



# FLYING LESSONS for March 29, 2018

FLYING LESSONS uses recent mishap reports to consider what *might* have contributed to accidents, so you can make better decisions if you face similar circumstances. In almost all cases design characteristics of a specific airplane have little direct bearing on the possible causes of aircraft accidents—but knowing how your airplane's systems respond can make the difference as a scenario unfolds. So apply these FLYING LESSONS to the specific airplane you fly. Verify all technical information before applying it to your aircraft or operation, with manufacturers' data and recommendations taking precedence. **You are pilot in command, and are ultimately responsible for the decisions you make.**

FLYING LESSONS is an independent product of MASTERY FLIGHT TRAINING, INC. [www.mastery-flight-training.com](http://www.mastery-flight-training.com)

Pursue **Mastery of Flight™**

## This week's LESSONS:

Let's go straight to more reader mail in the Debrief....

Comments? Questions? Let us learn from you, at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net)



## IFR Operations for Non-Towered Airports

Tips to easily manage your clearance and release  
[Click here for video...](#)

See <https://www.pilotworkshop.com/nto-ifr?ad-tracking=turner-nto-ops>

You are doing all of us pilots a great service. I always find your analysis, recommendations and instruction spot on. Thanks! – Anthony Crescimanno

Thank you very much, Tony. You, and all our [generous supporters](#).

Please help cover the costs of providing FLYING LESSONS through the secure  
**PayPal donations button at [www.mastery-flight-training.com](http://www.mastery-flight-training.com).**

Or send a check to **Mastery Flight Training, Inc.** 247 Tiffany Street, Rose Hill, Kansas USA 67133.

## Debrief: Readers write about recent FLYING LESSONS:

Reader Jason Robertson was inspired to write LESSONS from his own recent experience:

Thank you for writing your excellent safety newsletter. I had an incident [last] weekend that reinforced some of the ideas that you have been teaching for years. Feel free to use it and to edit it for length or clarity.

I was flying from Ann Arbor, Michigan to Erie, Pennsylvania on Saturday when I heard an urgent call: **“Erie Approach, Cessna Skyhawk XYZ, I'm over Lake Erie at 7000 feet and my engine is failing.”**

Approach provided vectors to the nearest airport, Ashtabula, Ohio, which was over 20 miles away. The pilot soon reported that “...my propeller has stopped. I've shut down everything electrical except the radio to conserve battery power.” As the situation developed, I could hear the **shock and denial** in the pilot's voice. **He was fixated on the airport he was being vectored to.** “What is the pattern altitude? What is the runway orientation?”

Another pilot got on the radio and helped him run the emergency checklist (Best Glide speed, full rich mixture, carb heat, crank the starter, try each magneto individually, etc.) When he was down to 4,000' AGL, still 18 miles from the airport, the pilot was asking about the width of the runway at Ashtabula. I finally

interjected and told him “*You need prepare yourself to land off-field.* With 4,000 feet of elevation to work with and 18 miles to go, **you are not going to make it to Ashtabula.** Your glide ratio is about 10:1.” He thanked me and said he would prepare to land off field.

The other pilot on frequency told him to shut off his fuel and crack the door open prior to landing. Approach asked the Skyhawk pilot for his GPS coordinates so that they could send emergency vehicles. Radio communication was lost before he could reply. I was relieved when I later found out that the pilot made an uneventful off-field landing.

I learned a few *LESSONS* from this:

1. We all need to **review our emergency procedures checklists** as **often** as necessary so that we can remember them when we are under extreme stress. Shedding electrical load was not called for in this case, but an attempted engine restart was.
2. The pilot did a good job of **asking for help.**
3. He also did a good job by landing the plane instead of trying to retrieve GPS coordinates for ATC while setting up for an off-field landing. (*Aviate, Navigate, then Communicate*)
4. ATC can’t know glide ratios and emergency procedures for every plane, but **controllers are not the only source of help in an emergency.**
5. **Be wary** when flying over hostile terrain (including water).
6. **Don’t sit idly by if you can help prevent an accident.** I could foresee the links in this accident chain connecting together until the pilot, in denial, stretched his glide too far and stalled the airplane. I tried to prevent that by helping him face his reality.

Keep up the good work.

Excellent *LESSONS*, Jason. I especially like how you forcefully told the pilot his plan (gliding to Ashtabula) was not working and he needed to prepare for a different option (finding a field and setting the airplane down under control). This is the same type of crew resource management (CRM) professionals in two-pilot crews strive to achieve. You were, in effect, the Pilot Monitoring; you detected the Pilot Flying was falling into a trap and you used crewlike techniques to give him a way out. Well done!

Reader Rich Graham writes about [last week’s LESSONS](#), “All or Nothing,” about options following a loss of power in the initial stages of climb after takeoff:

Great article and discussion about practicing engine failure on the takeoff leg! The [[The Improbable Turn](#)] video was very informative and posed a lot of options and things to think about. I routinely practice the 180° return to land with engine failure and have consistently and safely completed it at 500 feet AGL in a C172. This is not meant to be a maneuver I am bragging about, but merely putting out some information others might learn from. *This is something I do to stay proficient.*

A key thing to note about this maneuver is...*it will not work at this altitude for every type of single engine plane.* Also, I don’t recommend practicing this for everyone, but if you do decide to try a 180° return to landing, start your practice from higher altitudes and work your way down, but NEVER get out of your “comfort level.” **It is mandatory that you have an experienced instructor with you that is comfortable with practicing the 180° return to land maneuver.** Start out at 3,000 feet [AGL] or so and see what altitude it takes to do a 180° (or more) turn. Also, VERY important, is knowing *when to discontinue the practice of maneuver.* Aggressive yanking and banking can induce stalls at higher speeds.

One thing that I find critical if you ever do decide to do a 180° return to landing is **knowing which way the crosswinds are coming from. Turning into the wind is paramount!** If you turn in the wrong direction you might not make it back to the runway. Something I always keep in mind when I practice this...**it’s a PLANNED maneuver** and discussed thoroughly and know when and how to break it off.

Also, keep in mind, most piston engines don’t just quit instantly...they often “sputter” and continue to provide some marginal amount of power. This tends to tell the pilot there is something happening with the engine that is just temporary or something he might be able to fix. From my practice, I’ve found that **if I hesitate more than 3-4 seconds (in an attempt to see what is wrong with the engine or hope it’s going to recover) I won’t make it back to the field. It has to be an instant reaction.** Obviously, with more altitude, this delay time becomes less of a factor.

Lots to think about while executing this maneuver, but make sure you **declare an EMERGENCY as soon as you can** to alert any planes behind you and tower can hopefully clear the way. Runway length is a critical factor that needs consideration as well, since you will most likely be landing with some tailwind component. Depending on how far you are from the runway, you may find yourself having to slip the plane in order to land on a short runway.

I learned a lot about the 180° return to land maneuver from a good friend who was a crop duster when I was stationed in northern California. It turns out that is basically what a crop duster does every time he changes his next path over a field, only he pitches up to do his 180° turn and [only] the last 90 degrees of turn is very similar to returning to a field. Obviously, his plane is built for that specific job.

Love your articles and I recommend it to all pilots...from student to ATP!

Thank you, rich. Your most important points, and I agree, are that attempting to return to the runway after loss of thrust on takeoff:

- is a **planned and practiced maneuver**, requiring regular practice;
- gives **no allowance for hesitation**; and
- is very **specific to the type of airplane** being flown.

If you don't develop proficiency with the maneuver with a knowledgeable instructor in the specific airplane you're flying, and then practice the maneuver regularly to maintain that proficiency, then your only option is to continue generally straight ahead if you lose power during initial climb. Russ Still, Rod Machado and David St. George made those very points in the webinar that began this discussion.

See:

<http://www.mastery-flight-training.com/20180322-flying-lessons.pdf>  
<https://www.youtube.com/watch?v=4ackVNFct4I>

Reader Grant Haddix adds:

I watched "The Improbable Turn" video the day they presented it. Agree it was good, and thought provoking, but [it] lacked sufficient guidance along lines of "suggested training to sharpen decision-making and turn back skills." I think your points [last week] add a LOT to what they presented, especially regarding velocity of headwind component, in-between options, and "please stop turning at all below 400 AGL" thereby generally avoiding the nasty cartwheel landing. There were some comments in video about a "30 degree bank turn back [bank angle] is optimal," but no performance data was presented. Surely it varies from plane to plane, loading etc.

Being a CFI, **I went and tried it for myself** in my A36 Bonanza, directly over a lonely runway and using a 1500 AGL "hard deck": no gliding descent below that altitude, and "takeoff" from that altitude. I tried it using true Best Glide configuration for an A36, and also did it using simulated best glide, approximately full fuel, single pilot, calm winds to 2500' AGL, and 30 degree bank turns. I used 5 seconds of "surprise time" before starting the pitch for best glide and turn back maneuver.

I found that my average pilot skills required at least 1000 feet of descent to get turned back and aligned with the runway before reaching hard deck alt of 1500 feet AGL. And I was violating your rule of "no turns below 400 feet AGL" to get lined up the last ~30° (210 degrees of turn at 30 degree bank, and then ~ 30 degrees turn the other direction to line up with runway). For me, **I am not prepared to even try that turn back unless at least 1100-1200 AGL (in that plane)**. Thanks for deepening the thinking process on this. We could sure use some agreed guidance on "best practices" about how to teach this.

Reader Paul Searles reminds us how un-academic, i.e., how very real, this discussion can be:

Here's one for your "Impossible/Improbable Turn" file. [N422PS, March 10, 2018 at KADS](#) (Addison/Dallas TX). Check it out on Google Earth. I can tell you there's really no good straight-ahead option north or south of this runway. It's surrounded by office towers and hotels.

Thanks for taking the time to write your Weekly.

See: <http://www.fox4news.com/news/ntsb-investigating-saturday-plane-crash-at-addison-airport>

An [Air Traffic Control audio recording](#) includes what has been identified as an instructor pilot reporting a "vapor lock" before radio contact was lost and the airplane subsequently crashes near the departure end of the runway on the airport grounds, off to the left side. At one point the

controller says he saw the airplane attempt to turn back to the runway and then go “straight into the ground,” suggesting an “impossible turn” stall.

(I do not usually link to audio or video recording of crashes, but in this case there are a couple of *LESSONS* that I’ll get to shortly.)

See <https://forums.liveatc.net/atcaviation-audio-clips/n422ps-'vaporlock'-engine-failure-and-crash-ads-10mar18/msg70568/#msg70568>.

The [news report](#) states:

Two people are in the hospital after a small plane crashed in Addison. It happened right after takeoff just before 5pm Saturday, still on airport property. Investigators say a single-engine Piper Sport with two people on board crashed nose first at the end of the runway at the Addison Airport.

“All of a sudden I looked up and he was nose diving at about 1,250 feet. Crashed right into the ground. I thought it sounded like an automobile accident but I rushed over there and the plane was down,” said a witness.

See the first item under **Wise Sayings** below. And remember, **PUSH and HOLD** in the event of an engine failure.

See <http://mastery-flight-training.com/20160304-flying-lessons.pdf>

A corollary: **Carry enough fuel for an extended hold or a divert, even in very good visual conditions.** Several airplanes were directed to go around immediately after the crash, and more were turned away before the ATC recording segment ended. See the *second* item under Wise Sayings below.

Thanks, readers, for your great observations and input.

Questions? Comments? Suggestions? Let us know, at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net)

---

## Wise sayings

I was running an American Bonanza Society seminar in Orange County, California last week and heard these wise words from two of the speakers that appeared on the program:

**“Today is the day”** – instructor and retired Los Angeles Fire Department captain Dan Ramirez’s engine failure briefing, stated aloud just before every takeoff.

**“Fuel on board takes the place of brains”** – Retired Trans World Airways 747 captain, avid general aviation pilot and A&P mechanic Tom Rosen’s somewhat tongue-in-cheek approach to fuel reserves management, funny because it’s true.

Interestingly, I had included this as the closing item for this week’s *FLYING LESSONS* before I looked at reader Searles’ email and learned they are both directly applicable to that event.

**What pithy, wise words do you have for pilots?** What brief but wise sayings have your mentors and peers taught you? Let us know at [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).

Share safer skies. [Forward FLYING LESSONS to a friend](#)



### **Pursue Mastery of Flight.**

Thomas P. Turner, M.S. Aviation Safety  
Flight Instructor Hall of Fame 2015 Inductee  
2010 National FAA Safety Team Representative of the Year  
2008 FAA Central Region CFI of the Year  
Three-time Master CFI

---

*FLYING LESSONS* is ©2018 Mastery Flight Training, Inc. For more information see [www.mastery-flight-training.com](http://www.mastery-flight-training.com), or contact [mastery.flight.training@cox.net](mailto:mastery.flight.training@cox.net).