Thomas P. Turner's
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FLYING LESSONS for December 18, 2025

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

Here's a brief item from the FAA preliminary accident reporting website this week. During a ***post-flight inspection*** a helicopter's tail rotor was found to be damaged.

Federal Aviation Administration

FAA Aviation Safety Information Analysis and Sharing (ASIAS)

Welcome   Data & Information   Studies

FAA Accident and Incident Notification(s): Notice(s) Created 16-DEC-25

IDENTIFICATION

Date:	15-DEC-25
Time:	17:00:00Z
Regis#:	N404LL
Aircraft Make:	BELL
Aircraft Model:	407
Event Type:	ACCIDENT
Highest Injury:	NONE
Aircraft Missing:	No
Damage:	SUBSTANTIAL

LOCATION

City:	LAS VEGAS
State:	NEVADA
Country:	UNITED STATES

DESCRIPTION

Description:	AIRCRAFT ON POST FLIGHT INSPECTION AND DAMAGE WAS FOUND TO THE TAIL ROTOR, LAS VEGAS, NV.

INJURY DATA

Total Fatal:	**0**

	Fatal	Serious	Minor	None	Unk
Flight Crew	0	0	0	1	0
Cabin Crew	0	0	0	0	0
Pax	0	0	0	3	0
Ground	0	0	0	0	0

See https://www.asias.faa.gov/apex/f?p=100:93::NO:::

Are you in the habit of performing a brief postflight inspection after the end of a flight? It's easy to shut down, climb out of the aircraft, tie down or put the airplane in the hangar, or give your fuel order to the lineperson and confirm the brakes are not set in case they need to tow your airplane away. I'm as guilty as the next person when it comes to being "done" when I've landed from a flight, especially if it's been a long one.

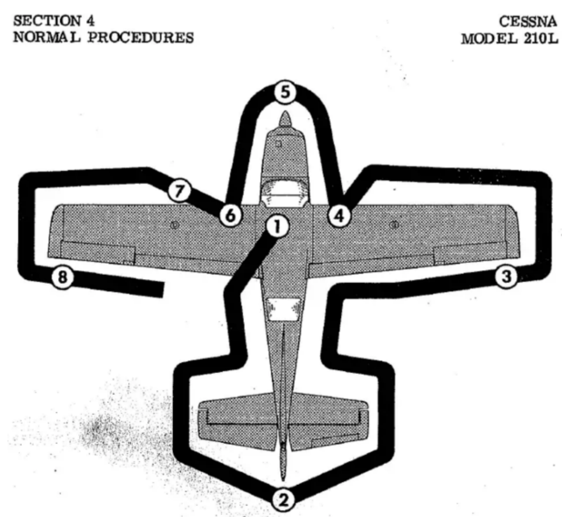
But there are advantages to taking a quick look at the airplane immediately *after* a flight. If vibration, wear, leaks or fatigue are going to create an issue that will affect your next flight, it almost certainly will have happened during the flight that just ended—and you can **find it *now*** instead of when you're ready to take the next local or sightseeing flight, fly to an airshow or pancake breakfast, or load up your family, friends or business/commercial passengers to depart on your next trip.

The postflight inspection is most advantageous when you're away from home base. If something has happened that needs a mechanic's attention before you can fly home, you have the entire time you'll be at that location to have the issue addressed. Compare finding a leaking oil hose or low strut inflation or some other safety-of-flight discrepancy **at the *beginning*** of your week at the beach with your family to discovering the problem ***after*** you've checked out of the hotel, turned in your rental car and loaded your baggage into the airplane on Sunday morning as you're getting ready to fly home in time for everyone's Monday morning obligations.

If you find a problem during preflight it might take a couple of days to get it fixed—booking new accommodations, hiring a new car, and missing work, school and other obligations. **If you find it when you first arrive,** you might be able to arrange for parts to be shipped and repairs to be done while you're conducting your business or enjoying your vacation. It also helps you avoid the temptation to rationalize away an issue in your hurry to get in the air and flying home with a degraded—possibly even unairworthy—aircraft.

What might you include in your post-flight inspection?

- Do a thoughtful **walk-around** just as you would do in your preflight **inspection**. Be especially focused looking for leaks, hose kinks, tire inflation and condition, cracks or any other damage.
- Before shutdown, if possible, do a quick **magneto check**. Some people like to do an inflight magneto check before descent, and that works as long as you are extremely careful to avoid accidentally turning both mags off in flight. Snapping the switch back on might cause a damaging backfire, and detecting/avoiding failure or damage is what you're trying to do with such a check. Don't do this on the ramp with a marshaller itching to put a chock behind your nosewheel. But if you have the opportunity to stop on the taxiway or in the run-up area for a very quick run-up and magneto check, take it.



Another advantage: Habitually remaining with the aircraft for a few minutes at the end of a flight makes it more likely you'll stick around to ensure the proper grade and amount of fuel is added to your aircraft, and that the fueler follows best practices like electrical grounding, protecting the airplane with a mat or cover around the filler port, and inserting the fuel nozzle correctly to avoid possible damage to fuel tanks and fuel port seals.

Do you do a postflight inspection? I admit I don't always. I *do* make an effort to do so when away from home. Let's all get in the habit of conducting a short postflight inspection.

Questions? Comments? Supportable opinions? Let us know at mastery.flight.training@cox.net.

Debrief

Readers write about recent *LESSONS*:

Reader/instructor Paul Uhlig wrote about another reader's Debrief in the December 4 *LESSONS* that referenced the previous week's report about multiengine training:

> I was struck by Dave Dewhirst's list concerning multiengine instruction. I wondered about the safety implications of some of these actions and was interested that you included them without any discussion. I would have thought some might have worried you:
>
> "Depending on the airplane, we teach single engine stalls, delayed V_{MC} recovery, and delays in securing a failed engine. That is along the lines of dealing with a sudden emergency by first '*winding the clock'*. Also, depending on the airplane, we teach actual engine failures, not simulated, and an engine failure below 500 feet on takeoff."

I sent Paul's comments to Dave and allowed him to expand on his techniques. Dave wrote:

> Good point. The magic delimiter is [it] Depends On The Airplane. We [Dave's SABRIS Group, which provides buyers services including instruction primarily in cabin-class twins] will do single engine stalls in a C[essna]310, C340, C421, [Beech] Duchess, Piper Apache, or Aztec. This is because the aerodynamics of the design and the **size of the rudder** is such that we have found single-engine stalls can be safely done without danger of losing control. We would not do single engine stalls in a [Beech] Baron, Duke, P[iper] Navajo, or Aero Commander.
>
> We usually only do this for a CFI-ME candidate [a pilot pursuing the multiengine instructor rating] or for an airplane-specific transition course. The purpose is to allow the Instructor Candidate to see he needs to **give the student a few seconds to recognize the problem** without grabbing for the controls. This also teaches the Instructor to watch for coordinate[d] flight, just as in a single engine power-on stall.
>
> There is no point in teaching this procedure to a candidate working toward a[n Airplane-Multiengine] rating because we want [that] candidate to **demonstrate the correct *recovery* procedure**. When working toward a rating, the pilot will have the privilege to fly any make and model, not a specific airplane. He may be flying an airplane where single engine stalls are an issue. We want him to be prepared for that.
>
> We are fortunate to be in Wichita, KS, Aviation Mecca, and have access to some pilot examiners and test pilots who help us develop our training techniques. I have had those procedures demonstrated to me.
>
> This started with training in a Piper Apache. ***The rudder is so big and the engines are small***, that the rudder must be restricted to produce a V_{MC} departure. If a stall is encountered during a V_{MC} demonstration, the procedure normally taught is to **reduce power on the operating engine** and start the maneuver over again with the rudder restricted. The point is that ***in this airplane*** a single engine stall can be followed by a recovery used for power-on stalls in a single engine airplane,

> followed by another attempt at the maneuver using restricted rudder. [The Apache] was type-certified without a stall warning system. A stall is identified by an actual stall and stall buffet.
>
> Single engine stalls are routine part of training. Another interesting feature of the Piper/Aztec family is that if the V_{MC} departure and stall occur at the same time and the pilot does nothing, the airplane will recover from the departure on its own.
>
> Tom, these discussions are extremely valuable. The feedback you get from your audience is magic. Keep up the good work, my friend.

I took my initial multiengine training in a Geronimo-conversion Piper Apache with 150 horsepower engines (derated from the standard 160, I believe, as part of an auto fuel Supplemental Type Certificate) at Benton, Kansas. I flew my MEI (multiengine instructor) rating immediately after in a stock-except-for-avionics PA23-160 at Wichita Jabara, both 35 years ago. I don't recall doing single-engine stalls, but I can't say for certain we didn't. That said, for many (perhaps most) light twins stalling on one engine (even with that engine's failure only simulated) may and often does result in a spin that devolves into an unrecoverable flat spin. There may be some twin types such as those Dave mentions that have far more benign asymmetric thrust stall characteristics. I'll defer to the experience of test pilots and those who are trained by them.

As we discussed in previous *LESSONS*, the V_{MC} Demonstration required on the AMEL and CFI-ME Practical Tests (here's a good instructional video) is done at a safe altitude—at least 3000 feet above ground level according to the FAA. At that height a normally aspirated engine will develop only about 90% power compared to maximum rated power over a sea-level airport. It's about 85% power maximum over my 1500 MSL home 'drome in Wichita, and only roughly 70% power on a multiengine training flight out of 6000-foot Colorado Springs. V_{MC} is all about asymmetric power, and with less power there is less asymmetry to create yaw at maximum rudder deflection—the end goal of the demonstration. Hence most (likely all) normally aspirated airplanes will stall before directional control is lost…and depending on the airplane the result may be unrecoverable.

V_{MC} also decreases at weights below the airplane's maximum, and at centers of gravity forward of the airplane's aft CG limit. Since neither of those worst-case conditions is likely to be extent at the time of the V_{MC} demonstration it's even more likely to attain the current-condition stall speed before experiencing the loss of directional control that is the basis of the maneuver.

Hence the common instructor technique is to restrict rudder movement as the Pilot Receiving Instruction (PRI) flies the maneuver. By artificially reducing maximum rudder effectiveness in this way, the multiengine instructor creates a condition in which the sought-for loss of directional control at maximum *available* rudder deflection occurs. It's a bit of a skill to determine how much rudder deflection to permit but the deft MEI can do it.

In turbocharged twins (including some of the types reader Dave mentions) there is only a small amount of power lost at the heights deemed safe for the V_{MC} Demonstration. These airplanes will have more asymmetric thrust going into the maneuver and therefore experience the desired loss of directional control at some speed above stall speed.

I don't like to do the V_{MC} Demonstration unless I have to. That's due in part because my light twin flying (and instructing) is almost exclusively in Beech Barons, a type well known in the NTSB record for unrecoverable single-engine spins out of attempted V_{MC} demonstrations. On the odd occasion I've been training a pilot in preparation for a Practical Test requiring the maneuver I brief that I'll significantly restrict rudder input. Testing by Embry Riddle Aeronautical University also suggests that keeping the wings level, instead of banking into the good engine as required for zero sideslip, can increase the speed at which loss of directional control occurs by as much as 15 knots in a Baron. This provides a good margin above stall throughout the demonstration.

So I brief the PRI to keep the wings level and I physically keep it so myself during the maneuver. Even then, before the maneuver and repeated aloud as the PRI flies it, I state the pilot should begin recovery at the **first** of these three indications:

1. **Loss of directional control** as is the intent of the maneuver;

2. **First indication of a stall**, most likely the stall warning horn but any buffet if it precedes the horn; or

3. Any indication of an **abnormality** on either engine.

Dave's point is a good one: candidates for the Multiengine Instructor rating need to be especially well-trained to present this maneuver for when it's required, and familiar with the common PRI responses (or lack thereof) to be ready to get him/herself and the PRI out alive.

The V_{MC} Demonstration as presented in normally aspirated airplanes is benign compared to what it would feel like to lose an engine shortly after takeoff near sea level with a lot more power on the "good engine" side to create asymmetry. Not to mention the delay and impact of "startle factor" in a real-world emergency at such a slow speed and the psychological effects of having it happen close to the ground.

Many MEIs prefer to emphasize "blue line awareness" and teach angle of attack and power responses any time the airplane is below blue line speed except when needed during acceleration just after takeoff and in the final seconds of landing. As someone with a highly developed sense of self-preservation I feel the *LESSONS* of the V_{MC} Demonstration are best learned in a multiengine simulator whenever possible, and practiced in flight only when necessary and then with semi-heroic safety measures.

Great discussion. Readers, do you have more? Thank you, Dave and Paul.

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Thank you, Andy, for your comments and your continued financial support of *FLYING LESSONS Weekly.*

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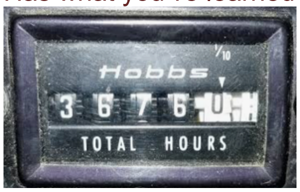

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