

# Flying Single-Pilot: Some Tips to Improve your Performance

By Dick Rochfort, ATP, CFII – Master Instructor



Single pilot operations are significantly different from crew operations in that there is no one to help reduce the workload or to catch the errors which are bound to occur. This glaring shortcoming is evidenced in the accident rate which has remained stubbornly unchanged over the years when adjusted for hours flown. So much so that the NTSB still has GA loss of control accidents on the 10 most wanted list for improvement in transportation.

A lot has been written over the years about pilot error and single pilot operations. Much of it running along the same theme; single pilot operators cause accidents because they lack relevant experience. They fly fewer hours and receive less training than their multi-pilot colleagues. While this is all true it implies that single-pilot operators with more experience have fewer accidents. True enough, however it is also true that when experienced pilots have an accident it tends to be more serious than the accidents for which inexperienced pilots are responsible. While a clear advantage exists, it seems that experience alone may not be enough to reduce the severity of aircraft accidents in single pilot operations. The insurance underwriting community recognized this long ago when specialized training became a requirement for single-pilot operators of turbine and pressurized aircraft.

People make mistakes. Human error is not a problem to be solved, but rather a condition to be managed. In other words, single pilots can't rely on perfect performance. They have to learn to eliminate or correct their own errors before they lead to critically unsafe conditions. Primarily this means avoiding what I refer to as noble distractions. Noble distractions are any activity which interrupts or slows down the completion of the task at hand. Serious accidents tend to be born from errors of omission; that is, the pilot became distracted and failed to do the right thing in a timely manner. Often, missing a task is the result of some sort of self-induced distraction.

**Think of each flight as a series of tasks;** such as pre-flight planning, preflight inspection, engine start, pre-taxi/taxi, run up, take off, first segment climb, second segment climb, cruise climb, cruise, descent, arrival, approach, landing, taxi, shutdown, post-flight etc.

**Consider the objective of each task.** Here we can and should make use of the vast amount of information available to us from the FAA and other excellent sources. For example, the objective of the take off – Accelerate smoothly and separate from the ground at the slowest speed consistent with safety. Begin the second segment climb as quickly as practical. Second segment climb is the clean climb which is usually necessary to comply with an obstacle departure procedure.

**Develop a simple procedure to accomplish the task with the least amount of button pushing.** Using the same example of the take off, we should begin the take off roll with a series of callouts to ensure consistency in evaluating the condition of the aircraft performance. “Airspeed alive”, while looking at the analog backup airspeed indicator. It is inconvenient at best to discover this item to be failed after takeoff but it is not possible to check it otherwise on the ground. “Gauges green”, “annunciators clear” prior to 70% of rotate speed (around 60 knots) to check critical information while there is still room to abort safely if necessary. “60 knots, cross check” Here we are cross-checking the primary airspeed indication with the backup airspeed indicator. We are also verifying that the 60 knot callout is made prior to reaching the halfway point on a short runway or at a predictable spot on a normal runway to verify proper performance. 85 knots (or whatever your rotate speed may be) rotate, pitch wings level  $8\frac{1}{2}^{\circ}$  nose up. Gear up Flaps up Trim up, Autopilot on. Verify the director bars are in the blue and the aircraft is

performing as commanded. Hone your technique so as to avoid common errors like double tapping buttons accidentally or bumping the power lever. The 60 knot callout is an adaptation of the halfway rule found in chapter 7 of the Aeronautical Information Manual:

“typical takeoff acceleration should allow the airplane to reach 70 percent of lift-off airspeed by the midpoint of the runway. The “rule of thumb” is that should airplane acceleration not allow the airspeed to reach this value by the midpoint, the takeoff should be aborted, as it may not be possible to liftoff in the remaining runway.”

**Consider the limitations, if any, of the procedure.** Modifications to the procedure have to be considered for density altitude, runway length and wind conditions.



*”Keep Things as Simple as Possible; No Simpler”* Albert Einstein

**Have well-defined expectations regarding the outcome.** Pitch – power - configuration is important here because it allows us to evaluate the correctness of our action. Know what airspeed results when the task is performed correctly. Use that knowledge to assess the performance of the task. Know what elements of the approach environment you need to see from the missed approach point so that you can safely make a timely decision.

**Have a specific plan in case your expectation is not met.** The best way to stay ahead of the airplane is to not get behind. Don’t allow yourself to be distracted by conversation or out-of-order tasks. Get comfortable with the missed approach. Practice these regularly.

Get familiar and comfortable with phrases that help control the pace:

“Approach, 32 Bravo requests a 5 mile turn-on outside the final approach fix”

“unable 160 knots on the approach. I am planning 130 to the FAF and 120 to the lights”

“Stand by” means I’m busy right now. I will call you back in a few seconds or it means I don’t know but I will check and call you back.

**Develop a set of tools.** These tools will help you complete each task in an organized and efficient way the same way each and every time. Consider the following:

Checklists: I was always told to use a checklist and I still use them but only when I am stopped on the ground in a safe area or on the autopilot at a safe altitude. When used at the wrong time a checklist can be a major distraction.

Flows: A flow is not a memorized checklist. In fact, a flow doesn't tell the pilot what to do; it only tells what to consider. Using a flow properly requires training and discipline. The flow is one of the best kept secrets to flying well as single pilot.

Memory items: Reserved for items that require immediate action and/or concentration such as engine stoppage (switch tanks – fuel pump(s) on etc.) or turbine start temperature limits.

### Standard Operating Procedures (SOP)

Single-pilot operational safety can be improved by emulating successful single-pilot training and SMS (Safety Management System) models. One such model is the National Business Aviation Association's (NBAA) Standard Operating Procedures. NBAA has reduced the number and severity of accidents involving their members through the voluntary adoption of standard operating procedures (SOPs). Another worthy example is Cape Air. In 2009 Cape Air flew more than 65,000 accident-free single-pilot IFR hours in complex aircraft. All of the training and mentoring was provided by experienced instructors, in the aircraft, using checklists, flows and memory items.

The procedures set forth in this document are derived from the National Business Aircraft Association pro forma SOP. They are adapted to apply to the challenges associated with mid-level single pilot/owner-pilot operations: <http://rwrpilottraining.com/pa46-sop.html>

Personal minimums are not the same as SOP. PMs are specifically yours. Your flight training should include this topic. If you do not have PMs, ask your flight instructor to help you develop and maintain them,

**Seek excellent training at least twice per year.** Be sure you are training twice per year to ATP standards in order to continue to develop the critical knowledge, skills and procedural discipline needed to safely fly high performance aircraft as a single pilot.

Here are two videos which may help clarify these remarks. If you have not already done so, download a free QR code reader to your phone or iPad and use it to easily access these videos:



This video is courtesy of the NBAA. It is a realistic illustration of how quickly a single pilot can get behind. Scan this QR code to see the video or enter this information into your browser:

<https://www.nbaa.org/ops/safety/in-flight-safety/loss-of-control-in-flight/alone-in-the-cockpit-video/>



This video is courtesy of Dick Rochfort and RWR Pilot Training. It illustrates an actual instrument approach in low weather. Scan this QR code to see the video or enter this information into your browser: <https://m.youtube.com/watch?feature=youtu.be&v=YeckibL4cyg>

### About the Author:

Dick Rochfort is a veteran flight instructor based in Baltimore, MD with over 25 years experience working with pilots and instructors of high performance, pressurized piston and turbine aircraft all over the world. If you have comments or questions, he may be reached at [mail@rwrpilottraining.com](mailto:mail@rwrpilottraining.com).

*Fly Safely – Train Often*