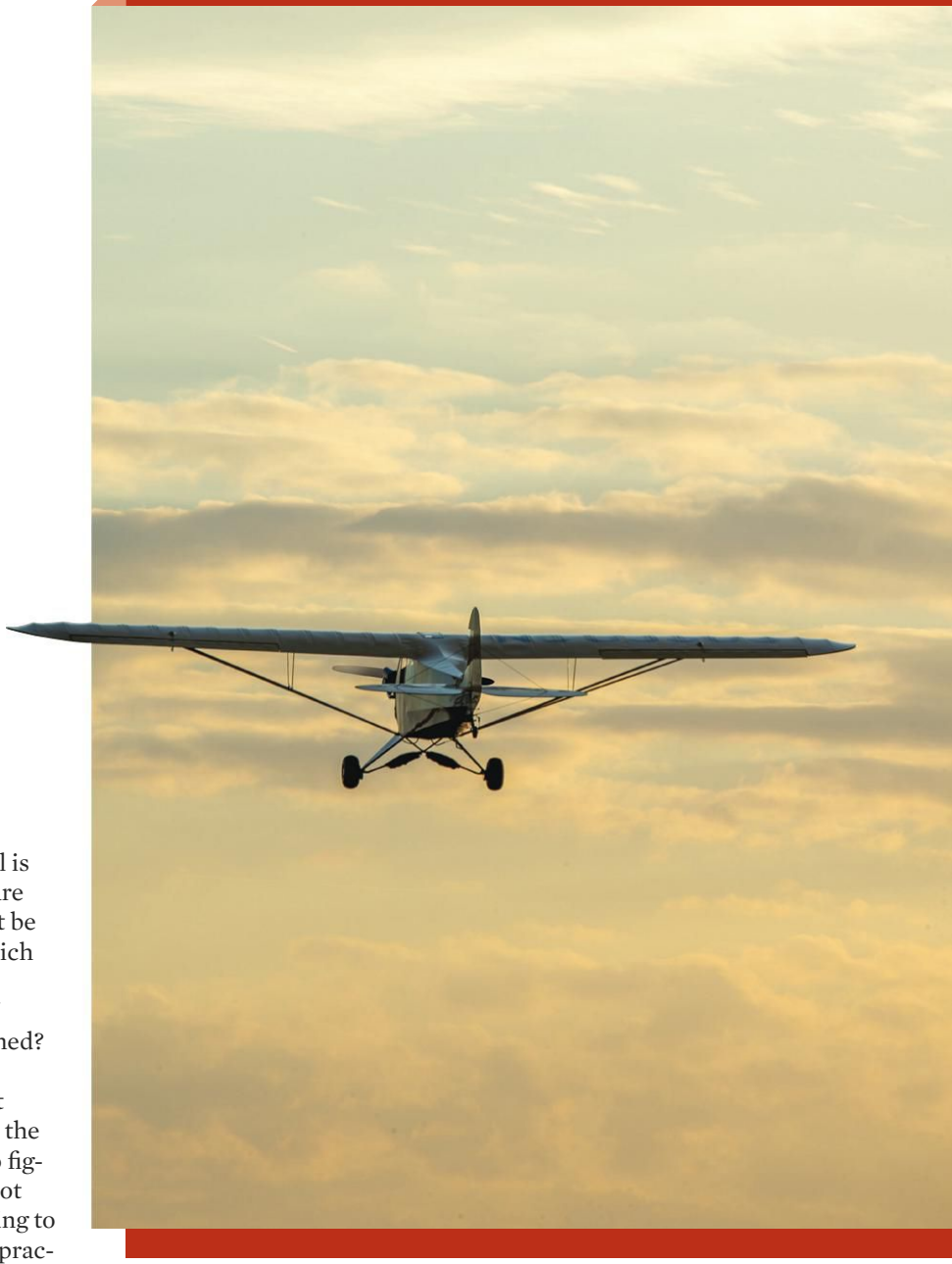
STEVE KROG
COMMENTARY / THE CLASSIC INSTRUCTOR

It's Suddenly Quiet

Now what?

BY STEVE KROG



IMAGINE YOU'RE CRUISING AT 6,500 feet in a clear blue sky and smooth air. No other traffic is in sight, the ride is smooth, and all is well. The tunes you're listening to via your phone and headset are lulling you into a comfort zone where life is grand. How could it be any better? On vacation for a week! Complacency has set in, which can lead to a dangerous situation.

Suddenly, a loud bang is heard, followed by a few seconds of grinding sounds, and then — silence! What the heck just happened? Now what? Fly the airplane!

This scenario, thankfully, happens infrequently. But, when it does, it is never expected. Most pilots are unprepared to handle the situation. The initial response is usually confusion and trying to figure out what happened followed by a moment of near panic. Pilot reaction is often doing nothing for as long as 10 seconds according to statistical data. Then reality should take over. But, if you've not practiced for this situation, how do you respond? Fly the airplane!

Flight instructors are required to teach students how to handle situations as described above. However, in discussions with designated pilot examiners, checkrides are most often failed for two reasons. The first is an inability to properly handle a simulated engine emergency. The second reason is the inability to demonstrate and recover from a stall. We'll focus on the first reason in this article.

Instructors pull the power with some frequency on student pilots. Often, this is practiced near an airport to prove to students that they can make it back on the ground safely. Students come to expect a simulated engine-out exercise whenever flying with an instructor in the traffic pattern. Even then they let nervous energy and inaction to take over.

I like to pull the power and simulate an engine loss when students least expect it. For example, when practicing steep turns, I pull the power about three-quarters of the way through a 360-degree turn. I'll also pull power just as students are recovering from a stall with a full break and wanting to apply full power as part of the recovery process. And finally, I'll pull the power at some point during a dual cross-country flight. In each of these scenarios, the students experience a power loss when least expected.

ILLUSTRATION BY **BRANDON JACOBS**

YOUR FIRST REACTION

What should be your first action when experiencing a power loss? The correct response is fly the airplane! Immediately establish your best glide speed. Do you know the best glide speed for the airplane you are flying? If not, look it up and keep it in mind whenever you are flying. Knowing this information can mean the difference between gliding to an open field or coming up a mile short and landing in a swamp.

There is a general rule of thumb many pilots use when flying the typical single-engine aircraft we commonly fly for pleasure: For every 1,000 feet of altitude you have to work with, you will be able to glide approximately 1.5 miles. In the example stated in the first paragraph, the aircraft was being flown at 6,500 feet MSL (or 5,500 feet AGL). Depending on wind conditions, this aircraft could glide roughly 8 miles.

Time plus altitude gives a pilot an opportunity to consider options.

What should be your first action when experiencing a power loss? The correct response is fly the airplane!

YOUR SECOND REACTION

Once the aircraft is configured and trimmed for the best glide speed, it is time to look for a landing site. Is there a nearby airport? A private landing strip?

Nearly everyone flies with a GPS today. Just about all of them are equipped with a button to push to quickly find the nearest airport. Use this device to help you select a landing site, if possible.

What should you look for if there are no nearby airports? In the area where I fly, there are many open hayfields in addition to corn and soybean fields. A hayfield would be my first choice. Corn and bean fields can be emergency landing sites if it is early in the growing season. Once the corn is 6 feet tall or the beans are 2 or 3 feet tall, they become landing gear catchers and will oftentimes flip the aircraft onto its back. If you must land in a corn or bean field, do so by lining up with the rows rather than across the rows.

Roads can also provide for a relatively safe landing, depending on where you are. If they are heavily trafficked or have overhead crossing electrical wires, they may not be the best choice. Recently, there have been a handful of news reports where single-engine aircraft have safely landed on highways with minimal or no structural damage. The roads in these instances were selected because the surrounding terrain was unfavorable.

A good pilot will have an awareness of what the surface wind direction and velocity are in the area. If possible, try to adjust your gliding flight path so that you arrive on a downwind leg for the field you've selected to land in. More on this a bit further into this article.

EMERGENCY CHECKLIST

Once you've selected a landing site, some time can be devoted to diagnosing the cause of the engine stoppage. Every aircraft should have an emergency checklist. Use it! Is the fuel valve on or off? Did you forget to switch fuel tanks and run one tank completely dry? Has someone accidentally moved the mixture control if your aircraft is so equipped? Carb ice can cause a rough-running engine. Did you check for carb ice before the engine quit?

If the engine is still running but roughly, check each of the magnetos next. Perhaps one has a broken or stripped drive gear causing engine misfire. Checking the mags individually will quickly tell you if you have a mag problem.

Once you have exhausted checking every item on the emergency checklist with no luck in restarting the engine, it's time to manage not only your altitude and distance from the field you've selected, but also the energy of the aircraft.

Managing your airspeed to touch down at 40 mph rather than 60 mph reduces the amount of energy by about 125 percent. Bob Hoover is attributed to coining the phrase, "If a crash (or forced landing) is inevitable, try to arrive at the crash site at the slowest possible airspeed you can establish."

Do not forget to take the surface wind into account as well. An approximate 10 mph tailwind adds the equivalent energy of a 20 mph increase in groundspeed. Energy increases with the square of the speed!

DECLARE YOUR SITUATION

This is probably the hardest step in training students to handle a simulated forced landing. With some practice and repetition, a good student will quickly establish the glide speed, pick a field, turn toward the field, and complete the emergency checklist. But the student almost always forgets to tell others of the pending emergency.

According to the FAA ACS guidelines for sport, private, and commercial pilot candidates, it is recommended that the radio frequency be tuned to 121.5 (emergency broadcast frequency) and the transponder to 7700. If time allows, verbally declare an emergency on the radio and include the approximate location.

Every aircraft should have an emergency checklist. Use it!

LANDING

Finally, the time has come to put the aircraft you are flying on the ground. Remember, tube and fabric or aluminum panels and stringers can be repaired. Body parts require a lot more attention!

Practice the Bob Hoover theory on landing and slow the aircraft as much as possible. If you see a fence line at each end of the field you have selected to land in, miss the first or near one and roll into the fence on the other end after touching down. By the time you've reached the fence, your groundspeed will be significantly reduced. Plus, it can also help absorb energy with minimal damage to the aircraft.

Prepare your aircraft for landing as well. Turn off all electrical gear, turn off the fuel, and pull the mixture control to the lean position. Then, switch off the master and magneto switches. Ensure that all aboard have snugged up their seat belts and shoulder harnesses if so equipped. Finally, crack open the cabin door before touching down.

Flight schools throughout the country teach emergency landing procedures. However, the time spent doesn't really do an adequate job of training student pilots. If we as instructors are lax in the way we cover this subject, our students will also be lax.

I know I drive some of my students a bit crazy when conducting the dual cross-country flight because I frequently ask them to point out a field to land in should the engine quit this very moment. After enough repetitions, they usually begin to look around more and have an instant answer for me next time I ask the question. Hopefully, these students will remember this exercise throughout their future flying!

Spending a little time reviewing these procedures can mean the difference between significant, minimal, or no structural damage to your aircraft should you ever experience an emergency landing. EAA

Steve Krog, EAA 173799, has been flying for more than four decades and giving tailwheel instruction for nearly as long. In 2006 he launched Cub Air Flight, a flight training school using tailwheel aircraft for all primary training.

PHOTOGRAPHY COURTESY OF **JOHN F. MILLER**