The case for enjoying not flying

By Jeffrey Madison · January 24, 2019 ·

Aeronautical Decision Making is a way of thinking taught to all pilots. It's a means of maintaining situational awareness throughout all phases of flight.

It teaches pilots to constantly assess the weather around them, the terrain below them, and the condition of their airplane and its engine(s).

It also teaches a pilot to suppress emotions and to be willing at any moment to postpone, abort, delay, or cancel a flight based on a clear-eyed assessment of the safety of flight.

The pilot of the Piper Arrow from **last month's column**, who experienced much misfortune and misadventure, displayed the opposite of ADM. It was a fun read but it was also a cautionary tale.

He admitted in his conclusion, "In hindsight, after the comms issue, I should have decided to turn back, but my desire to make it to my destination made me underappreciate the issue of the partial panel failure."

Piper Arrow (Photo courtesy Wikimedia Commons, Tomas Del Toro)

A quick summary of events: During a nighttime IFR flight in IMC, the pilot suffered an audio selector panel malfunction. It essentially shut down his radios. The fix he found was to shut off his primary communications radio and use only his backup.

Then ATC notified the pilot he was off course. That's when he discovered his attitude indicator had failed. Because he was a former instructor who taught partial panel regularly, he felt confident in his ability to continue the flight, flying partial panel, at night, in IMC.

Only when his baggage door opened did he decide to declare an emergency and get on the ground. During his approach, he chose to disobey an ATC instruction and descend prematurely below the minimum vectoring altitude (MVA) in his area.

Just as every accident chain is built on links, so is every incident chain.

The pilot's first link came when he reported that his initial audio selector panel problem interfered with his radios, transponder, and Garmin 650. According to his report, he stopped troubleshooting after he got the secondary radio to work again. He didn't continue to explore the possibility of a more dangerous, underlying electrical problem, one that could have ignited a fire or led to a smoke-in-the-cockpit scenario.

His second link was forged when he discovered the AI failure.

"I looked at the suction gauge, but it was within limits, 4.8"-5.2". Somehow I had a partial panel failure!" he wrote.

Instead of deeming these two unrelated equipment failures a signal to abort the mission, this pilot saw it as an opportunity to flex his partial panel flying muscles.

The problem with that thinking is that gyroscopic instruments (turn indicator, directional indicator, and possibly the turn coordinator) don't die quickly like when he, as an instructor, slaps a suction pad or a stickie note over them.

They die more like a bad actor in a movie — slowly, painfully, awkwardly. This pilot really didn't know how much longer his other vacuum-driven gyroscopic instruments would continue to function. Yet he chose to risk it anyway.

Attitude indicators may fail because the AI gyroscope goes bad. Or the failure may be symptomatic of a larger vacuum system breakdown, including failure of the engine-driven vacuum pump, failure of the primary and secondary air inlets, or blockage of both air intakes.

Typical engine-driven vacuum pumps are geared to the engine. The "wet" kind are connected to its lubricating system to seal, cool, and lubricate the pump. A "dry" vacuum pump is not connected to the engine's lubrication system. It operates without external lubrication.

Most of us don't know if we fly wet or dry vacuum pumps, but it's worth it to find out. Failure of a dry engine-driven pump could be from gyroscopic failure or air intake blockage, like from ice. However, wet engine-driven vacuum pump failures might be indicative of a bigger problem lurking in the motor's oil lubrication system. It appears the pilot did not consider that possibility.

With 45 minutes still to his destination, on partial panel, in IMC at night, after seven hours of solo flight and dual instruction given earlier that day, the pilot reported that his plane's baggage door opened and pulled his backpack partly out of the aircraft. That may have been the best thing to happen to him that night because it forced him to divert to the closest suitable airport and land.

It's hard to understate the severity of the lack of complete thought that occurred in this pilot's decision-making process.

The **Aircraft Owners and Pilots Association's Air Safety Foundation** researched 40 accidents attributed to vacuum pump failure. Of those, 32 were fatal. They included a 6,500-hour pilot who had 500 in type and a 1,270-hour flight instructor with 256 hours of instrument time.

Good ADM skills matter because nobody is immune.

A seasoned pilot instructor filed a report with **NASA's Aviation Safety Reporting System** after a similar lapse in ADM. He wrote that it was "probably the most embarrassing thing I've done in an airplane."

The pilot's mission was to fly with the owner of a Cessna 150 to inspect a multiengine airplane for possible purchase. The airplane was a hot commodity, with many interested buyers. He felt it urgent that he get to the airplane and stake his claim immediately.

What further compounded their incentive to risk the flight was a forecast for clearing skies at the fogged-in airport from the seller. And the pilot was under additional pressure. He had to fly back in time to pick up his son from school that afternoon.

"Needless to say, I had a huge case of get-there-itis clouding my judgment," he wrote.

A Cessna 150

The Cessna 150 was a basic VFR model. The owner was only VFR-rated but also keen to help his buddy out. The weather was forecast to be marginal VFR with some occasional IFR along the route, but it was also forecast to be worse the following day. Afraid to miss out on a golden opportunity, they both okayed the flight.

The pilot assured himself that by bringing along a portable ADS-B-capable GPS, an iPad with an aviation weather app installed, and a handheld transceiver, he could make up for the fact that the VFR-only Cessna 150 had but one attitude indicator and one turn-and-bank coordinator onboard.

The duo launched and did some scud-running up to their cruising altitude. There it was VFR.

“I saw a couple of stations near our destination reporting 10 miles and clear,” he wrote, referring to what he saw on his ADS-B GPS. “It took me another hour to realize that the VFR airport (information) was four hours old and not being updated by the ADS-B. Oops!”

His iPad-based weather app wasn’t updating either. Two and a half hours into the flight, they were still above a layer of clouds with no visible way down. That’s when they both noticed that the left fuel tank was indicating empty. When he asked the pilot-owner about the accuracy of the gauges, his response was that their accuracy was pretty good.

At this point, the GPS updated. It revealed an airport showing 1,000′ broken ceilings and five miles visibility. But it would be a stretch to make it on the fuel.

“I’m sitting in the airplane thinking I don’t want to get busted for VFR into IMC, all the while thinking of what an idiot I was. How do I explain this, how the guy with me has a family, too, how I’m going to be a statistic,” the pilot wrote.

He got a hold of himself. He realized he had put himself in this emergency, so he'd better straighten up and fly right. He took the controls from the owner and announced that they were diverting to the nearest airport reporting any semblance of good visibility. He dialed up an RNAV approach for the airport he found. Then he dialed in that field's UNICOM frequency into his handheld transceiver and descended into the clouds.

"The aircraft owner was pretty much messing himself in the other seat. I had to ignore him and fly the airplane," he wrote.

They broke out of the clouds at 1,000′ and landed safely. An inspection of their tanks revealed just three gallons of fuel remaining. The skies cleared after a few hours and they finished the flight.

"Here I am, a senior pilot and an instructor, supposed to be setting the standard for not taking chances," he wrote. "Not very bright."

He confessed that the weather report from the seller, coupled with coveting the airplane for sale, created a heavy dose of get-there-itis. Not only did his heavy emotional investment cause him to ignore all the obvious no-go signs, but it influenced his pilot friend, too. That pilot-owner lacked an IFR rating, yet he chose to abdicate his own ADM because as the reporting pilot put it, "he had me with him."

The joys of flying are seductive, but the dangers of flying are insidious and tenacious. By constantly maintaining our ADM skills with equal tenacity, we can learn to enjoy not flying just as much as flying, when it's indicated.

ABOUT JEFFREY MADISON

Jeffrey Madison, a pilot since 1995, is an ATP CFI/MEI. He has over 1,000 hours dual given. He has flown into more than 250 GA airports

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Comments

Joe Henry Gutierrez says
January 27, 2019 at 11:43 am

What is the difference between driving drunk and running out of fuel in an airplane?? none, when you drive drunk and get caught you pay a fine and loose you license for 6 mo.s , when you run out of gas in an airplane you crash and live but maintain your flying

license, what?? Case in point, if the FAA would revoke a pilots license for 6 mo.s first offence that would be good, if it happens again pull his ticket for life, he does not deserve it, meaning given another chance to kill someone, not acceptable..If a person runs out of fuel while flying an airplane, he or she deserves to crash. does that sound heartless?? Well that is exactly what this action is, stupid and very heartless..No mercy for anyone that makes bad decisions either in an airplane or in a vehicle..Yet some people continue to do so. Readers???

CJ says
January 26, 2019 at 8:57 am

A great lesson here. They both should be brought up during ground school sessions. Maybe even later on during a check ride debriefing.

gbigs says
January 26, 2019 at 7:26 am

Ever notice the same set of excuses in these incidents? The longer some fly the more prone SOME are to the arrogance of “it won’t happen to me” and “I am immune to the problems others face.” The syndrome is called arrogance of experience. It should be added to the ADM list of problems.

Paul says
January 26, 2019 at 6:48 am

An older pilot once told me, “Its better to be on the ground wishing you were in the air than in the air wishing you were on the ground!” So true, good reminder to all.

Valerie Lynn Booth says
January 26, 2019 at 5:46 am

Well-written article and great comments! Human Factors and ADM fascinate me.

I particularly enjoyed this read because of its perspective: “Just as every accident chain is built on links, so is every incident chain.”

Miami Mike’s comments are invaluable as well.

Thanks!

Daniel Carlson says
January 25, 2019 at 7:53 am

Great Article!!! This is one to keep taped to the knee-board.

Daniel says
January 25, 2019 at 6:50 am

Thank you. Lesson learned.

Miami Mike says
January 25, 2019 at 6:50 am

And there’s more – iPad, handheld radio, portable ADSB device. These guys were staking their lives on a couple of AA batteries from Wal-Mart, supplied by the lowest bidder and likely sourced from a vendor “employing” political prisoners in a “factory” which is a tent in some remote desert in some ghastly third-world country.

Wow. Just wow.

Miami Mike says
January 25, 2019 at 6:43 am

Point one: The FAA requires fuel gauges to be accurate at two points – full, which you know about because they hand you a bill, and empty, which you know about because the noise stops and you have a not very good glider. In between, the accuracy and trustworthiness of Cessna 150 fuel gauges (as well as many, many other aircraft) is somewhere between the accuracy and trustworthiness of current national politics and ditto for allegedly fake news. In other words, no matter what your political affiliation, DO NOT TRUST FUEL GAUGES. That's why you have a clock in the airplane. Fuel on board divided by GPH is endurance in hours. Even if they read full, climb up and look in the tanks, see for yourself.

About the only other time fuel gauges give you anything approaching useful information is if they both read zero half an hour after departing with full tanks. This tells you that you have a significant fuel leak (gas cap missing?) or that you've had an electrical failure.

Point two: The weather ALWAYS wins. It doesn't matter how many engines you have, how many seats there are, how many rockets and bombs are slung on the wings, if the weather says "no", you're not going. End of discussion.

Ground school 101 – "Don't run outta gas, don't fly in clouds, and don't hit nothin." These guys were really, really lucky, they busted two out of three and lived to tell the tale.