

FLYING LESSONS for May 7, 2009

suggested by this week's aircraft mishap reports

FLYING LESSONS uses the past week's mishap reports as the jumping-off point 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 make and model airplane have little direct bearing on the possible causes of aircraft accidents, so apply these *FLYING LESSONS* to any airplane you fly. Verify all technical information before applying it to your aircraft or operation, with manufacturers' data and recommendations taking precedence.

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This week's lessons:

You'd think it'd be obvious, but history shows for many it is not, that you should abort plans to fly if the airplane has a known mechanical problem. Look at this recent example:

A pressurized twin was substantially damaged during impact with a house following a loss of engine power shortly after takeoff. The pilot was killed. Visual meteorological conditions prevailed. Prior to the accident flight, the pilot flew the airplane from Costa Rica to Florida, where it sat for two days. During that time, the airplane was fueled with approximately 75 gallons of 100LL. Witnesses report the pilot ran the engines to full power for about 20 minutes while the airplane sat on the ramp. The pilot appeared to be troubleshooting an engine issue. The pilot then shut down the engines, added oil to one of them and started them again. He then ran the engines for five more minutes, before departing. Witnesses observed fire emanating from the right engine after rotation. The airplane entered a shallow climb, flying low, with the right engine on fire. The airplane then banked right and descended into a residential area. The pilot had radioed the tower shortly after departure saying he was having trouble with the airplane and needed to return to the airport. The tower controller cleared the flight to land on any runway, and no further communications were received.

And this one:

The pilot and nine passengers were departing in a twin-engine airplane on a Part 135 air taxi flight from a runway adjacent to an ocean bay. According to a tower controller the airplane became airborne about midway down the runway. As it approached the end of the runway, the pilot said he needed to return to the airport, but gave no reason. The specialist cleared the airplane to land on any runway. As the airplane began a right turn, it rolled sharply to the right and began a rapid, nose- and right-wing-low descent. The airplane crashed about 200 yards offshore and the fragmented wreckage sank in the 10-foot-deep water. Survivors were rescued by a private float plane. A passenger reported that the airplane's nose baggage door partially opened just after takeoff, and fully opened into a locked position when the pilot initiated a right turn towards the airport. Investigation revealed that the original key lock on the airplane's forward baggage door had been replaced with an unapproved thumb-latch device. A Safety Board materials engineer's examination revealed evidence that a plastic guard inside the baggage compartment, which is designed to protect the door's locking mechanism from baggage/cargo, appeared not to be installed at the time of the accident. A year earlier the FAA issued a safety alert for operators (SAFO 08013) recommending a visual inspection of the baggage door latches and locks, additional training of flight and ground crews, and the removal of unapproved lock devices. Just prior to the crash the manufacturer issued a mandatory service bulletin requiring the installation of a key lock device, mandatory recurring inspection intervals, life-limits on safety-critical parts of forward baggage door components, and the installation of a placard on the forward baggage door with instructions for closing and locking the door to preclude an in-flight opening. Postaccident inspection discovered no mechanical discrepancies with the airplane other than the baggage door latch.

What if you deem an inoperative component unnecessary for safe flight? U.S. Federal Air Regulations spell out what must be operable for an airplane to legally fly. (Non-U.S. readers will likely find similar regulations in their home countries). FAR 91.213(d) specifically tells us the hierarchy of guidance:

- **Minimum Equipment List (MEL).** If the airplane has an approved MEL, or is operating on an air carrier certificate that has an approved MEL, then all equipment identified on the MEL must be operative for the flight to dispatch. Note all turbine-powered airplanes require adherence to an approved MEL.

- Kinds of Operations Equipment List (KOEL).** If the airplane (or air carrier certificate holder) does not have an MEL, but the airplane's manufacturer publishes a KOEL for that aircraft, then all equipment the KOEL lists as required for a given type of flight (day, night, IFR) must be operable for the flight to dispatch. In some cases a KOEL may specify components must meet Time Before Overhaul (TBO) requirements for certain operations (e.g., flight in icing). Note many owners of decades-old airplanes have original Owners Manuals that at times may have very useful operational data. In regulators' eyes, however, only the manufacturer's current handbook revision and its limitations apply.
- Aircraft equipment list.** If the aircraft's equipment list identifies certain items as required for flight then, in the absence of an MEL or KOEL this guidance applies.
- FAR 91.213.** *Only* if none of the above exists, the pilot has the authority to determine whether an inoperative piece of equipment is required for flight. Under 91.213 to exercise this option the equipment must:
 - Not be required for the kind of operation (day, night, IFR) as described in the aircraft's Type Certificate Data Sheet (TCDS);
 - Not be required to be operable under an FAA Airworthiness Directive;
 - Be *either*:
 - Removed from the aircraft with the cockpit control placarded and the aircraft maintenance record (logbook) updated accordingly; or
 - Deactivated and placarded "inoperative" with the maintenance record updated if required for the work necessary for deactivation.

Inoperative instruments and equipment

FAR 91.213(d): A person may take off in an aircraft with inoperative instruments and equipment without an approved Minimum Equipment List provided—(1) The flight operation is conducted in a nonturbine-powered airplane; and (2) The inoperative instruments and equipment are not indicated as required on the aircraft's equipment list, or on the Kinds of Operations and Equipment List for the kind of flight operation being conducted.

What if the failed equipment is on the MEL, or on the KOEL or otherwise for the flight you're contemplating, or it's something basic for certification per the TCDS...and you need to fly the airplane to another airport for repairs? The airplane's not airworthy, but there's a provision for these maintenance-relocation flights—the Special Flight Permit.

More commonly called a "ferry permit," under [FAR 21.197](#) a Special Flight Permit (SPP) may be issued for:

1. Flying the aircraft to a base where repairs, alterations, or maintenance are to be performed, or to a point of storage.
2. Delivering or exporting the aircraft.
3. Production flight testing [of] new production aircraft.
4. Evacuating aircraft from areas of impending danger.
5. Conducting customer demonstration flights in new production aircraft that have satisfactorily completed production flight tests.

A special flight permit may also be issued to authorize the operation of an aircraft at a weight in excess of its maximum certificated takeoff weight for flight beyond the normal range over water, or over land areas where adequate landing facilities or appropriate fuel is not available. The excess weight that may be authorized under this paragraph is limited to the additional fuel, fuel-carrying facilities, and navigation equipment necessary for the flight. This other type of "ferrying" is how over-gross operations are permitted for record-setting flights and trans-oceanic aircraft deliveries.

Ferry permits have limitations on the date and route of flight, authorized aircraft occupants, and flight conditions. Although there are exceptions, most Special Flight Permits restrict the operation to day, VFR flight directly from the current location to the destination airport, and with only “required crew members” on board—in most airplanes that means no passengers unless specifically authorized.

Request Special Flight Permits through your certificate holder or, if operating under Part 91, an A&PIA. Your paperwork goes to the local Flight Standards District Office for approval and is often approved the same day. Your technician then confirms the airplane meets any maintenance stipulations of the authorization, signs the permit, and makes a logbook entry.

Don't go quite yet, however. Most aircraft insurance policies do not provide coverage when the aircraft is operated on a ferry permit unless the operation has been pre-approved by underwriters. Call your agent or broker ahead of time and discuss the reason for the permit. Forward a copy to your insurance agent/broker as soon as it arrives. Give underwriters time to review and (hopefully) approve the operation and to get a written policy endorsement to you that extends coverage as long as you comply with permit stipulations. It may take a couple of days.

Questions? Comments? Email me at mastery.flight.training@cox.net

Coming MFT presentations

- **Beechcraft Pilot Proficiency Program Columbus, OH:** “What Really Happens in IMC”, Friday, May 15 at 4 pm. Contact www.bppp.org to enroll.
- **Sporty's Pilot Shop Fly-In, Batavia, OH:** “The First 60 Seconds: Takeoff, Climb, Go-Around, Missed Approach and Emergencies.” Saturday, May 16 at 1:30 pm.

See www.sportys.com/flyin

QUESTIONS OF THE WEEK

Winner of the Mastery Flight Training, Inc. hat for April 2009 is **Tom Benenson of Columbiaville, New York**. Tom owns a Cessna 177RG but in his work also “sample[s] lots of other airplanes.” Congratulations, Tom!

One randomly selected reader in May will win his/her choice of a **Mastery Flight Training hat** or the MFT DVD **Those Who Won't: 10 Tips for Avoiding Landing Gear Mishaps**. Your email address goes in the drawing once every week you respond to a question. All responses will remain confidential, but I will publish a review of the results. Like PIREPs, this works best if *everyone* participates. So take a moment to answer this week's Questions...then come back to read the rest of *FLYING LESSONS*.

May Question of the Week #1

If you were in charge of your nation's aviation safety authority, what one task or skill would you require all pilots to practice on their next flight review (or equivalent)? Copy and paste the question with your response to MFTsurvey@cox.net. Thanks, and good luck!

April Question of the Week #4 Response: Most of you report logging far more than the minimum one hour each of ground and flight training toward your last Flight Review or non-U.S. equivalent. What do readers think they need to improve about their visual flying skills?

- Crosswind landings (quite a few readers made this same comment)

- My biggest visual skill problem is that I don't look outside (this was another very frequent comment)
- Since I usually file [IFR] regardless of the weather, I am rusty on navigating by pilotage and monitoring a VFR flight plan
- I need to practice accuracy landings
- Identifying other aircraft in my vicinity; a number of types I don't recognize from a distance
- Lookout, particularly before and during turns
- I'd really like to have my landings always be smooth. Somehow, even after more than 3000 hrs logged, sometimes they're perfect, sometimes not so perfect
- Commercial flight maneuvers

Do you have something needing improvement on *your* list? Find an expert instructor and work on that task *now*, before you find yourself needing that skill. Mastery Flight Training will address these tasks and more in future presentations and products.

Thanks to all who answered last week's Questions!

DEBRIEF: Readers discuss past *FLYING LESSONS* reports

Dave Dewhirst is president of Sabris Aviation, a nationwide network of flight training and aircraft management consultants. Dave took a recent Question of the Week about time logged on his most recent Flight Review and added comments based on his instructional experience:

For most [Flight Reviews] that we give, the average is 1 1/2 hours of ground and 1 1/2 hours of flight. A seasoned pilot who flies regularly and knows his airplane very well can easily do the one hour of ground and one hour of flight required by the regulations. The average low time pilot cannot do it in that time. I had one pilot I flew with three times before I thought he had the necessary skill. I also had one pilot who announced that he knew he only needed one hour of ground and one hour of flight to achieve a BFR [sic] and that is all he intended to pay for. I was curious, so I flew with him anyway, accepted his maximum payment, and absorbed the cost of the balance of the review. It took him three hours. I thought he would be happy with the free flight time and that he might have learned a lesson, but he was still pissed because he thought my expectations were unreasonable.

The biggest problems we see on the oral are (1) Part-91 operations, (2) airspace, and (3) the knowledge of systems and performance of their own airplane. Half of the flight time is spent on landings just trying to get the airplane in the touchdown zone and with the proper cross-wind correction.

Thanks for your insights, Dave!

Writing about the pilot's role in returning airplanes to service, Major Amnon Smueli, commander of the Israeli Air Force's [Beechcraft] Bonanza Training Center reminds us:

All test flights must land before dark, and be done only in good weather!

Amnon also commented on the VFR into IMC discussion:

About low clouds: [It's] very tempting to try, and extremely dangerous. The [Israeli] air force lost more than 2 heavy transport aircraft [in] similar situations. [Under IAF regulations] it is mandatory to climb to the safe alt once visibility is too low or ground can't be seen.

Thanks, Amnon. You're right—it's far better to climb into the clouds if you have no visual means of escape, than to press on at low altitude *hoping* you'll find better visibility. Climb, communicate and confess (to ATC).

David Kenny, manager of aviation safety analysis for the AOPA Air Safety Foundation, adds his considerable insight to the *FLYING LESSONS* discussion of attempted visual flight in IMC:

Excellent advice, Tom. If everyone followed that, each year's [Nall Report](#) would be a little thinner -- and the body count would be significantly lower. We saw two dozen VFR-into-IMC accidents in 2007. Seven-eighths of these (21 of 24) were fatal. The 47 people who died made up **more than ten percent** of all the deaths we reported that year (in fixed-wing airplanes under 12,500 pounds, excluding Part 135).

Thank you very much, David.

See www.aopa.org/asf/publications/08nall.pdf

Questions? Comments? Send your insights to mastery.flight.training@cox.net

Fly safe, and have fun!

Thomas P. Turner, M.S. Aviation Safety, MCFI
2008 FAA Central Region CFI of the Year



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