

## **Go-Around and why©**

The go-around should be a smooth transition from a landing situation into takeoff configuration. Stop landing, start climbing. The go-around usually is initiated for instructional purposes, traffic, lack of aircraft control, weather or surface conditions. The go-around is essentially a takeoff with full flaps. You must have practiced at altitude so that you know ahead of time which pressures to anticipate as flaps are retracted and you maintain level flight. Flap retraction must be carefully controlled because most training aircraft have little excess power.

The earlier you go-around the better. This is an action deemed necessary to correct control, approach, flare, or rollout problems. Altitude allows some trade off for airspeed. The lower the go-around the more difficult it may seem but this is not necessarily so. You have less distance to fall in a stall the closer to the ground you are. This is because flight within ground effect requires less power for a given performance. The aircraft can fly close to the ground even with full flaps. In ground effect the partial removal of flaps is less likely to cause a stall. There is more excess power in ground effect so that more acceleration can occur as the flaps are removed.

The successful go-around is predicated on the pilot's ability to understand the required planning, set aircraft attitude, clean up the configuration, and the use of power. The greatest enemy of planning is any form of delay, procrastination or hesitation. The delayed go-around greatly increases the plucker factor. The proximity to the ground should not do this but it does. Actually, the ground proximity should rightly be considered an asset. Ground effect, properly used, greatly enhances the ability of the aircraft to avoid the ground, accelerate and climb. Most often go-around accidents are the result of premature and unintentional climbs at low airspeeds. Airspeed is money in the bank. Get the airspeed up with full SMOOTH power, a level attitude or slight dive held against the power and flap effort to raise the nose, and get off the flaps slowly until reaching climb speed. The best go-around is a precision control maneuver when done properly. Every move is done in anticipation of what you know will come next. If you don't know, learn. A pilot's reliability factor can well be measured by the smoothness with which a go-around is performed.

### **Reasons the go-around is difficult:**

- Pilot indecision which results in loss of runway and departure clearance.
- Pilot fixation on salvaging a poor approach.

Reasons the go-around has a disproportionate number of accidents is related to:

- Failure to initiate at earliest recognition point.
  - Loss of directional control
  - Misuse of power controls

Misuse of flight controls, especially flaps and rudder

A safe go-around can be accomplished at any altitude if the initial effort is just to stay at altitude while power and configuration is adjusted to allow a climb. The most common fault is attempting to climb before the aircraft is capable of climbing. Have a go-around plan and fly the plan.

Fly the airplane is # 1. The go-around is not an emergency, it is a standard procedure even if the FAA says it is. The go-around is a precautionary option. Properly performed it is neither difficult or of any particular hazard. You don't need to tell the tower anything until they ask your intentions. A go-around should be made when there is a significant deviation from intentions or a requirement for radical maneuvering. A go-around is a sound controlled maneuver. Listen for the sound of full power, acceleration,  $v_y$ , and climb.

Keep your eyes outside during the go-around. Keep controls smoothly coordinated and a heading in a pre-selected direction. Apply full power smoothly, then remove carburetor heat, anticipate torque, P-factor, and slipstream with right rudder. Keep the aircraft level with a locked elbow and remove the flaps judiciously with reference to your airspeed and altitude. There is no need to hurry. Accelerate to 65 Kts (C-150), trim for climb and set the pitch attitude that will maintain a  $V_y$  climb. Now, you can look at your instruments.

Forgetting to bring up flaps is the most common student pilot fault. Aircraft are certified, when new, to be able to climb at two degrees in normal, utility, and aerobatic categories with full flaps. Just as old instructors have more trouble making the climb into an aircraft, so do old airplanes have trouble making the climbs for which they were originally certificated.

Raising flaps too quickly or too much can precipitate a stall. Be gentle. From 40-degree flaps, a slight removal reduces mostly drag. This is true up to about 20-degrees of flap. From 15-degrees to no-flaps you are losing mostly lift. Flap removal by measured stages reduces the change in control forces, change in attitude, and required pilot reaction. The second most common student fault in a go-around is failing to use the pre-landing checklist on the second approach.

At some airports a go-around may not be possible due to the existence of geographical features. This one-way airport should never be attempted without good proficiency both in flying and judging aircraft performance. It is best to overfly at a safe altitude before making your approach.

### **Go-Around Preparation**

When you have been flying a while, you expect to land...every time. The go-around becomes unusual, abnormal, and unprepared for. When ATC calls a go-around you are usually high enough and fast enough to perform without any special anticipation. The lower and slower you get into the landing procedure the less likely will you be prepared for the go-around. Do not add additional trim in anticipation of making the flare attitude easier. Such additional trim will greatly increase the control pressures and likelihood of a go-around stall.

A crosswind landing increases the likelihood of a go-around. Because of the possibility of uncorrected drift. You don't want to land with side loads on the landing gear or off runway. The crosswind go-around requires the pilot to make a change in orientation. While the landing is made with a wing-low heading parallel to the runway, the go-around requires a wings-level crab heading at an angle to the runway.

### **Go-Around and Flare**

Even inside these C. G. limits your normal reaction time to a ballooned landing flare or a bounced landing may create sensations and flight attitudes that cause your reaction time of one second to make the situation

worse. You are pushing or pulling on the yoke at the wrong time. The only correct procedure is to GO-AROUND. Apply full power, hold the aircraft level, milk up the flaps, stay level to obtain climb speed, climb out and make a new landing approach.

If you are behind the power curve when the go-around becomes necessary it is too late. Behind the power curve means that your angle of attack is so great that there is insufficient power to climb. Gaining speed requires a certain loss of altitude. With your AGL (above ground level) near zero, ground contact is assured. Get the power off so that a bounce will not make you airborne and behind the power curve at ever a higher altitude.

### **Go-Around Procedure**

"Go-around". Apply full throttle smoothly but rapidly then carb heat. Anticipate the yoke and rudder applications that will be required by your airspeed and configuration. The "go-around" is one of the best safety procedures in flying. If you are not positioned for a safe landing, go-around. Full power in the go-around increases the airflow over the wing. With flaps extended the power application causes the nose to pitch up abruptly. This must be anticipated!! Hold forward pressure on the yoke to prevent pitching up. (I suggest pressing the arm against the door to provide a locked position.)

Hold the nose on the horizon while bringing up the flaps with minimal delay. Since we should be at 60 kts we can bring up 20 degrees of flaps at once and immediately bring back the yoke to set and hold what we have learned to visualize as a proper attitude to hold altitude as the aircraft accelerates to 65. If we stay level this should occur quickly and we can bring up the rest of the flaps and establish a climb attitude. Trim for climb. It will probably be necessary for the instructor to re-establish the pre-go-around configuration several times. It is essential that the go-around procedure be smoothly performed in the correct sequence at the correct speeds. Once performed well at altitude the go-around is ready for use at ground level. Milk up at speeds below 60 knots. Flaps may be brought up without milking once climb speed is attained. Yoke is used to prevent any undesired sink. Trim as required.

There are several common faults typical to the go-around. Most problems occur when power is first added and before flaps are raised. The student's eyes should be focused outside the airplane on the nose attitude of the aircraft. Learn to locate the flap switch by feel. No trim is required. The aircraft must be kept level. The full application of power with flaps will tend to cause a rapid nose pitch up. P-factor will cause the nose to turn to the left so right rudder pressure must be used in anticipation. The nose must be held down or there will be a loss of airspeed. This will require locking the arm on the door and a full palm pressure forward. The pitch-up and left turning of the nose must be anticipated and corrected before it occurs. Apply throttle BEFORE carb heat. If you are having a problem you probably forgot to milk up the flaps.

For some reason many students think that the carburetor heat must go off before throttle application. It doesn't. The throttle should be applied smoothly first and then the carb heat taken off with the thumb to get full power. The position of the carb heat control was designed to be pushed in with the right thumb. A too rapid application of throttle can cause the engine to load up with excess fuel. This causes a delay in getting full power. Smooth throttle operation will give smooth engine

operation and allow smoother application of rudder. It is surprising how often students seem to think that the hand must stay frozen on the throttle to keep it in. It doesn't. Keep the friction lock of the throttle snug. By holding the throttle you will fail to get the flaps up. The yoke pressure makes them think that something is wrong with the trim. There isn't. Once full power is applied the right hand goes immediately to the flap switch.

The manner used for removal of flaps depends on the airspeed. The old FAA recommendation was to take 20 degrees off initially, get climb speed, and then take off the rest. This is still good unless the aircraft is below 60 kts. Below 60 kts the flaps should be 'milked' up by quick applications of the switch while being sure not to go past neutral. The nose should be level until climb speed is acquired. Any attempt to climb will result in loss of airspeed. In this very slow configuration, the sudden and complete removal of flaps can result in an immediate stall or sudden contact with the ground. Get the speed; then climb.

When do you go-around? Anytime, for whatever reason, if you feel uncomfortable about any aspect of the landing procedure. On approach if you feel too high, low, fast, or slow. In the flare if not straight, ballooning, high, bouncing, slow or fast. the go-around is an exercise of judgment. The student should never try to save a landing. Go-around. Do not use the radio. Over a real or imaginary runway continue straight until reaching the departure end of the runway and a safe/noise abatement altitude before turning.

There is a go-around situation that can cause instinctive reactions to overcome training. This is when the time of the go-around is delayed until an obstacle gets so close that both power and instinctive raising the nose occurs due to perceived danger. The result is a nose high, low speed, prelude to an accident. In any go-around the nose must be held level during the use of full power. The climb speed must be attained and retained during removal of flaps. The climb will naturally result from the power, configuration, and airspeed. For this reason some go-around instruction should include this situation. As in many flying situations, instinctive reactions can bite you.

The student should be made to realize that all of the final approach procedures are, when arranged in a given sequence, the landing process. For a landing the airspeed must be made to transition smoothly from cruise, to approach, to stall. There will be a sequence of turns, left or right, while descending. The trim and flaps must be smoothly coordinated in application to maintain the approach angle and speed. Power is smoothly changed from cruise to 1500 to off. The power off stall at moment of ground contact is the landing.