

VII.H. Go-Around / Rejected Landing

References: [Airplane Flying Handbook](#) (FAA-H-8083-3), POH/AFM

Objectives	The student should develop knowledge of the elements related to a Go-Around/Rejected Landing. The student will understand the importance of a prompt decision and have the ability to quickly and safely configure the airplane and adjust its attitude to accomplish a go-around. The student will perform the maneuver to the standards prescribed in the ACS/PTS.
Key Elements	<ol style="list-style-type: none">1. Power2. Attitude3. Configuration
Elements	<ol style="list-style-type: none">1. Situations When a Go-Around may be Necessary2. Promptly Deciding to Go-Around3. Cardinal Principles4. Climb Out5. Communication
Schedule	<ol style="list-style-type: none">1. Discuss Objectives2. Review material3. Development4. Conclusion
Equipment	<ol style="list-style-type: none">1. White board and markers2. References
IP's Actions	<ol style="list-style-type: none">1. Discuss lesson objectives2. Present Lecture3. Ask and Answer Questions4. Assign homework
SP's Actions	<ol style="list-style-type: none">1. Participate in discussion2. Take notes3. Ask and respond to questions
Completion Standards	The student shows the ability to recognize when a go-around is needed and promptly configures the airplane and adjusts its attitude to safely execute the rejected landing.

Instructor Notes:

Introduction:

Attention

Interesting fact or attention-grabbing story

There will be times when we have to discontinue a landing and set up for another one. This may be a result of a dangerous situation or may just be necessary to re-establish an approach. Either way, we definitely want to know what we're doing as we're getting closer and closer to the ground.

Overview

Review Objectives and Elements / Key ideas

What

A go-around is the discontinuance of a landing approach in order to make another attempt to land under more favorable conditions (it is an alternative to any approach or landing). The go-around is a normal maneuver that may at times be used in an emergency situation. It is warranted whenever landing conditions are not satisfactory and the landing should be abandoned or re-setup.

Why

The need to discontinue a landing may arise at any point in the landing process and the ability to safely discontinue the landing is essential, especially due to the close proximity of the ground.

How:

1. Situations When a Go-Around may be Necessary

- A. There are many factors which can contribute to unsatisfactory landing conditions. Situations such as:
 - i. Air traffic control requirements
 - a. Low approach only request
 - b. Told to go-around due to traffic, obstruction, etc. on the runway
 - ii. Unexpected appearance of hazards on the runway
 - a. Another airplane, vehicles, animals, etc.
 - iii. Overtaking another airplane
 - iv. Wind Shear
 - v. Wake Turbulence
 - vi. Mechanical Failure
 - a. Gear Issues
 - vii. Unstable Approach
 - a. Too low or too high
 - Can't get established (on glide slope or on centerline)
 - b. Airspeed control
 - c. Rate of descent
 - viii. Whenever safety dictates a go-around
- B. **Common Error** - Failure to recognize a situation where a go-around/rejected landing is necessary

2. Promptly Deciding to Go-Around

- A. The go-around is not inherently dangerous, it becomes dangerous only when unnecessarily delayed or executed improperly

VII.H. Go Around / Rejected Landing

- B. Delaying the Initiation of a Go-around
 - i. Stems from two sources:
 - a. Landing Expectancy
 - The anticipatory belief that conditions are not as threatening as they are and that the approach will surely end with a safe landing
 - b. Pride
 - The mistaken belief that the act of going around is an admission of failure
 - C. The earlier we recognize a situation that warrants a go-around, the safer the go-around/rejected landing will be
 - i. It is therefore, important to *make a prompt decision*
 - a. Do not provide any extra time for the airplane to descend closer to the ground, or for the hazardous situation to magnify
 - ii. If there's a question as to whether or not to go-around, it's probably safer and smarter to execute the go around
 - a. Don't hesitate, and stick to your decision. Safety first, always!
 - D. **Common Error** - Hazards of delaying a decision to perform a go-around/rejected landing
 - i. Delaying the go-around could result in recovery and a safe landing, but the chance that the situation escalates and ends poorly is considerably higher than during a safe, stabilized approach
 - ii. Do not delay the decision to go-around, simply go-around and set up for another landing
- 3. Cardinal Principles – Power, Attitude, Configuration**
- A. The improper execution of the go-around procedure stems from a lack of familiarity with the three cardinal principles of the go-around
 - B. Power
 - i. Power is the pilot's FIRST concern
 - a. The instant the pilot decides to go-around, full or maximum takeoff power must be applied smoothly and without hesitation
 - Full power must be held until flying speed and controllability are restored
 - Use a smooth and positive power input
 - a. Abrupt movements of the throttle in some airplanes can cause the engine to falter
 - b. Carb heat should be off for maximum power
 - b. Applying partial power is never appropriate
 - c. **Common Error** - Improper power application
 - ii. Inertia
 - a. The pilot must be aware of the degree of inertia that must be overcome
 - It takes tremendous power before an airplane settling towards the ground can regain sufficient airspeed to become fully controllable and capable of turning or climbing safely
 - a. The downward inertia of the airplane must be slowed, stopped, then reversed
 - b. Newton's 1st Law - A body in motion wants to stay in motion (inertia)
 - iii. Controlling Power
 - a. When takeoff power is applied:
 - The airplane's nose will rise suddenly
 - a. If the airplane has been trimmed for the approach, the nose is likely trimmed up due to low power and low airspeed
 - b. It will likely be necessary to hold forward pressure to maintain a safe attitude

VII.H. Go Around / Rejected Landing

1. "Rough trim" should be used to relieve adverse control pressures and assist in maintain the proper attitude (more info below)

c **Common Error** - Failure to control pitch attitude

- The nose will veer to the left
 - a Right rudder pressure will be necessary to counteract the left turning tendencies, just like during takeoff
 - b **Common Error** - Failure to compensate for torque effect

C. Attitude

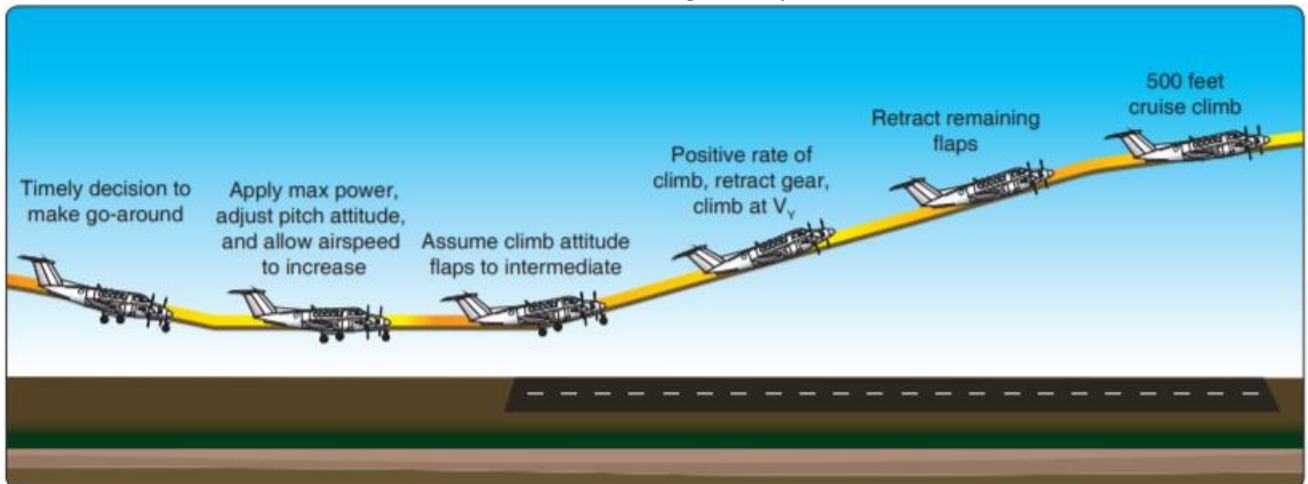
- i. Attitude is always critical when close to the ground
 - a. Too much nose up or nose down can create problems
- ii. When adding power, it is very important to keep the nose from pitching up prematurely
 - a. An attitude must be maintained that will allow the airplane to build airspeed before any effort is made to gain altitude or turn
 - Pitch attitude must slow/stop the descent
 - Airspeed must be built up well above the stall speed
 - b. Raising the Nose Too Early
 - The natural tendency is to immediately pull the nose up
 - a Raising the nose too early could result in a stall from which the airplane could not be recovered if the go-around is performed at a low altitude
 - The pilot must accept that an airplane will not climb until the airspeed has reached a safe speed
 - a In some situations, it is desirable to lower the nose briefly to gain airspeed
- iii. Pitch for V_Y
 - a. As soon as the appropriate climb airspeed and pitch attitude are attained the pilot can climb out
 - Pitch for and climb at V_Y (V_X , if necessary)
 - a **Common Error** - Failure to maintain recommended airspeeds
 - "Rough trim" the airplane
 - a A considerable amount of control pressure can be removed
 - b Quick relieving of the control pressures
 1. Trim more precisely when stabilized
 - c **Common Error** - Improper trim procedure
- iv. **Common Error** - Failure to control pitch attitude
 - a. Do not leave the nose pitched down in a descent, especially while applying full power
 - This will greatly increase the rate of descent
 - Add power, adjust pitch to slow and/or stop the descent, accelerate to a safe speed, then climb
 - b. Do not let the nose pitch up aggressively or prematurely
- v. Summary: Increase power to max, stop the descent, and when able (safe airspeed) pitch the nose to climb at V_Y (or V_X)

D. Configuration

- i. Cleaning Up the Airplane
 - a. 1st Concern: Landing Flaps
 - b. 2nd Concern: Gear (if retractable)
 - c. 3rd Concern: Takeoff Flaps
- ii. Flaps

VII.H. Go Around / Rejected Landing

- a. *In the DA20, after adding full power and establishing a climb attitude, the landing flaps should be retracted
 - It is wise to retract the flaps intermittently in increments to allow time for the airplane to accelerate as they are being raised
 - a. A sudden and complete retraction of flaps could cause a loss of lift resulting in the airplane settling into the ground
 - iii. Gear
 - a. After a positive rate of climb is established the gear can be retracted
 - Only retract the gear after the initial rough trim has been established and when it is certain the airplane will remain airborne
 - Do not retract the gear in a descent
 - a. During the initial part of an extremely low go-around, it is possible for the airplane to settle onto the runway and bounce
 - b. This is not particularly dangerous provided the airplane is kept straight and a constant, safe pitch attitude is maintained
 - iv. Retract Takeoff Flaps
 - a. At this point, treat the situation like a normal takeoff
 - b. Retract the flaps as you normally would (after reaching V_Y and at a safe altitude)
 - v. Flaps Before Gear
 - a. Two reasons:
 - In most aircraft full flaps produce more drag than the landing gear
 - a. Retracting flaps first, reduces the most drag immediately
 - In the case the airplane should inadvertently touchdown it is desirable to have the gear down and locked
 - vi. **Common Error** - Improper wing flaps or landing gear retraction procedure
- E. Summary
- i. Summary: Increase power to max, stop the descent, and when able (safe airspeed) pitch the nose to climb at V_Y (or V_X). Retract the flaps from the landing position to the takeoff position. Once established in a positive rate of climb, retract the gear. Continue as you would in a normal takeoff and retract the last stage of flaps.



4. Climb Out

- A. The majority of go-around climb outs will be identical to a normal takeoff climb out
 - i. Adjust for wind and maintain the runway centerline
 - ii. This is especially important if there are parallel runways, or other hazards

VII.H. Go Around / Rejected Landing

- B. Maneuver to the side of the runway or landing area when necessary to clear and avoid conflicting traffic
 - i. For example, if another airplane is attempting to takeoff while you were close to landing
 - a. In a situation like this your aircraft is blocked from their view by the roof their airplane, and their airplane is blocked from your view by the nose of your airplane – clearly a very dangerous situation with the potential for a collision
 - b. The pilot should move to a safe position parallel to the runway to keep the traffic in sight
 - If there are parallel runways, or a traffic pattern with other aircraft in it, move in a direction to avoid other traffic
- C. Remain clear of obstacles/obstructions/other traffic
 - i. Climb at V_x , if necessary to clear any obstructions
- D. **Common Error** - Failure to maintain proper track during climb-out
- E. **Common Error** - Failure to remain well clear of obstructions and other traffic

5. Communication

- A. Once the airplane is under control, then you can communicate with the tower or appropriate facility
 - i. Let them know you're "Going Around"
 - ii. Aviate, Navigate, then Communicate
 - a. Fly first, then deal with the radios

Common Errors:

- Failure to recognize a situation where a go-around/rejected landing is necessary
- Hazards of delaying a decision to perform a go-around/rejected landing
- Improper power application
- Failure to control pitch attitude
- Failure to compensate for torque effect
- Improper trim procedure
- Failure to maintain recommended airspeeds
- Improper wing flaps or landing gear retraction procedure
- Failure to maintain proper track during climb-out
- Failure to remain well clear of obstructions and other traffic

Conclusion:

Brief review of the main points

The go-around is a very important maneuver that is essential in an emergency situation. Knowing the procedure to properly perform the maneuver will provide a considerably safer situation. The pilot's first concern is power, followed by the establishing the correct attitude, and configuration.

PTS Requirements:

To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a go-around/rejected landing by describing:
 - a. Situations where a go-around is necessary.
 - b. Importance of making a prompt decision.
 - c. Importance of applying takeoff power immediately after the go-around decision is made.
 - d. Importance of establishing proper pitch attitude.

VII.H. Go Around / Rejected Landing

- e. Wing flaps retraction.
 - f. Use of trim.
 - g. Landing gear retraction.
 - h. Proper climb speed.
 - i. Proper track and obstruction clearance.
 - j. Use of checklist.
2. Exhibits instructional knowledge of common errors related to a go-around/rejected landing by describing:
 - a. Failure to recognize a situation where a go-around/rejected landing is necessary.
 - b. Hazards of delaying a decision to go-around/rejected landing.
 - c. Improper power application.
 - d. Failure to control pitch attitude.
 - e. Failure to compensate for torque effect.
 - f. Improper trim technique.
 - g. Failure to maintain recommended airspeeds.
 - h. Improper wing flaps or landing gear retraction procedure.
 - i. Failure to maintain proper track during climb-out.
 - j. Failure to remain well clear of obstructions and other traffic.
 3. Demonstrates and simultaneously explains a go-around/rejected landing from an instructional standpoint.
 4. Analyzes and corrects simulated common errors related to a go-around/rejected landing.

Private Pilot ACS Skills Standards

1. Complete the appropriate checklist.
2. Make radio calls as appropriate.
3. Make a timely decision to discontinue the approach to landing.
4. Apply takeoff power immediately and transition to climb pitch attitude for V_X or V_Y as appropriate $+10/-5$ knots.
5. Configure the aircraft after a positive rate of climb has been verified or in accordance with airplane manufacturer's instructions.
6. Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
7. Maintain $V_Y +10/-5$ knots to a safe maneuvering altitude.
8. Maintain directional control and proper wind-drift correction throughout the climb.

Commercial Pilot ACS Standards

1. Complete the appropriate checklist.
2. Make radio calls as appropriate.
3. Make a timely decision to discontinue the approach to landing.
4. Apply takeoff power immediately and transition to climb pitch attitude for V_X or V_Y as appropriate ± 5 knots.
5. Configure the airplane after a positive rate of climb has been verified or in accordance with the airplane manufacturer's instructions.
6. Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.
7. Maintain $V_Y \pm 5$ knots to a safe maneuvering altitude.
8. Maintain directional control and proper wind-drift correction throughout climb.