

CALLBACK

From NASA's Aviation Safety Reporting System



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PAVE-ing the Way to Good Decisions



Chapter 17 of the Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25) offers pilots a number of resources for assessing the risks of flight and deciding on the best courses of action to mitigate risk. One of these is the PAVE checklist, which can help pilots during preflight planning to become aware of flight risks in four categories:

- **P**ilot-in-command (PIC) – The pilot must ask, “Am I ready for this trip?” in terms of experience, recency, currency, physical, and emotional condition.
- **A**ircraft – What limitations will the aircraft impose upon the trip in terms of performance, equipment, payload, ceiling, and fuel capacity?
- **e**nVironment – How will weather, terrain, airports, airspace, and nighttime conditions affect safety of flight?
- **E**xternal pressures – Why is the flight being made, how critical is it to maintain the schedule, and is the trip worth the risks?

This month we will illustrate the PAVE concept using several recent ASRS incidents involving General Aviation operations.

From Low Threat to High Threat

A Cessna 414 pilot on an IFR flight plan discovered how an intermittent, low-threat equipment problem can cascade into a stressful situation that degrades decision making. The pilot had not flown much in the 90 days prior to the incident.

PAVE Factors: Pilot-in-Command, Aircraft, External Pressures

■ *On departure of my fourth flight of the day, the radios became a bit distorted. As the climb-out progressed, radios became increasingly distorted resulting in unintelligible communications...A distorted intercom became a single point of failure. As I attempted to resolve the communications issues, I wrestled with the decision to return to the departure airport, yet continued the flight...All communications from Approach became completely unintelligible. Frustrated and irritated by the*

situation, declare my communication

I decided to inability to receive and return VFR.

Intending to match my transponder to my situation, I mistakenly dialed in 7500 rather than 7600. Obviously 7500 creates a much greater response than 7600. Bells and whistles began going off in places I would rather not think about...Realizing my error, I notified Approach of my intentions to return to my original transponder code. I continued VFR to the departure airport and landed uneventfully, giving advisory transmissions along the way.

This situation is typical of many in flying that can lead to a more serious incident. The partial NORDO created by an intercom problem was intermittent and relatively low threat...A desire to accomplish the flight made me slow to admit my need to put the aircraft on the ground. Flying in VMC, I should have turned back as soon as it became apparent I had essentially no two-way communication capability. At that point my professional pilot pride made me too slow to admit that fact...Faulty communications put great stress on the system and... in this case began to degrade my decision making after only a few minutes. A handheld transmitter would have made today's flight much less challenging...

“Indecision Becomes Decision With Time”

A low-time Cessna 172 pilot with instrument training let recent successes and get-home-it-is seriously cloud decision making.

PAVE Factors: Pilot-in-Command, Aircraft, enVironment, External Pressures

■ *As a recently minted private pilot, just a week away from my instrument checkride, I was feeling dangerously indifferent about a current IFR AIRMET for my route of flight. The last two weeks, I had been able to easily out-climb previous IFR AIRMETS and stay on top...*

I encountered IMC while trying to out-climb a layer of smoke coming from vegetation fires. I could not see the ground...and the forward visibility was not determinable. I was at my maximum altitude of 12,500, had climbed to 13,500 to see if I could top the smoke and it was clear I could not. I was on Flight Following when I turned around. Center contacted me asking why I wasn't headed toward my destination. I told the controller I could no longer maintain VFR and was going to land at a nearby airport. I cancelled Flight Following but remained on frequency for good measure.

Upon my descent through 6,000, the smoke cleared significantly to around 15 sm visibility. I decided to continue my journey low since the visibility was much better. Upon continuing at a low altitude for 50 nm, the surface visibility dropped to 2 sm and I knew that I could go no farther at that altitude. I looked up and saw blue sky and bright sun. This indicated that the smoke layer I was currently in couldn't be very high, so I initiated a climb to attempt to get on top. Upon reaching 7,500 MSL, I was surely back in IMC and the sun above me was now a deep red. I was now in some sort of smoke plume from one of these fires and was not going to out-climb it in a C172. It was at this point that I feared I was interfering with IFR traffic...

I immediately descended to 1,200 feet AGL, where, ironically, the visibility had improved to MVFR... I elected to push forward versus do the smart thing and land immediately. As I approached an airport indicating VFR conditions, the smoke and wind shifted making that airport MVFR too. I continued on and 10 nm past that airport I broke into the clear.

It was a very somber, pensive, and quiet ride to my fuel stop. I was horrified at how I responded to that situation...I shouldn't have launched that afternoon but my previous successful experiences and my desire to get home were severely clouding my judgment.

The experience taught me great respect for AIRMETS and the value of sound aeronautical decision making. It was a watershed moment in my flying career....

“I Was Combining a Lot of New Things”

The pilot of a high-performance Cirrus SR22 undertook a 20-minute flight in Class B airspace with a first-time passenger on board. The flight was between two unfamiliar airports. And at destination, the pilot faced a “real” go-around situation for the first time.

PAVE Factors: Aircraft, enVironment, External Pressures

■ *The arrival airport does not have an ASOS, however the METAR for a nearby airport showed light winds. The arrival airport has two crossing runways: 13/31 is 4,165 feet long and 6/24 is 2,998 feet long. As we approached from the north, I selected Runway 6 for an easy entry on*

left downwind. On downwind, I set the first flap position. I realized I was high and fast after turning final. I pulled power to idle, but my speed was too high to put in full flaps. I considered a slip, but Cirrus does not recommend this maneuver. E-TAWS [Embedded Terrain Awareness Warning System] called out a sink rate warning. I had heard this before and landed without incident so I continued. I touched down about 1/3 down the runway. The plane bounced once medium-hard and lightly a second time. When I realized I would not have sufficient runway to stop, I initiated a successful go-around.

On the second attempt I was still too high, but did not attempt a landing. A friendly voice on the CTAF suggested Runway 13. At that point I noticed the wind sock was indicating brisk winds (estimated 8 knots) roughly aligned with Runway 13. I switched to Runway 13 and made a nice landing.

Errors on this flight:

- *Without local wind data, I should have overflowed the field to observe the sock...*
- *With calm winds, there was no reason not to select the longer runway. While I have landed on 3,000 foot runways, most of the fields I fly out of are 4,000 and 5,000 feet. I had only landed on a runway shorter than 4,000 feet once before. While this 3,000 foot runway is within POH [Pilot Operating Handbook] range, it required nothing less than a well-stabilized approach.*
- *I ignored the sink rate warning...This was the 3rd warning I ignored.*
- *This was the first time I ever had to do a go-around “for real.” I had a passenger that was flying with me for the first time. I’ve read how one can feel pressured by such a situation, but did not think it would happen to me. In this case, my desire to complete the flight did sub-consciously influence my decision making....*
- *I should have realized I was combining a lot of new things into one day.*

“I Was Not Alert and Sharp”

A Cessna 206 pilot practicing touch-and-goes missed an important ATC instruction because of fatigue and the effects of a head cold.

PAVE Factors: Pilot-in-Command, enVironment

■ *...I went to ZZZ to do some proficiency flying. Inbound, I contacted Tower and requested touch-and-goes. The Tower cleared me to land on Runway 28L. I thought that I had been cleared for the option. Shortly before I touched down on 28L, the Tower cleared an Extra for a left 270 departure off of Runway 28R. The Extra began to take off shortly just as I touched down. I raised the flaps and reset elevator trim to take off again for a circuit. As I applied takeoff power on the roll, the Extra was already airborne and ahead, climbing rapidly. I realized that he*

would need to make a left turn across my course just as I became airborne.

At that point, Tower asked me to state my intentions. I replied that I wished to make left closed traffic and would stay behind and below the Extra until he was clear. I apologized and asked if I had missed a call or misunderstood their instruction. The controller replied that I had been cleared to land, not for the option. I apologized again and asked how I should proceed. The Tower instructed me to continue to make left traffic.

I have missed very few radio calls in my 20 years of flying. I attribute this mistake to a) fatigue, and b) failure to properly evaluate my own physical / mental condition prior to initiating the flight. I was recovering from a head cold. I was not taking any medication and my sinuses were clear, but I was still somewhat fatigued from lack of rest...I make a practice of evaluating my health for flight during the drive to the airport and during pre-flight. In this case, I did not recognize clues that should have shown that I was not as alert and sharp as I needed to be in order to fly.

ASRS Alerts Issued in June 2010	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	3
ATC equipment or procedures	2
Airport facility or procedure	4
Company policies	1
TOTAL	10

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June 2010 Report Intake	
Air Carrier/Air Taxi Pilots	3218
General Aviation Pilots	982
Controllers	795
Cabin/Mechanics/Military/Other	507
TOTAL	5502