



# FLYING LESSONS for March 1, 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.**

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## ***This week's LESSONS:***

### **An Unexpected Response**

**From an NTSB** preliminary report published last week:

According to the [multiengine] flight instructor, the student was practicing single-engine approaches ...with a simulated engine out of the left engine. The airplane was low on the approach, and the student was instructed to add power to the right. The student advanced the throttle for the right engine, but there was no increase in power/thrust. The flight instructor told the student to push both throttles full forward and make a go-around. The right engine returned to full power; however, the left engine failed to produce any thrust. The airplane entered a V<sub>MC</sub> (minimum control speed) roll condition toward the critical engine (left), and impacted terrain.

See <https://www.youtube.com/watch?v=UYtH84TvYuk>

**We all train** on normal, abnormal (unusual) and emergency procedures, to the extent they can be safely presented in an airplane. There are specific emergency operations that we must demonstrate to proficiency in order to pass Practical Tests for the various pilot certificates and ratings. We need to continue to review and practice emergency procedures regularly to retain the skills we demonstrate on checkrides, in case we ever need to perform them for real.

**When practicing** emergencies, we by definition are adding risk. We do things we rarely do or have never done before. We fly with less than the full complement of equipment. We deliberately create distractions, then test our ability to overcome them. We venture into the far corners of our accustomed flight envelope and nibble on the edge of controllability.

**The added risk** exists, in part, because practicing emergency procedures has the potential to turn into a real emergency condition if the airplane, engine, or other component reacts to our actions (or improper actions, or inactions) with an unexpected response.

**In the case** of our twin-engine example, a simulated emergency (single-engine approach) turned into a delayed response to power application, which was then followed by a real-world V<sub>MC</sub> loss of control. Now, there's a response for that V<sub>MC</sub> roll—because that's an emergency procedure, one we are required to demonstrate on the multiengine rating Practical Test. Happily, the pilot and instructor at least partially corrected for the loss of control; although the airplane's left wing impacted and suffered substantial damage, the two about the airplane survived to tell about it.

**Whether you're** the instructor or the Pilot Receiving Instruction (PRI), as you set up to practice an emergency procedure, be thinking about what *might* happen, how the airplane may unexpectedly respond...and what you'll do about it.

**The only thing** more hazardous than training on emergency procedures...is not training on them at all. So keep practicing. And keep your eyes open.

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>

I thank you, Tom, for all I have learned about aviation over the five years I have enjoyed reading *FLYING LESSONS*. I hope you know that your work has changed my safety awareness as a pilot in countless ways, and I believe it's safe to assume hundreds of others. I will always be most grateful for your gift to aviation.

– Richard Benson

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

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## Debrief:

Readers write about recent *FLYING LESSONS*:

Reader Chris Cepelcha writes about [last week's LESSONS](#) about OPS-SPECs (operations specifications) and personal minimums:

I am not sure what the concept of "adhering to personal minimums" has to do with this Lear, circle to land accident. The weather was 5500 scattered with 10 miles visibility and light rain. The crew did not have to be maneuvering at Circling Minimums altitude. They could have maneuvered at normal pattern altitude with the ceiling and visibility as it was. They could even have shot the entire ILS to 06, leveling off at 1000 AGL vs descending to DA, then entered a normal downwind via a right-hand pattern and accomplished a completely normal. All they had to do was coordinate with tower.

Finally, having flown the Lear 35 for a few years, I can categorically say it is not a hard airplane to fly. The only real challenge with the Lear 35 is/are single [pilot] operations.

Hi, Chris. Here's where I was going with that: the recent press attached to this incident heavily reported that the First Officer (FO) "was not qualified" to be the Pilot Flying under the conditions that existed at the time. I made the point (or at least tried to) that the FO indeed *was* qualified to fly the airplane as far as the FAA was concerned; it was a policy of the charter company's OPS-SPECs that FOs be evaluated on an experience-based scale of 0 to 4 that determines what operations the FO is permitted to fly. The FO in this crash was a "0" at the time and not qualified under the operator's more stringent requirements—which I then equate to a "personal minimum" for those of us flying without such formal guidance.

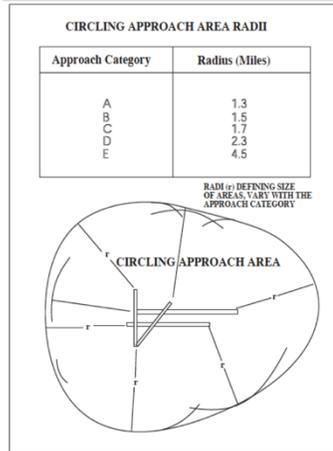
The transcript of the crash reveals a captain who was obviously concerned about the FO's performance. If the Learjet crew had followed the company OPS-SPECs—a "personal minimum"—then the captain would have been flying, and presumably he would not have made the mistakes the FO did that ultimately led to the crash. The point I was trying to make: if you go to the trouble of setting personal minimums for yourself, then adhere to those minimums—even when it's inconvenient.

Does that make sense?

See <http://www.mastery-flight-training.com/20180222-flying-lessons.pdf>

Other readers also commented about the "circling" aspects of this circling approach. Robert Thorson writes:

Concerning the TEB Lear 35A accident: [the quoted report] mentioned that previous aircraft started the circle at 3.8 miles. This is outside the obstacle-protected area for any category aircraft. This fact raises the question *is it now a visual approach?* Are all circling maneuvers visual? I have asked many Airmen and the responses are quite amazing. Large gaps in knowledge and training here. Airlines have restricted circling to VFR weather on type ratings. Maybe there is a lesson here.



Category	Maneuver Speed	Circling Area
A	0 - 90 knots	1.3 miles
B	91 - 120 knots	1.5 miles
C	121 - 140 knots	1.7 miles
D	141 - 165 knots	2.3 miles
E	166 knots or more	4.5 miles

Circling Approach Categories based on Ground Speed (above), and the protected Airspace in the circling maneuver (left).

I wondered about that too, Robert. Assuming the Lear 35 approaches at CAT C (121-140 knots ground speed) or even CAT D (141-165 knots ground speed), then beginning the circling portion of the maneuver about 3.8 nm from the runway would not be authorized. It would be if the Lear was flying at 166 knots ground speed or greater, but I don't think even a Lear 35 is routinely that fast in a circle-to-land maneuver.

The reported conditions at the time of the accident were 5500 scattered, visibility 10 miles. So conditions were actually good Visual Meteorological Conditions (VMC). So:

- If ATC cleared the flight for a visual approach, the pilot could (and probably should) have maneuvered to align with Runway 1 farther from the airport than he did.
- If ATC cleared the pilot for the circling approach, even though that portion of the flight was in VMC, the pilot is obligated to adhere to the circling altitudes and radii to comply with that clearance. That said, the pilot is also required to miss the approach if he/she cannot descend below Minimum Descent Altitude (MDA) using “normal maneuvers”—which is not strictly defined, but using a “reasonability test” does not include low-altitude near-knife edge maneuvering like the accident airplane was observed to do.

The circle-to-land portion of a circling approach must be done with visual contact with the airport, but conditions do not have to be VMC—only the minimum visibility published for that approach and clear of clouds. It is an IFR (Instrument Flight Rules) procedure that requires outside visual contact to perform. So the circle-to-land maneuver is a *visual* procedure, but not a VFR procedure. Is that an acceptable answer when you conduct a checkride, Robert?

Reader Anthony Crescimanno adds:

[I] learned early in my flying career that *a good landing starts with a good approach. The best way to salvage a bad approach is to start over.* The decision to do so requires good judgement. Exercising good judgement in doing a Go Around when an approach has gone wrong will always outweigh the decision to continue a bad approach to devastating consequences.

Absolutely, Tony. Unfortunately the pressure the crew to fly a charter jet (albeit on a non-revenue leg) into an airport like Teterboro, New Jersey, would be overwhelmingly in support of the “salvage” attempt. In many operations the crew would get a stern talking-to (or worse) from the chief pilot if they did a go-around, “wasting” all that time and jet-fuel money. The culture of “get there” is great, in personal as well as business and airline flying. This crash serves as a reminder that an attempt to salvage the approach may end up just that—salvaging the airplane (as scrap), after, of course, extricating the bodies from the wreckage. As Tony says, if you find yourself having to maneuver unusually to make a landing, **go around and start over** regardless of the time or money involved.

Frequent Debriefing John Scherer also writes:

Great piece about the Lear crash at Teterboro. The biggest *LESSON* that I got from this accident is *being behind the airplane.* As a former T-38 Instructor Pilot, this was one of the hardest things to teach

students. On the ILS to Runway 6, Circle to land Runway 1, the pilots had to know, or should have known, that they'd be SMOKING down final during the ILS. To get into a proper position to circle to runway 1, they needed to start the circle in the area of the final approach fix. This is not what is usually done. Trying to honk around at low altitude [as reported] is not the way to go during a circle.

It's also apparent that the co-pilot was out of his element flying the airplane. **The captain should have been flying the approach.** Doing a circle like this is a difficult maneuver, especially in a hot rod like the Lear. Planning ahead and keeping up with the airplane is so critical. Thanks for a great *LESSON*.

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

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Thomas P. Turner, M.S. Aviation Safety  
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