

# Thomas P. Turner's Mastery of Flight

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## FLYING LESSONS for January 18, 2024

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 most 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 in your success as the 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.**

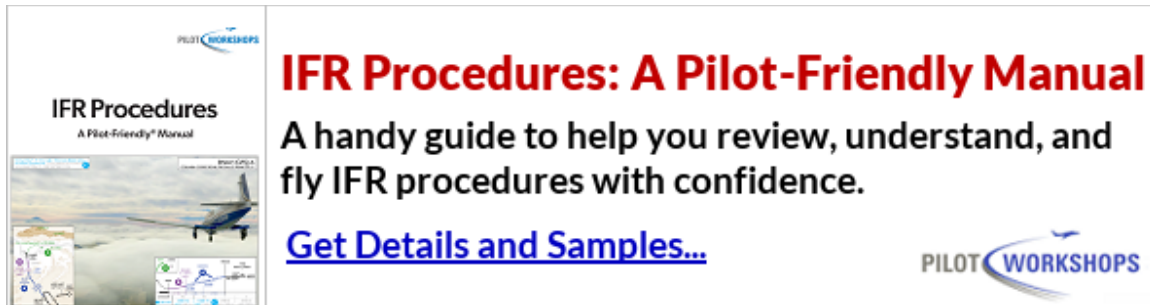
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### This week's LESSONS:

**We'll go straight** this week to your insightful inputs and my hopefully equally useful responses in this week's Debrief.

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### Debrief: Readers write about recent *FLYING LESSONS*:

Reader and new monthly donor Johannes Ascherl writes:

I have to say thank you, Thomas. I enjoy your thoughts and those of the readers so much. The effort you put into each *FLYING LESSON* is a true gift for aviation and its passengers.

In [the last issue](#) instructor Brian Sagi recommend to make sure there is “total agreement in the cockpit.” I like that phrase. Making sure **everyone** understood it right is not only after the Haneda event crucial. **At my airline it's SOP that if there is only the slightest chance that one of us understood an ATC transmission different from the other (cleared FL, waypoint, HDG etc.), we have to confirm it again.** Good Airmanship recommends here to ask with an “open question.” Don't ask: “Can you confirm we are cleared FL120?” Instead ask: “Can you confirm cleared FL?” This challenges the controller to repeat his initial transmissions taking him away the option of just replying with an “affirm.”

To you and your clever readers, from whom I have learned a lot with every Flying Lesson: a safe 2024! Best regards from cold Germany.

That's a great way to avoid complacency and expectation bias on the part of the controller as well as the pilots. Thank you, Hannes. Best regards from the very cold U.S. as well.

See <https://thomaspturner.com/wp-content/uploads/2024/01/2024.0111-FLYING-LESSONS.pdf>

Reader Martin Sacks adds:

One comment on airplane mode to reduce distractions. I totally agree with the cockpit being a no distraction zone - eyes out when the plane is moving on the ground. When I teach or evaluate that's reinforced strongly!

However, one thing to keep in mind is that **Civil Air Patrol makes extensive use of cell phone forensics to locate missing people and/or airplanes**. We can get amazing data to help via these methods. By **disabling the cell phone's ability to ping towers (airplane mode) it could reduce speed and effectiveness of search and rescue efforts** should they be necessary.

Keep up the excellent work!

That's an outstanding point, Martin. **Leave cell phones turned on and active; put them in silent mode to avoid distraction as much as possible, and keep them in a zippered pocket or otherwise in a place they might not be thrown out of reach** if you're still in the seat and cannot extricate yourself after a crash. Any other recommendations?

Reader Ed Stack addressed the "door pop" that was the impetus for [last week's LESSONS](#) on estimating the amount of runway remaining if you elect or need to land immediately after takeoff:

After reading this week's *FLYING LESSONS* I thought I'd share personal experience. I've been flying almost 35 years, including GA, military, and airline. A couple years ago, I decided to buy a Bonanza after considerable research. I ended up with a beautiful V35B.

Before buying the airplane, I took the entire [BPPP](#) course. It took about six months to find an airplane, and I reviewed all the courseware once again before flying. On my 7th or 8th flight, **the door popped open just after rotation with my dad in the right seat. The noise and wind rush definitely causes startle which can be disorienting.**

The first thing I said to myself was "fly", and I made sure to do just that. Maintain aircraft control is always the first step! I then recalled the BPPP training and realized it wasn't a big deal if I just handled the airplane properly. Unfortunately for my dad, we had to make a right closed pattern due to a parallel traffic to our left. I made a shallow bank, climbing turn to a right downwind, told the tower I needed to return (hard to hear), and landed uneventfully. The reason I'm sharing is that the BPPP training modules on this topic were extremely valuable, and I appreciate all of the resources/knowledge that you and ABS provide for all of us.

*FLYING LESSONS* is independent of my work at ABS, and Beech owners represent a minority of *FLYING LESSONS* readers. So the *LESSON* here is to seek out the resources and experts available to the type of aircraft *you* fly, and learn from their experiences before you experience something for the first time yourself...as you did, Ed. Thank you.

See <https://www.bonanza.org/training/pilot-training/>

Reader Art Utay continues:

[Last] week's *LESSON* concerning door openings in flight reminded me of an accident that occurred while I was living in Scottsdale many decades ago. The pilot flying a V-tail [Bonanza] lost control in gusty conditions between KPHX [Phoenix, Arizona] and KFFZ [Falcon Field] (about 15 nm), crashed, and unfortunately perished (NTSB report [LAX88FA196](#)) most likely due to the door opening in flight.

At the time (although not recorded in the final NTSB report), the word from the local FSDO was the 5' 2" female pilot apparently tried to push the door open with her feet in an apparent effort to have the door slam shut, but instead lost control of the plane. The FSDO never went into detail why they were advancing this theory, but it was what they discussed at one of the local pilot meetings.

The NTSB report includes this statement (in 1988-vintage all caps):

THE CABIN ENTRANCE DOOR WAS FOUND TO BE OPEN AT IMPACT, BUT THE LATCHING MECHANISM WAS IN THE LOCKED POSITION. THE PLT'S POSTMORTEM EXAM DISCLOSED THAT SHE WAS NOT WEARING A SEAT BELT AT THE TIME & HER RT ARM WAS EXTENDED AT IMPACT.

I suspect the position of her arm and most likely the pattern of impact injuries on her body are what suggest, but do not confirm, that she was trying to secure the door when the airplane hit terrain. Open doors and other distractions sometimes tempt us to take heroic measures to deal with the problem, when they really should cause us to **focus our efforts on flying the airplane**. Thank you, Art.

See <https://data.nts.gov/carol-reppen/api/Aviation/ReportMain/GenerateNewestReport/25835/pdf>

Reader and new donor this week Jerry Magnoni relates his experience:

The door popping open issue reminds me of **the two times it's happened to me** in my years (+11,000 hours) of flying. The first time was back in early 1980s in a Piper Turbo Arrow in very low IFR conditions. **Just after takeoff, entering overcast the door popped open**. [I] advised tower we would have to return, they said to contact Approach. I received vectors back for an ILS to minimums and landed without any other problems.

My second time was more recent and it happened in our Be35 [Bonanza] with my co-pilot/wife in the right seat. Again, **I do not consider this an emergency because I know the airplane will fly just fine** with the door ajar. I just **flew a normal pattern**, like your article implied, and returned for landing. After that I realized how complacent one gets when flying with another pilot in the right seat. Since that event I added to my before takeoff checklist to reach over and verify the door is latched.

My question: since this is not a Normal situation **should the flying pilot declare this an "Emergency"** to tower or ATC? Or, treat it like a bird strike which is not an "Emergency" unless it takes out you engine or goes through the window, etc.

Thanks again for all your great work keeping this site going. I never miss reading your *LESSONS* and look forward to the next.

I consider a door (or window) that's ajar in a manner that does not materially degrade airplane performance to be an abnormal condition not requiring priority handling to get me on the ground before anyone else. So I would not declare an emergency but simply tell controllers what I need (at a tower-controlled airport) and make a normal landing (or approach and landing if conditions require).

Exceptions would be if I was having any difficulty with airplane control (for example, a side window opened, ripped off in the slipstream and hit the tail on its way) or if I had a seriously panicked passenger I couldn't get calmed down. So there's the possibility I might declare an emergency if the situation warrants, but in general I'd not. Thanks, Jerry.

Reader Stanley Stewart offers another takeoff distraction experience:

Years ago after I dropped off a passenger at San Jose International Airport (KSJC) and then when taking off, upon lift off I heard a loud **whap whap whap** and immediately realized **the passenger seat belt was outside the door flopping against the side of the airplane**. I knew I was taking off from an 11,000 foot runway so immediately pulled power, touched back down, and taxied back for a takeoff with the right seatbelt clasped closed inside the airplane.

Ever since, **I fasten the front seat belt on itself on every takeoff when the right front seat is unoccupied**. Had I been taking off from a runway too short to put it back down and get stopped, I would have had to go around and accept whatever damage that seatbelt flopping around in the slipstream would have caused, which would be less than running off the end of the runway and incurring significantly more damage to the airplane and possible personal injury.

I do the same thing with the seat belt in unoccupied seats adjacent to doors. I've heard that flapping noise myself.

Another belt-related distraction happened on my first solo flight, in a U.S. Air Force T-41A (1965 Cessna 172). My instructor had me taxi to the RSU (Runway Supervisory Unit), a non-tower observation station between the runways at Hondo, Texas where the USAF Flight Screening Program was then based. Without us shutting down the engine (!) he took off his headset and unfastened his four-point harness, climbed out of the airplane, then leaned back to tell me to make three touch and go landings. He fastened the right-seat belt and harness and tucked his (pre-noise canceling) headset under the lap belt, then slammed the door shut. I made the proper advisory calls using my callsign (“Stomp,” indicating I was using the west runway, as opposed to “Hang” used by east runway traffic—it’s funny what you remember) and the last two digits of the airplane registration to warn everyone I was doing this alone, then taxied.

About the time I lifted off, the instructor’s headset shifted just right so wind whistling through the right-side “soup can” wing root air vent blew directly on its microphone sticking up from behind the khaki lap belt. It was *extremely* distracting and prevented me from hearing anything from the RSU or three or four other T-41s in the circuit. Focusing on continuing to **fly the airplane** as my Flight Screening Program instructor Joe Oswalt had always emphasized, I reached over and pulled his headset jacks out of the panel, making the noise stop. Good thing I did; after my first crash-and-go while I was downwind for the second time with three or four others in the same pattern, the RSU changed the pattern from landing south to landing north. We had a trained procedure for flying a box pattern to reverse direction at whatever point in the pattern we were at for a runway change, and I did that before my second landing. But I never would have heard the command had I not removed the distraction. Thanks for relating your experience also, Stanley.

Reader/instructor Mike Friel delved deeper into last week’s *LESSON*, which began with a door opening in flight but which was really about initial climb and determining how much runway remaining in actually usable as you climb:

Great discussion, as always. Just a short comment. In this weeks “Mastery of Flight” you noted:

**“Note that every POH, Airplane Flight Manual (AFM) or Owner’s Manual I’ve seen for retractable gear airplanes calls for gear retraction upon confirming a positive rate of climb. I’ve not seen any that suggest delaying retraction while “usable runway” remains, probably because of the difficulty of making that determination.”**

The POH for my 68 V35A includes the “and insufficient runway remains for landing” in the Normal Procedures section under Normal Takeoff: Landing Gear...”

I was referring to the performance charts and how to determine you have sufficient runway remaining in the first place. But you’re right, I should make this distinction. Thanks, Mike.

Mike replied:

You’re absolutely correct. If we go by Section 5, Performance, in the POH, we expect to find the “positive rate - gear up” type of instruction. **The stipulations of the “associated conditions” outlined in section 5 of our POH must be exactly adhered to in order to achieve the tabulated performance figures as listed.** These performance charts normally depict the best performance available when a new aircraft is configured and flown by a professional test pilot exactly as described in the appropriate performance chart. The performance charts are sometimes said to be “marketing” figures as much as, or even more than, actual performance numbers a “normal” pilot can expect to achieve. We often see advice from other than the manufacturer, in references other than our POH, encouraging us to add 25%, 50% or to even double the performance figures derived from the charts in section 5 of our POH. **The further separated we are from being professional test pilots and the further our aircraft and engines get from being new the more “fudge factor” we’re sometimes advised to add.**

On occasion, when a manufacturer feels there may not always be a need for maximum performance or for whatever reason the manufacturer may have, we find “deviations” from the procedures outlined in section 5, Performance, when we compare section 5 procedures to the procedures as outlined in section 4, Normal Procedures. I’ve seen several Bonanza POHs, including the POH for my V35A, with the “Landing Gear - Retract after positive rate established “

wording found in section 5 and the modified wording “Landing Gear -Retract (when positive rate of climb is established and insufficient runway remains for landing) found in section 4 [Normal procedures, Takeoff checklist]. **These are differing instructions but not necessarily contradictory instructions.** The modification found in the Normal Procedures section is not necessarily in compliance with the associated conditions stipulated in the Take-off Distance chart thereby possibly rendering the chart figures invalid, or, it can be said, even more invalid for us “normal” pilots.

I don't know how you find the time to be as dedicated to aviation as you are, but I'm glad you do find the time. You're a wealth of information. I'm certain that you've positively impacted the lives of countless aviators, probably more than you'll ever realize.

You, too, are correct about performance charts and other recommendations in the handbook: the takeoff performance chart “associated conditions” are required if you hope to get something close to calculated performance, there is a certain marketing value in performance charts in that they present the “best” performance under given conditions, in the case of takeoff and landing performance being short field techniques; and other suggestions may include techniques that will result in some other performance not calculable using handbook data. Recall that only Section II, Limitations, of a Pilot's Operating Handbook (POH) or Airplane Flight Manual (AFM) is “approved” by the FAA and therefore is required to be observed. The remainder of the handbook is the manufacturer's best recommendations as to how to fly the airplane, but you're free to use any technique you like as long as you do not violate Limitations. It's up to you to predict how the airplane will perform, and to give yourself enough of a margin to fly safely.

As to your final paragraph, Mike, thank you. I'd like to think I'm doing some good. The same may be said for a lot of other people, including you. Thanks for your insights into performance.

And from reader and well-known Australian flight instructor Edgar Bassingthwaighte:

To better summarise my thoughts in the previous email and get back to your central question of accelerate/stop scenario: **To have the widest margin available**, indeed the optimal situation, for accelerate stop or any other scenario which might arise on departure or arrival, **it would be best to make the POH Performance Chart target speeds your standard or "normal" operation.**

There is nothing difficult about always operating at the target speeds in the POH. **It is in fact simply a mental decision:** "I am going to operate at these target speeds." **Just "normalise" the POH operation.**

When I did my initial flight training my chief instructor was a World War 2 veteran and the manufacturer's target speeds for take off and landing were considered to be normal operation.

There are a few things I normally do that are not strictly by the book. I smoothly apply power and let the airplane roll for takeoff, then establish a  $V_V$  attitude for initial climb and accelerate to a faster-than-book cruise climb. For landing I fly at “book” final approach speed but don't establish the Beech handbook's 900 foot per minute rate of descent passing through 50 feet above ground on final approach. And I don't apply maximum braking during the landing roll.

**But**, I add a minimum 100% margin above charted takeoff and landing performance. If I don't have that buffer I'll either land somewhere else or, if I have at least a 50% margin, I then use the book procedures. And I practice them often enough I can do it correctly when I've decided.

Thank you, Edgar. I'll see you at Cowra in March.

Reader Mark Sletten comments on “clearance confusion” as discussed in last week's Debrief:

Just a quick note regarding clearance confusion. Some instructors go to great lengths to find reasons outside of the FARs for important dos and don'ts; after all nobody likes to be told what to do. But I think it's important to remember these dictums often result from past disasters. FAR 91.123 states (in part) **"When a pilot is uncertain of an ATC clearance, that pilot shall immediately request clarification from ATC."** So, not only is it a good idea, **it's mandatory.**



Excellent point, Mark. Thanks for the emphasis. Air Traffic Controllers provide essential information, aid and services. But **the pilot-in-command is responsible** for the safe outcome of each flight.

Instructor and frequent Debriefer Brian Sagi brings this week's Debrief to a stop with his observations on an under-taught aspect of takeoff aborts:

Related to a successful takeoff abort is the piloting skill of **stopping the airplane in a short distance**. My personal observation is that this skill is lacking among a large portion of the general aviation pilot population. The reality is that, in light piston general aviation aircraft, **nearly none of us ever need to apply much more than very light braking**. It is simply unneeded in the operations we conduct. For example, while landing a Beech Bonanza on a 3,000 foot runway, at idle power the airplane will slow sufficiently as to only require slight use of brakes prior to exiting the runway.

**If we want to increase the probability of a successful abort (or a good short field landing), we must learn how use our brakes at their maximum performance.** This is a skill and, like any skills, it requires learning and practice to master. **Maximum braking is about applying enough brake pressure to keep the tires right below the point at which they start locking and skidding, but not past that point. The "trick" is to "feel" the tire and, should it skid, slightly reduce brake pressure.**

As we slow down the wings generate less lift and therefore the tires can tolerate a higher braking force without skidding. Therefore, we can increase the pressure we apply at the brake pedals as we slow down.

Maximum braking is a skill that race drivers mastered in the pre-Antilock Braking System (ABS) equipped cars. As pilots who fly aircraft equipped with non-ABS brakes, **we need to practice this skill.**

In flying in instructional flights and requesting the pilots to perform heavy braking, I have observed many pilots coming on and off the brakes. This is counterproductive. When the brakes are "off" the airplane is not slowing down and is consuming more runway. When the brakes are re-applied, there is risk that they will be applied too hard and the tire will skid. **Practice applying hard braking and then using slight modulation as needed.**

That is indeed an under-taught and under-practiced skill, Brian. I need to practice it more myself. Thanks!

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