Checklists and Briefings

Takeoff Briefing

Takeoffs are briefed so that the pilots have a clear understanding of the runway environment, emergency actions that may be required during the ground roll, initial takeoff and departure.

Procedure:

1. Determine which pilot will be PIC in case of emergency
2. Brief will be conducted from memory in the runup area prior to calling for departure and c

Ground Reference Maneuvers

Turns Around a Point (Private , CFI)

The objective of Turns Around a Point is to develop the pilot's skill in maintaining a specific relationship between the ground and the aircraft. It consists of two constant radius, coordinated, 360º turns.

Procedure:

1. Pre-Maneuver Checklist, power setting (21" MP and 2400 RPM recommended)
2. Select altitude between 600'-1,000' AGL (recommend 1,200' MSL), in non-congested area
3. Determine wind direction for downwind (tailwind) entry
4. Select outside visual reference (crossroads, tree, prominent landmark, refrain from using buildings as reference point), practice CFIT and wire strike avoidance
5. Enter at cruise speed (100 - 115 KIAS), bug reference heading
6. Execute turns around the point, at least two 360º turns are required, unless otherwise directed by your instructor/evaluator.
7. Apply appropriate wind correction for each segment of turn
    a. Highest groundspeed = steepest bank
    b. Slowest groundspeed = most shallow bank
8. Exit maneuver on the entry heading

Airman Certification Standards:

- Altitude: +/- 100'
- Airspeed: +/- 10 Knots

Common Errors:

- Failure to clear the area, collision hazards
- Poor coordination
- Failure to maintain airspeed and altitude
- Failure to maintain constant radius around point

S-Turns

Rectangular Course (Private, CFI)

The objective of the Rectangular Course maneuver is to replicate wind correction in a traffi2d-j02ched [Top]BBox n

Eights -On Pylons (Commercial , CFI)

The objective of Eights-On Pylons is to develop intuitive control of the aircraft at a varying, low level altitude

Performance Maneuvers

Steep Turns (All)

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Chandelles (Commercial, CFI)

ends

The objective of a Chandelle is to complete a high performance, climbing 180º turn. The maneuver begins in level cruise flight and ends in a nose high altitude just above stall speed. This maneuver is divided into two 90º segments. The first 90 degree segment requires

Lazy Eights (Commercial , CFI)

The objective of Lazy Eights is for the pilot to develop proper coordination of the flight controls over a wide range of airspeeds and altitudes. This is the only maneuver at which the control inputs are constantly changing.

Procedure:

1. Pre-Maneuver Checklist, power setting (21” MP and 2400 RPM recommended)
2. Select altitude for task to be completed no lower than 1,500’ AGL
3. Select outside f(r)4.9 (we)-160.5 (r)4.9.7 (l)213(Pr)-8.1 (e)]TJ0 45 Tw TJ0 Tr3 0cl.c ling

Steep Spiral (Commercial - CFI)

The objective of a Steep Spiral is to provide a flight maneuver for rapidly dissipating substantial amounts of altitude while remaining over a selected point on the ground. A steep spiral is a gliding

Power-Off Stall (All)

The objective of the Power-Off Stall maneuver is to simulate and recover from a stall on approach to land.

Procedure:

1. Pre-Maneuver Checklist
2. Select altitude for task

Power -On

Normal Landing (All)

The objective of

Soft Field Takeoff (All)

The objective of the Soft Field Takeoff procedure is to simulate taking off from an unimproved runway i.e. grass, dirt, or gravel runway. Pressure is held off the nose wheel to prevent the nose gear from sinking into an unimproved surface during takeoff roll. Ground effect is used to allow the aircraft to accelerate prior to climb.

Procedure:

1. Complete Before Take-off Checklist and Take-off Briefing
2. Once clearance is obtained to take-off, visually check final for traffic and use aft yoke pressure during taxi. Verify Runway with a callout, “Runway _verified”
3. Line up on centerline without stopping and smoothly advance throttle to FULL POWER
4. Use back pressure on the yoke to lift the weight off the nose gear. Once the nose wheel comes up, reduce aft pressure. Call out “airspeed alive”
5. Lift off at the lowest possible airspeed. Do not allow aircraft to settle back on to the runway
6. Maintain aircraft in ground effect (half wingspan from the surface, 18’) and accelerate to Vx 72
   KIAS (for obstacle) or Vy 78 KIAS (for no obstacle)
7. Once clear of obstacle, Gear Up and accelerate to Vy (90 KIAS) and with a positive rate of climb, retract flaps smoothly to 0º
8. Maintain coordination with right rudder pressure
9. Maintain runway centerline using wind drift correction

Airman Certification Standards:

- Remain in ground effect while accelerating
- During climb to safe maneuvering altitude, maintain Vx or Vy ÷+10 Knots / -5 Knots (+/-5 Knots if Commercial)

Common Errors:

- Failure to remain in ground effect
- Climbing out at airspeed below Vx

Power Off 180º Accuracy Approach and Landing (Commercial , CFI)

The objective of a Power Off 180º accuracy approach is to land on a designated touchdown point on

Situational / Emergency Maneuvers

Forward Slip to Land

The objective of the Forward Slip to land, is to lose altitude in the instance of a high approach.

Procedure:

1. Perform appropriate landing approach procedures
2. To begin the slip, Power - Idle
3. Lower the upwind wing, pitch down and use opposite rudder to maintain centerline (same as crosswind correction)
4. The amount of altitude lost is controlled by the slip, i.e. amount of aileron and rudder deflection, as well as nose down attitude. Gear down helps create drag and allow a steeper descent.
5. Maintain an airspeed above 80 KIAS
6. Once on proper glide path, re-establish normal approach and landing. Transition to 75 KIAS on short final, flaps as needed
7. After exiting runway perform “after landing” checklis 0.25d 0 Td[a)10.e8Td(0.0 3.543 0 h and al)2.6 (l)2.6af54

Diversion

The diversion procedure is practiced so that the pilot is aware of the tasks required to divert to another airport in the case of emergency, weather, or maintenance.

Procedure:

1. Recognize a situation that requires a diversion
2. Write down time and identify current location on chart
3. Turn to estimated heading, avoiding any obstacles or airspace
4. Determine exact heading and turn on course
5. Determine Distance
6. Determine Groundspeed
7. Determine Time Enroute ETA
8. Determine Fuel required

Emergency Descent

An emergency descent is practiced simulating emergency situations that require a rapid descent. Two scenarios are often used during check rides. One scenario is that of a hypoxic passenger. Another is the simulation of an engine/wing fire.

Procedure:

1. Pre-Maneuver checklist complete
2. ENSURE AREA BELOW IS CLEAR
3. Select an appropriate landing area (if appropriate for the scenario)
4. Mixture and Propeller – Forward
5. Throttle – Idle
6. Below 129 KIAS, Gear-Down
7. Pitch for 120 KIAS
8. Turn left between 30° and 45° so pilot can maintain visibility below
9. Continue to engine out / emergency landing checklist (as appropriate for scenario given)
10. Level off at desired altitude, below 107 KIAS, Gear-Up

Instrument Procedures

Loss of Communications (Instrument)

This procedure is practiced so that the pilot can effectively manage a simulated loss of communication scenario, demonstrating proficiency in recognition, communication re-establishment, decision-making regarding flight continuation or deviation, and appropriate timing for initiating an approach.

Procedure:

1. Recognition and Communication Re-Establishment:
    - Immediately squawk 7600 on the transponder to indicate a loss of communication to ATC.
    - Simulate appropriate actions to re-establish communication, including radio frequency checks, equipment checks, and attempts to contact ATC via alternate means (if available).
    - Determine whether to continue to the flight plan destination or deviate based on the circumstances, terrain, weather, and available navigational aids.
    - Assess the appropriate time to initiate an approach considering factors such as distance, fuel reserves, weather conditions, and terrain clearance.
    - Utilize single-pilot resource management (SRM) or crew resource management (CRM) principles as applicable to ensure effective decision-making and workload management.
2. Determination of Route and Altitude Precedence (in IFR):
    - <u>Route to Fly:</u>
        1. Assigned: Follow the route specified in the last clearance received from ATC.
        2. Vectored: Proceed direct to the fix specified in any vector clearance received from ATC.
        3. Expected: Fly as advised in any further clearance provided by ATC.
        4. Filed: Follow the route specified in your filed flight plan.
    - <u>Altitude (Highest of the following):</u>
        1. Minimum: Maintain the altitude prescribed for IFR operations.
        2. Expected: Ascend or descend as advised in any further clearance provided by ATC.
        3. Assigned: Maintain the altitude specified in your last ATC clearance.

Airman Certification Standards:

- Demonstrates the ability to recognize a simulated loss of communication promptly.
- Simulates actions to re-establish communication effectively.
- Determines whether to continue to the flight plan destination or deviate based on comprehensive risk assessment and situational awareness.
- Determines the appropriate time to begin an approach considering various factors influencing flight safety and operational requirements.
- Employs single-pilot resource management (SRM) or crew resource management (CRM) techniques as appropriate to enhance decision-making and operational efficiency.

Common Errors:

- Failure to adhere to the proper route and altitude precedence as outlined by ATC procedures.
- Failure to squawk 7600 to indicate a loss of communication with ATC.
- Inadequate preparation or simulation of actions to re-establish communication with ATC.
- Lack of comprehensive risk assessment and decision-making regarding flight continuation or deviation.
-

Holding (Instrument)

The objective of Holding is to effectively manage holding procedures in air traffic control separations, weather diversions, and procedural turns, demonstrating proficiency in direct, parallel, and teardrop entry methods according to Instrument Flight Rules (IFR) and regulatory standards.

Procedure:

1. Preparation:

   a. Tune and identify the navigational system for the hold, if required. Twist OBS to the TO indication for that navigation system to prepare to identify and cross the fix initially.
   b. Consider reducing airspeed to an appropriate holding airspeed to conserve fuel in anticipation of the Expect Further Clearance (EFC) time, starting 2 miles prior to the holding fix.

2. Entry Into Hold:

   a. Direct Entry: Upon crossing the fix, turn immediately to the outbound heading (utilizing the heading bug) using a standard rate turn.
   b. Parallel Entry: Upon crossing the fix, turn to parallel the outbound course on the reciprocal of the inbound course for one minute (utilizing CDI).
   c. Teardrop Entry: Upon crossing the fix, turn 30° outbound (utilizing the heading bug) on the holding side for one minute.

   Report altitude and time at holding fix

3. Manage OBS Settings:

   a. Initially, fly heading bug to wind corrected track outbound (if appropriate to entry) to cross the holding fix.
   b. Twist OBS to the TO indication to prepare for the inbound course.
   c.

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Non-Precision Instrument Approach (Instrument)

The objective of Non-Precision Instrument Approach is to proficiently execute non-precision approaches using VOR/DME, Localizer, and GPS systems, ensuring compliance with all regulatory and operational guidelines.

Procedure:

1. Pre-Approach Preparation (prior to IAF crossing or final intercept vector):
    - Load the approach procedure into the Flight Management System (FMS) as time and workload allows.
    - Conduct the Instrument Approach Checklist.
    - Comply with ATC assigned altitudes until cleared for the approach.
    - Tune and identify VOR and or Localizer frequencies prior to being cleared for the approach
2. Approach Initiation:
    - Once cleared for the approach, activate the approach in the FMS, comply with published step-down altitudes, and procedure turns (if needed)
    - When established on approach (CDI begins to center), announce “positive course guidance” (VOR/GPS) or “localizer alive” (Localizer).
3. Final Approach:
    - ½ NM prior to the FAF, reduce speed to final approach speed for aircraft 90 KIAS, ensure approach speed (V_{LE}=129 KIAS) to extend gear and (V_{FE} = 103 KIAS) add 10° of flaps.
    -

Precision Instrument Approach (Instrument)

The objective of Precision Instrument Approach is to proficiently execute precision approaches using Instrument Landing System (ILS) and GPS-based systems, ensuring compliance with all regulatory and operational guidelines.

Procedure:

1. Pre-Approach Preparation (prior to IAF crossing or final intercept vector) :
    - Load the approach procedure into the Flight Management System (FMS).
    - Conduct the Instrument Approach Checklist.
    - Comply with ATC assigned altitudes until cleared for the approach.
    - Select, tune, identify, and confirm the operational status of Localizer/VOR frequencies prior to being cleared for the approach.
2. Approach Initiation:
    - Once cleared for the approach, comply with published altitudes and activate the approach.
    - When established on approach (CDI begins to center), announce “positive course guidance” (GPS) or “localizer alive” (ILS).
3. Final Approach:
    - Announce “Glideslope Alive” when glideslope becomes active and begins moving to center.
    - ½ dot below glideslope intercept, reduce speed to final approach speed 90 KIAS, ensure approach speed (V_{LE}=129 KIAS) to extend gear and (V_{FE} = 103 KIAS) add 10° of flaps.
    - Cross the FAF at the published altitude, announce “altitude check”
    - Begin a stabilized descent with the CDI centered after crossing the FAF.
    - Follow the glide slope and CDI to maintain precise lateral and vertical guidance.
    - Perform altitude callouts at 1,000', 500', 100', and at minimums.
4. Landing or Missed Approach Decision:
    - If required visual references are in sight at the Decision Altitude (DA)/Decision Height (DH), continue descent to land and slow to an airspeed that allows for a stabilized landing.
    - If required visual references are not in sight at DA/DH, conduct missed approach procedure.
5. System- Specific Considerations:
    - ILS Approach: Utilize both vertical and lateral guidance provided by the ILS system. Ensure all components such as localizer and necessary VOR systems (if applicable) are identified and active.
    - GPS Approach: Follow GPS guidance, typically using LPV or LNAV/VNAV minimums, ensuring "positive course guidance" is announced upon course acquisition.

Airman Certification Standards:

- Prior to Beginning Final Approach Segment:
    - Altitude:

Instructor Demonstration Maneuvers

Cross -Controlled Stall Demonstration (CFI Only)

The objective of a cross controlled stall demonstration is to show the student how an improper cross control /uncoordinated turn on a simulated base-to-final turn could result in a stall.

Procedure:

1. Pre-Maneuver Checklist
2. Select altitude for task to be completed no lower than 3,000' AGL
3. Select outside visual reference, bug reference heading.
4. Slow the airplane.
5. Check speed, Gear Down, and extend flaps to 25º, establish 79 KIAS, trim airplane.
6. Close throttle.
7. Begin a 30º bank to the left, simulating a descending base leg.
8. Apply excessive rudder in the direction of the turn (bottom rudder) while holding bank constant with opposite aileron op

Elevator Trim Stall (CFI Only)

The objective of an elevator trim stall demonstration is to show the student how a sudden change in speed or thrust could result in a trim setting that will cause a stall.

Procedure:

1. Pre-Maneuver Checklist
2. Select altitude for task to be completed no lower than 3,000' AGL
3. Select outside visual reference, bug reference heading
4. Slow the airplane to 70 KIAS, Gear Down, Prop forward, and flaps to 40º simulating final approach.
5. Trim the airplane
6. Smoothly apply full power and allow the pitch attitude to increase in excess of normal climb.
7. Acknowledge the cues at the first indication of a stall (e.g., aircraft buffet, stall horn, etc.).
8. Recover at first indication by decreasing angle of attack, and level the wings. Apply nose down trim as necessary and retract the flaps to 25º immaaa]TJ.6 (c)8.9 (.)-6.7 ())5 (.)]TJ0 Tc 0 Tw 39.098 0 Td( )TjE

Secondary Stall (CFI Only)

The objective of secondary stall demonstration is to show the student how an improper stall recovery can lead to remaining stalled.

Procedure:

1. Pre-Maneuver Checklist
2. Select altitude for task to be completed no lower than 3,000' AGL
3. Select outside visual reference, bug reference heading.
4. Slow the airplane to 70 KIAS Gear Down, Prop forward, and extend flaps to 40º
5. Execute a Power-off stall.
6. As the airplane stalls, DO NOT release the backpressure and add full power.
7. Note how the airplane pitches up and buffets a second time.
8. Reduce the angle of attack and recovery normally as a Power-off Stall.
9. Time permitting, describe and demonstrate conditions that lead to a secondary stall for future avoidance.

Airman Certification Standards:

- Exhibits instructional knowledge