) Perform clearing turns.
11)

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Commercial Pilot

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to chandelles.
- Selects an altitude that will allow the maneuver to be performed no lower than 1,500’ AGL.
- Establishes the recommended entry configuration, power and airspeed.
- Establishes the angle of bank at approximately 30°.
- Simultaneously applies power and pitch to maintain a smooth, coordinated climbing turn to the 90° point, with a constant bank.
- Begins a coordinated constant rate rollout from the 90° point to the 180° point maintaining power and a constant pitch attitude.
- Completes rollout at the 180° point, ±10° just above a stall airspeed, and maintains that airspeed momentarily avoiding a stall.
- Resumes straight and level flight with minimum loss of altitude.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Coordination during high power settings and high angles of attack.
- Maneuvering the aircraft at high performance levels.

Safety Considerations:

- This maneuver should be performed no lower than 1,500’ AGL.
- Divide attention between flying the airplane and scanning for traffic.
- Maintain coordinated flight.

Common Errors:

- Improper pitch, bank, and power coordination during entry or completion.
- Uncoordinated use of flight controls.
- Improper planning and timing of pitch and bank attitude changes.
- Factors related to failure in achieving maximum performance.
- A stall during the maneuver.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Lazy Eights (C-172RG)

Objective:

To develop coordination of controls through a wide range of airspeeds and altitudes so that certain accuracy points are reached with planned attitude and bank.

Description:

Two 180° turns, in opposite direction, while making a climb and a descent in a symmetrical pattern during each of the turns. At no time is the airplane flown straight and level.

Setup Procedure:

1) Select an altitude to perform the maneuver no lower than 1,500' AGL.
2) Perform clearing turns.
3) Orient the airplane so that the first turn is to the left and into the wind.
4) Maintain airspeed below Va.
5) Adjust cowl flaps as required.
6) Begin the maneuver by constantly changing pitch and bank maneuver:
    a. 45° point – 15° of bank and max pitch up.
    b. 90° point – 30° of bank, level pitch attitude, minimum controllable airspeed.
    c. 135° point – 15° of bank and max pitch down.
    d. 180° point – back to starting airspeed, altitude, and heading.
7) Repeat in opposite direction.
8) Return to cruise flight and complete cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to lazy eights.
- Selects an altitude that will allow the maneuver to be performed no lower than 1,500' AGL.
- Establishes the recommended entry configuration, power, and airspeed.
- Maintains coordinated flight throughout the maneuver.
- Achieves the following throughout the maneuver
    - Approximately 30° bank at the steepest point.
    - Constant change of pitch and roll rate.
    - Altitude tolerance at 180° points, ±100 feet from entry altitude.
    - Airspeed tolerance at the 180° point, ±10 kts from entry airspeed.
    - Heading tolerance at the 180° point ±10°.
- Continues the maneuver through the number of symmetrical loops specified and resumes straight and level flight.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the importance of proper power setting.
- Explain the need for differing amounts of rudder pressure between the left and right turn.
- Discuss the effects of torque at the top of the eight in both the right and left turns.

Safety Considerations:

- Always clear the area before beginning a maneuver.
- Maintain coordination at all times during the maneuver.
- Use proper division of attention to see and avoid traffic.

Common Errors:

- Uncoordinated use of flight controls.
- Inconsistent airspeed and altitidi1.1(e)-8.9((1d)-/TTe1(n)-12.13.1(ec)-8(t)3(or)-6.4(di)31(of)-13.1i)-8.9(nt)-13.1the maneuic

Steep Spiral (C-172RG)

Objective:

To improve pilot techniques for airspeed control, wind drift control, planning, orientation, and division of attention.

Description:

A steep spiral is a constant gliding turn, during which a constant radius around a point on the ground is maintained.

Setup Procedure:

1) Begin the maneuver with sufficient altitude to allow for three 360° degree turns without descending below 1,000' feet AGL.
2) Select a point to perform the maneuver.
3) Peror-24.o0.005 Tc 0.001 Tw 0.916 -EM98[(Pe)-2.m thi

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Section 7 – MULTI ENGINE RATING

The Multi-Engine Pilot rating is a flight course and an individualized ground school study. All degree seeking students will conduct training under CFR 14 Part 141 unless approved by the Chief Flight Instructor.

This section contains references to the BE-58.

Multiengine

Table

Normal & Crosswind Takeoff & Climb (BE-58)

Objective:

To move the airplane from its starting position on the runway, become airborne and establish a positive climb to a safe maneuvering altitude.

Description:

The takeoff can be separated into 3 steps:

1) The takeoff roll: The airplane is accelerated to an airspeed of 85 kts that provides sufficient lift to become airborne.
2) The rotation, when the pilot increases elevator back pressure, increasing the angle of attack to lift the nose wheel.
3) The initial climb when the airplane leaves the ground and establishes a pitch attitude to climb away from the runway.

Setup Procedure:

1) Position aircraft to view traffic.
2) Complete Short-Field takeoff checklist and takeoff briefing.
3)

Common Errors:

- Improper runway incursion avoidance procedures.
- Inappropriate lift-off procedures.
- Improper climb attitude, power setting, and airspeed.
- Improper use of checklists.
- Improper positioning of the flight controls and wing flaps.
- Drift during climb.
- Failure to establish and maintain proper climb configuration and airspeeds.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS

Short-field & Crosswind Takeoff & Climb (BE-58)

Objective:

To move the airplane from its starting position on the runway, become airborne, and establish a positive climb to a safe maneuvering altitude in order to clear an obstacleo[awa3(e i)-8.9(n ot065 ih12 276.9.84 re w 9.96 &o-477 36 4 od7(f26<..416(i)3(a

- Establishes a pitch attitude that will maintain V_Y ±5 kts to a safe maneuvering altitude.
- Maintains directional control, proper wind-drift correction throughout the takeoff and climb.
- Complies with noise abatement procedures.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain runway selection criteria including performance charts.
- Discuss how to maintain directional control during the ground roll.
- Discuss proper lift-off technique.
- Explain the need for and how to correct for crosswinds.
- Discuss accelerate-

Learning Outcomes:

-

Normal & Crosswind Approach & Landing (BE-58)

Objective:

To safely transition from flight to ground operations during normal condition 20.04 -0w20.0a0 Td ( )0 9/Subtype /Header /Header

10) Exit the runway, complete after landing flow, and confirm with the checklist.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to normal and crosswind approach and landing.
- Considers the wind conditions, landing surface, obstructions, and selects a suitable touchdown point.
- Establishes the recommended approach and landing configuration and airspeed and adjusts pitch attitude and power as required.
- Maintains a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 V_{S0}, ±5 kts with wind gust factor applied.
- Makes smooth, timely, and correct control application during the round out and touchdown.
- Touches down smoothly at approximate stalling speed.
- Touches down at or within 200 feet beyond a specified point, with no drift, and with the airplane's longitudinal axis aligned with and over the runway center/landing path.
- Maintains crosswind correction and directional control throughout the approach and landing sequence.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.
- Discuss the importance of and use of landing performance charts.

Common Errors:

- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Failure to establish and maintain a stabilized approach.
- Improper technique during round out and touchdown.
- Improper use of brakes.
- Poor directional control after touchdown.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Short-field & Crosswind Approach & Landing (BE-58)

Objective:

To safely transition from flight to ground operations while landing on a short runway with a 50ft obstacle and/or land on a specified touchdown spot.

Description:

The aircraft is configured for a stabilized approach in the landing configuration to clear a 50ft obstacle and transitioned from the descent to touchdown to a specified touchdown point.

- Maintains crosswind correction and directional control throughout the approach and landing sequence.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain importance of airspeed management.
- Discuss effect of flaps on approach to landing.
- Describe effect of descent angle on a stabilized approach.
- Discuss proper selection and use of aiming point.
- Explain proper use of crosswind control inputs.
- Discuss the importance of and use of landing performance charts.

Safety Considerations:

- Observe flap and gear extension speeds.
- On final approach and within 500 feet AGL, the airplane should be on speed, in trim, configured for landing and tracking extended centerline in a constant descent angle towards an aiming point in the touchdown zone.
- Use proper crosswind correction to avoid drifting from runway centerline.
- Ensure landing gear is extended and locked.

Common Errors:

- Improper use of landing performance data and limitations.
- Failure to establish approach and landing configuration at appropriate time or in proper sequence.
- Failure to establish and maintain a stabilized approach.
- Improper technique during round out and touchdown.
- Improper use of brakes.
- Poor directional control after touchdown.
- Failure to clear an obstacle.
- Failure to touch down within the specified touchdown point parameters.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Multiengine

Table

- Timely decision making.
- Be watchful for situations which may require a go-around.

Common Errors:

- Delayed decision to make a go-around.
- Improper application of power.
- Failure to control pitch attitude.
- Improper trim technique.
- Failure to compensate for torque effect.
- Failure to maintain V_Y as appropriate.
- Improper wing flap retraction.
- Improper gear retraction.
- Failure to maintain well clear of obstructions and other traffic.
- Improper use of checklists.

References:

Airplane Flying handbook; POH/AFM;

Maneuvering During Slow Flight (BE-58)

Objective:

To demonstrate the flight characteristics and controllability of an airplane at speeds lower than normal cruise and develop proficiency in performing maneuvers that require slow airspeeds.

Description:

Slow flight consists of slowing the aircraft to a minimum controllable airspeed in the landing configuration and maneuvering the aircraft while maintaining altitude and airspeed.

Setup Procedure:

- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified gear and flap configuration.
- Improper entry technique.
- Failure to establish and maintain the specified airspeed.
- Excessive variations of altitude and heading when a constant altitude and heading are specified.
- Rough or uncoordinated control technique.
- Improper trim technique.
- Bank angle too high during turns.

- Discuss stall speeds vs. bank angles.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

Safety Considerations:

- Altitude selection too low.
- Uncoordinated flight.
- Not clearing the area.
- Division of attention.

Common Errors:

- Failure to establish specified configuration.
- Improper pitch, heading, and bank control.
- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Improper torque correction.
- Poor stall recognition and delayed recovery.
- Excessive altitude loss or excessive airspeed during recovery.
- Secondary stall during recovery.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

- Rough or uncoordinated control technique.
- Failure to recognize indications of a stall.
- Failure to achieve a stall.
- Poor stall recognition and delayed recovery.
- Excessive airspeed during recovery.

References:

Airplane Flying Handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Emergency Descent (BE-58)

Objective:

To descend the airplane as rapidly as possible, within the structural limitations of the airplane.

Description:

The emergency descent is a maneuver for descending as rapidly as possible to a lower altitude or to the ground for an emergency landing.

Setup Procedure:

1) Perform clearing turns.
2) If utilizing flight following, contact ATC for traffic advisories below.
3) Reduce power to idle.
4) Advance props to high RPM.
5) Set mixture to rich.
6) Roll into a 30º bank to the left and pitch down to achieve 142 kts (*Note*: this is a 10 knot buffer to prevent exceeding V_{LE}; in a real emergency use 152 kts).
7) Extend flaps to APH (15º) below 152 kts.
8) Extend landing gear below 152 kts.
9) Confirm cowl flaps closed.
10) Initiate recovery to level flight at least 300' prior to assigned altitude by:
    a. Rolling out the bank.
    b. Pitching up.
11) Return to cruise flight and complete the cruise checklist to include leaning procedures.

Flight Proficiency Standards:

- Exhibits knowledge of the elements related to an emergency descent.
- Recognizes situations, such as depressurization, cockpit smoke and/or fire that require an emergency descent.
- Establishes the appropriate airspeed and configuration for the emergency descent.
- Exhibits orientation, division of attention, and proper planning.
- Maintains positive load factors during the descent.
- Completes appropriate checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Discuss the situations in which an emergency descent would be used.
- Explain the airplane configuration of an emergency descent.
- Discuss gear extension and retraction speeds.

Safety Considerations:

- Clear the area, including below, before initiating the maneuver.
- Divide attention between aircraft control and outside reference.
- Maintain positive aircraft control.

Common Errors:

- Slow response to the emergency.
- Failure to establish the specified configuration.
- Failure to establish and maintain the prescribed airspeed for the configuration.
- Incorrect engine settings.
- Failure to maintain positive load factor in the descent.
- Uncoordinated use of controls.

Engine Failure After Takeoff (BE-58)

Objective:

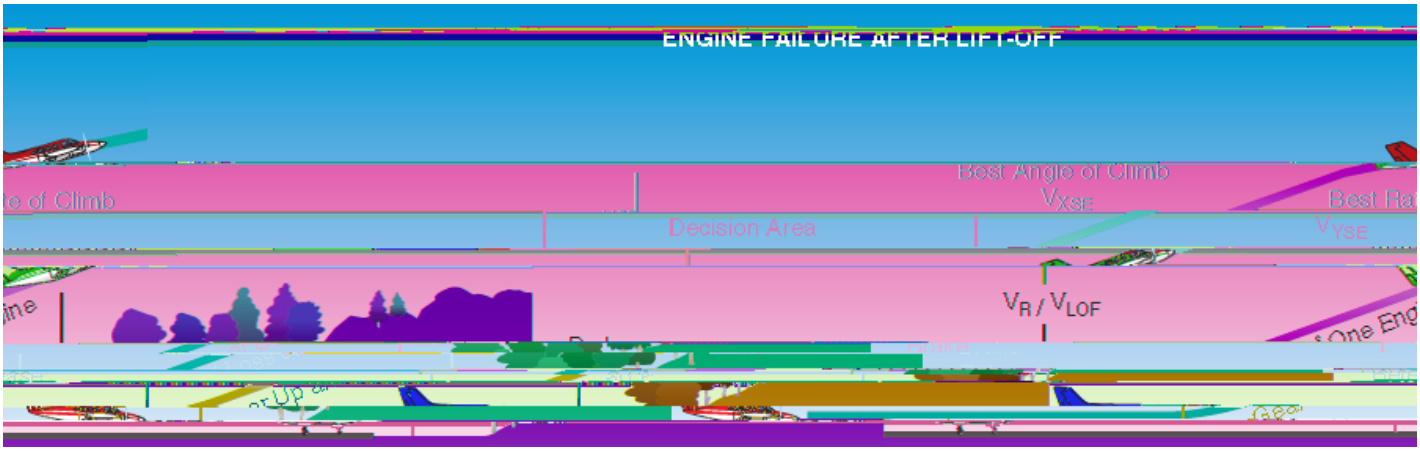
To maintain control of the aircraft after a simulated engine failure following takeoff and return to the airport for a safe landing.

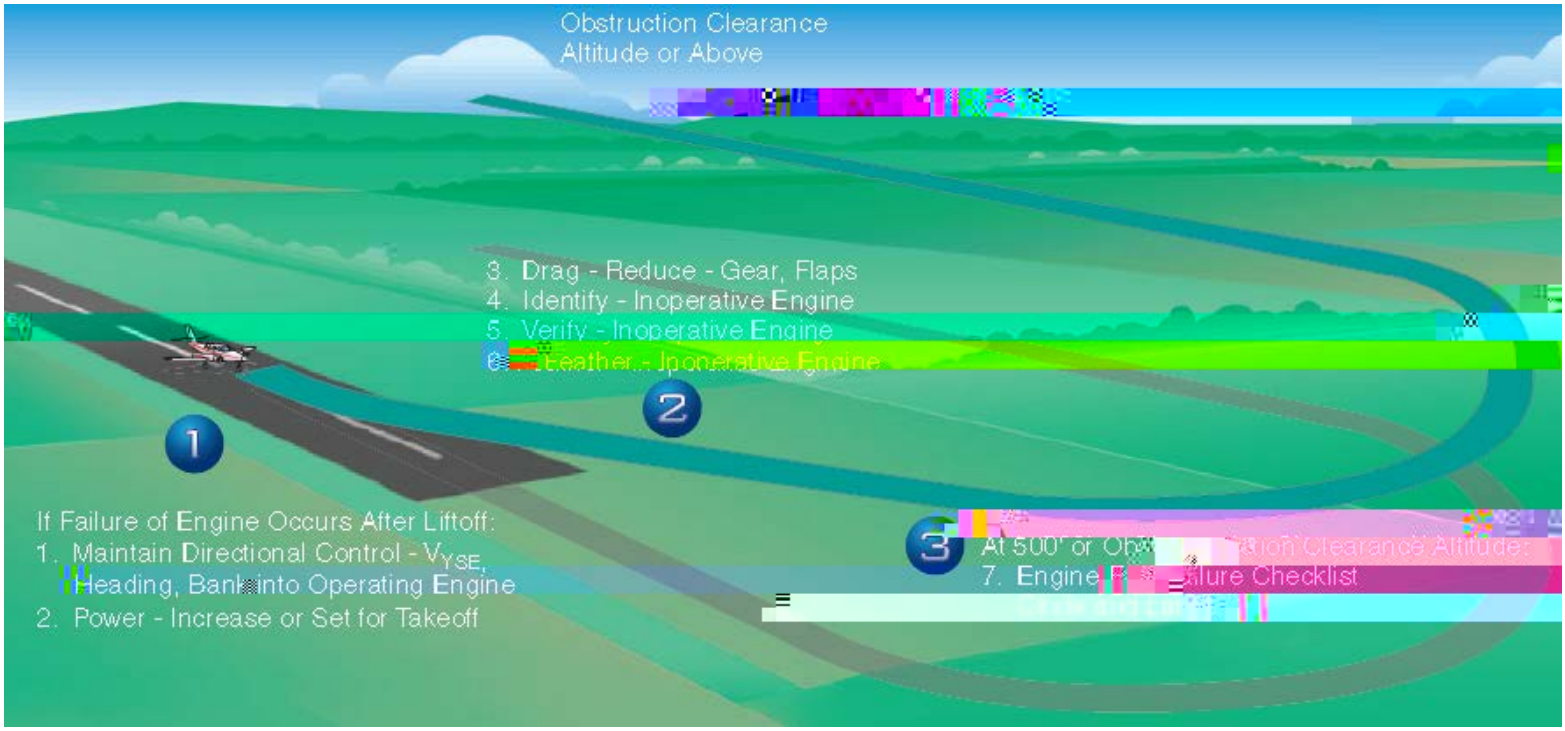
Description:

A simulated engine failure is given no lower than 500' AGL. Maintain directional control and comply with the manufacturer's recommended emergency procedures while returning to the airport for a landing.

Setup Procedure:

1) Maintain positive aircraft control and pitch for 100 (V_{YSE}); blue line.
2) Power up:
    a. Mixture full rich
    b. Propellers full forward
    c. Throttles full power
3) Clean up:
    a. Retract flaps
    b. Retract landing gear
4) Identify: Dead foot, dead engine.
5) Verify: Reduce power on suspected inoperative engine. If there are no changes then continue to reduce power to idle.
6) Feather the propeller of the inoperative engine.
7) Climb at 100 kts (V_{YSE}) and zero sideslip (bank angle approximately 2-5° and ⅓ to ½ ball deflection toward the operative engine).
8) Climb straight ahead, or with shallow turns to avoid obstacles.
9) Complete the Engine Failure After Lift-Off Checklist. Aircraft control should never be sacrificed to execute a checklist.
10) Return for landing. If not able to maintain altitude, land straight ahead.





Flight Proficiency Standards:

- Exhibits knowledge of the elements related to the procedure used for engine failure after lift-off.
- Recognizes a simulated engine failure promptly, maintains control, and utilizes appropriate emergency procedures.
- Reduces drag, identifies and verifies the inoperative engine after simulated engine failure.
- Simulates feathering the propeller on the inoperative engine. Instructor shall then establish zero-thrust on the inoperative engine.
- Establishes V_{YSE}; if obstructions are present, establishes V_{XSE} or V_{MC} +5 kts, whichever is greater, until obstructions are cleared. Then transitions to V_{YSE}.
- Banks toward the operating engine as required for best performance.
- Monitors operating engine and makes adjustments, as necessary.
- Recognizes the airplane's performance capabilities. If a climb is not possible at V_{YSE}, maintain V_{YSE} and return to the departure airport for landing, or initiates an approach to the most suitable landing area available.
- Secures the (simulated) inoperative engine.
- Maintains heading, ±10°, and airspeed, ±5 kts.
- Completes appropriate emergency checklists.

Note: These are the ACS standards and the CFI will refer to the syllabus for specific lesson completion standards, as they may be different.

Learning Outcomes:

- Explain the procedures and aircraft configuration during an engine failure after takeoff.
- Discuss the aircraft's handling characteristics during an engine failure after takeoff.
- Discuss zero sideslip.
- Discuss the three major accident factors: Loss of directional control, loss of performance, and loss of flying speed.

Safety Considerations:

- Divide attention between aircraft control and outside reference.
- Maintain positive aircraft control.
- Simulate the engine failure above 88 kts (V_{SSE}) after reaching a safe altitude (at least 500' AGL).

Common Errors:

- Failure to follow prescribed emergency checklists.
- Failure to properly identify and verify the inoperative engine.
- Failure to properly adjust engine controls and reduce drag.
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Learning Outcomes:

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V_{MC} Demonstration (BE-58)

Objective:

To familiarize the student with the flight characteristics of an impending V_{MC} situation and how to recover from such if it should occur.

Description:

- Recovers within 20° of the entry heading.
-

Maneuvering With One Engine Inoperative (BE-58)

Objective:

To familiarize the student with the flight characteristics of maneuvering with one engine inoperative and the actual shut down, feathering, and restart of an engine.

Description:

The instructor will fail one engine. The student will maintain directional control & determine which engine is affected. The student will then follow the appropriate checklists for a shutdown, feathering, and restart of affected engine while maneuvering as instructed.

Setup Procedure:

1) Maintain positive aircraft control and pitch for 100 (V_{YSE}); blue line.
2) Power up:
    a. Mixture full rich
    b. Propellers full forward
    c. Throttles full power
3) Clean up:
    a. Retract flaps
    b. Retract landing gear
4) Identify: Dead foot, dead engine.
5) Verify: Reduce power on suspected inoperative engine. If there are no changes then continue to reduce power to idle.
6) If altitude allows attempt to identify and fix the problem.
7) If altitude does not allow to identity and fix the problem or if attempts to do so were unsuccessful feather the propeller of the inoperative engine.
8) Maintain 100 kts (V_{YSE}), altitude, and zero sideslip (bank angle approximately 2-5° and ⅓ to ½ ball deflection toward the operative engine).
9) Monitor electrical load – max of 100% on good engine.
10) Save the good engine – reduce operating power on the good engine if possible to maintain 100 (V_{YSE}).
11) Secure inoperative engine.
12) Complete the Engine Failure After Lift-Off Checklist.6( )TMTJ 0 Tc.001 7(t.6(%4.44 Tm (YSE)(t.6(%4.001 Tc.001-Tc.0(,)-

Multiengine

Table

Common Errors:

- Lack of instrument procedure skills.
- Failure to use proper communication procedures.
- Noncompliance with ATC clearances.
- Incorrect use of navigation equipment.
- Inappropriate descent below the MDA or DH.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Common Errors:

- Lack of instrument procedure skills.
- Failure to use proper communication procedures.
- Noncompliance with ATC clearances.
- Incorrect use of navigation equipment.
- Inappropriate descent below the MDA of DH.

References:

Airplane Flying handbook; POH/AFM; Commercial Pilot ACS; CFI PTS

Precision Approach (and LPV) – One Engine Inoperative (BE-58)

Objective:

To fly a published instrument approach, by reference to instruments, with one engine inoperative.

Description:

Prior to the final approach fix (FAF), the instructor will simulate a failed engine. The student will maintain directional control, secure the engine, and continue the approach.

Setup Procedure:

1) Monitor local AWOS/ASOS/ATIS.
2) Tune and identify NAVAIDS required for the approach.
3) Brief the instrument approach plate.
4) Check HSI against magnetic compass.
5) Prior to reaching the IAF, complete the Before Initial Approach Fix (IAF) checklist.
6) When engine failure occurs, perform the engine failure procedures (power up, clean up, identify, verify, feather, secure) and continue with the approach as appropriate.
7) If workload permits, advise ATC of engine failure.
8) Stay high to intercept the glideslope.
9) Prior to intercepting the glideslope, complete the Final Approach Fix (FAF) checklist.
10) At glideslope interception:
    a. Extend landing gear below 152 kts(V_{LE}).
    b. Adjust pitch and power to maintain a stabilized approach on the glideslope and 100 kts (approximately 18" manifold pressure and 2,500 RPM).
11) 500' above DA/DH, complete the GUMPS check.
12) Fly the aircraft on the glideslope/path until the DA/DH:
    a. If the required visibility is ensured and the runway is in sight, a normal descent to a landing can be made.
        i. Set flaps to DN (30º), as required, below 122 kts (V_{FE}).
        ii. Maneuver to land.
    b. If not, execute a missed approach and complete the missed approach checklist.
        i. Do not attempt a missed approach if flaps have been fully extended.

Flight Proficiency Standards:

- Exhibits knowledge of the elements by explaining the procedures used during a published instrument approach with one engine inoperative.
- Recognizes engine failure, sets the engine controls, reduces drag, identifies and verifies the inoperative engine, and simulates feathering appropriate engine propeller.
- Establishes and maintains a bank toward the operating engine, as required, for best performance in straight and level flight.
- Follows the prescribed checklists to verify procedures for securing the inoperative engine.
- Monitors the operating engine and makes necessary adjustments.
- Requests and receives an actual or a simulated ATC clearance for an instrument approach.
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Learning Outcomes:

- Explain the changes in the aircraft's approach configuration when flying a single engine instrument approach.
- Explain the importance of avoiding a single engine missed approach.
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