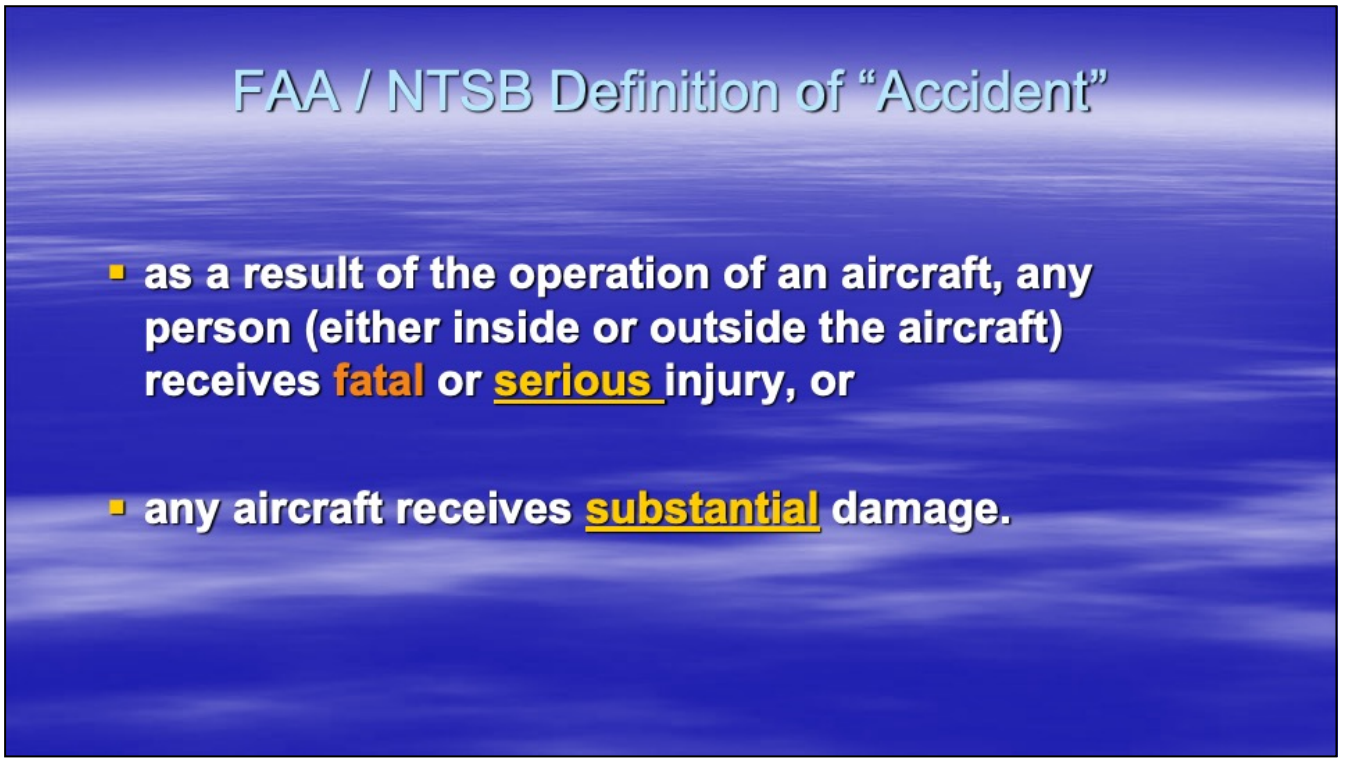
Hello! Good morning. Hope you're enjoying our 2024 convention!

Thanks to you all for staying today at the convention.

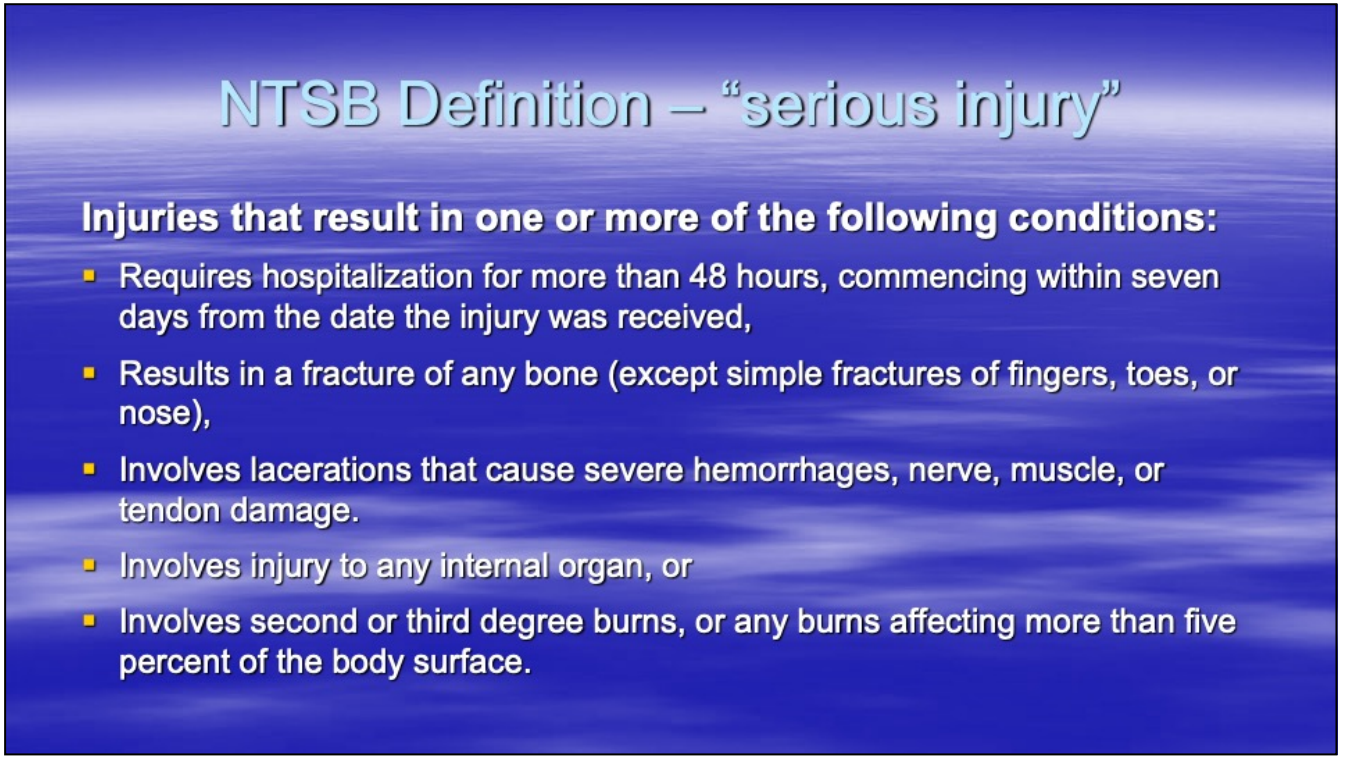
My goal today is to discuss the accidents that have occurred since our Colorado Springs Convention last year, and then try to put them into the larger context of our mission of improving safety.

I know that in many cases, we don't know the details of what happened in a particular accident. Nevertheless, I'm a strong believer in trying to learn from others' experiences, since life is too short for each of us to get all the direct experience we could use.

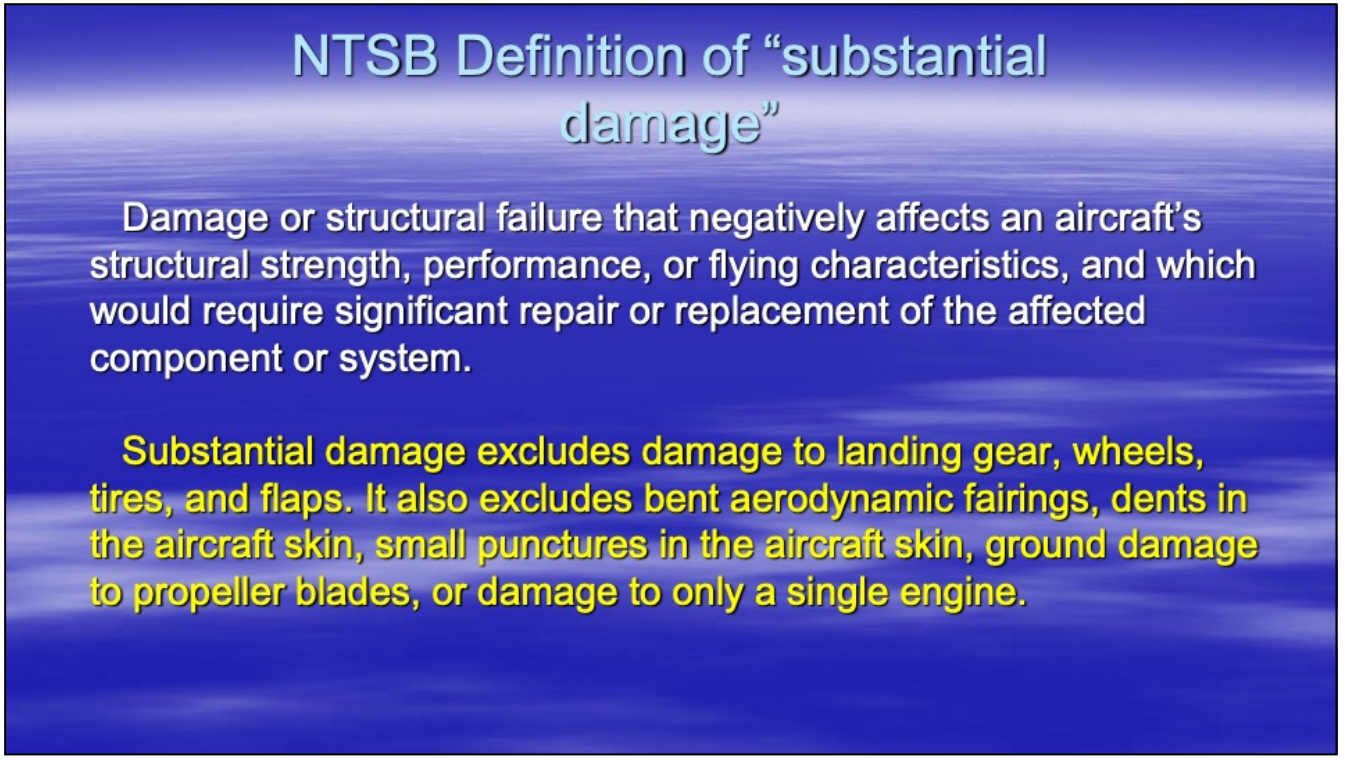


The FAA has a very specific definition of what constitutes an accident.

Basically, significant injury or substantial airframe damage.



Serious injury is pretty much self-explanatory, and common sense.



Substantial damage has a very specific meaning to the FAA, and basically excludes the damage you'd see from a simple gear-up landing.

So under that definition, this gear up landing never made it into the accident database.

Nor did this botched go-around.
These mishaps go into the FAA's incident database, and I'll discuss incidents a little later today.

With that understanding of how accidents make the FAA's list, let's start looking at specifics.

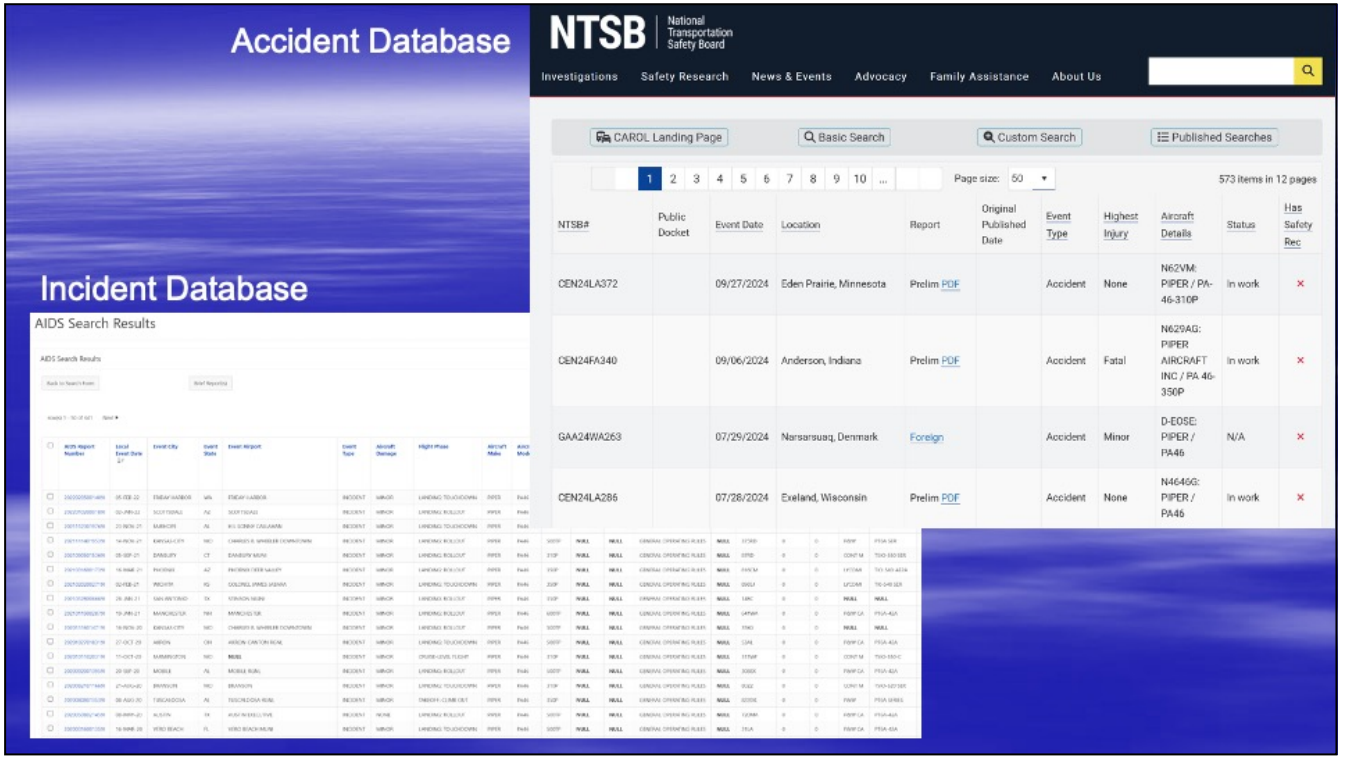
First, though, I'd like to make the same disclaimer I make every year:

I was not present for any of these accidents.
All I am doing is using the NTSB and other public records to describe what may have happened.
In many of the cases, all I have is a preliminary report with minimal information.

My point this morning is not to affix blame; I'll leave that to the NTSB, the insurance companies, and the courts.

My goal is for us to look at these accidents as learning experiences; trying to learn from someone else's misfortune. I will speculate on causes, if it helps make a teaching point.

I certainly don't mean to cast aspersions on any of the involved pilots, even when I list pilot error as the cause. The best pilots can have a bad day; any of us could.



Here are the two official FAA databases – one for accidents, and one for incidents.

Of course, other countries keep their own lists, and in most cases do their own investigations.

Every year, some mishaps may move back and forth between these lists, usually based on the amount of airframe damage. I'll talk about one of those shortly.

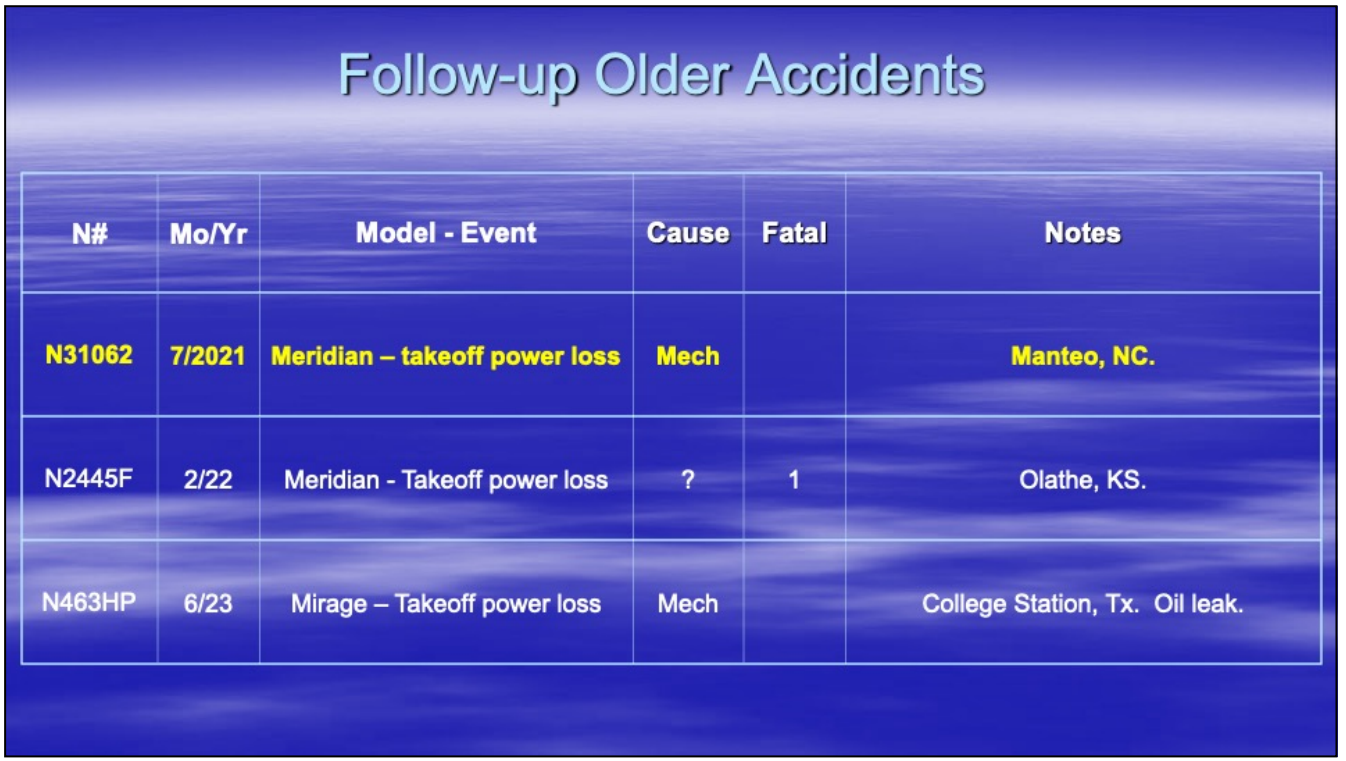
I'll first talk about the accidents, as currently listed.

Later I'll get a little into the incidents, since I think we can learn from those as well…

Follow-up Older Accidents

N#	Mo/Yr	Model - Event	Cause	Fatal	Notes
N31062	7/2021	Meridian – takeoff power loss	Mech		Manteo, NC.
N2445F	2/22	Meridian - Takeoff power loss	?	1	Olathe, KS.
N463HP	6/23	Mirage – Takeoff power loss	Mech		College Station, Tx. Oil leak.

But before talking about recent events, I'd like to look back at three older accidents, where the final reports might give us some insights we didn't have at the original convention presentation.



The first of these three happened in North Carolina a little over 3 years ago.

The NTSB published the final report just after our last convention.

This is a 2005 Meridian.

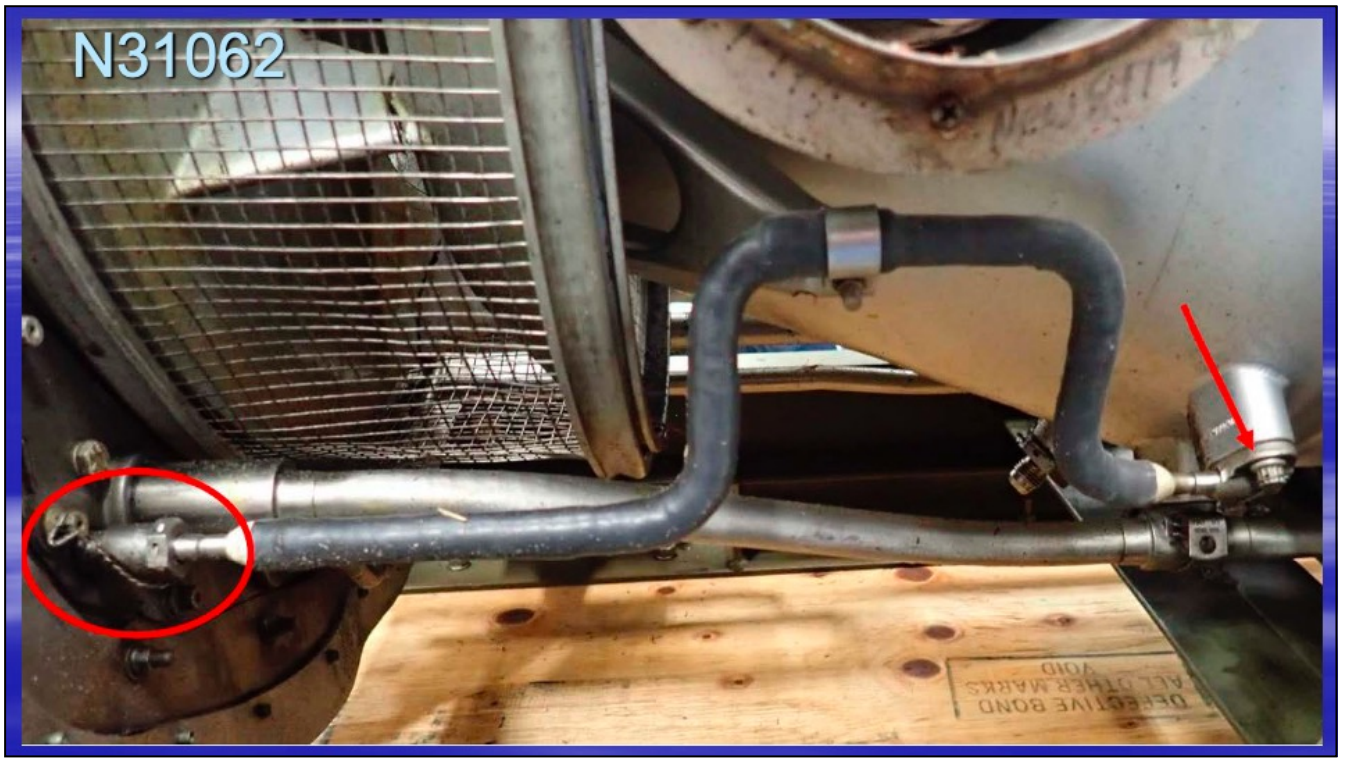
The ATP-rated pilot and his passenger were taking off from runway 23 at Manteo, North Carolina.

After gear retraction, there was a loss of engine power. This was temporarily fixed using the MOR lever, and the pilot turned back to the airport.

But the engine again lost power, and the plane landed around midfield and skidded into the grass, where the nose gear collapsed. There were no injuries.

This was a great job handling a takeoff power loss, and demonstrates the importance of flying the plane all the way to the ground.

In fact, this pilot was awarded the Broken Wings Award a couple of conventions back.



This picture is from the NTSB final report, and shows the P3 line in the engine compartment.

A brief aside here for all of us who aren't experts on turbine engines:

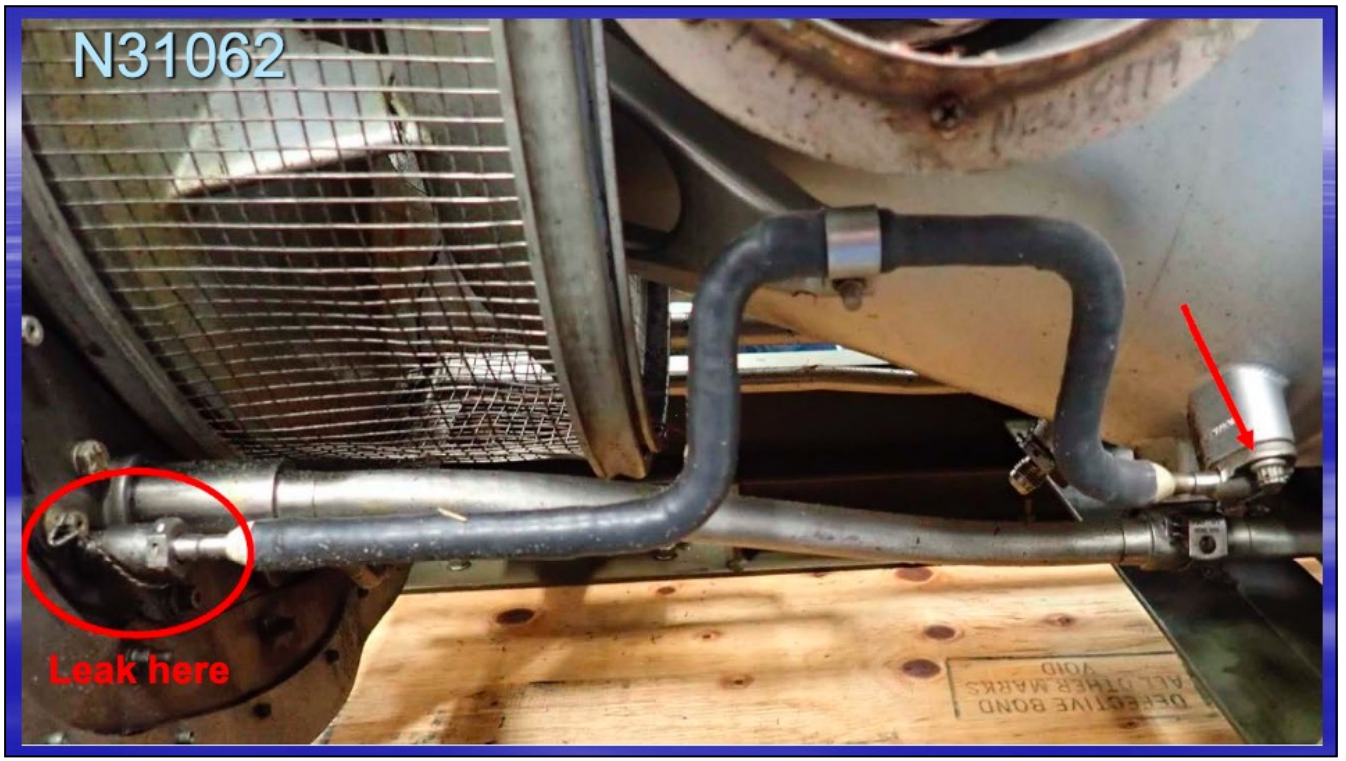
The P3 line goes from the low pressure compressor case to the fuel controller.

The compressor case pressure indicates to the fuel controller how much air is flowing through the engine, and thus how much fuel is required (to achieve the correct air:fuel mixture).

If you get a leak in the P3 line, the fuel controller will sense less airflow through the engine, thus causing it to reduce the fuel supply, even down to low idle.

In this picture, we see the arrow on the right points to the P3 connection with the gas generator case.

The circle on the left shows the attachment that leads to the fuel controller.



What happened in our accident plane was the P3 connection in the circle was loose, allowing a leak, which is what caused the power loss.

The NTSB could not determine from maintenance records when the connection was left under-torqued.

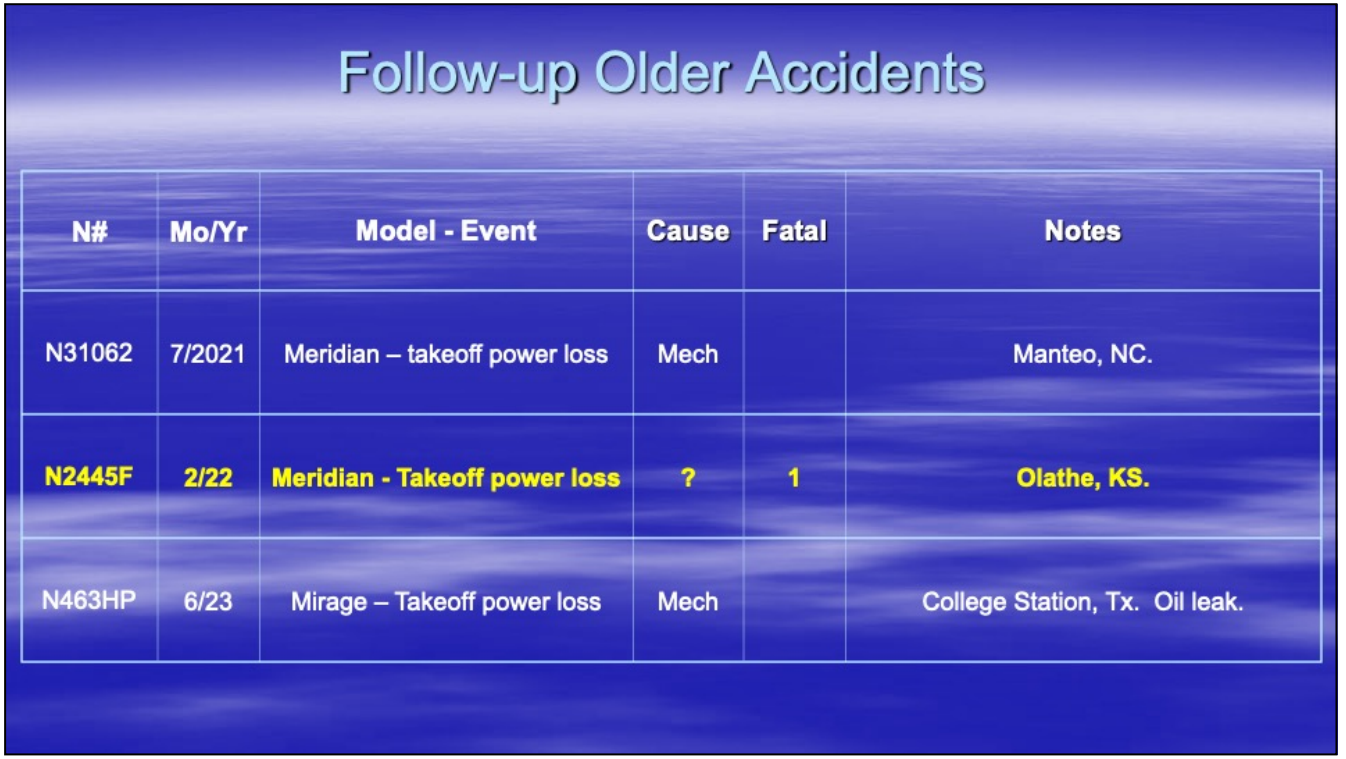
So this is a good example of a perfectly functioning engine, and a perfectly functioning fuel controller, sabotaged by a leak in a pressure line.

The question I have here is why wasn't the MOR lever effective? This situation is exactly what the MOR lever is designed for, and the pilot did mention advancing the MOR lever.

Was not enough MOR applied? Or was the MOR

system in this plane improperly rigged?

The NTSB report doesn’t address this question at all, unfortunately…



This second accident is from almost three years ago, and unfortunately this is a case where the final NTSB report doesn't help us understand what happened.

Many of you likely remember this awful accident.

This 2012 Meridian was in O-lay-thuh ~~(Olathe)~~ Kansas for an annual.

After completion of the annual, the owner-pilot was departing on runway 36 for home.

The plane reached a groundspeed of 80 knots, lifted off and climbed a little.

Shortly after liftoff, the pilot radioed the tower with an urgent need to return to the airport.

The plane had reached a maximum altitude of about 125 feet AGL, with steadily decreasing airspeed. So this was what is often referred to as the "impossible turn".

As the plane turned back, the airspeed continued to decay, down to an airspeed of about 60.

The plane then stalled and crashed 400 feet past the end of the runway.

Total time from takeoff to crash was only 21 seconds.

The front of the plane burned on crashing, and the pilot was killed.

When I originally presented this crash, I was skeptical that the NTSB would be able to learn much about what happened, given the extensive fire damage to the entire front of the plane.

And unfortunately that's the case. Final cause is listed as: "An unknown emergency that warranted a return to the airport and the airspeed decay which resulted in an aerodynamic stall."

So why am I presenting this accident again, if we don't know any more than we did 2 years ago?

I just want to make the point again, with the HUGE benefit of hindsight and plenty of time to think, that this pilot's best shot was to land gear-up straight out on the airport property, even off the runway, and even if you hit the roadway out front of you as you're sliding.

There's just no way you're going to be able to get back to the runway from 125 feet AGL in a PA-46. That truly is an "impossible turn".

Again, at low altitude, your best bet is to land straight ahead under control. A stall/spin will almost always be fatal, as it was here.

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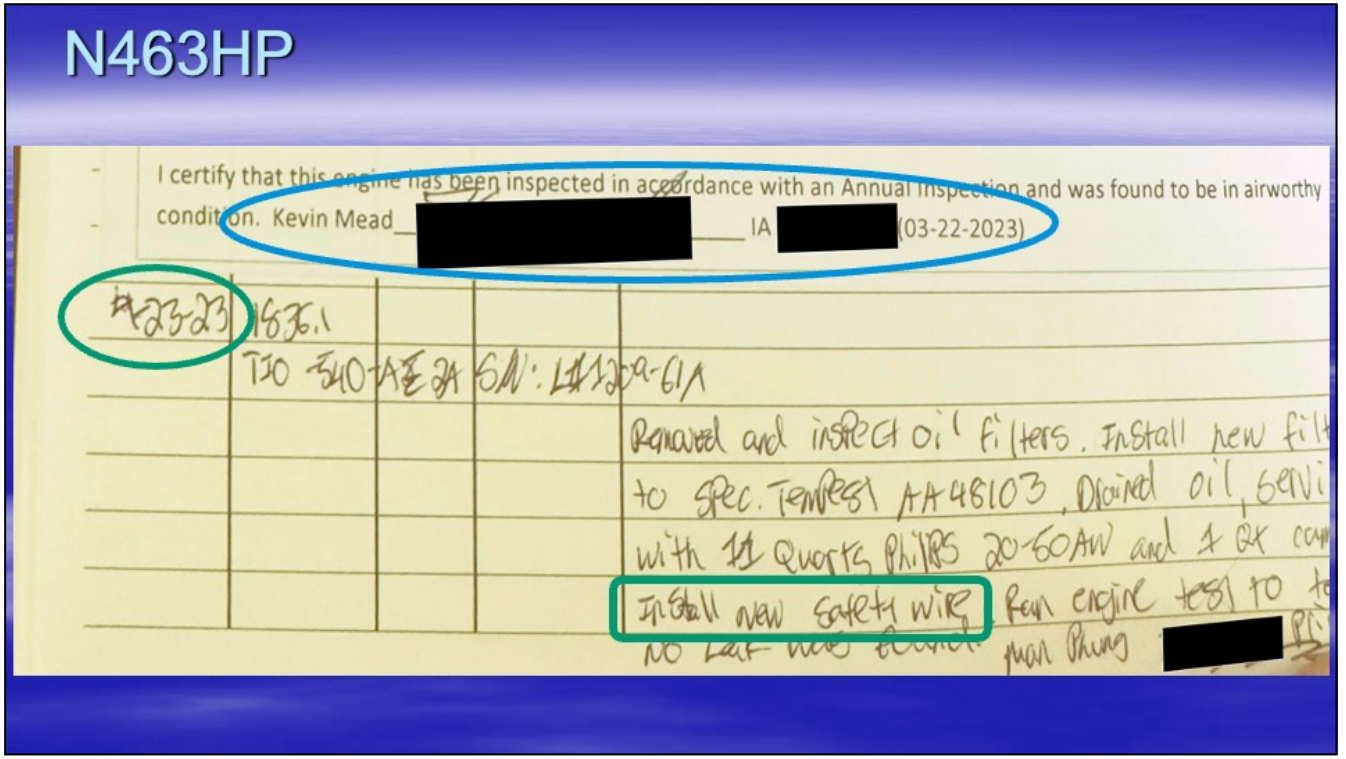
N2445F	2/22	Meridian - Takeoff power loss	?	1	Olathe, KS.
N463HP	**6/23**	**Mirage – Takeoff power loss**	**Mech**		**College Station, Tx. Oil leak.**

Finally, the NTSB released their report on this accident from last year just before last convention.

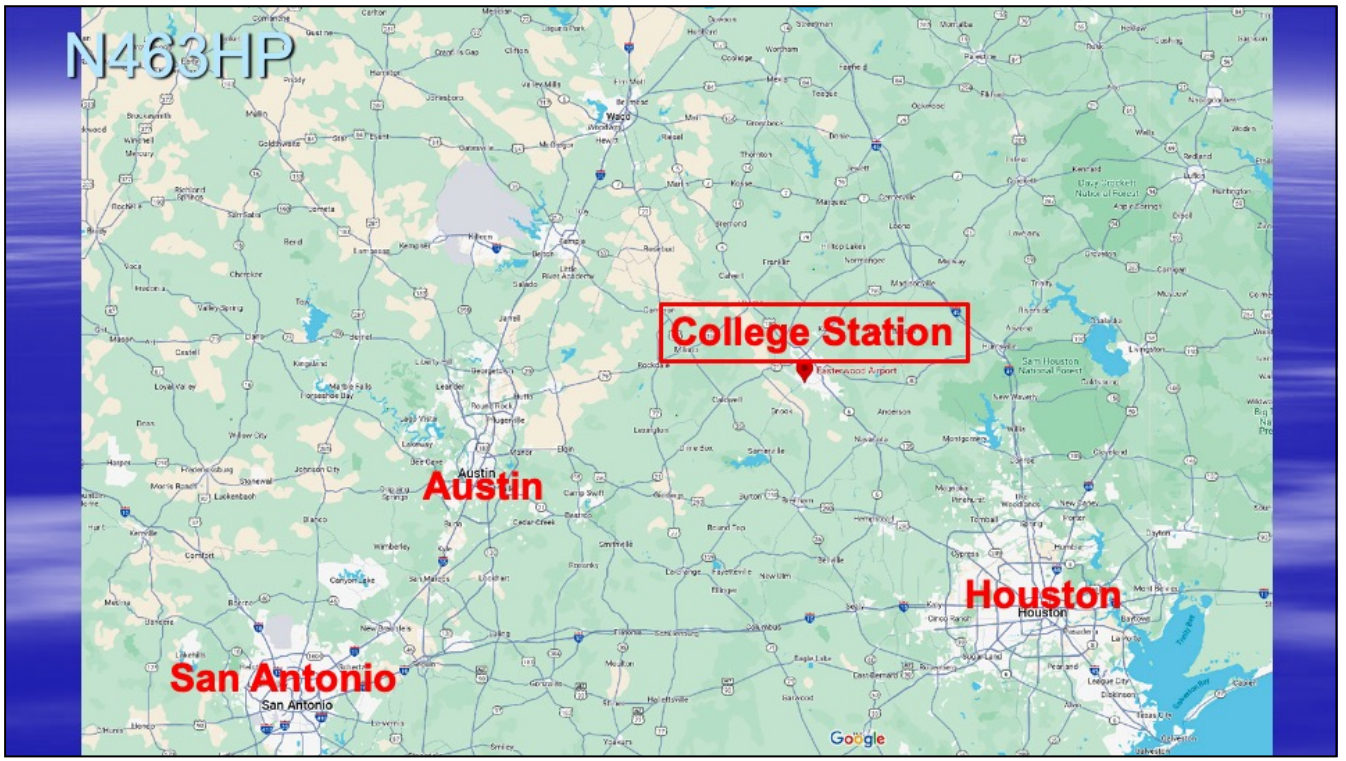
This was a 2002 Mirage.



Three months before the accident flight, the plane had undergone an annual at Kevin Mead's, and was doing fine, as shown at the top of this page from the logbook.

A month later, the plane had an oil and filter change, again as shown here.

Note the documentation that a new safety wire was placed, which would have been on the oil sump plug.

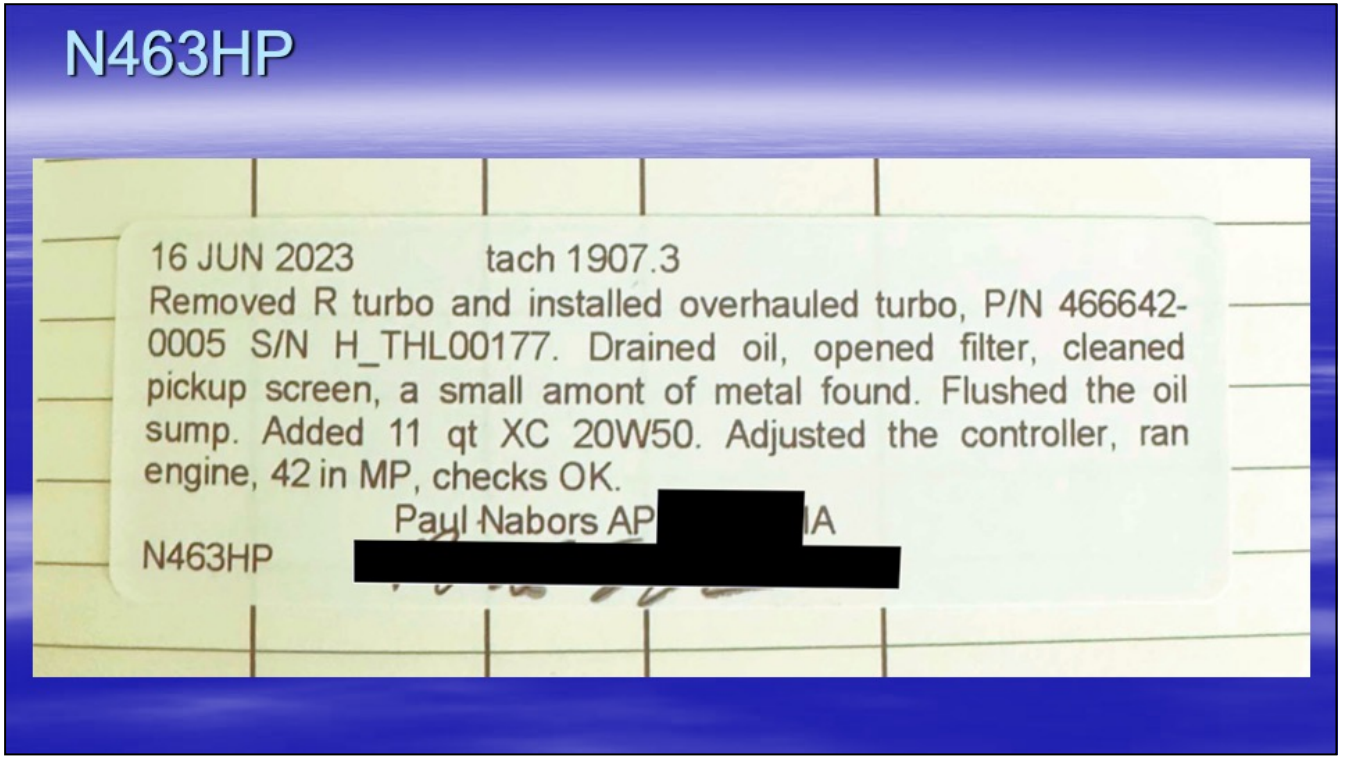


2 months later, and 11 days before the accident flight, the pilot was in cruise when he observed decreasing manifold pressure and a partial loss of engine power.

The pilot diverted to College Station, Texas.

A mechanic there told the pilot the turbocharger required replacement.

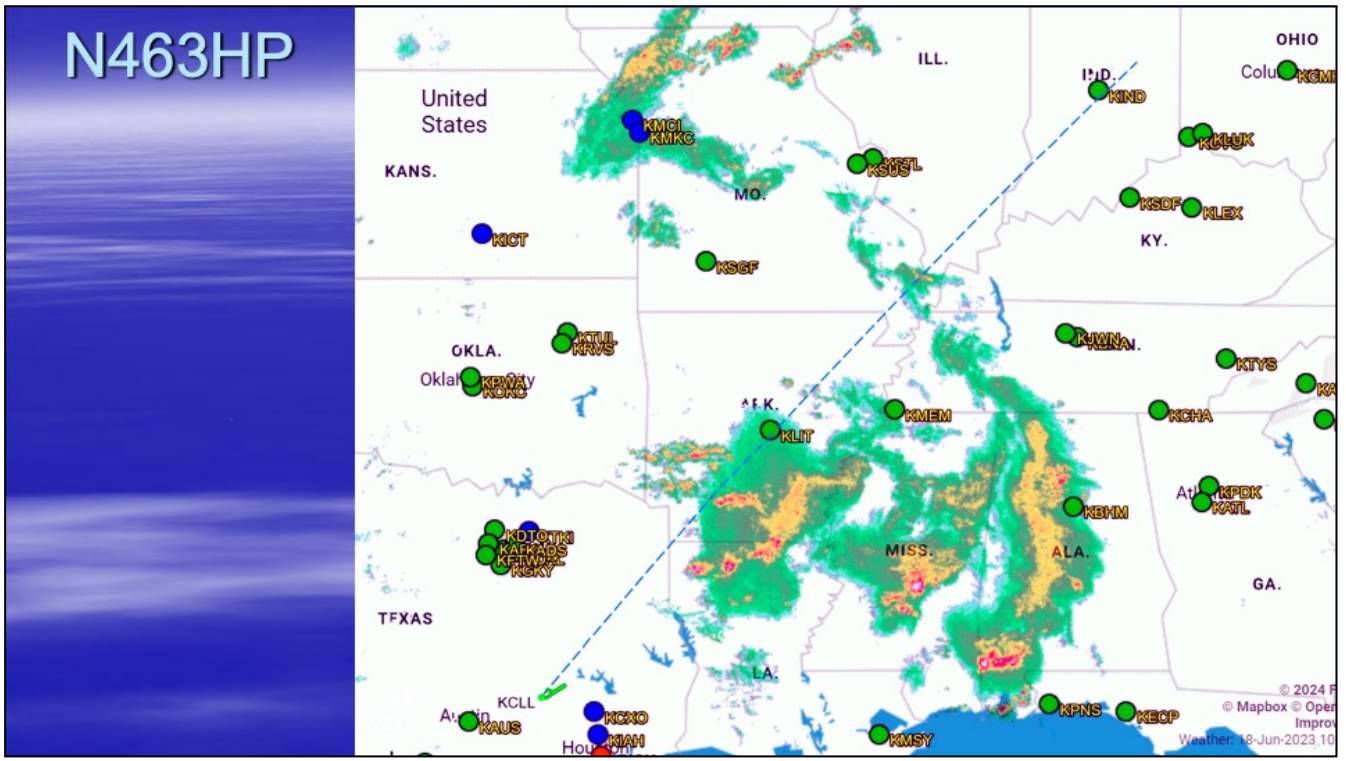
The turbocharger was indeed replaced, and the mechanic at that time also changed the oil and oil filter.



The logbook entry shows the turbo replacement, as well as the oil and filter change, and noted that a runup was done and was normal.

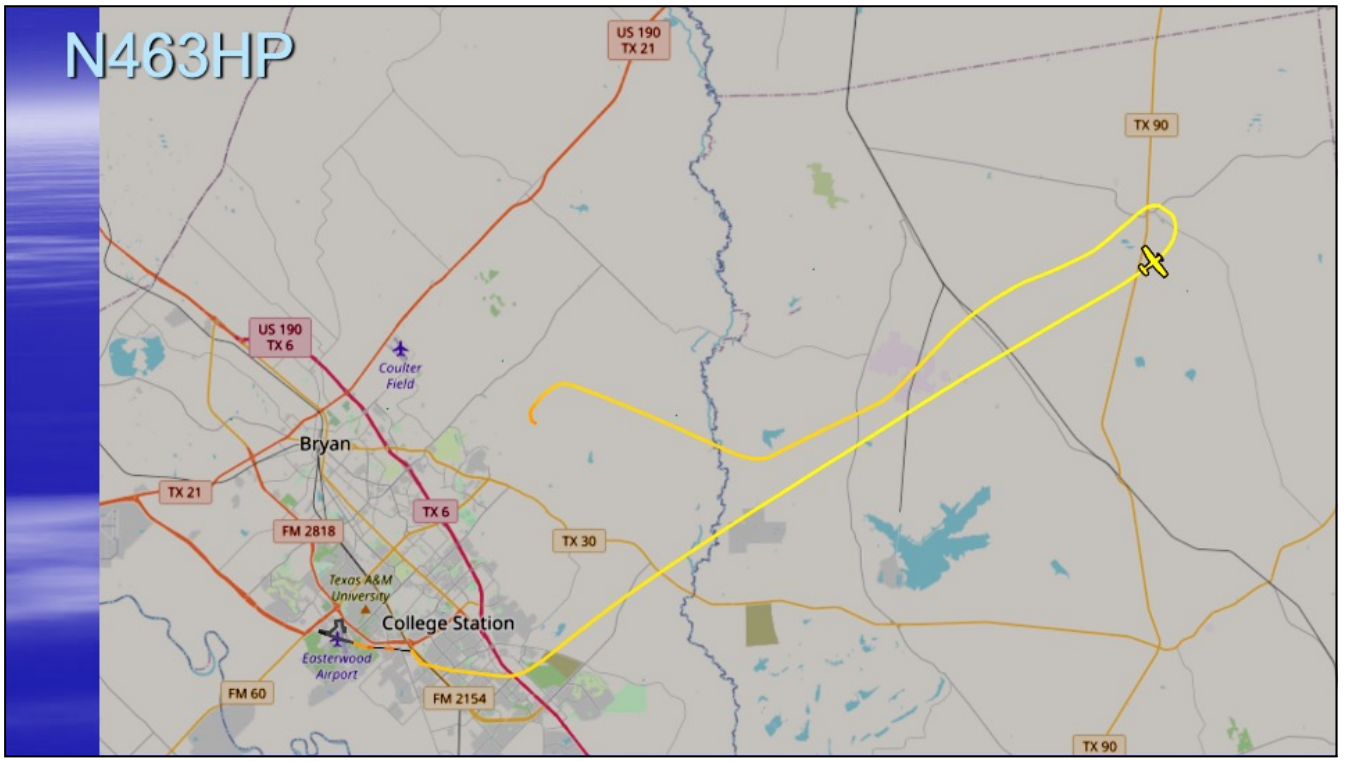
You'll note that in this note there is no mention of safety wiring the sump plug.

So now I suspect you all know where this is headed…



Eleven days later, the pilot took off from College Station, headed northeast.

Weather at College Station was 2000 broken with good visibility.

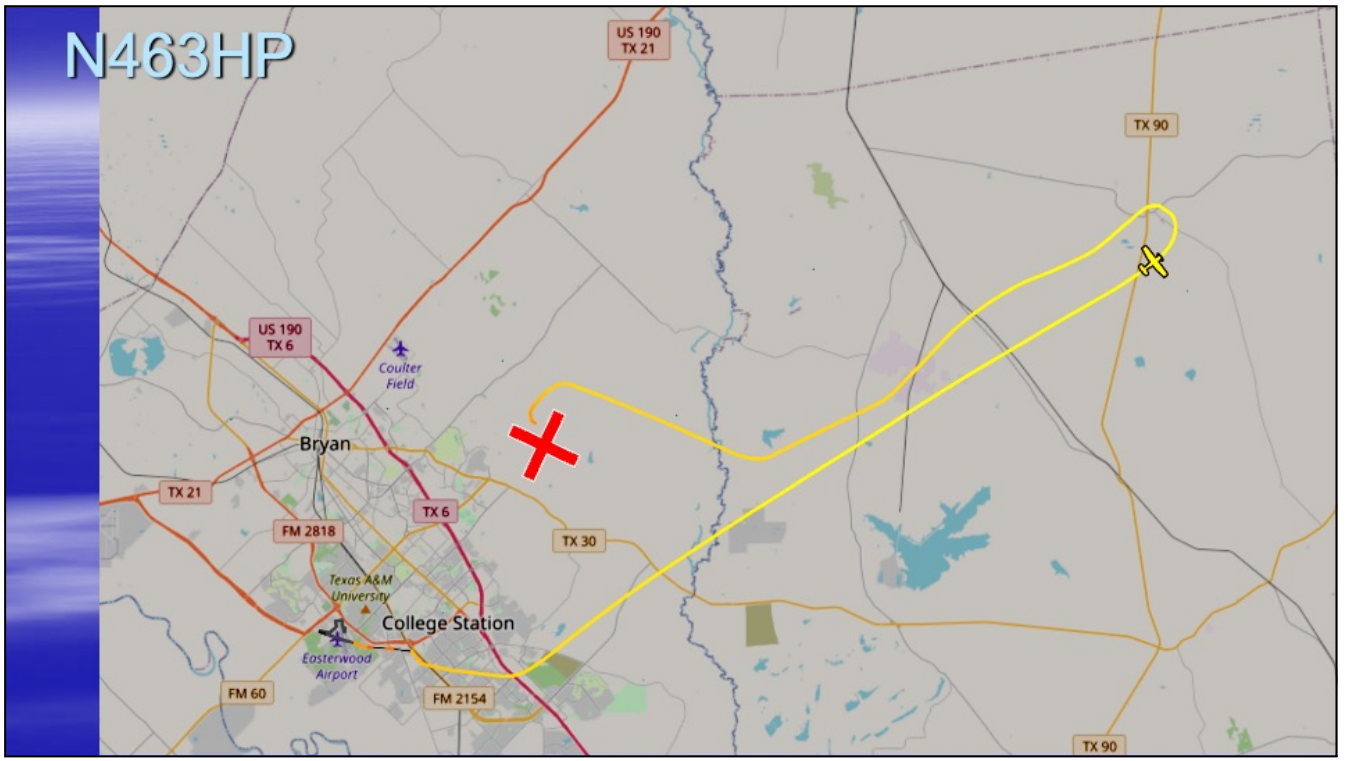


While climbing through 4,000, the pilot noticed the oil temp began increasing above normal.

He reduced the climb rate to increase cooling, but the oil temperature continued to climb.

He wisely requested a clearance back to College Station, and turned back.

While on vectors for a GPS approach, he noted smoke in the cabin and a loss of engine power.

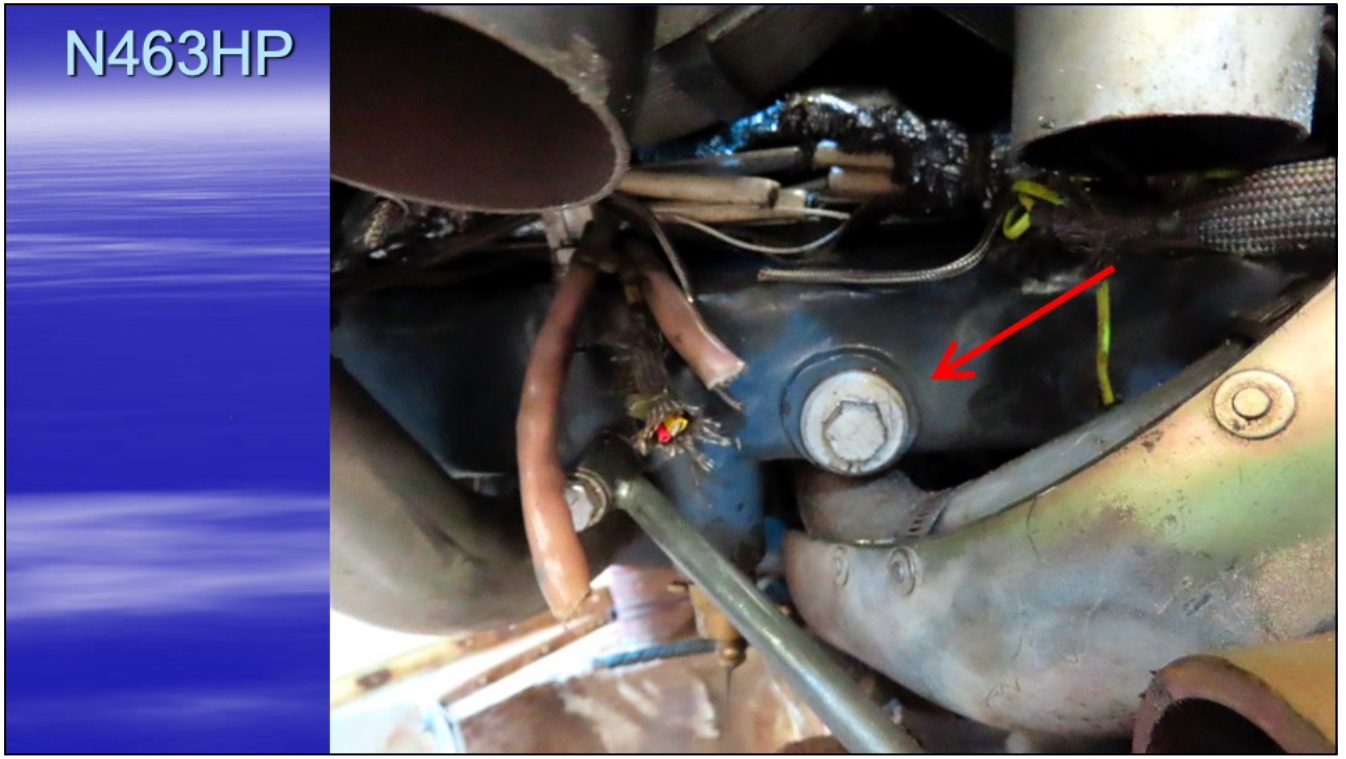


He couldn’t reach the airport, and performed a forced landing to a field.

The plane was totaled, but the pilot walked away without injury.

So a great job of an off-field emergency landing.

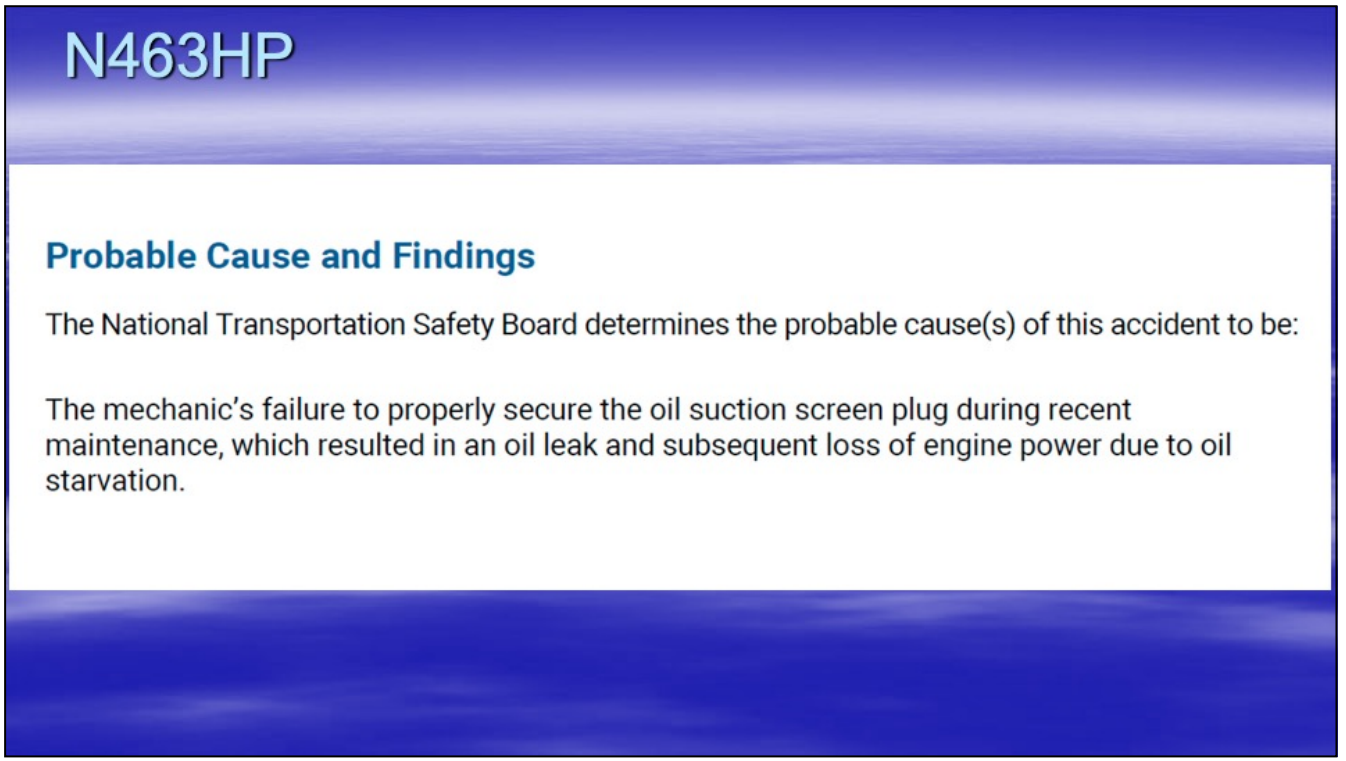
Again, my mantra that a level landing under control will usually prevent fatalities.



This is the oil sump plug after the accident.

The plug was found with no safety wire, and loose, not even finger tight.

There was oil all around the engine compartment and belly of the plane. Only 2 quarts remained in the engine.



Obviously, here's the NTSB's probable cause.

This pilot did pretty much everything right, from his diversion for suspicious engine indications, to his attempts at proper maintenance, to his handling of the emergency. Kudos to him.

Follow-up Older Accidents

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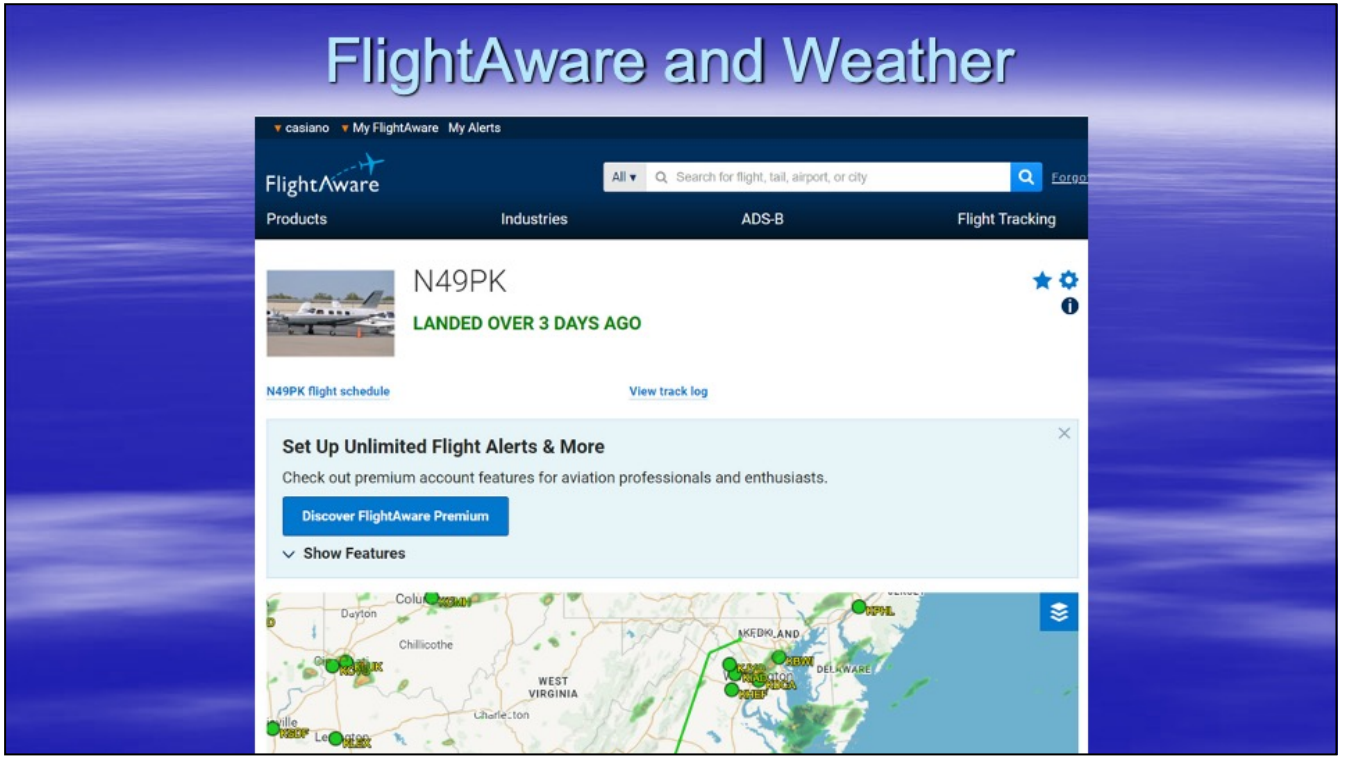
N463HP	6/23	Mirage – Takeoff power loss	Mech		College Station, Tx. Oil leak.

So two maintenance related accidents, and one tragic accident that will always remain a mystery…

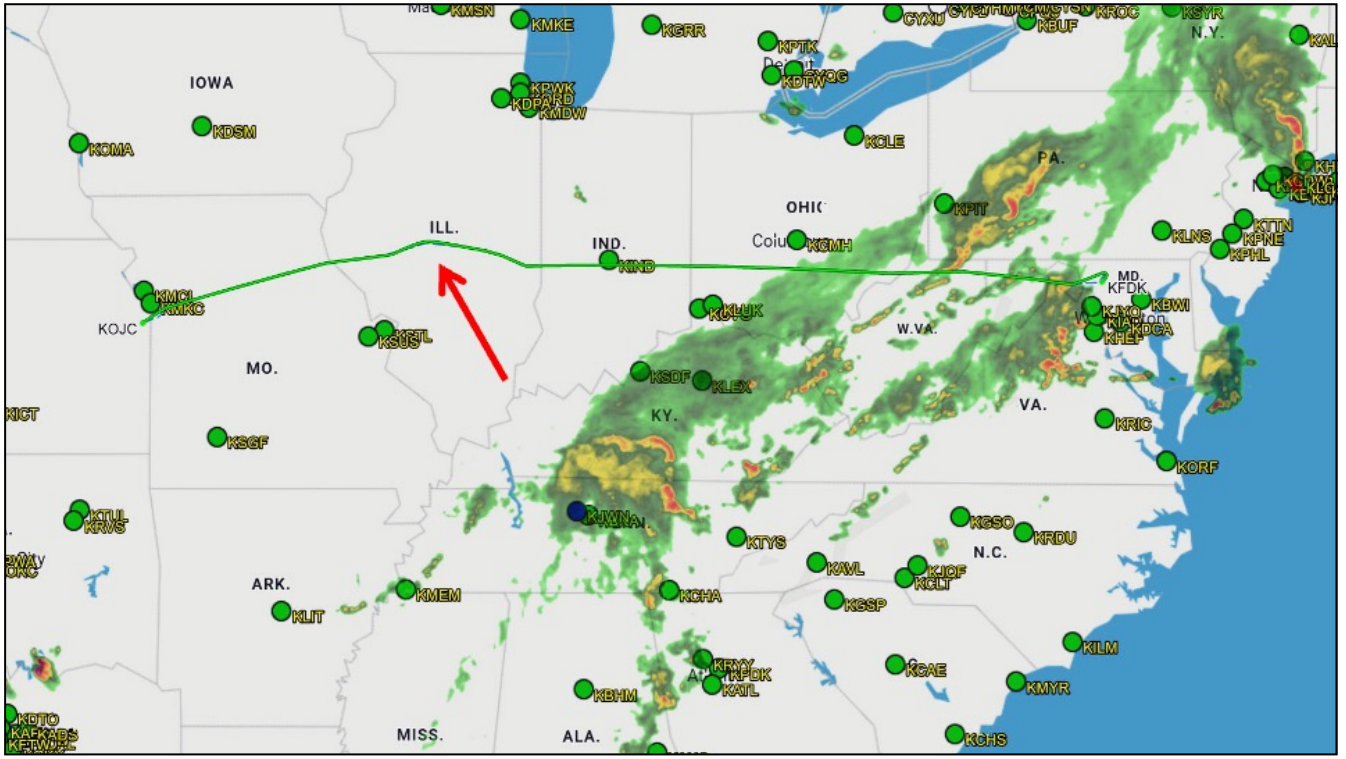


Before I move on to this year's accidents, let me make a comment about FlightAware and weather.

I've said this before at these safety reviews, but let me reiterate: You can't trust the weather overlay shown on FlightAware flights, especially when trying to understand an accident.

According to FlightAware, the weather put on a flight track is from the mid-point time of the flight.
So if you have a 3-hour flight, the weather shown should be what was at the 1:30 mark.

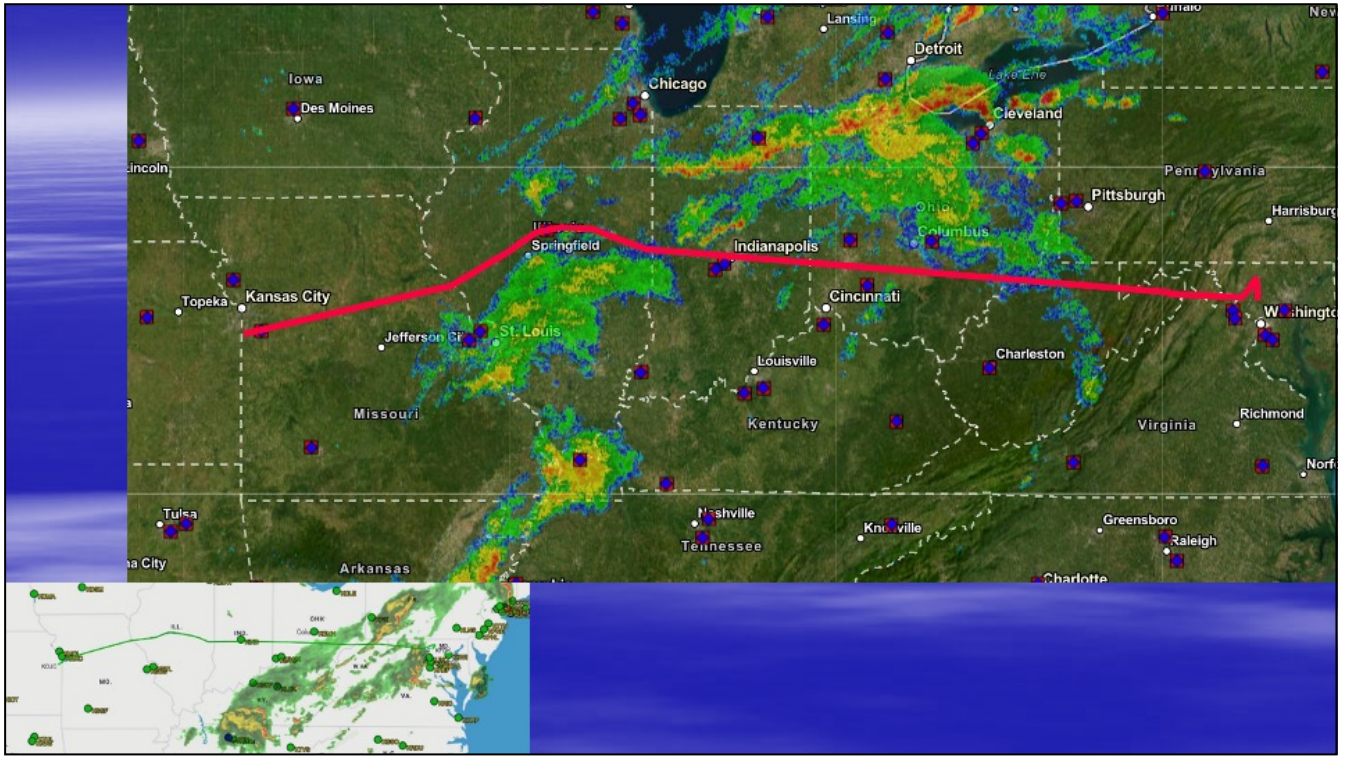
But here's a personal case where I'm not so sure this is true…



Here's my FlightAware track back from an annual at Kevin Mead's this past June.

If you look at this track and the weather depiction, you've got to wonder what I was thinking for that detour in Illinois?
<CLICK>

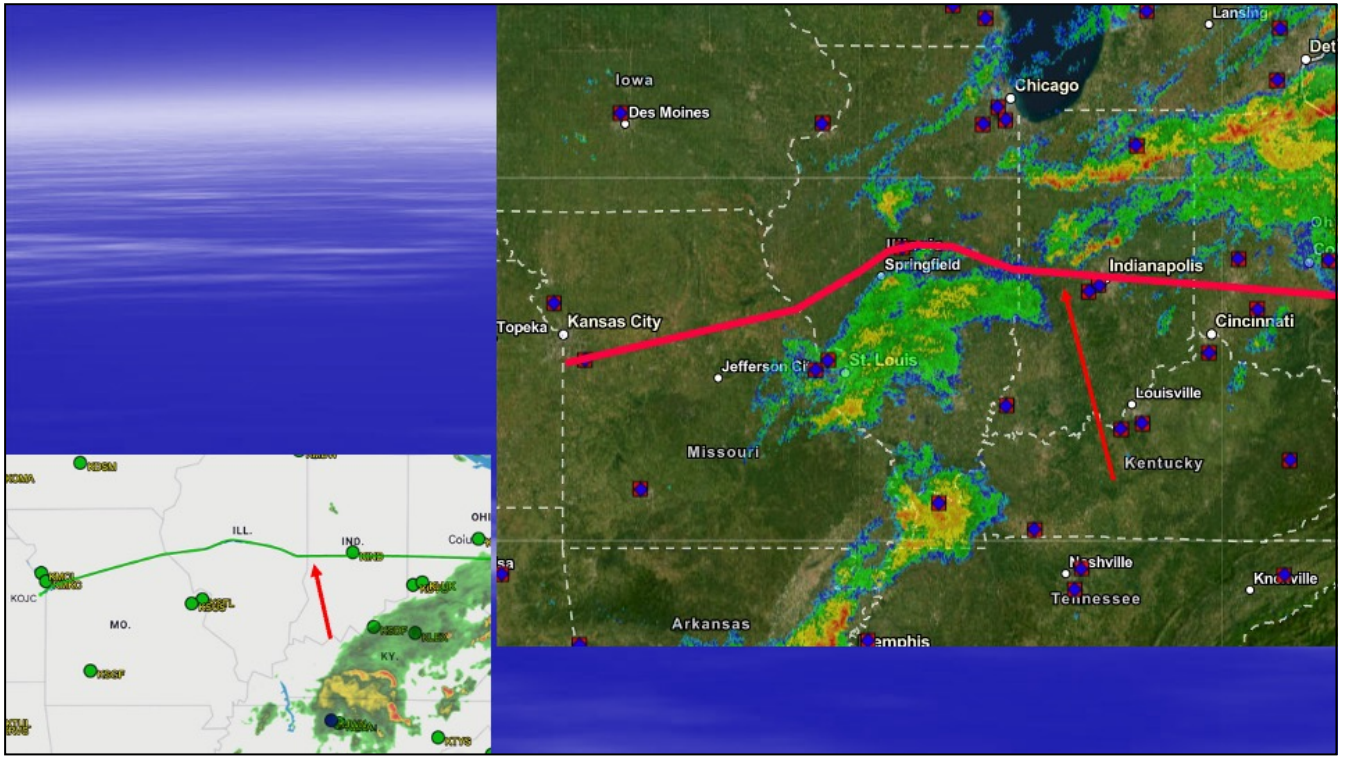
Why would I do that??



Well, here's the real story, created with real time NOAA weather overlays.

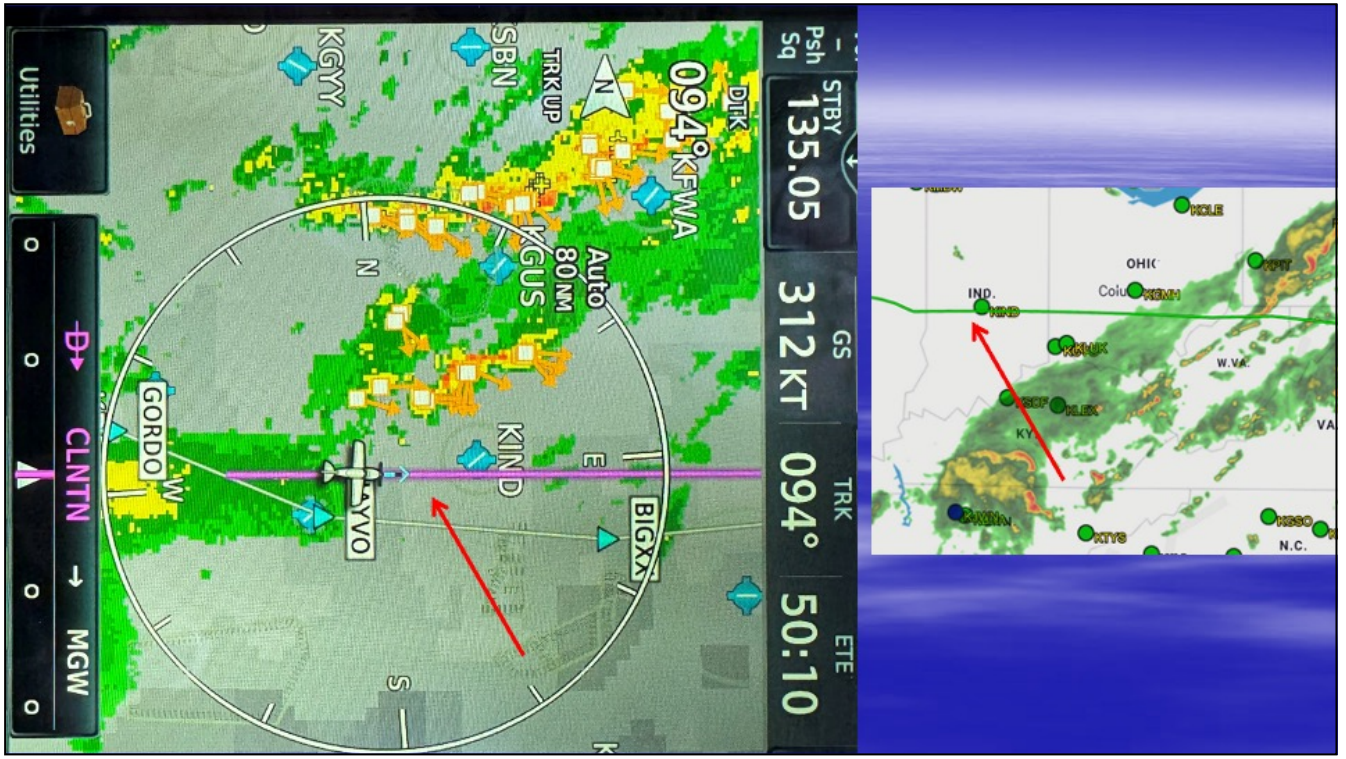
You can see I was deviating around some buildups, but the FlightAware picture on the lower left doesn't show that at all.

This was a quick-moving system, and presumably had moved a fair ways by the mid-time of this flight. But it's very deceptive looking at the flight track with the displayed weather. Keep that in mind when you're trying to understand an accident…



On that same flight, there's a spot where I go just south of a line of convection.

Again, the FlightAware picture doesn't show this.



You can see the line of convection on my avionics, just north of Indianapolis…

But FlightAware shows nothing there.

So again, my point is, when trying to make sense of accidents, don't rely on FlightAware's weather depiction…

And with that caveat, let's move on to this year's accidents.

Here are the accidents I talked about last convention.

That wasn't a good year for the PA-46.

We had 16 total accidents, with 5 of those fatals. (The fatals are indicated with a red box around the pushpin.)

These are the accidents I'm going to discuss today.

We've had 18 accidents total, with fully **9** of those resulting in fatalities.

Another bad year for our fleet, especially given the number of fatals. I'll talk more about this later.

NTSB Reports since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Fatal	Notes
N146MS	**3/23**	**Malibu – icing encounter**	**Pilot**		**Springfield, KY. Ice w/o pitot heat.**
N4380D	10/23	Malibu – engine failure takeoff			Chandler, Az. Engine issue.
N509Z	10/23	Mirage – failed go-around	Pilot ?		EastSound, WA. Too fast; crabbed?
N92884	10/23	JetProp – power loss climb		1	Pierre, SD. Passenger died.
N510KC	10/23	JetProp – problem post-takeoff		1	McCook, NE.
D-EGIE	11/23	Mirage – gear-up landing	Pilot		Czech Republic. No injuries.
N90ZZ	12/23	Meridian – hard landing			Ann Arbor, MI. Windshear?
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

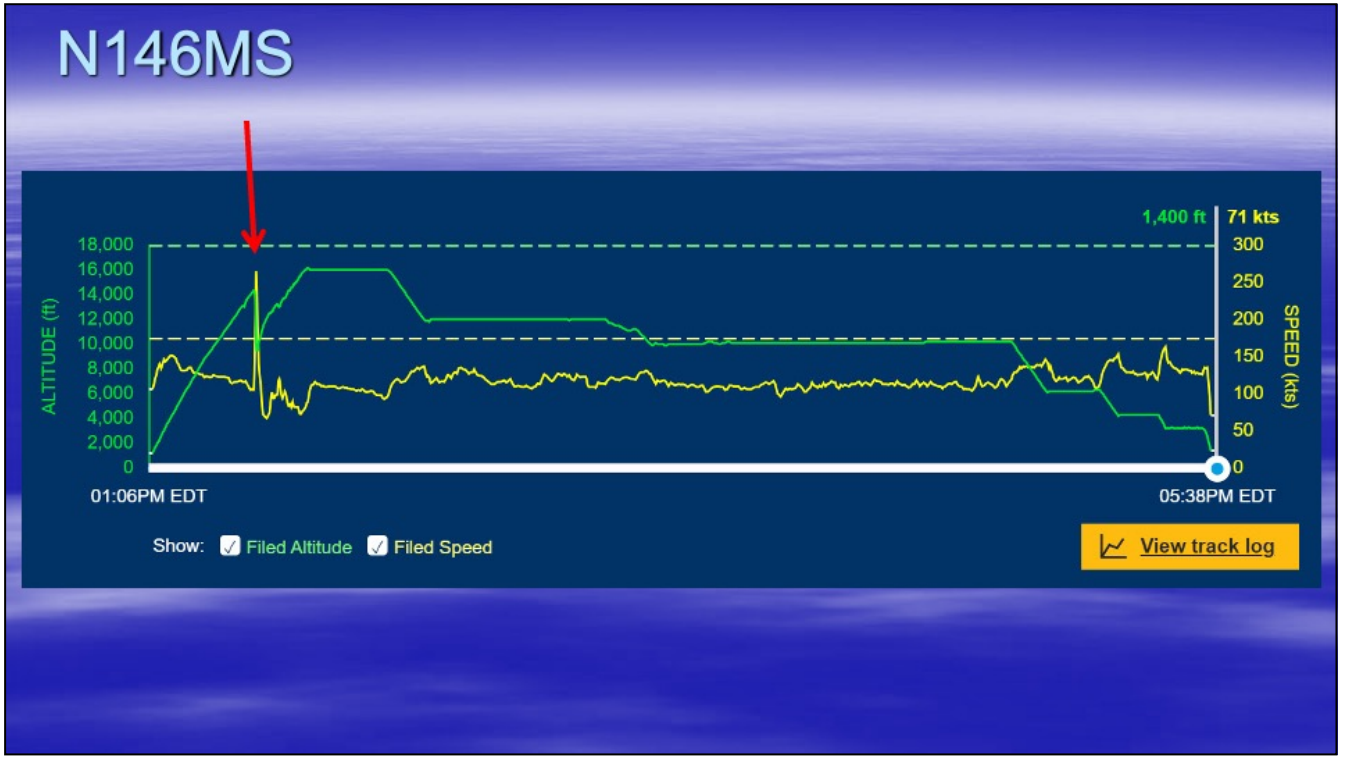
The first accident I'm going to discuss actually occurred before last convention.

Initially it was classed as an incident, so I didn't go over it in detail at last convention, but the FAA later reclassified it as an accident, due to airframe damage.

This is an ‘84 Malibu.

The flight was from Kentucky to Arkansas.

As the pilot was climbing thru 14,000 feet **in IMC**, he noticed his airspeed had dropped by 15 knots.



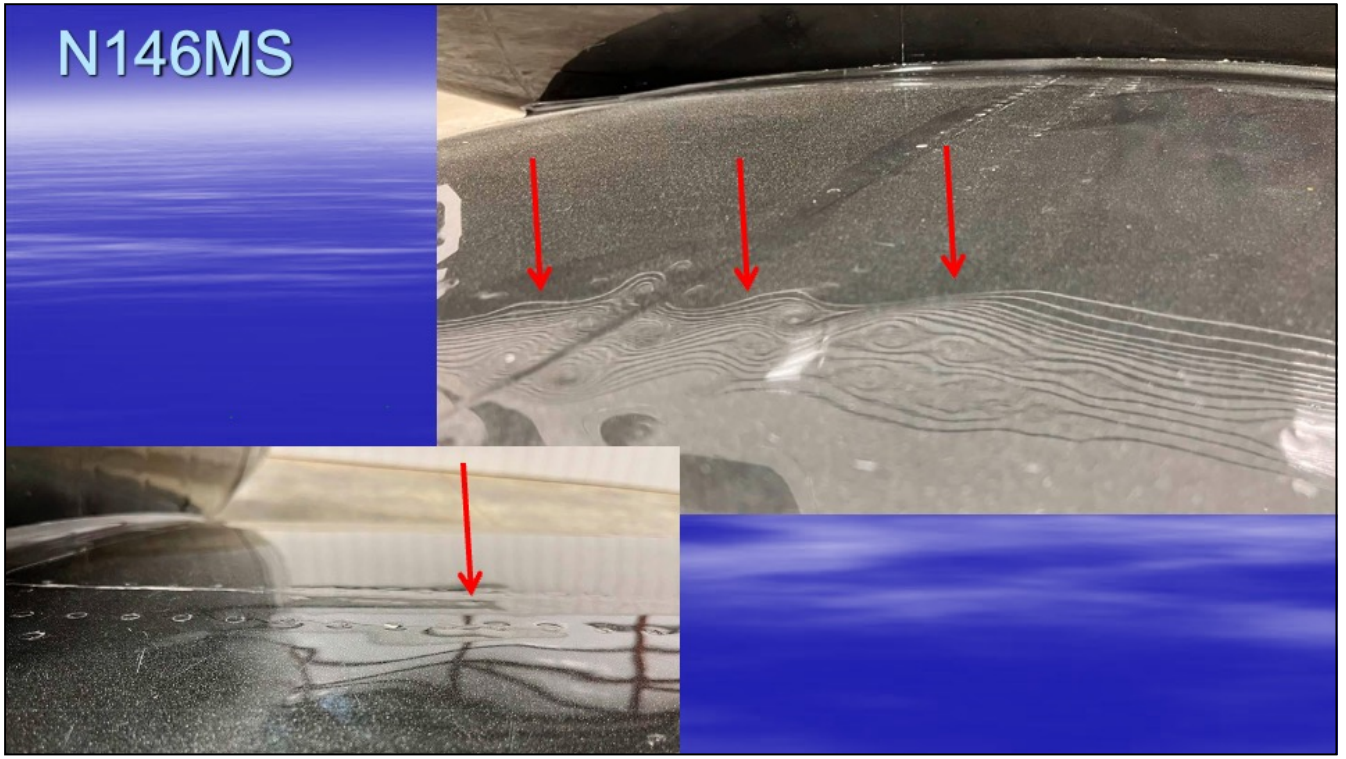
Remember he was IMC. He didn't see any ice on his wings, but decided to turn on his pitot heat (!!). Obviously the pitot heat should have already been on, but let's continue the story…

Shortly after, his glass panel filled with red X's, and the autopilot flipped off. The plane started shaking, and rapidly descended 5000 feet. The pilot said the plane was shaking so badly, he couldn't read his backup instruments.

The plane finally emerged into visual conditions. The pilot recovered from his almost inverted dive and leveled off. His glass panel then came back to life.

He decided to continue a couple more hours to his destination, but with pitot heat turned on.

The pilot, and subsequently an FAA inspector, did a walkaround, and found some concerning wing issues.



The insurance company sent a mechanic, who diagnosed significant wing root damage, and the insurance company totaled the plane.

You can see the twisting of the wing skin in these pictures.

Thus, in November ‘23, the FAA recategorized this incident as an accident.

This pilot had 4000 hrs PIC time, with 112 hours in the PA-46.

But he'd obviously not reviewed the PA-46 accidents in the mid-late 1980's, by pilots who were not accustomed to high altitude flight.

Of course, we all know the Malibu's pitot heat should have been on prior to entering visible moisture, if not throughout the whole flight.

The pilot would still have had to deal with his airframe icing, which was probably significant, but at least he'd have had working flight instruments for that.

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N90ZZ	12/23	Meridian – hard landing			Ann Arbor, MI. Windshear?
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

The next accident was also a Malibu.

This was an ‘85 model; I couldn’t find a picture of the plane.

The ATP rated pilot noted it had 35 gallons of fuel, and took off from runway 22R at Chandler Municipal in Arizona. The plan was to meet up with another plane for an photo shoot of the accident plane.

5 miles from takeoff, at about 1500 feet, the engine quit.

The pilot turned back to the airport, and at some point retracted the gear to help the glide.

He couldn’t make the runway, but landed gear-up about 500 feet short of runway 04R.

There were no injuries, so that’s good.

There was significant damage to the left aileron.

The FAA inspector noted that there was no useable fuel at all in the tanks, but the JPI engine monitor indicated 32 gallons remaining…

So, an obvious example of the value of actually looking in the tanks, rather than just trusting a fuel totalizer. A dipstick might also have been of great value…

This picture is of the plane post-accident, and shows the left aileron damage.

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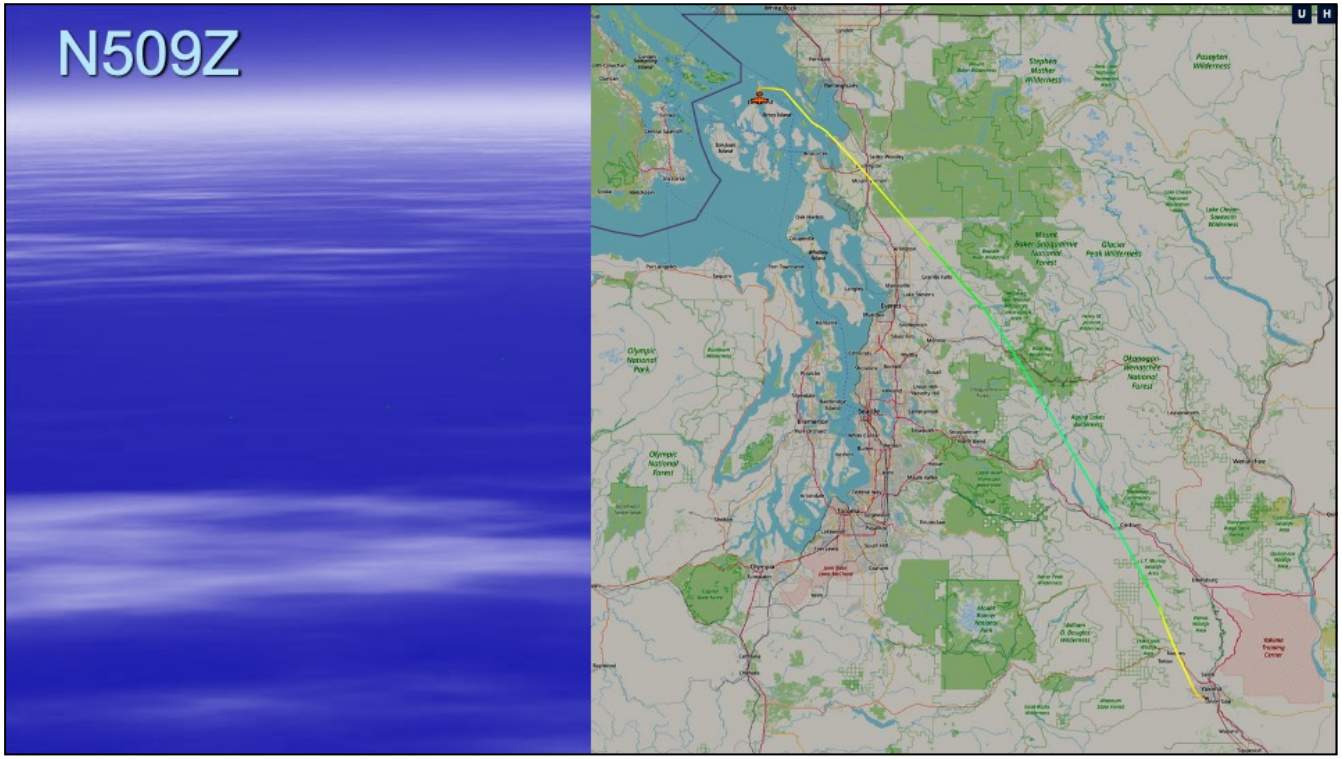
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

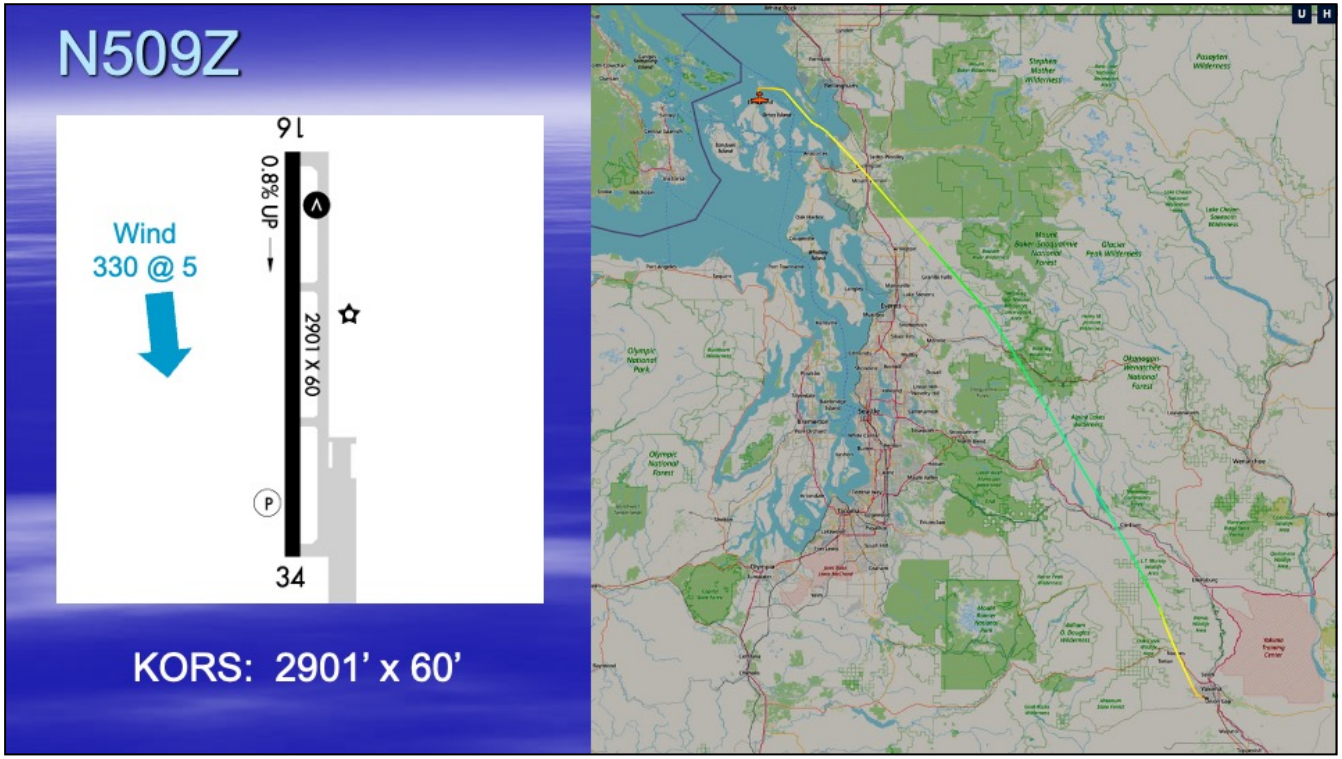
Next is a failed go-around accident.

This is a 2018 M350.



The pilot was flying from Yakima Washington to Orcas Island Washington, a roughly 160 mile trip.

He had 2400 total hours, of which 660 were in the PA-46.



The Orcas Island runway is 2900 feet long.

Wind was 330 at 5 kts, and he was landing on 16, so he had a slight tailwind.

The pilot noted on short final, about 25 ft above the runway, that he was too fast for the remaining runway.

He wisely initiated a go-around, but says he raised the flaps prior to establishing a positive climb rate.

His stall warning horn sounded, he lowered the nose, and the airplane hit the ground.

Fortunately, the pilot was not injured.

The NTSB final cause reads:

The pilot's unstable approach and improper configuration of the flaps during a go-around which resulted in a stall and subsequent impact with terrain.

As I said for a similar accident last convention, make sure you go out with an instructor regularly and practice go-arounds.

A go-around, properly performed, should pretty much be a non-event.

NTSB Reports since Sept 2023

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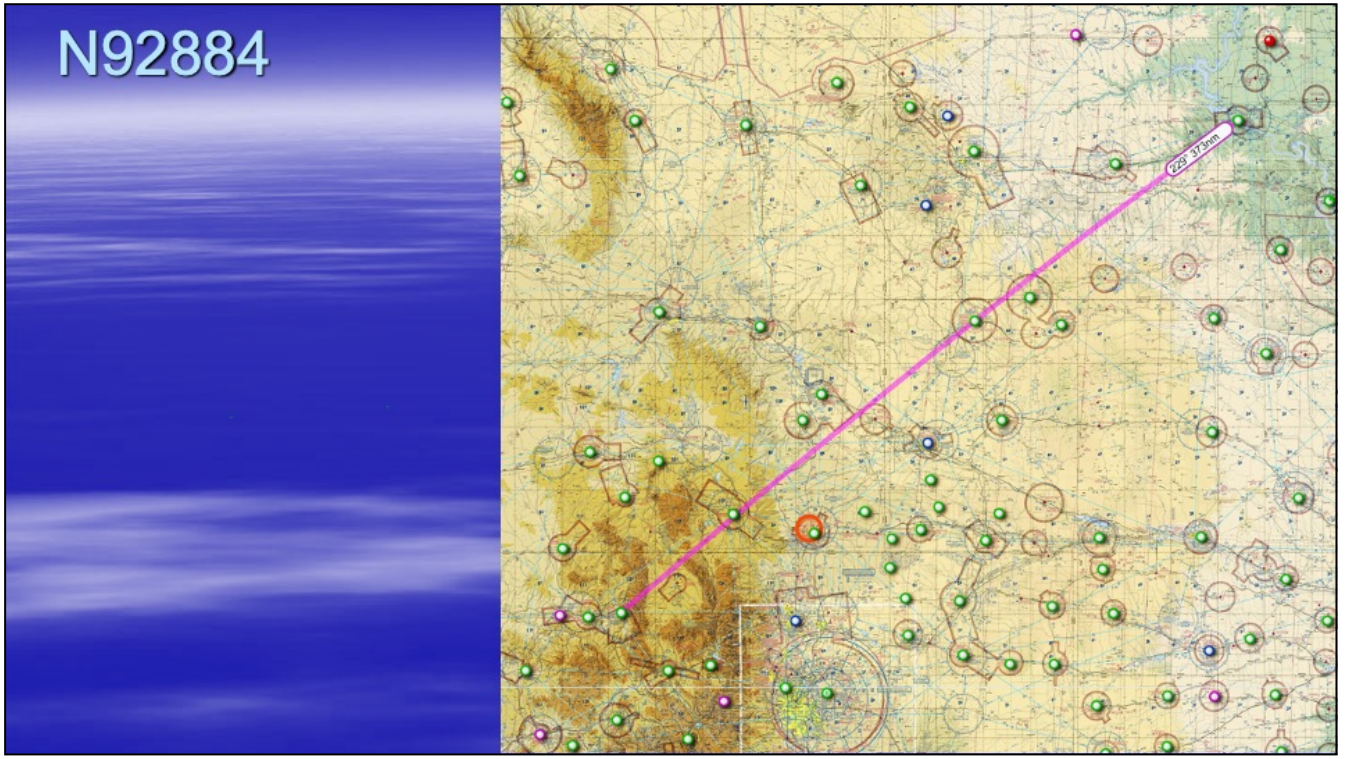
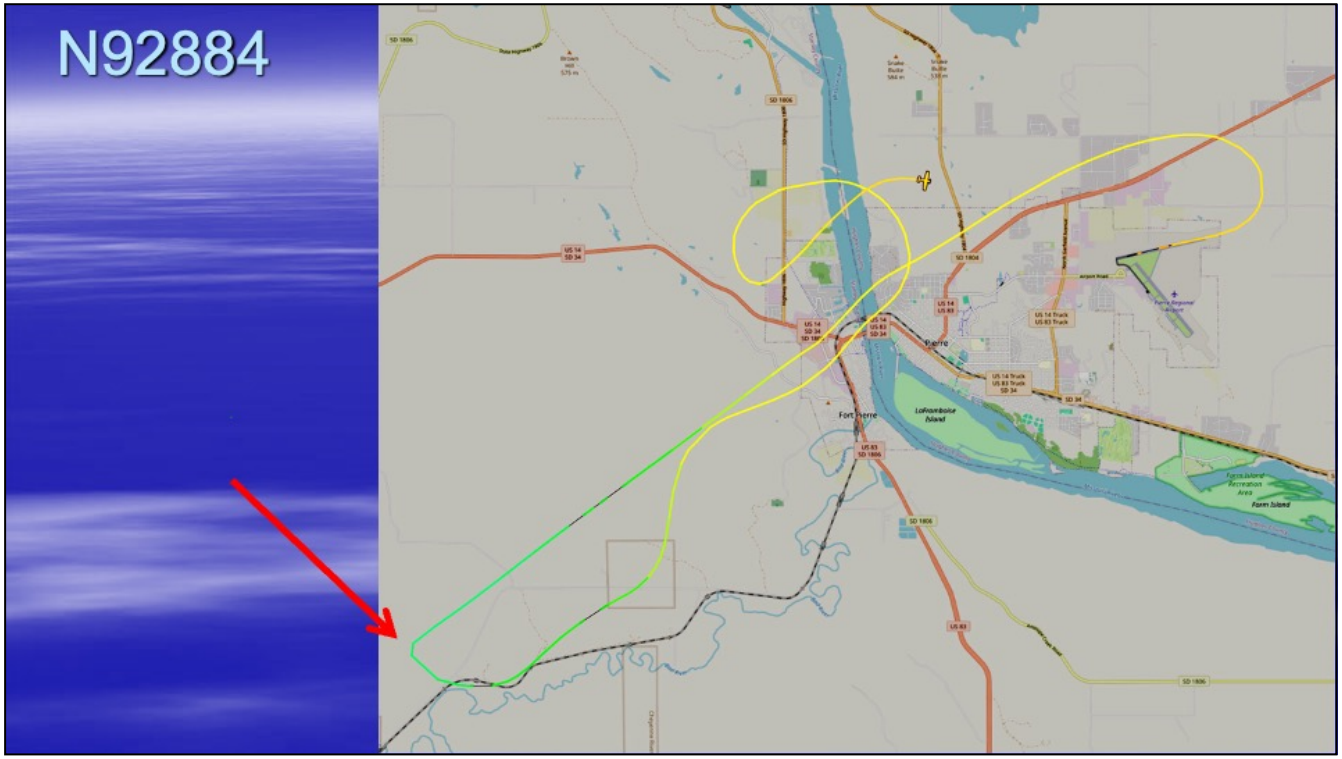
N4380D	10/23	Malibu – fuel exhaustion			Chandler, Az. During climb out.
N509Z	10/23	Mirage – failed go-around	Pilot ?		EastSound, WA. Too fast; crabbed?
N92884	**10/23**	**JetProp – power loss climb**		**1**	**Pierre, SD. Passenger died.**
N510KC	10/23	JetProp – problem post-takeoff		1	McCook, NE.
D-EGIE	11/23	Mirage – gear-up landing	Pilot		Czech Republic. No injuries.
N90ZZ	12/23	Meridian – hard landing			Ann Arbor, MI. Windshear?
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Now the first of our too many fatal accidents.

This is a 1997 Mirage with a JetProp conversion done in 2003.



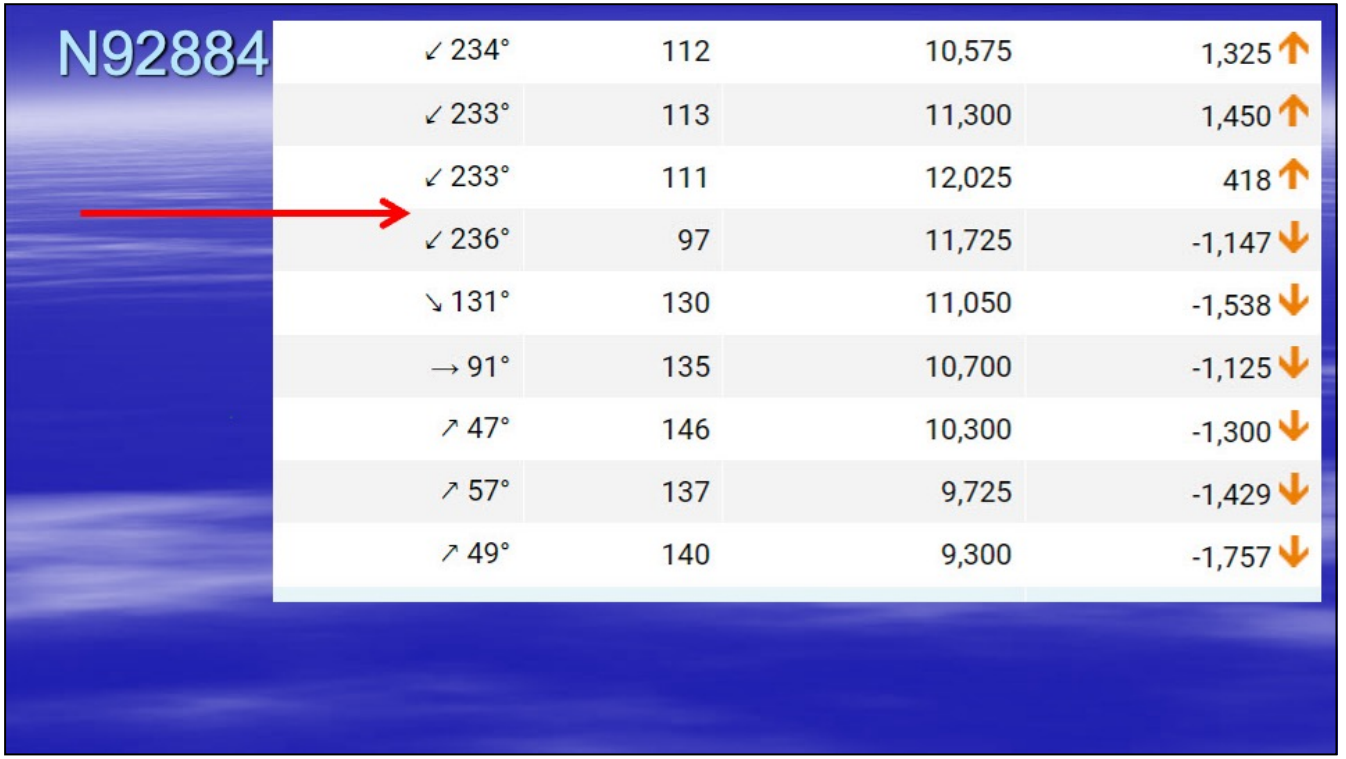
The pilot departed Pierre South Dakota, with one passenger in back, headed to Steamboat Springs, a 380 mile trip, with 100 gallons of fuel on board.



He took off to the East, turned left to a southwesterly heading and climbed.

<CLICK> Roughly 7 minutes after takeoff, passing thru 11000 feet, the engine quit – what the pilot described as “rolled back”.

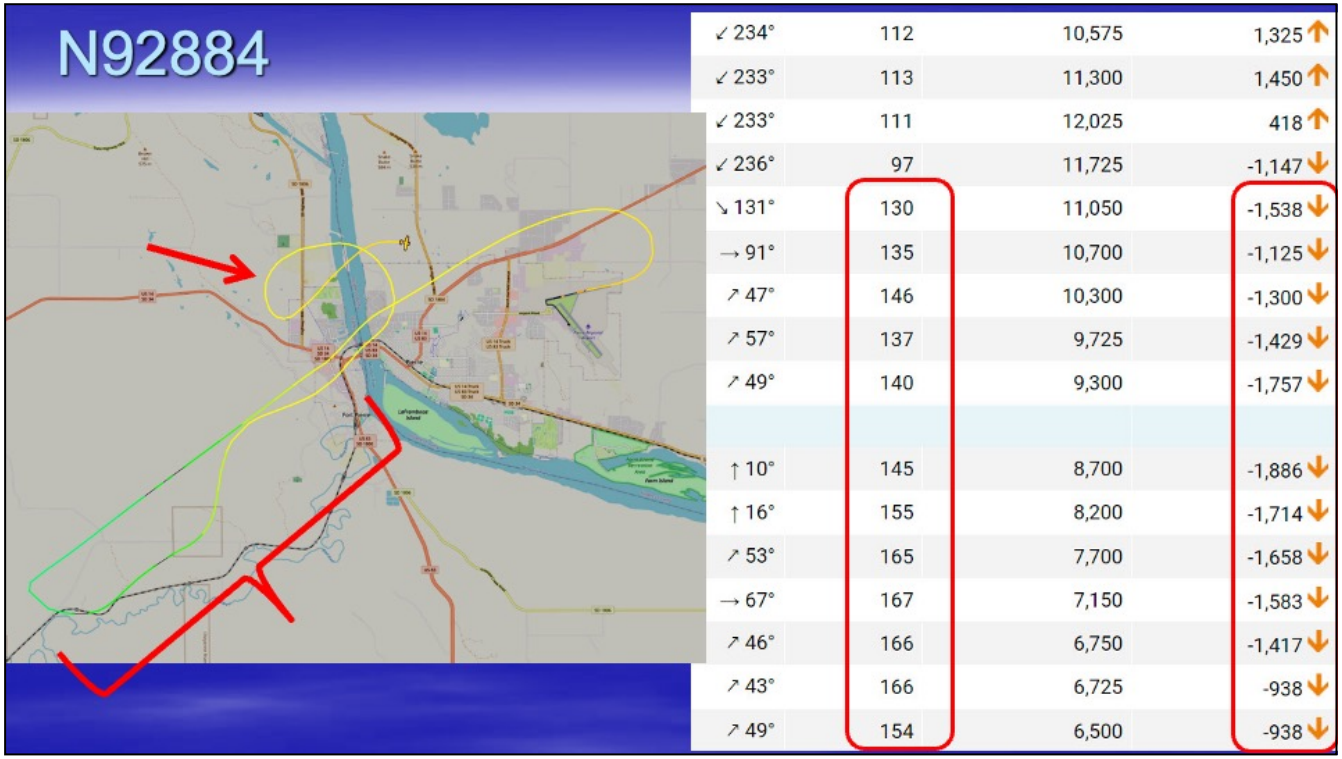
He declared an emergency, and turned back to Pierre.



In the track log, you can see where he was climbing on a southwest heading, when the engine lost power, and the climb rate drops.

He pushes the nose over to maintain airspeed, and turns back to the northeast.

There is no mention of whether the MOR lever was tried.



Unfortunately, you can see that most of the trip back towards Pierre, he was too fast, with an excessive engine-out descent rate.

The preliminary report says that after trying a restart, he feathered the prop, so I assume the excessive descent rate was due to speeds ranging from 140 to the 160's.

<CLICK> I don't know what was happening to cause that 360 as he gets lower – that circle cost him 4000 feet of altitude over 4 minutes.

But the end result of an excessive engine-out glide speed and the 360 circle, is that

he didn’t have enough altitude to reach the field.

When he saw he wasn't going to make the field, he wisely didn't try to stretch the glide – we've seen many accidents over the years where trying to stretch a glide resulted in a stall/spin with terrible results.

Instead, he landed the plane in some rolling hills. <CLICK>

The pilot saw the passenger in back barely breathing, and began CPR, but sadly the passenger didn't survive.

I hope the final report gives us more information on the cause of the engine power loss, and why the pilot had to make that 360 as he approached Pierre.

Finally, I'd suggest we all consistently practice our simulated engine-out glides, so it's familiar and muscle-memory automatic when you really need it.

NTSB Reports since Sept 2023

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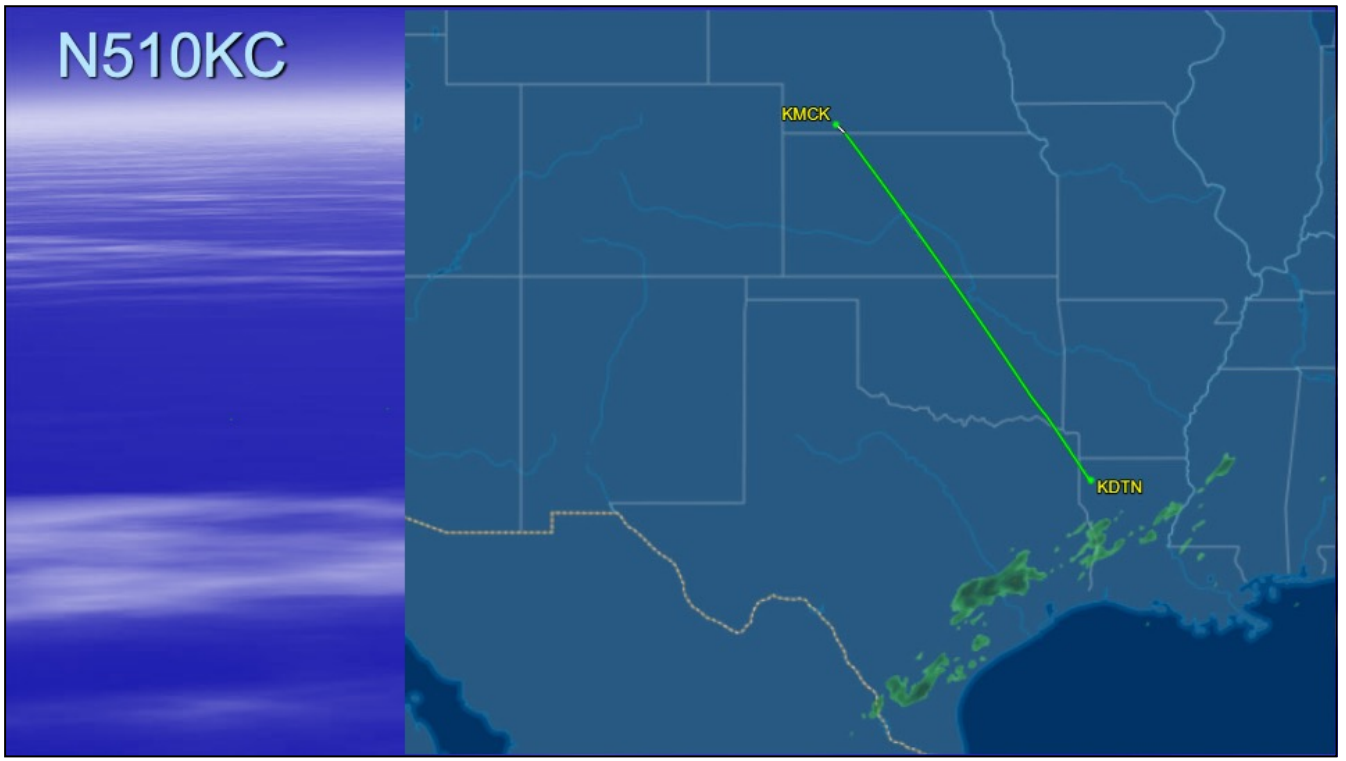
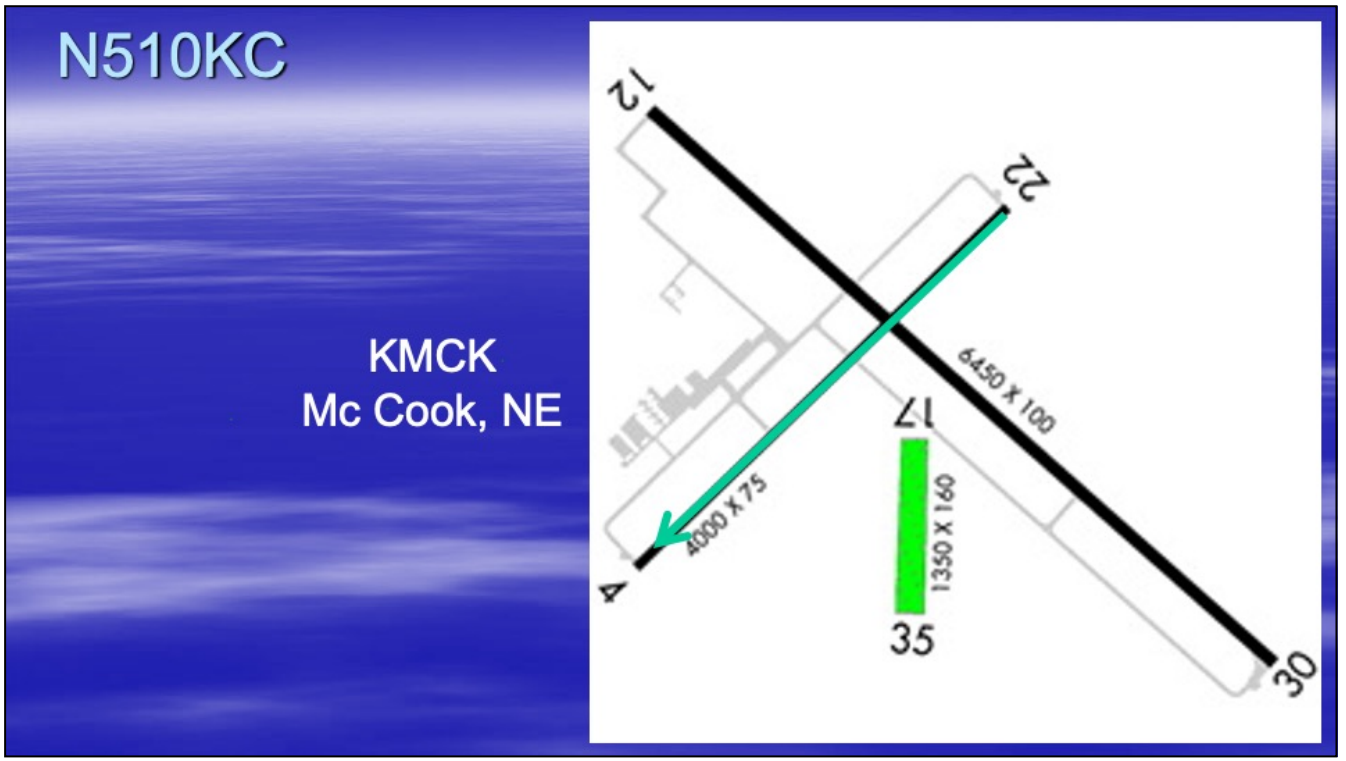
N510KC	**10/23**	**JetProp – issue post-takeoff**		**1**	**McCook, NE.**
D-EGIE	11/23	Mirage – gear-up landing	Pilot		Czech Republic. No injuries.
N90ZZ	12/23	Meridian – hard landing			Ann Arbor, MI. Windshear?
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Next is a post-takeoff accident.

This was a 1993 Mirage with a JetProp conversion.



Three days before, the plane had flown from Shreveport Louisiana to McCook Nebraska.



The day of the accident, the plane departed from runway 22.

But for currently unknown reasons, the airplane didn’t climb, banked left, and descended into trees and terrain.

The 79 year old pilot died; the 65 year old passenger was hospitalized for his injuries.

We have no idea what really happened here – medical incapacitation, a mechanical issue, distraction…

I hope we find out more from the final report.

NTSB Reports since Sept 2023

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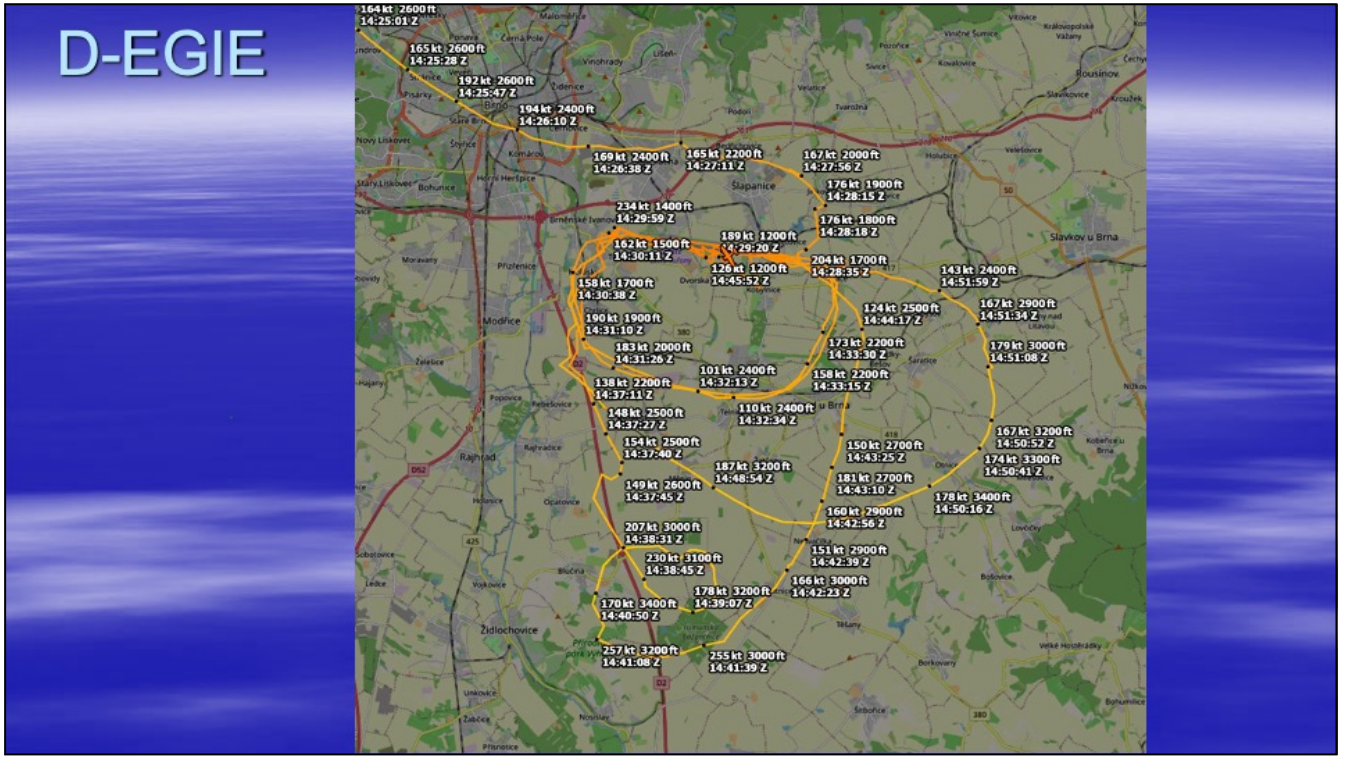
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Now an accident from the Czech Republic.

This a 1992 Mirage.



From the flight track, it looks like he was doing multiple takeoffs and landings, probably for proficiency.

The last landing, unfortunately, was gear up.

There must have been some extra damage to the plane to classify this as an accident (versus an incident).

But there were no injuries, which is good.

NTSB Reports since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Fatal	Notes
N146MS	3/23	Malibu – icing encounter	Pilot		Springfield, KY. Ice w/o pitot heat.
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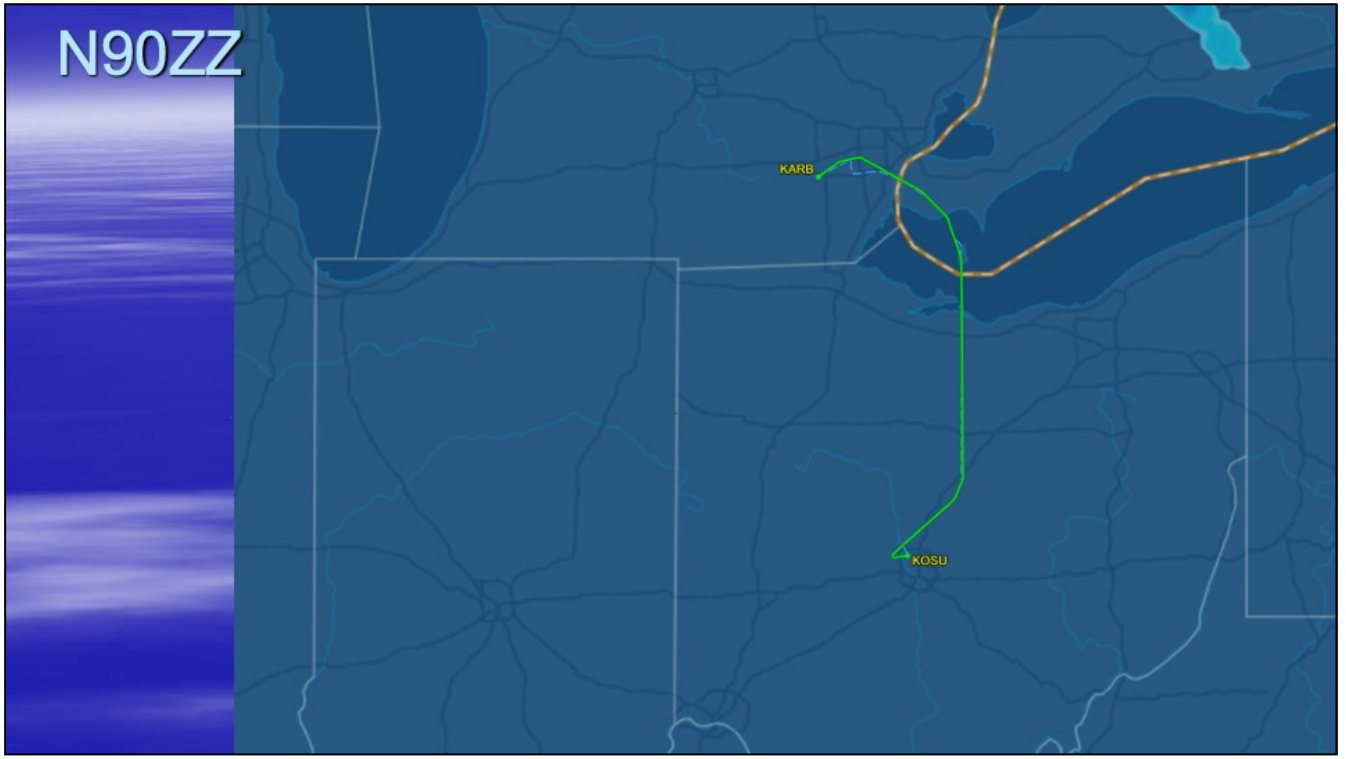
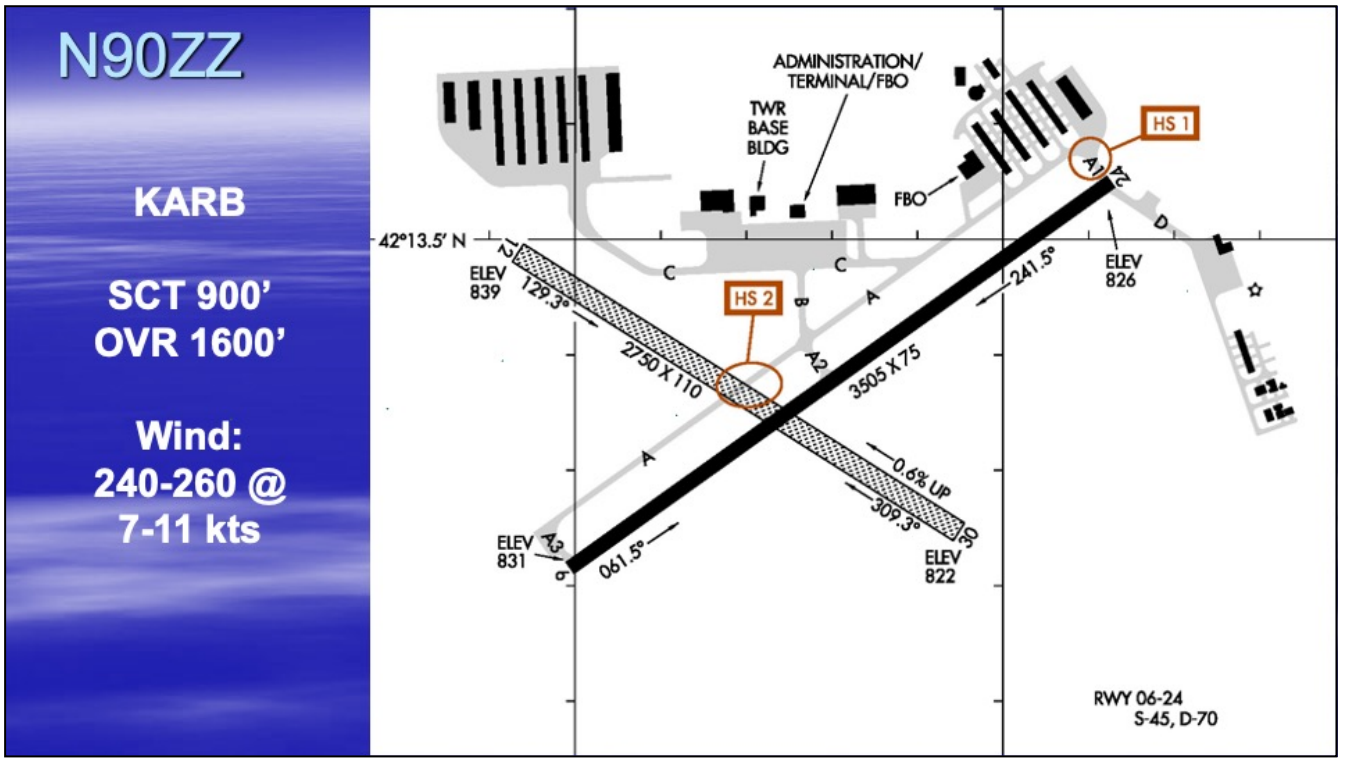
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Next is a hard landing.

This is a 2005 Meridian.



The pilot was flying from Columbus Ohio, north to Ann Arbor Michigan, on an IFR flight plan.

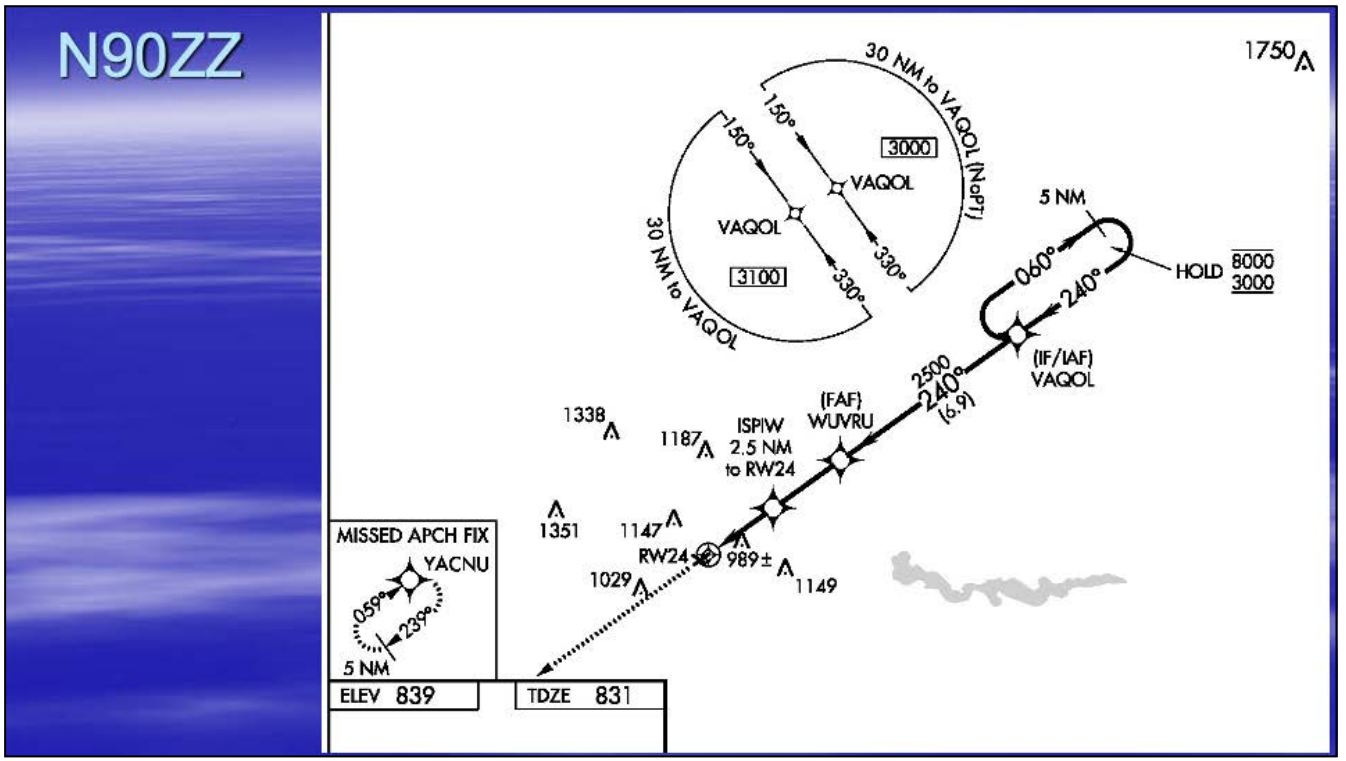


Ann Arbor's weather seemed to be relatively benign IMC, with a 1600 foot overcast and 7-11 knot winds pretty closely aligned with the runway.

However, there was a PIREP near Ann Arbor from a Cessna for light rain and trace ice, with bases at 2500 feet. There were also some PIREP's from Detroit (25 miles away) for light to moderate rime between 4-8000 feet.

Freezing level was about 2500 feet, and the pilot was flying at 5000 feet for 20 mins during his approach thru Detroit airspace.

So it's certainly possible that this pilot had picked up some ice during his descent.



The pilot was flying the GPS-24 approach.

He began hitting turbulence about 700 feet AGL, flying at 95-100 knots.

He states that on short final, at 50 feet AGL, short of the runway, he encountered a severe windshear that pushed him into the ground short of the runway.

The plane slid and hit the runway threshold.

The left main landing gear separated, the nose gear collapsed.

The plane veered off the left side of the runway, and came to rest in the grass facing backwards.

Post-crash exam also showed substantial damage to the right wing.

The pilot and two passengers were fortunately not injured.

It’s possible that the plane hit windshear, as the pilot described. And the cause

listed by the NTSB in their final report is windshear.

But I have to wonder if the plane was carrying some ice, and as it slowed on short final, stalled and hit the ground wings level…??

The temp on the ground was 2 degrees, so any ice present could have melted by the time anyone thought to check… We won't ever know…

NTSB Reports since Sept 2023

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N539MA	**12/23**	**Matrix – engine failure**		**1**	**Lake Norman, NC. Return to field?**
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Next is a 2010 Matrix, with a fatality.

The pilot was taking the plane on a short trip for refueling, prior to a family trip scheduled for the next day.

The airplane departed from runway 32 at Lake Norman Airpark in Mooresville, North Carolina.

This public airport does have 100 low lead, but it’s expensive.

We don’t know specifically where he was headed to refuel.

The pilot took off and climbed to roughly 3000 feet, and headed northwest for about 30 miles, at a groundspeed of about 150-170 knots.

Ten minutes after takeoff, the pilot turned left and flew directly back towards his departure airport, with the beginning of a slow descent. However, his airspeed stayed 160-170 for the next 8 minutes on the way back.

Another pilot in the pattern heard the accident pilot report a 2-mile final to 14 in a calm voice with no mention of any issues.

The last ADS-B hit was ¾ mile from the runway, at 60 feet AGL.

.

He crashed in the back yard of a house, 21 minutes after takeoff.

A witness on the ground, and multiple home surveillance video clips, showed there was no engine noise as the plane came down.

The pilot died in the crash.

The engine had accrued 48 hours of operation since a manufacturer overhaul five months prior.

Exam at the scene showed fuel in both wings.

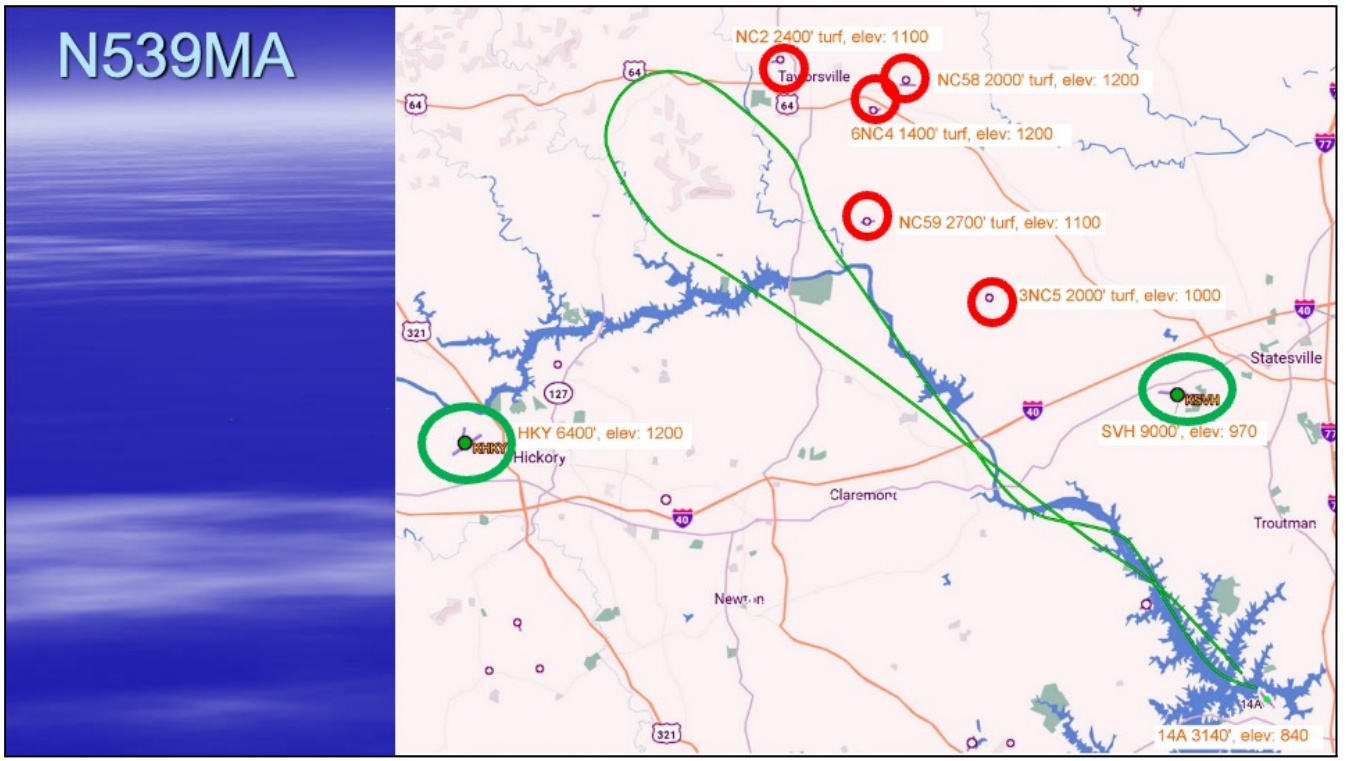
The throttle, mixture & prop controls were all full forward, and the emergency fuel pump was on and working.

The engine driven fuel pump had no fuel in it, though there was fuel in the lines & fuel divider.

Magnetos were working; the upper spark plugs had heavy carbon deposits. The cylinders looked fine via borescope.

The crankshaft was intact.

So basically, there was no smoking gun found, but we know the engine stopped. We just don’t know why; I hope the final report will say why.



What is very sad about this crash is that the pilot had options.

If he had slowed to best glide, we don't know if he would have reached the runway, but he probably would have had a better chance than at 150-160 knots. So we get back to proficiency at engine-out glide procedures.

Furthermore, he had five turf runways in easy glide distance <CLICK>.

There were also two long hard-surface runways possibly within gliding distance. <CLICK>

Many of these choices would likely have been better than hitting a tree and crashing into a back yard…

NTSB Reports since Sept 2023

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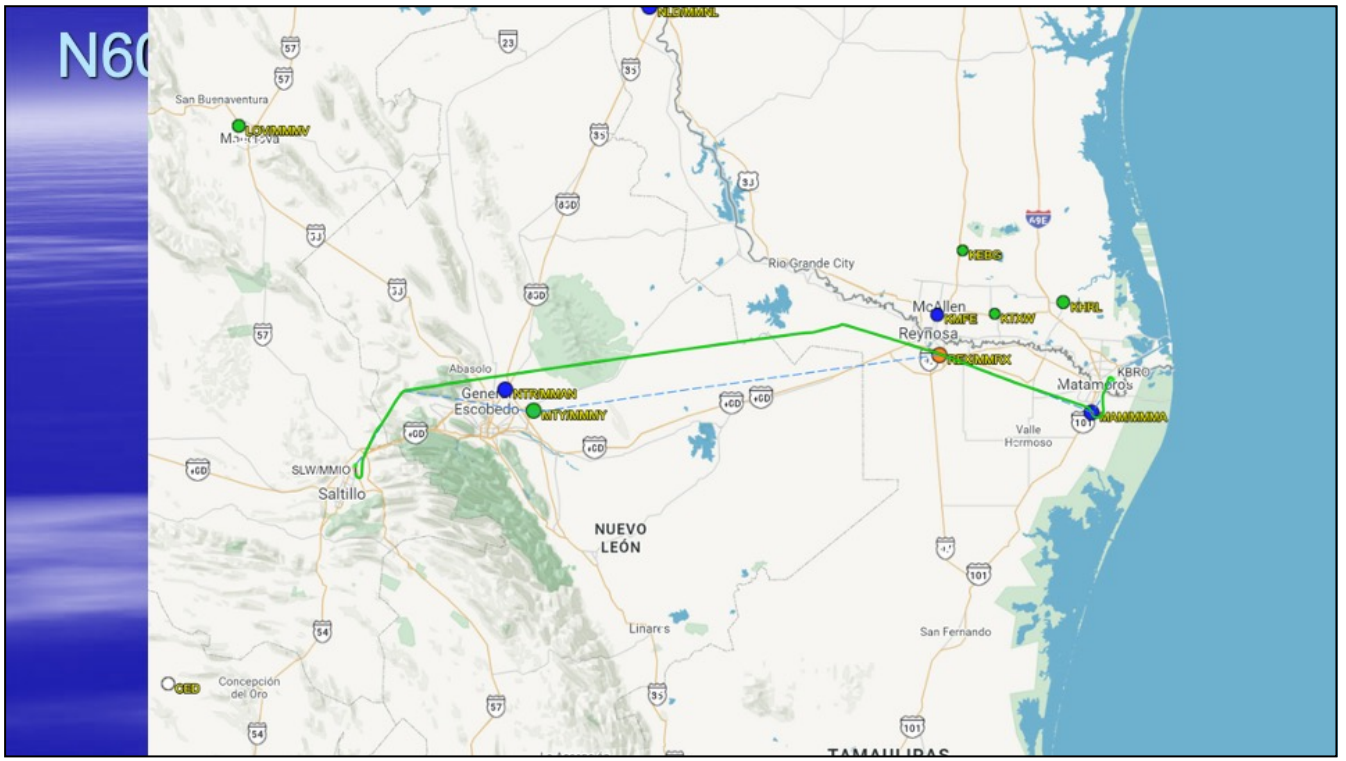
N539MA	12/23	Matrix – engine failure		1	Lake Norman, NC. Return to field?
N6074A	**1/24**	**Mirage – fuel exhaustion?**		**4**	**Mexico.**
PS-MTG	1/24	JetProp – breakup in weather	Pilot	7	Brazil.

Next is one of the two foreign fatal accidents, this one in Mexico.

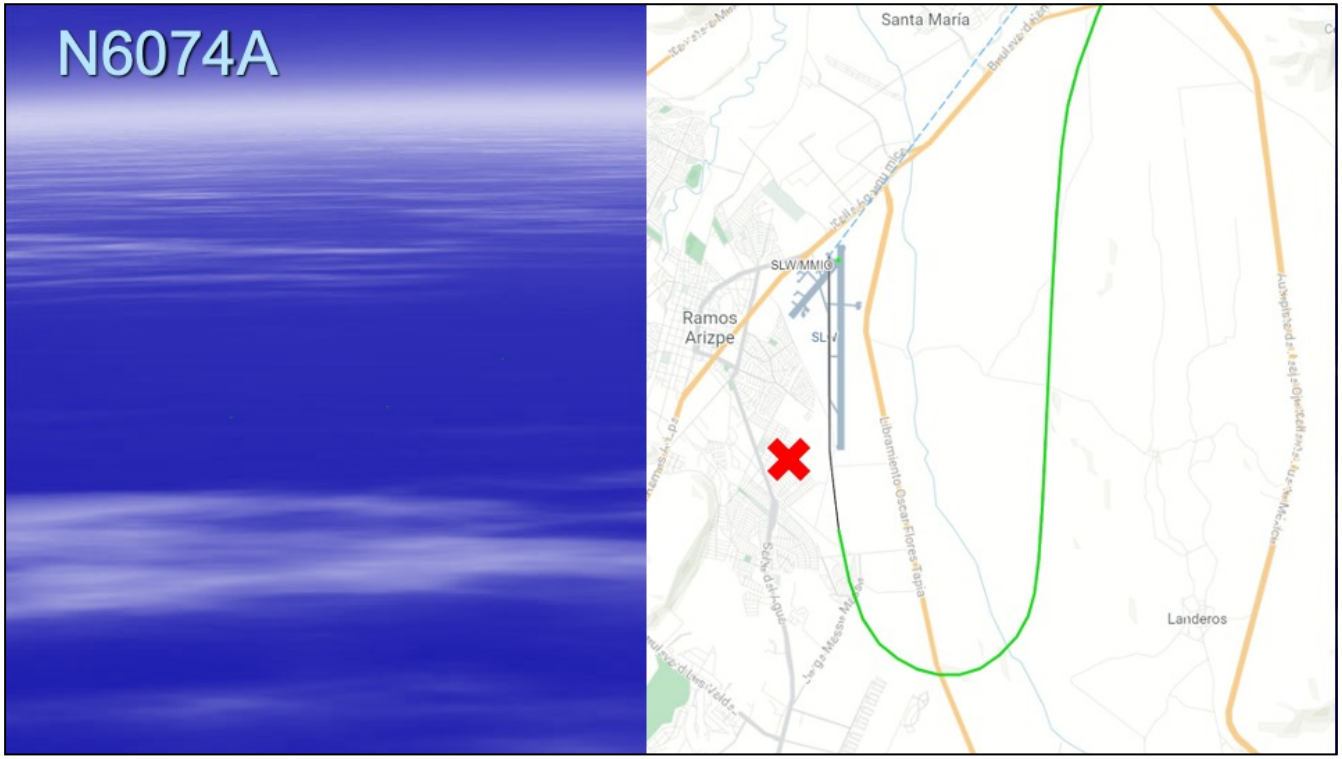
This is a 2008 Mirage.



The plane had flown into Matamoros from Brownsville, Texas that morning.

The plane then took off from Matamoros Mexico, for an hour and half flight west to Saltillo, with the pilot and three passengers.

We don’t yet know if the plane was fueled in Matamoros.



The pilot flew a right pattern to runway 35.

They seemed to be on a normal final approach, when the plane veered steeply to the left and crashed about 600 feet left of the runway threshold.

There have apparently been reports that the pilot reported being out of fuel in the Mexican news reports. This is reinforced by the engine sounds in this surveillance video, where the engine seems to cut out. But I have no definitive information.

Regardless, something bad happened on short final.

The plane was descending a bit fast on final, around 900 ft/min.

But otherwise nothing seemed amiss until the last few seconds.

Obviously, all four people on the plane died.

I hope we'll learn more about the cause eventually.

NTSB Reports since Sept 2023

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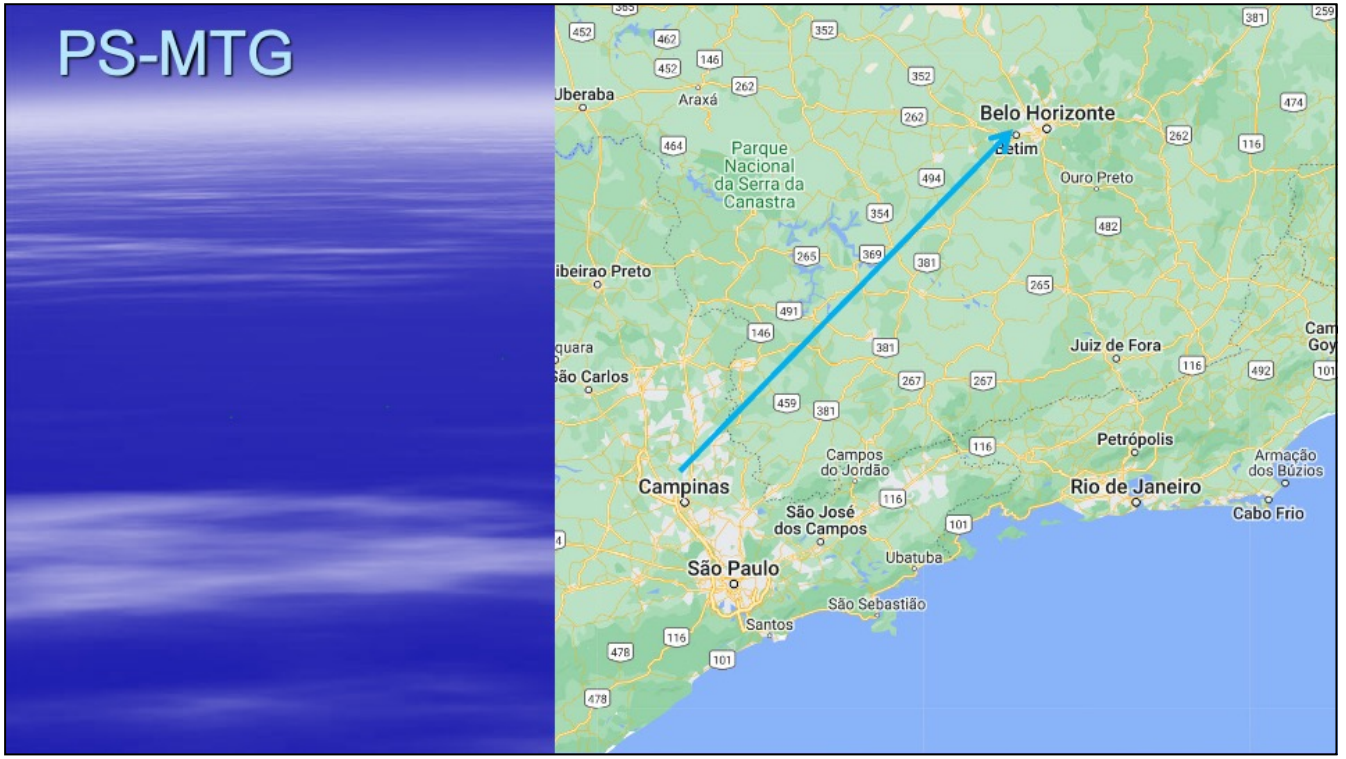
N6074A	1/24	Mirage – fuel exhaustion?		4	Mexico.
PS-MTG	**1/24**	**JetProp – breakup in weather**	**Pilot**	**7**	**Brazil.**

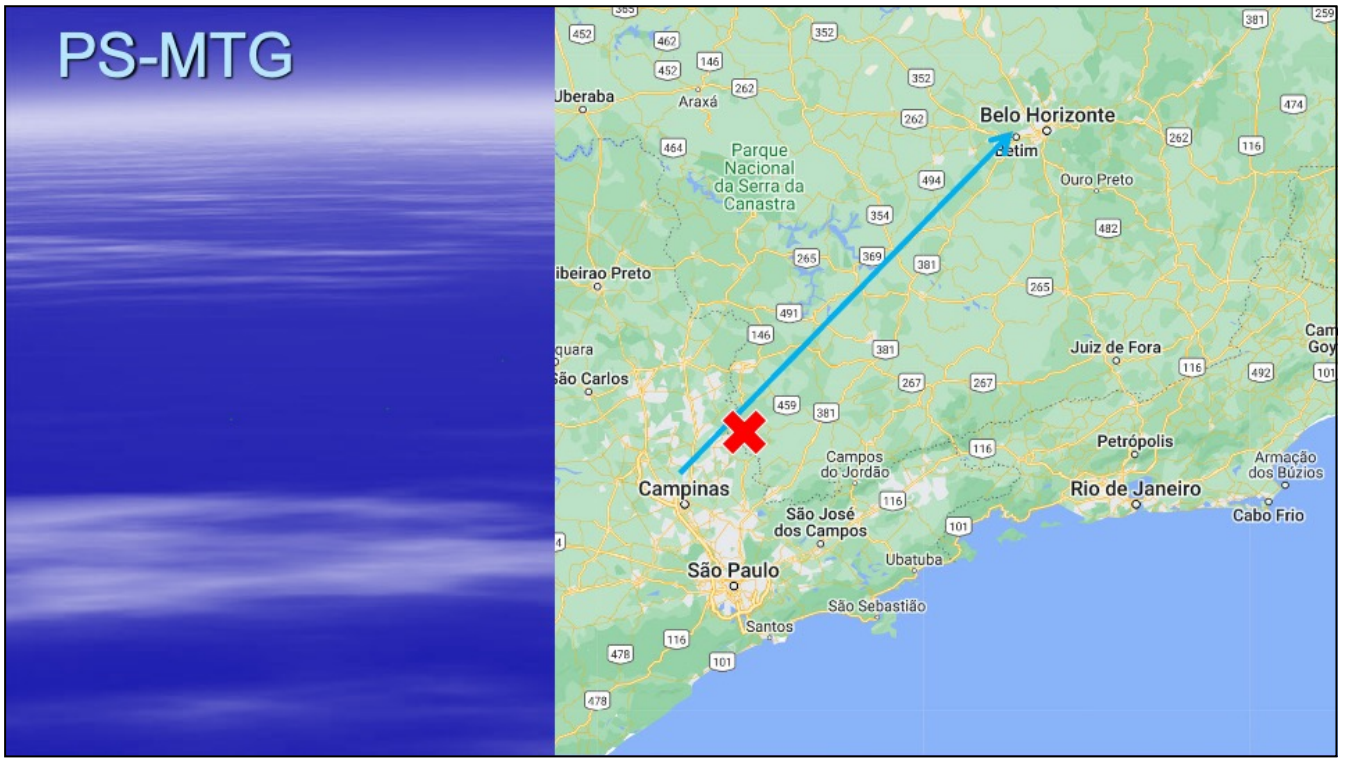
Next is another overseas tragedy.

This is a 1996 Mirage with JetProp conversion, in Brazil.

According to the Brazilian registration, the plane ownership was transferred 2 months before this accident.



The flight left Campinas, bound for Belo Horizonte, a roughly 300 mile flight.



Not very far into the flight, the plane apparently broke up in convective weather.

A person on the ground took a video of pieces of the plane falling out of the clouds.

This was the fuselage wreckage.

Wings and tail were found a good ways off.

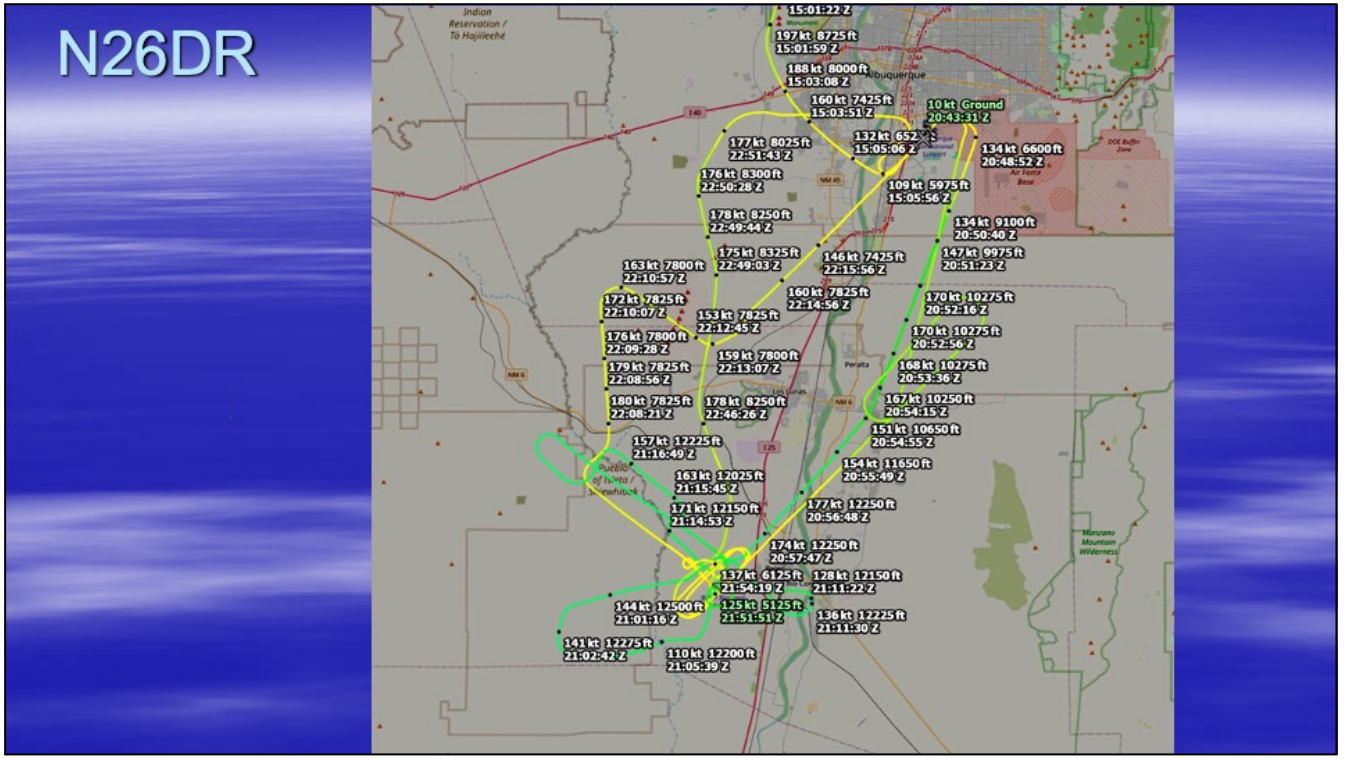
These six people, plus the child of one of the couples, died.

The plane was likely overloaded, and hit bad weather – with a subsequent inflight breakup.

But I have no further information at this time.

Here's the first of two Meridian flat tire accidents.

This is a 2008 Meridian, on an instructional flight.



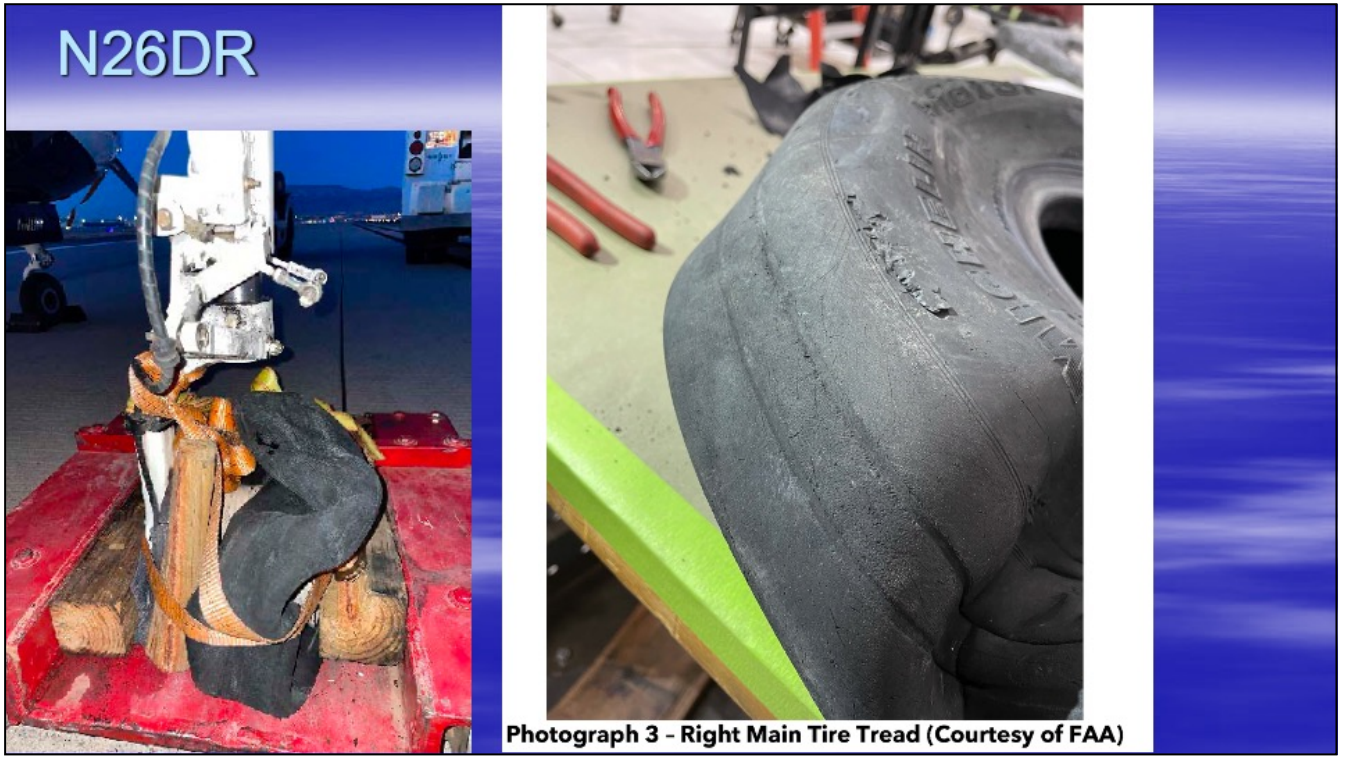
It’s pretty obvious this was recurrent training, from looking at the flight track around Albuquerque.

On landing, the plane got a flat tire on one of the mains, causing it to veer off the runway.

Photograph 1 – Right Aileron Damage (Courtesy of FAA)

Unfortunately, the plane hit a runway light, which damaged the right aileron, which is why this event is listed as an accident, rather than an incident.

The flat tire was pretty mangled.



Photograph 3 – Right Main Tire Tread (Courtesy of FAA)

The NTSB noted that the tire was very worn, as shown here, and considered this a contributing factor.

The tire was about a year and a half old, and the pilot had been planning to have it replaced at his next annual.

The inner tube was totally fragmented, as shown in this final photo.

I’ve been fortunate to only have had one flat tire event on landing, and I can testify that it can be very difficult to maintain directional control when that happens…

I guess the lesson here is keep your tires in good condition by replacing them when worn.

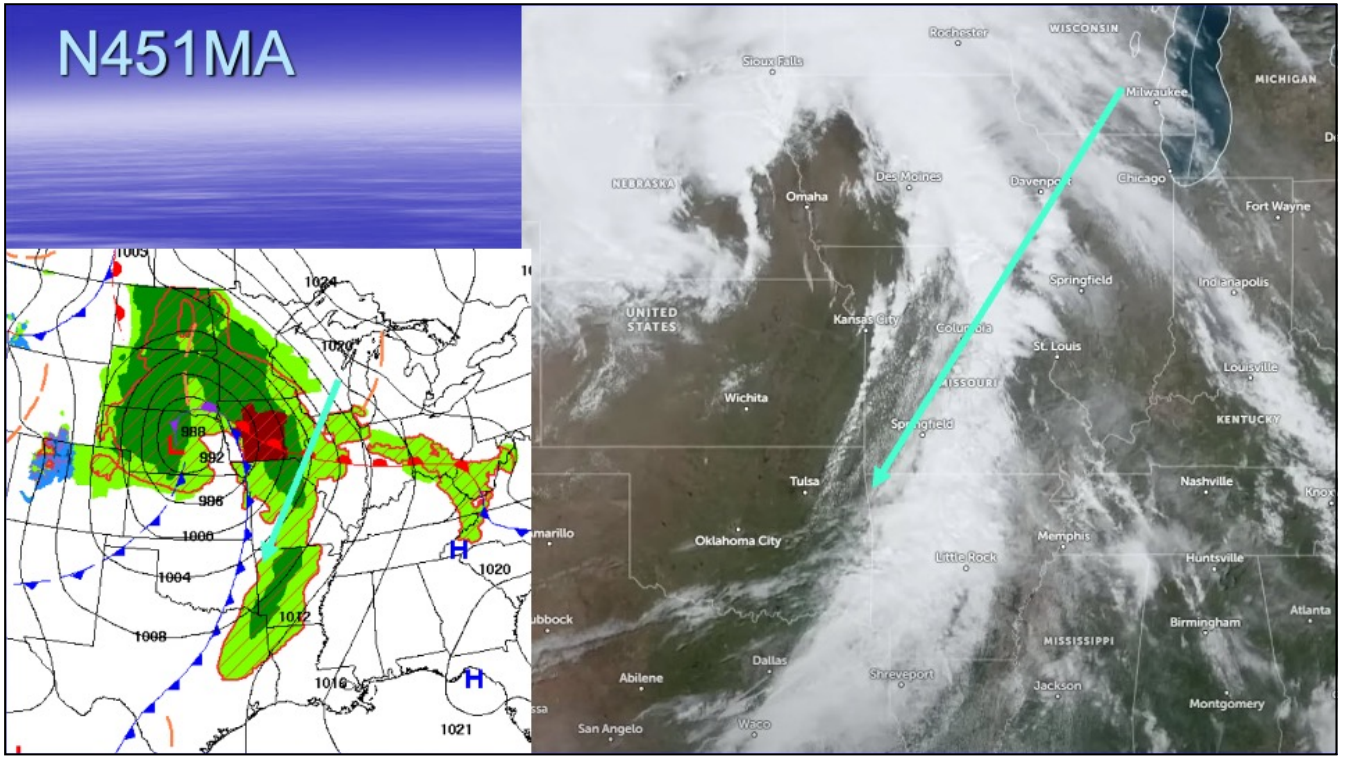
NTSB Reports since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Fatal	Notes
N26DR	2/24	Meridian – flat tire	Mech		Albuquerque, NM. Instructional flight.
N451MA	**4/24**	**Mirage – inflight breakup**	**Pilot ?**	**1**	**Ashland, Missouri. Near thunderstorms.**
N241PM	4/24	Meridian – inflight breakup	Pilot ?	2	Marianna, AK. Weather?
N85PG	6/24	Mirage – inflight breakup	Pilot ?	5	Masonville, NY. Climbing in weather.
D-EOSE	7/24	Malibu – ocean ditching	Mech ?		Greenland. Arctic ditching.
N4646G	7/24	Malibu – loss engine power			Exeland, WI. Off-airport landing.
N629AG	9/24	Mirage – missed appr?	Pilot ?	4	Anderson, IN. Stall/spin go-around?

Next is the first of three fatal weather-related accidents.

This is a 2012 Mirage.

The registration information suggests this plane was purchased about 3 months prior to the accident.

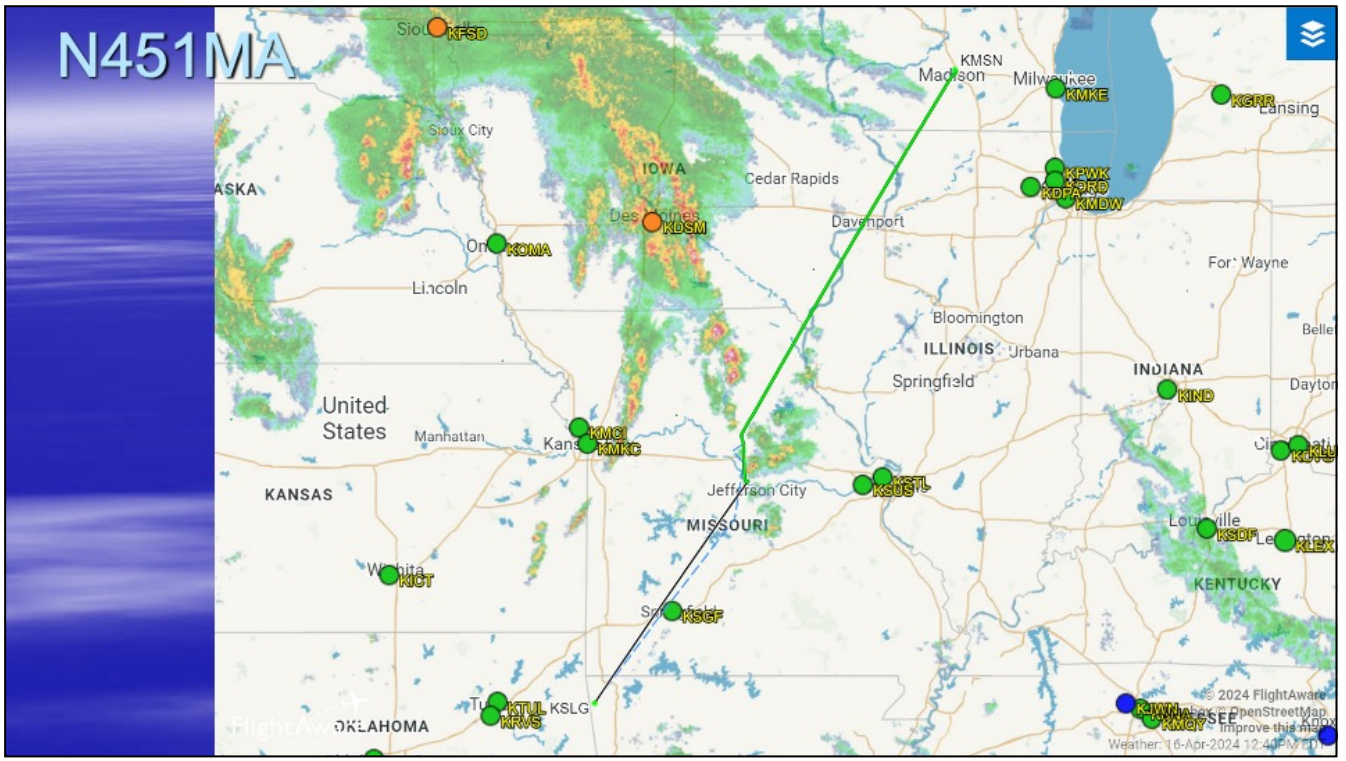


The pilot was flying alone from Madison Wisconsin to Arkansas.

First, here's the big picture.

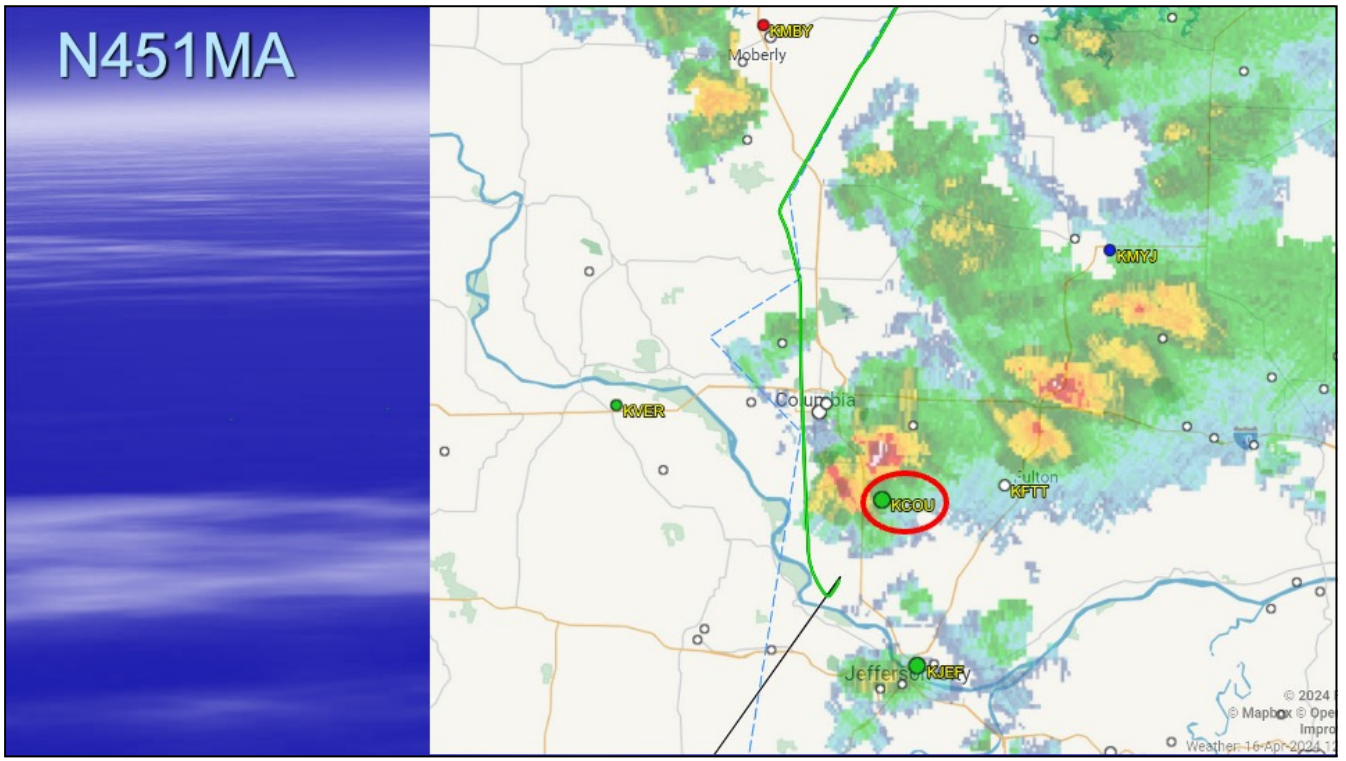
This was a huge frontal area crossing the US west to east.
And this planned trip was going to cross that front, in a new to him plane.

So right away, there is a question of decision making.



You can see that midway on his trip, he had to cross this front.

But recall what I said at the beginning of our session about not trusting FlightAware weather depiction due to timing of the radar image.

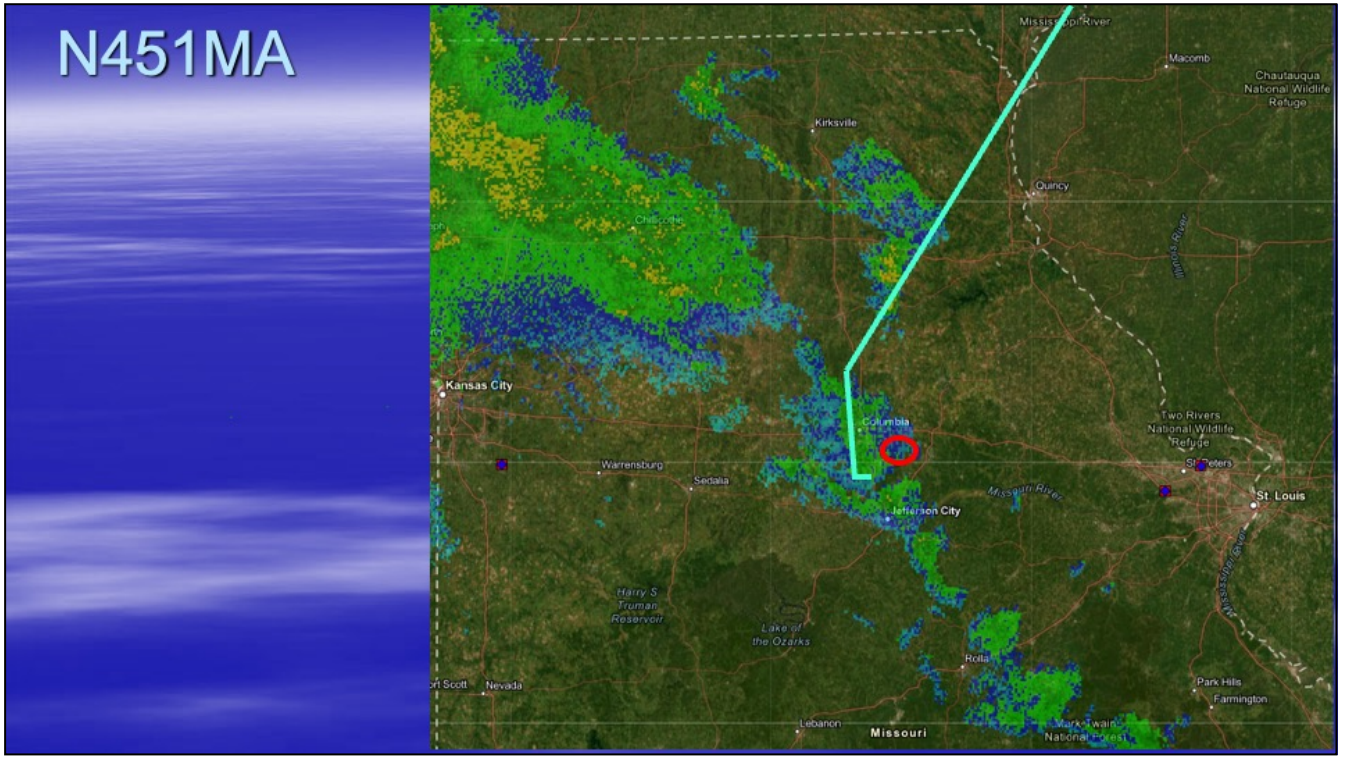


You can see he turns to the south. I don't know whether this was a deviation from the straight line course, or whether he was just following his flight plan route.

But in either case, from this FlightAware image, you'd say things look pretty good. A little deviation to avoid weather and then a straight shot to his destination.

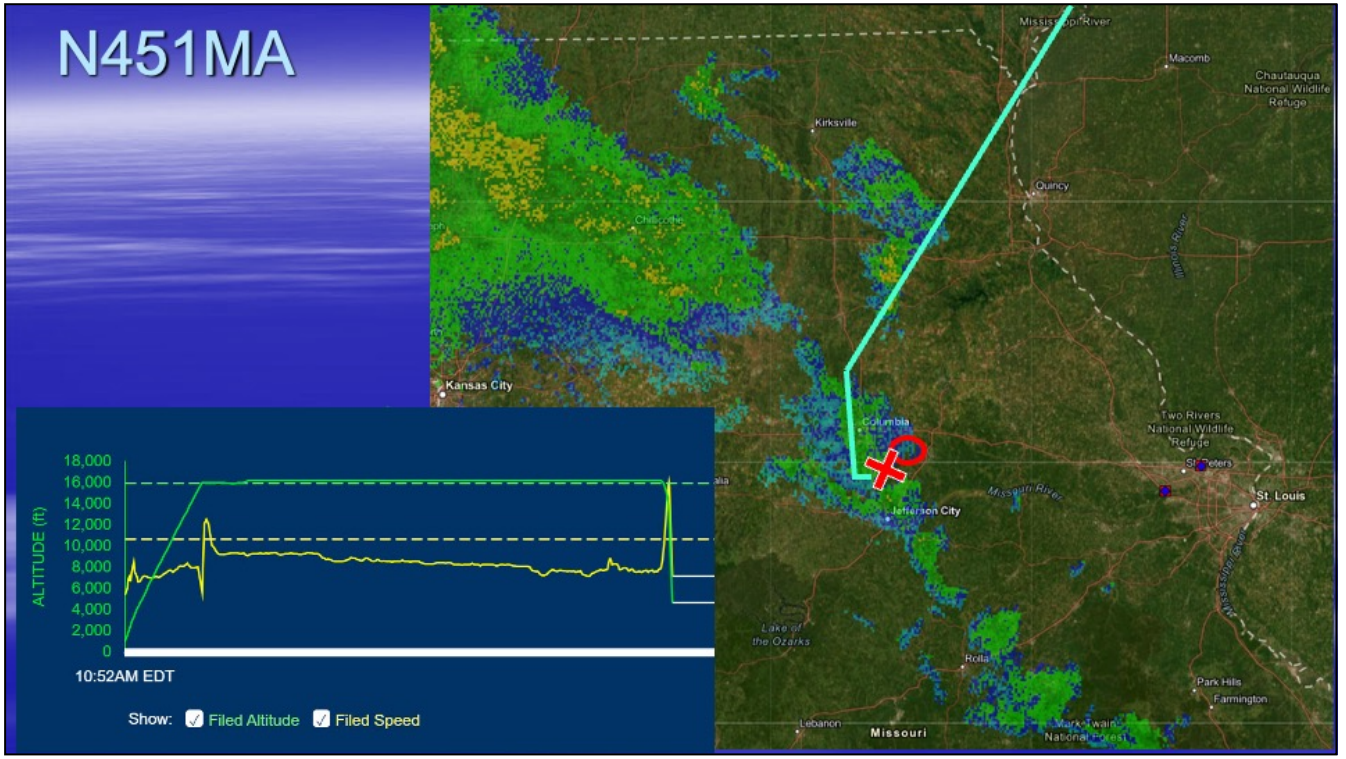
But one report is that right about the time of this turn to the south, he requested a diversion to Columbia airport (in the red circle), so perhaps that's the reason for his turn to the south…

Looking at this weather depiction, that would make no sense, given the severe weather almost on top of Columbia.



But here's the actual radar image at the time he arrives near Columbia, cruising at 16,000 feet.

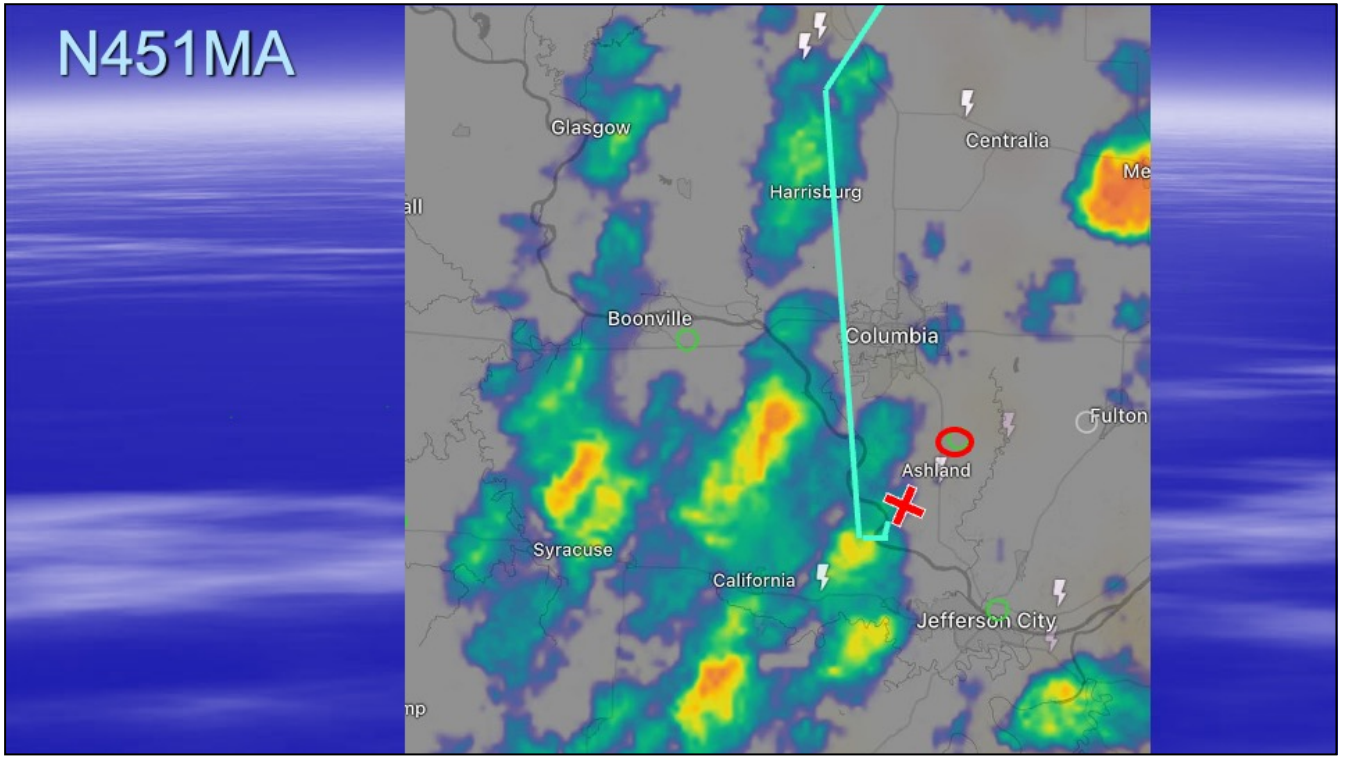
It's impossible to know what he was seeing on his panel at the time, but this turn to the south seems to actually put him in wetter weather.



As he gets just southwest of Columbia airport, the plane dives, with a final calculated descent rate of almost 16,000 ft/min, and an ADS-B speed of close to 300 kts (so likely an even higher airspeed).

At that point, the plane has already broken up – the wings and tail pieces were found up to 3 miles from the fuselage.

Joe Casey, on the forums, suggested icing with elevator bridging as a possible cause here, and that seems plausible to me. That could well result in full nose down trim in IMC, with this outcome.



Another possibility, given lightning depictions all over the area, is that he flew into severe turbulence at cruise speed and the plane came apart.

Regardless of cause, the plane shed its outboard wings and tail, and the fuselage hit the ground in an almost vertical path.

Several lessons here for us:

- Just as in so many weather accidents, the need for better decision making on the ground, and a willingness to delay or even cancel a particular flight.

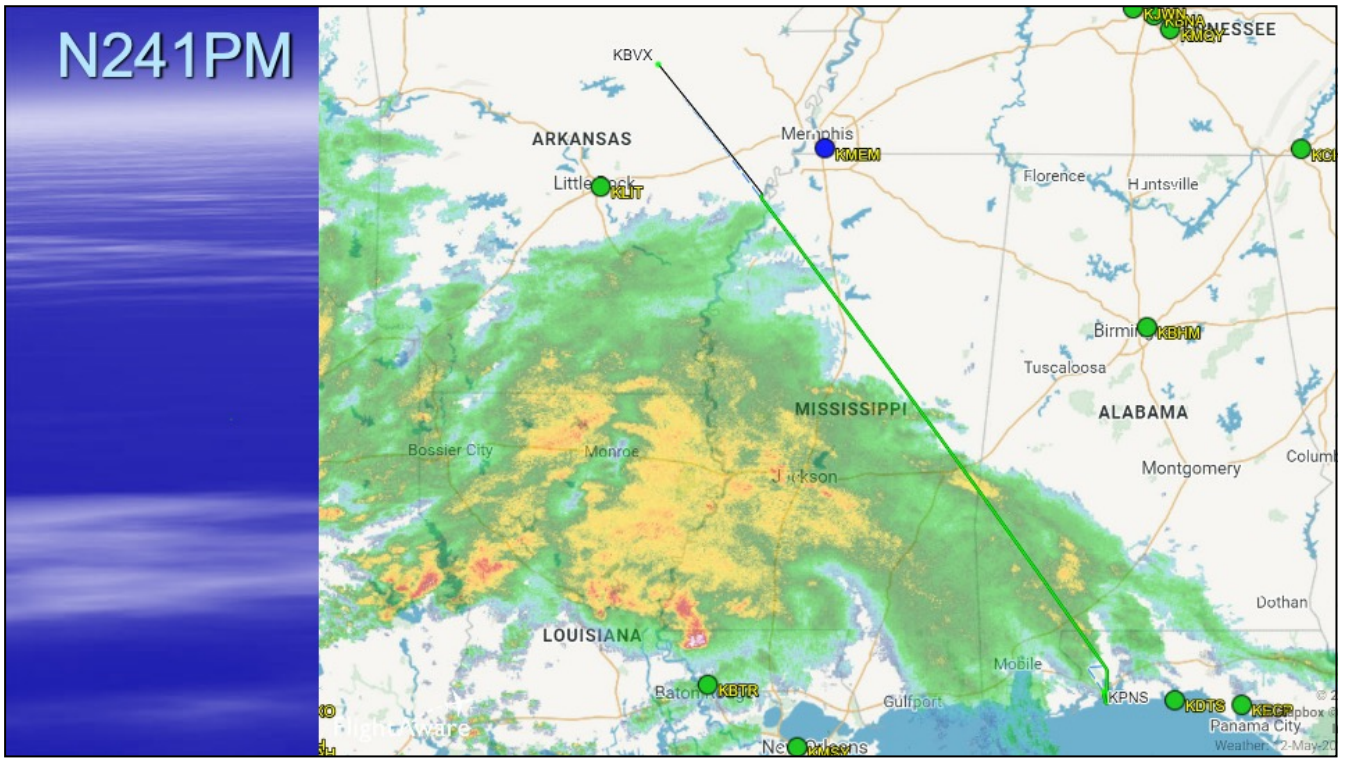
- The imperative to slow down to below maneuvering speed in severe turbulence,

else the plane is going to shed pieces.

- And the recognition that high altitude wet clouds should be considered convective, and avoided.

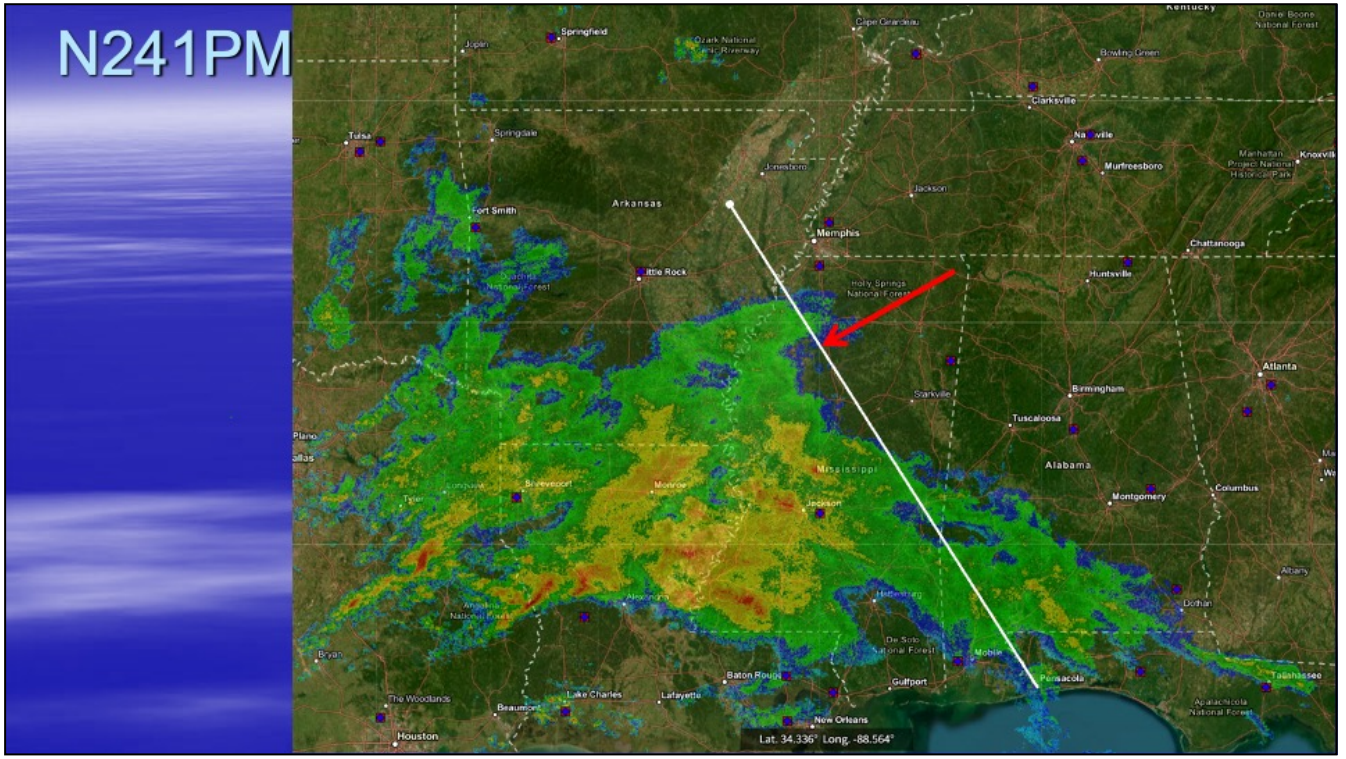
And another fatal accident the same month, also likely weather related.

This is a 2003 Meridian.



The pilot and his wife (and reportedly two dogs) were flying from Pensacola Florida to Batesville Arkansas.

Looking at this FlightAware picture, it seems like an reasonable trip, depending on the height of those cloud areas in the first third of the trip. But remember, this is a FlightAware weather depiction.



This is the actual weather radar at the time of the crash.

The plane departed Pensacola at 5:20 pm, and cruised at FL 280, with no reported issues.

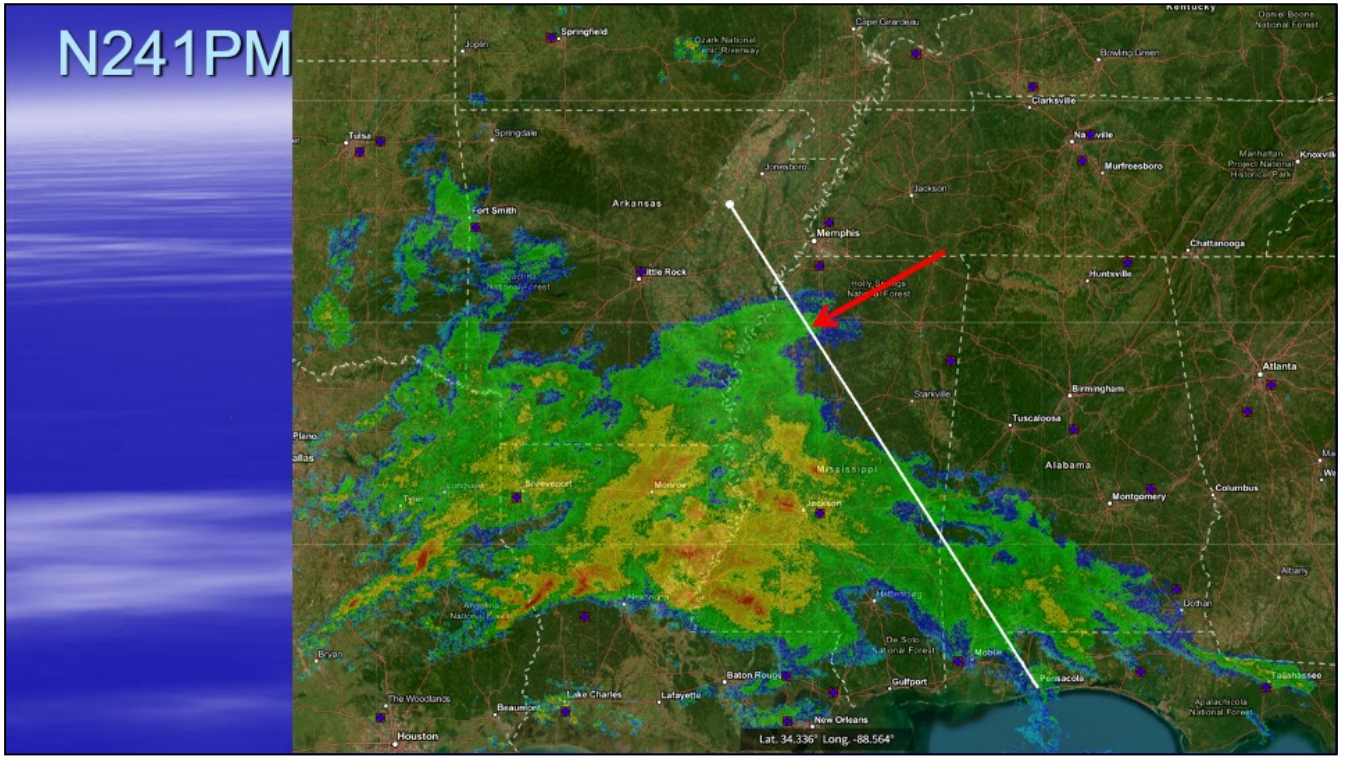
They began to descend at the point shown here, about 2 hours later.

You can see they were descending into some radar returns.

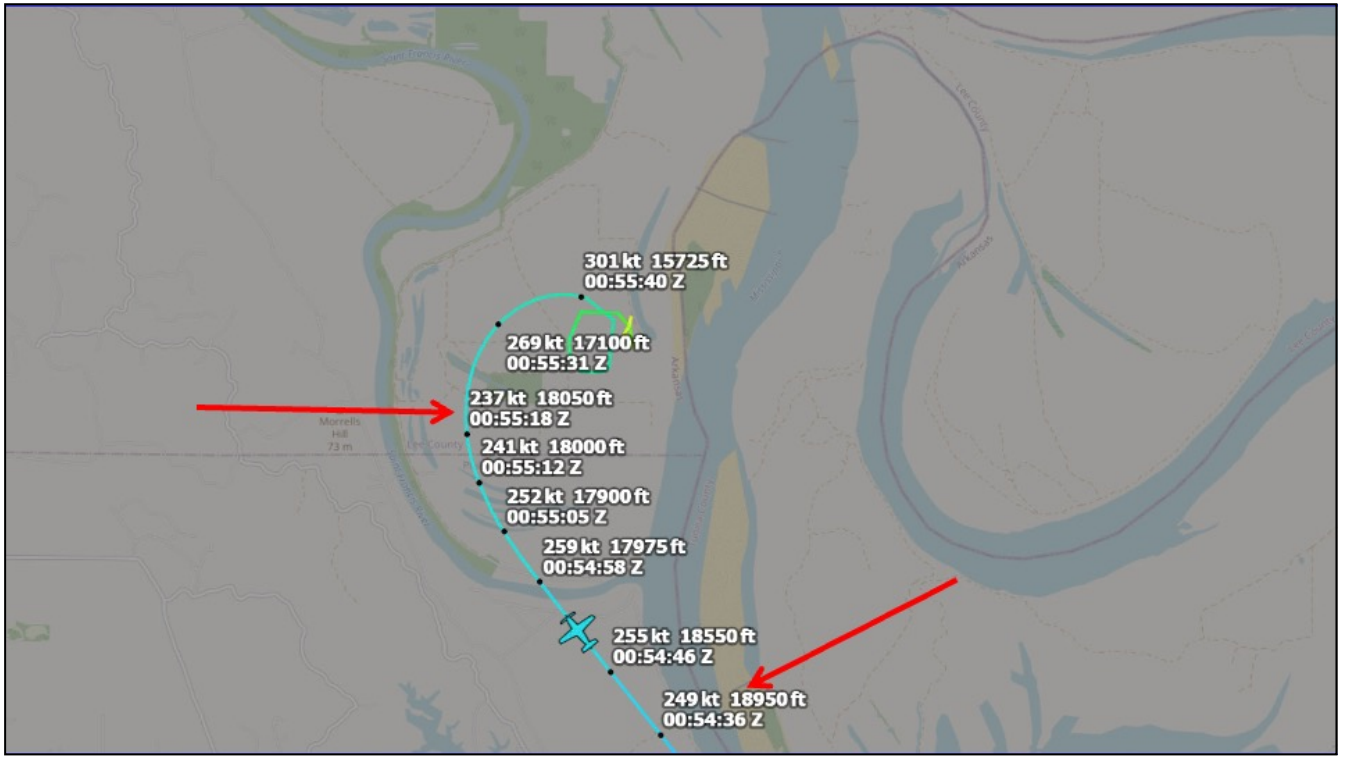
At FL 240 the pilot reported continuous moderate chop. In fact, there was an

AIRMET for moderate turbulence in the area.

But the plane never did not slow down.



Nine minutes after beginning the descent, they were at FL 220, with a groundspeed of 215 knots.



Two minutes later, they were at FL 190 going 249 kts.

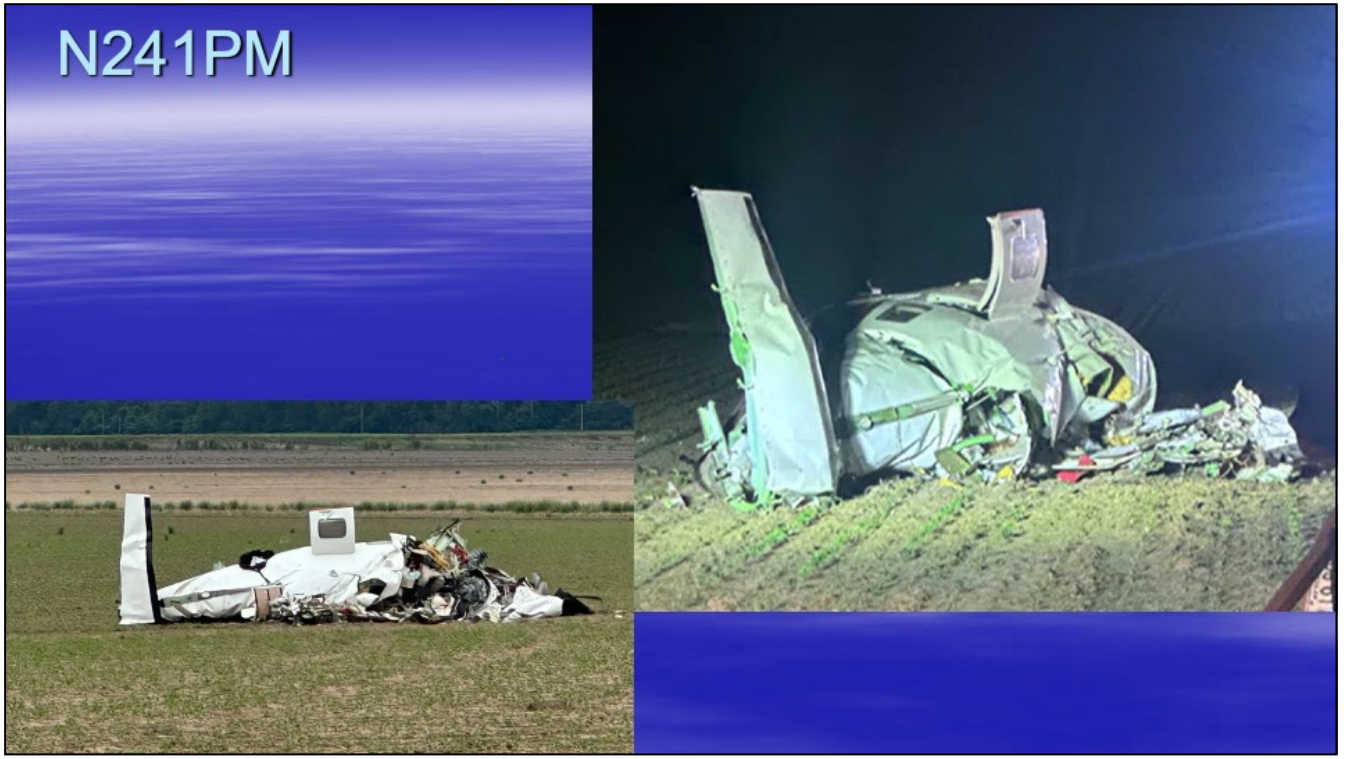
30 seconds later they entered a spiraling right turn.

The last ADS-B hit showed them at 15,700 feet at 301 knots; and the plane was lost on radar at 7800 feet. The airplane had almost certainly broken up by this point, since the calculated descent rate was 17,000 feet per minute.

Of course, the two people onboard perished. The two dogs were never found.

Pieces of both wings were found within 80 feet of the fuselage; the tail components were not located.

The landing gear was retracted.



We’re left with the same two possibilities as in so many weather associated inflight breakups:

- Too much speed for the turbulence, with an inflight breakup.
  Retrospective analysis of weather soundings around the time of the accident, indicated strong vertical wind shear between 24,000 and 12,000, with a high possibility of moderate or greater turbulence.

- Possible icing as a contributing factor. (Freezing level was about 13,000 feet.)
  The pitot heat here was found in the ON position, and was working.

Or perhaps both of these were factors together…

NTSB Reports since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Fatal	Notes
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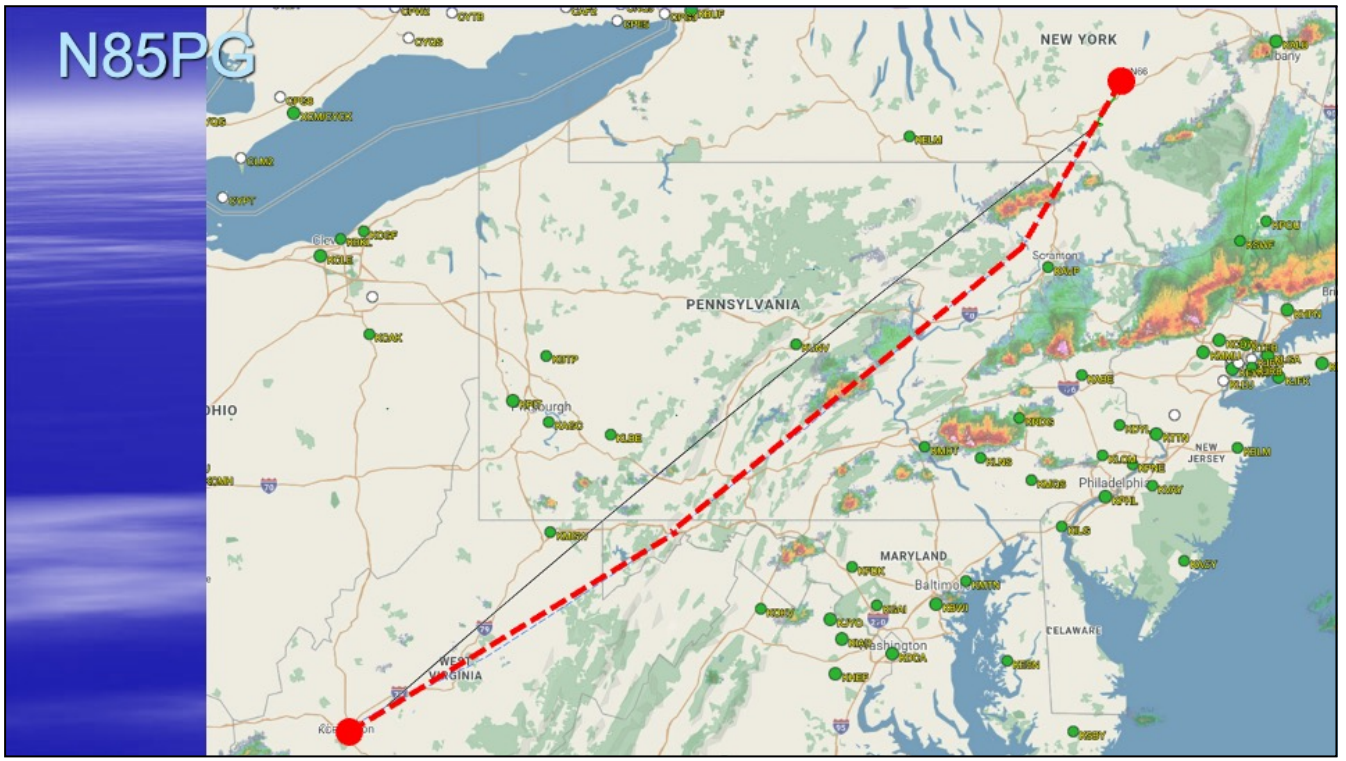
N85PG	**6/24**	**Mirage – inflight breakup**	**Pilot ?**	**5**	**Masonville, NY. Climbing in weather.**
D-EOSE	7/24	Malibu – ocean ditching	Mech ?		Greenland. Arctic ditching.
N4646G	7/24	Malibu – loss engine power			Exeland, WI. Off-airport landing.
N629AG	9/24	Mirage – missed appr?	Pilot ?	4	Anderson, IN. Stall/spin go-around?

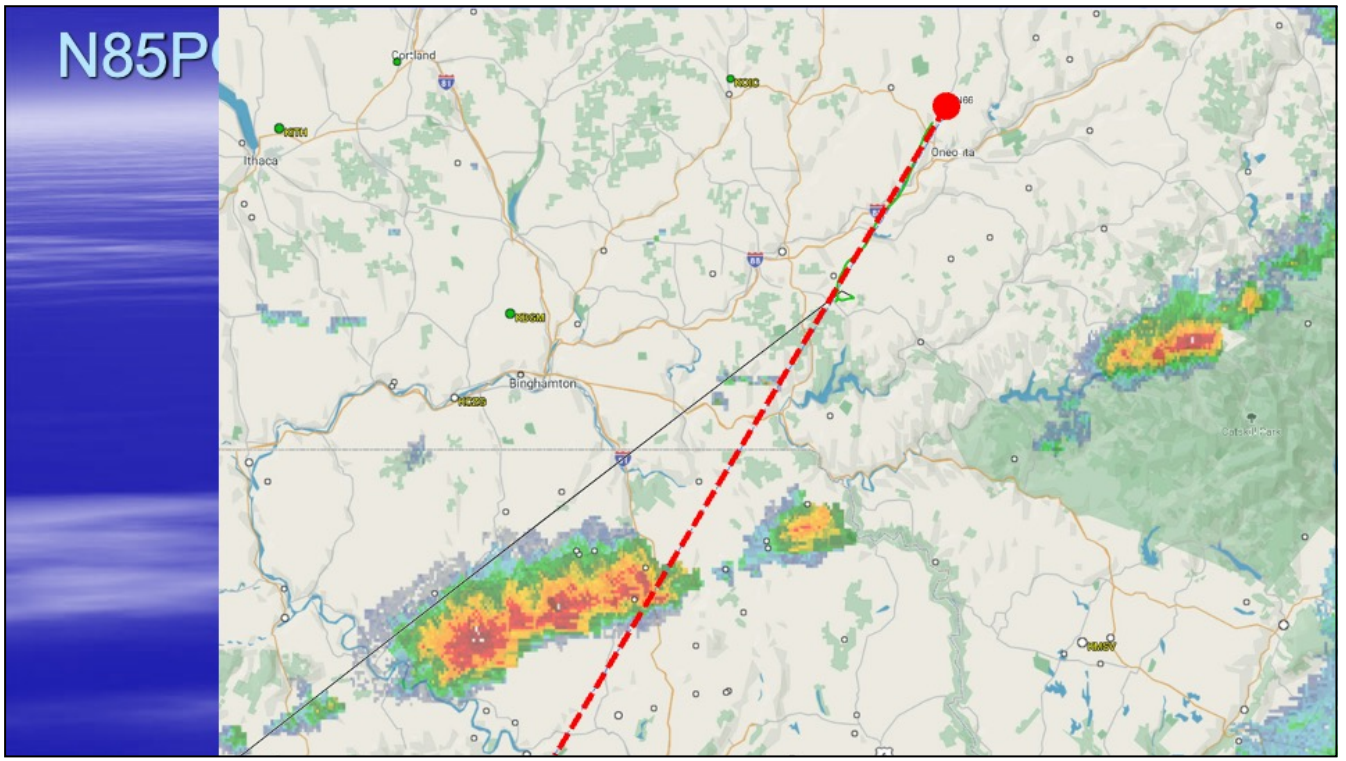
And then another weather related accident with five fatalities. This accident was extensively discussed on the forums, especially concerning the pilot's decision making.

This is an 85 Malibu.

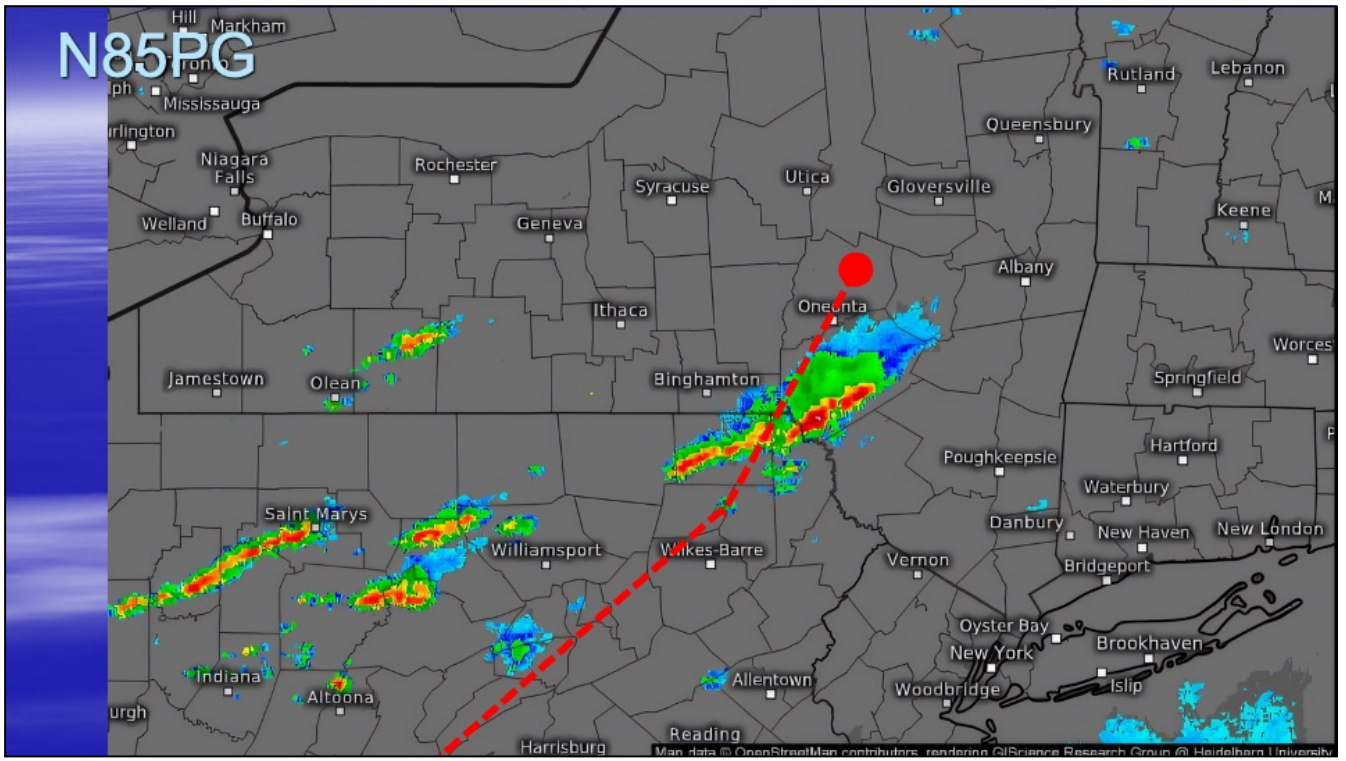


The family had been in central NY State at Cooperstown for a baseball tournament, and was returning home to Georgia, initially with a fuel stop in West Virginia.

This first leg in the flight is about 400 miles, and the red dashed line is his flight plan route.



Note that on this FlightAware image there is essentially no weather shown on the route for the first little while after departure, which is wrong.



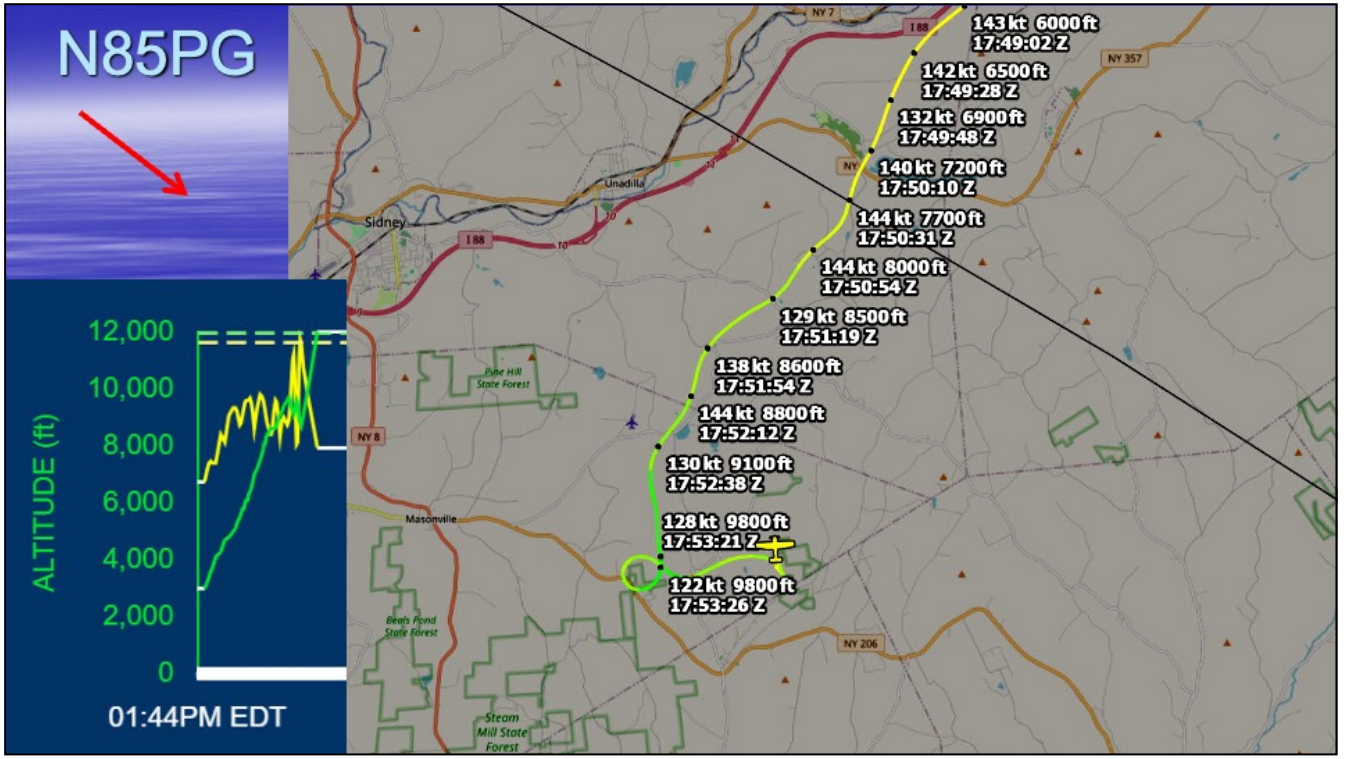
In fact, this is the weather at the time of the departure.

At departure, weather at the airport was 6500 broken with 5 miles visibility. So not bad.

The pilot took off, and picked up his clearance in the air 5 miles southwest of his departure airport.

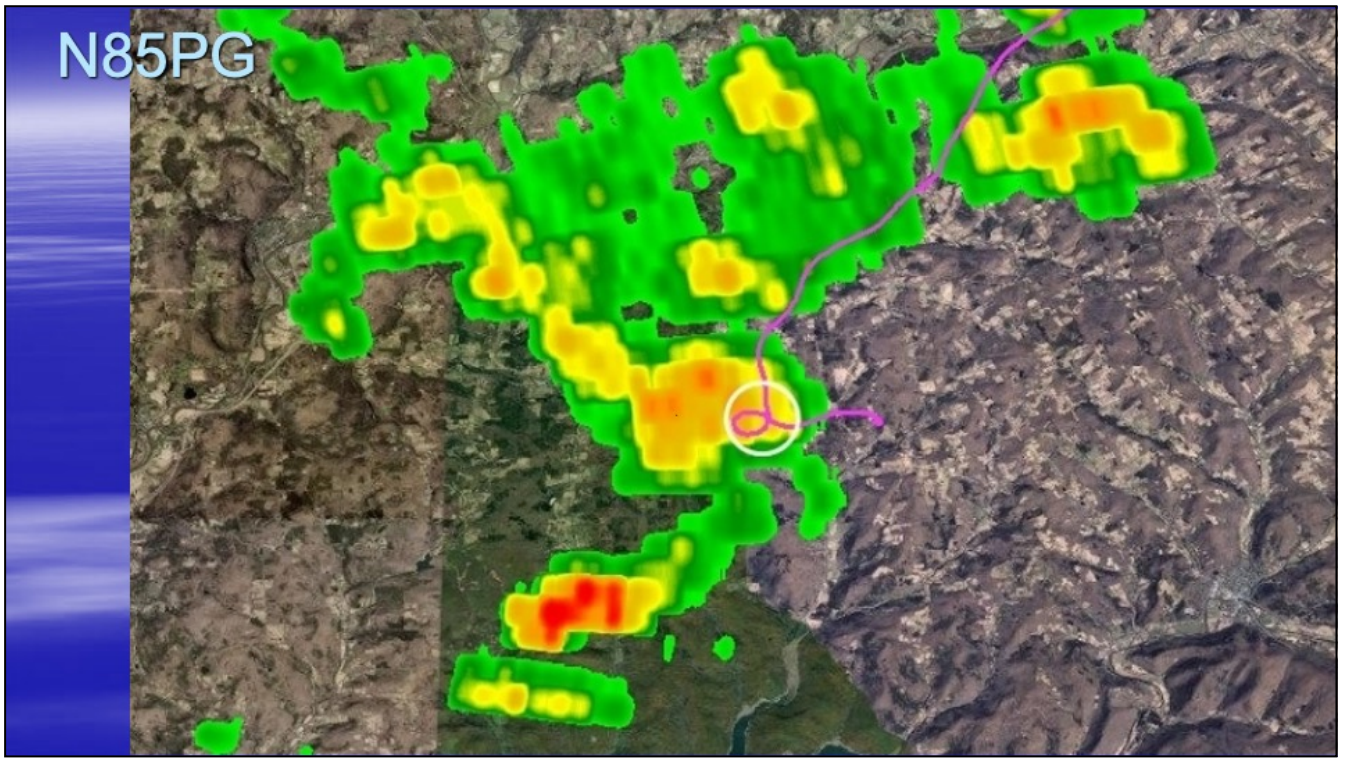
The controller cleared him as filed, issued a climb to 10,000, and noted moderate to

heavy precipitation “for the next 30 miles”, which the pilot acknowledged.

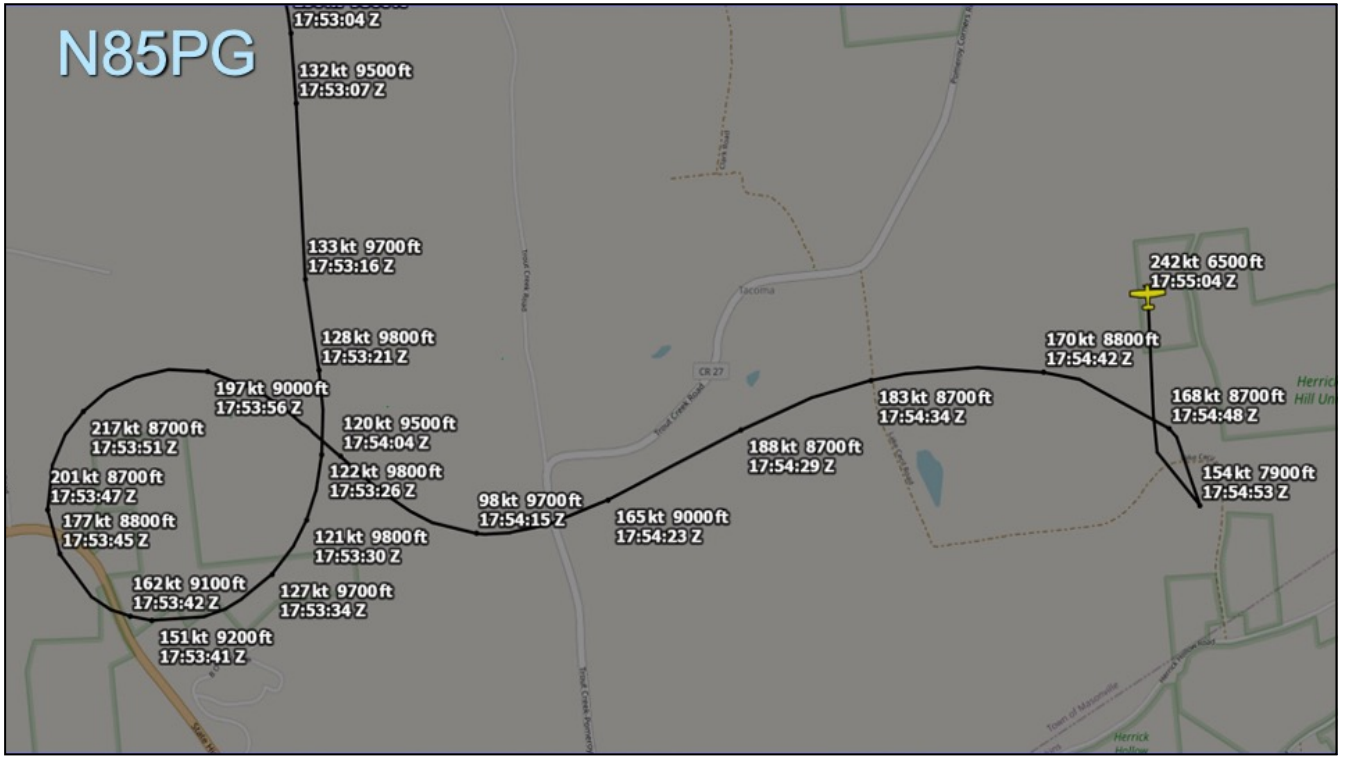


He was deviating back and forth, almost certainly hand-flying, and reached a maximum altitude of 9,800 feet with a groundspeed of 122 knots.

The course wandered back and forth, and altitude and speed fluctuated significantly.



12 minutes after takeoff, he entered a right descending spiral in heavier weather.



The last radar hit was 1 minute later at 6500 feet and 242 knots.

Most of the tail components were found about a mile from the fuselage. One wing was found half a mile from the fuselage.

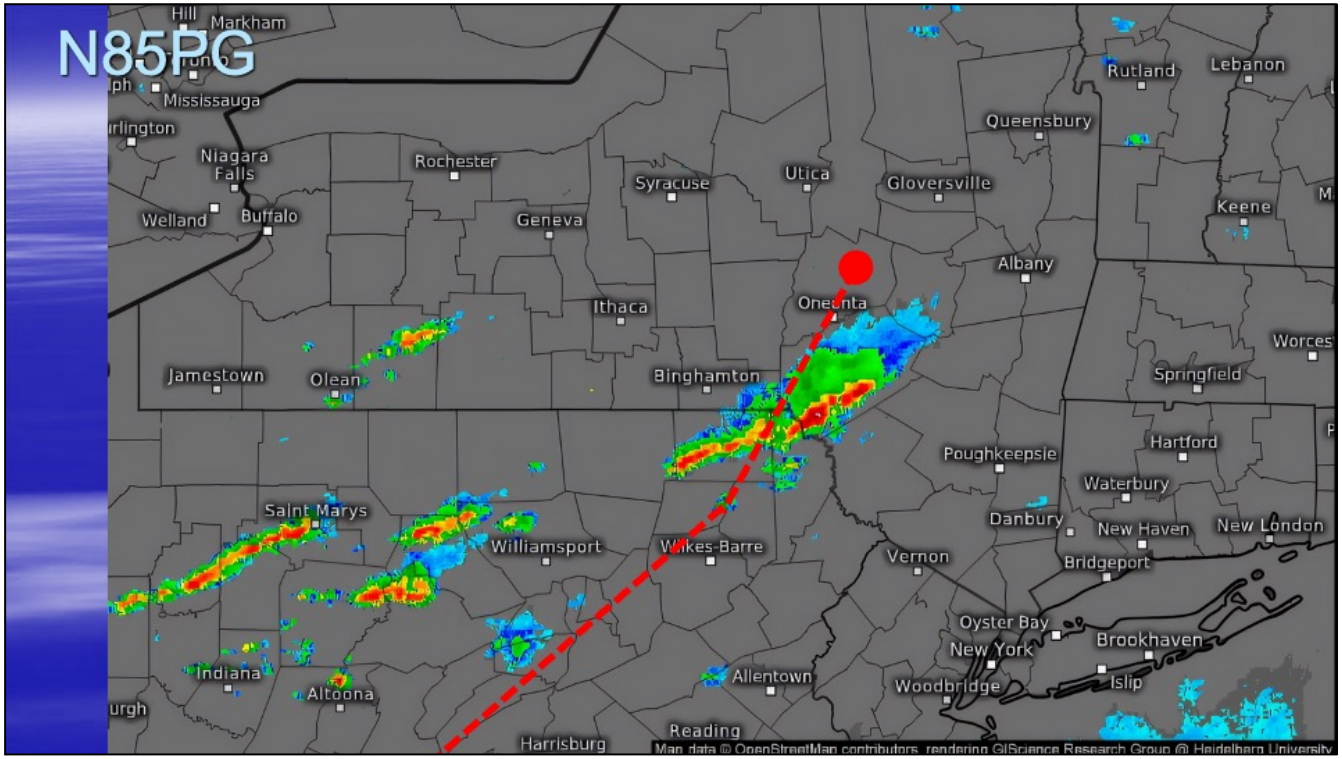
The attitude indicator and turn coordinator were rotating at the time of the crash, and the VSI was indicating 4000 ft per minute down. The vacuum pumps were intact and functional.

This family and the kids' grandfather, who was the pilot, all died.

To me, a likely cause here is spatial disorientation in significant turbulence and rain, leading to too much speed in turbulence, and an inflight breakup.

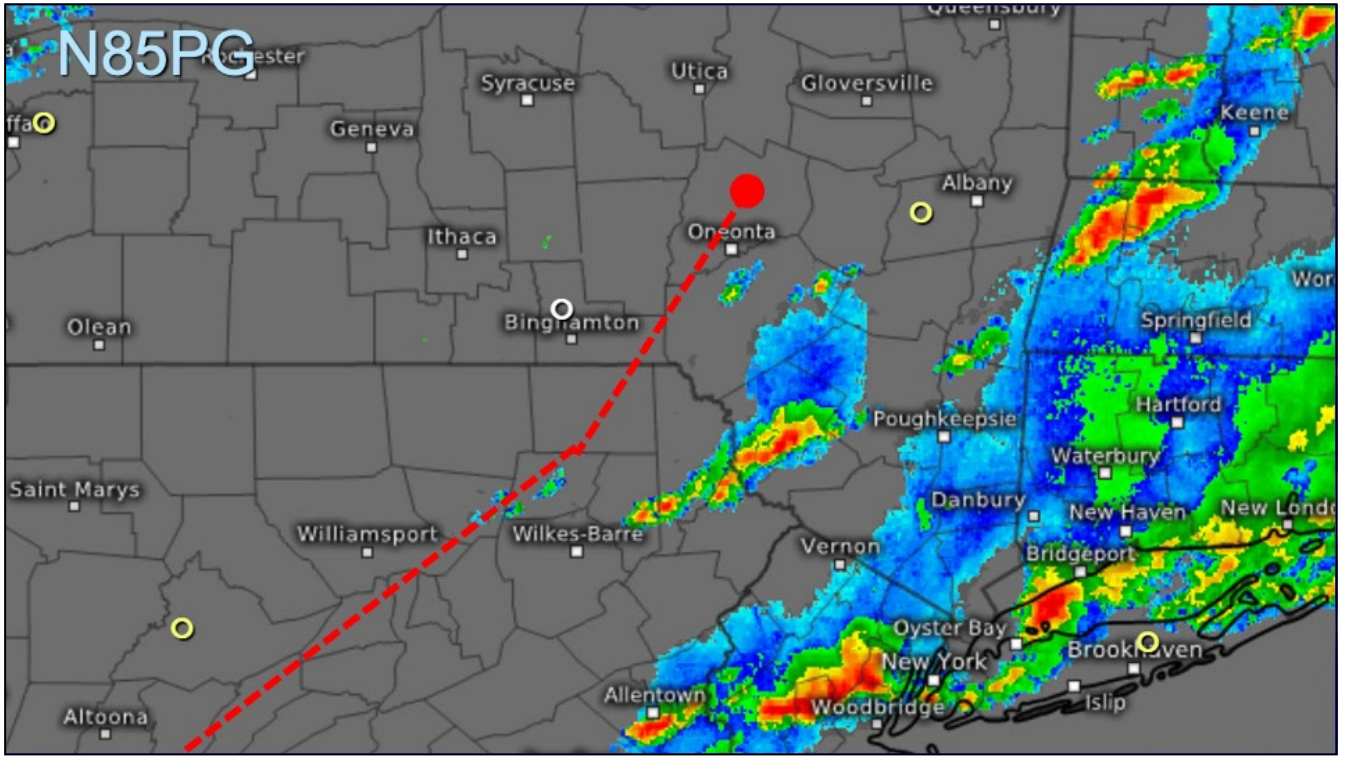
The pilot had been flying his PA-46 for years, but I don't know how proficient he was in IMC.

As mentioned regarding the earlier inflight breakups, the imperative is to slow down, which didn't happen here.



Furthermore, the pilot’s judgement in taking off at this time was seriously flawed.

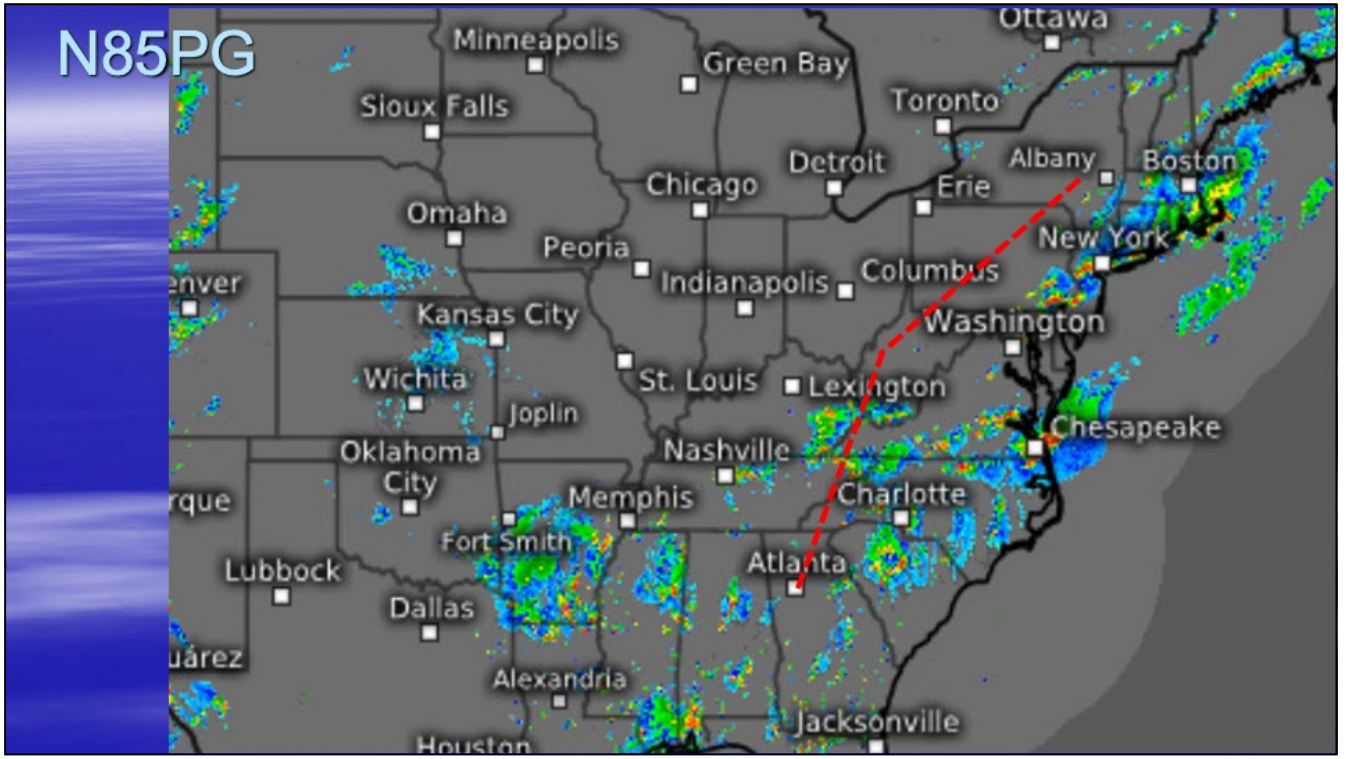
This line of weather was moving west to east quickly.



Here’s the weather picture an hour after the accident.

It clearly would have been a much better flight to the fuel stop, leaving at 2:30 or 3pm.

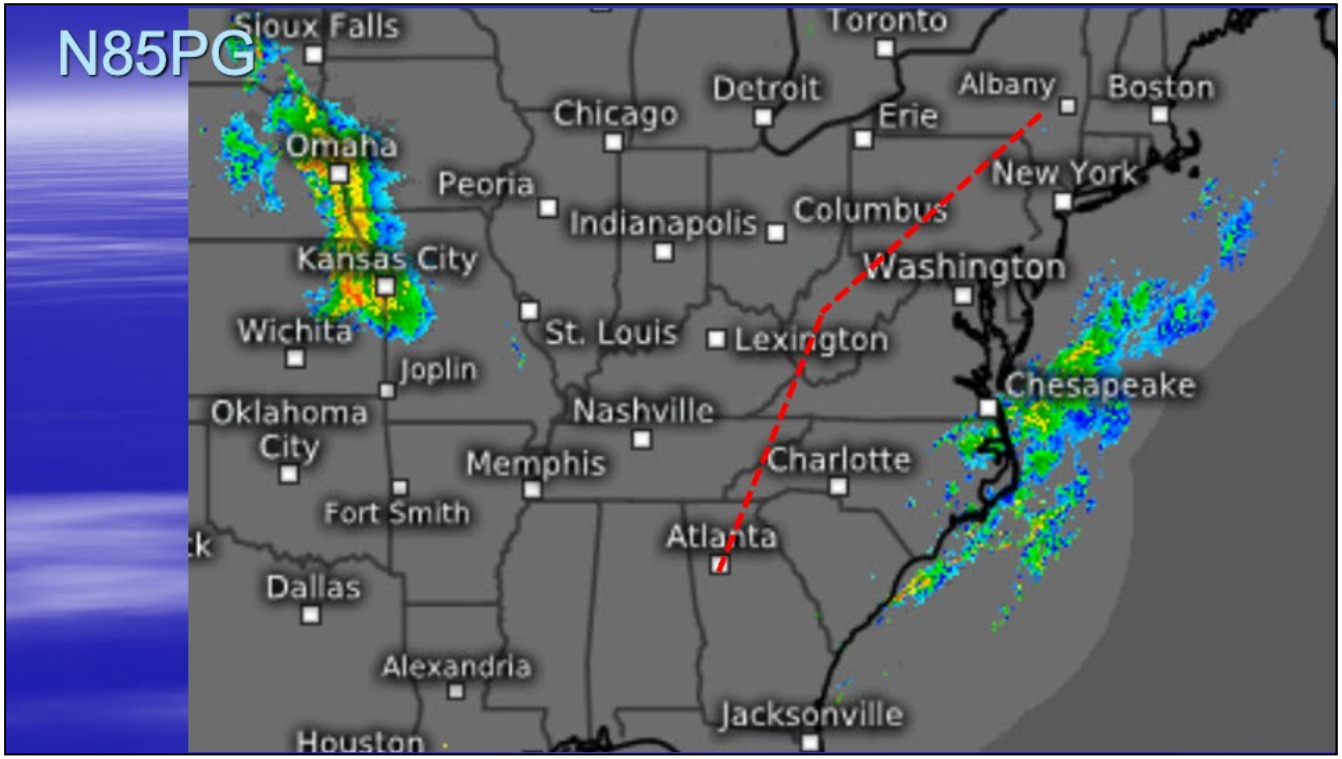
That still leaves the fuel stop and the ongoing flight to Georgia, with the likelihood of pop-up storms down south as the afternoon wears on.



In fact, this is the weather picture for 5pm that afternoon, about when they'd be done refueling.

Easy trip down to the refueling in West Virginia. But somewhat challenging on the second leg headed south.

So, rather than leave at 1:30 in the afternoon on Sunday, maybe wait and leave early Monday…



This was the radar picture at 8am the next morning.

Now I know that these folks probably had plans for Monday morning, but this would have been essentially a boring morning VMC flight back home.

Getting on my soapbox for a second – All of us in this room tend to be driven go-getters; we've got things to do and places to be.

But if we're going to fly our own planes safely, as a hobby, single-pilot – we need a

Plan A, a Plan B, and a Plan C for every flight. Especially if we're carrying people who are precious to us.

And in many cases, Plan C might well be to wait until tomorrow.

We need to have a low threshold for going to Plan C, if necessary.

All these weather fatal accidents this year are truly depressing…

NTSB Reports since Sept 2023

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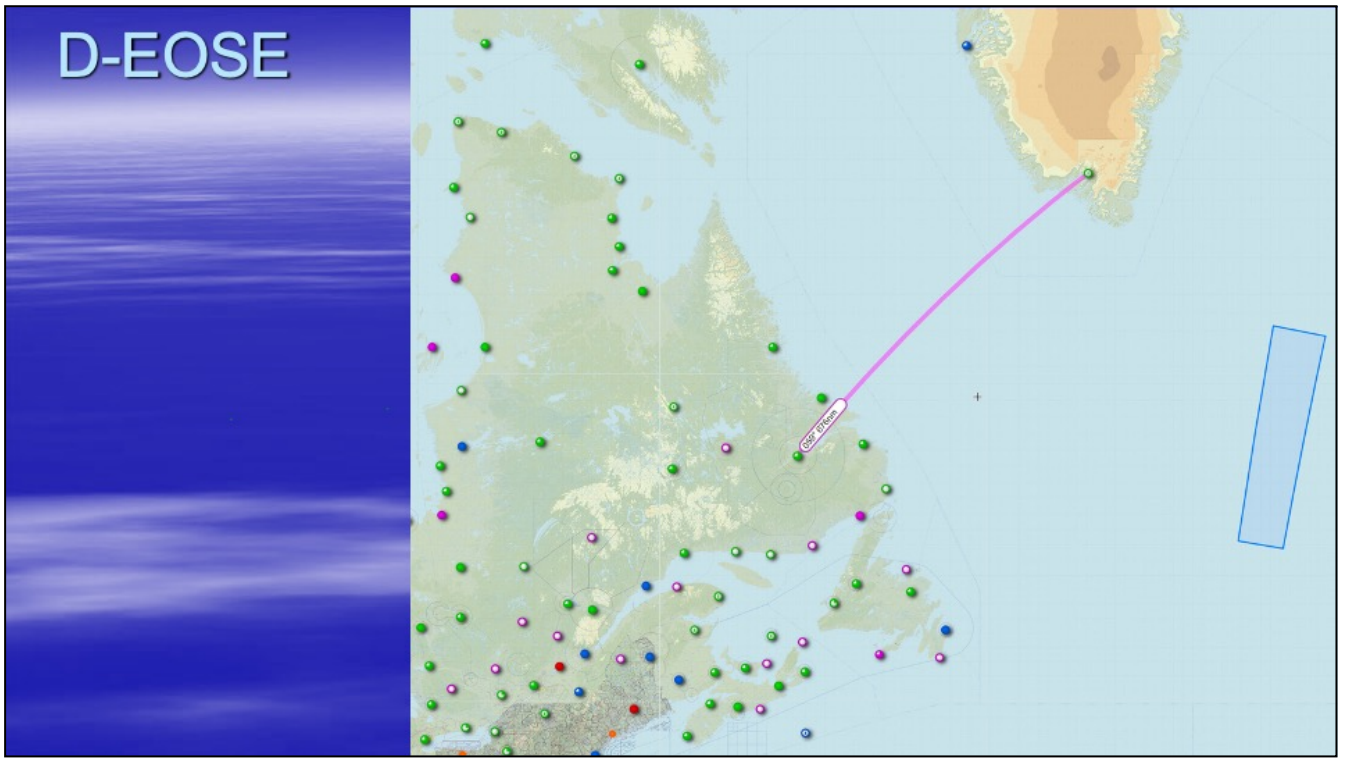
N4646G	7/24	Malibu – loss engine power			Exeland, WI. Off-airport landing.
N629AG	9/24	Mirage – missed appr?	Pilot ?	4	Anderson, IN. Stall/spin go-around?

Next what is likely a mechanical issue, or perhaps a fuel issue, though I have few details.

This is a German-registered ‘86 Malibu.

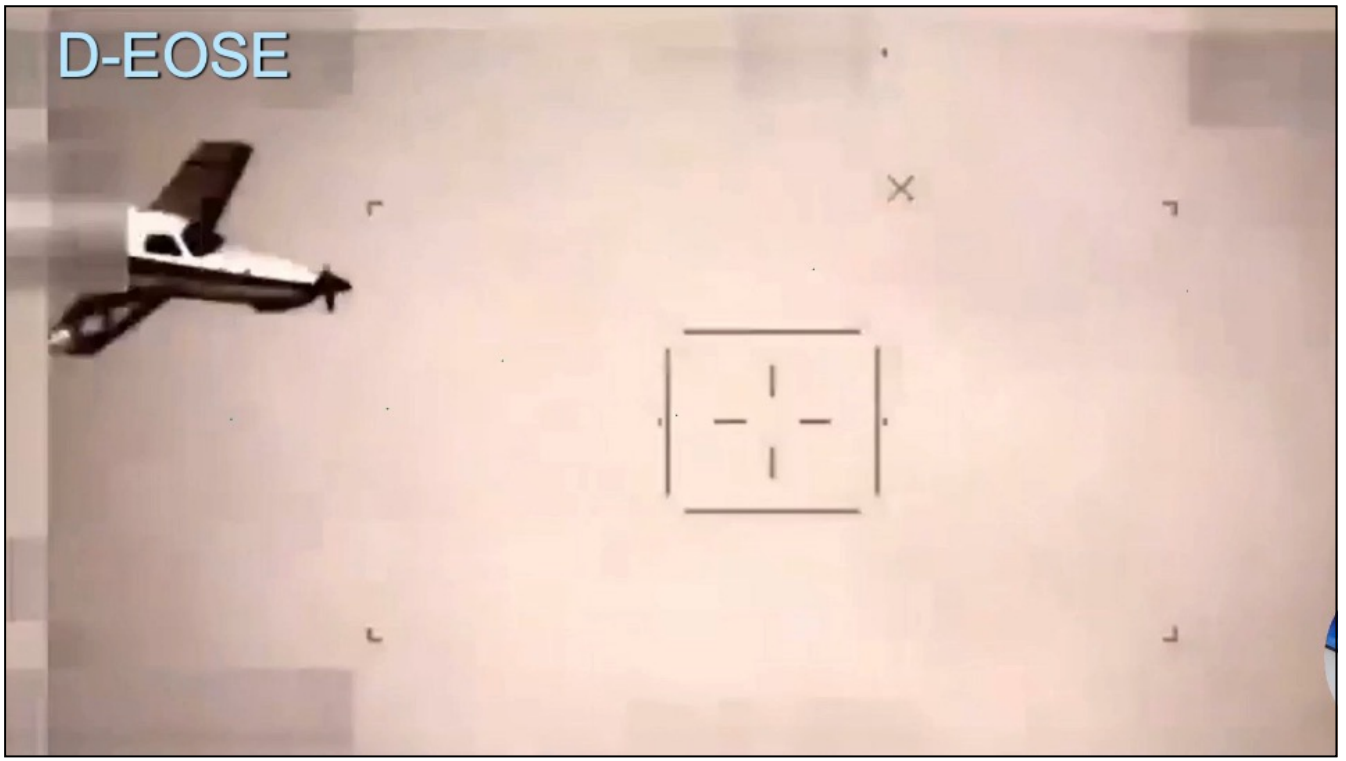


The pilot and a passenger were returning home to Germany from Oshkosh. This particular leg was from Goose Bay, Canada to Greenland.

Southwest of Greenland, the pilot transmitted a MAYDAY, which was received by Arctic Command (which is Denmark's Navy group that patrols the area of Greenland and the Faroe Islands).

Shortly thereafter, the plane ditched in the ocean.

30 minutes later, the Danish Navy frigate Triton, which is in the background of this picture, arrived on scene, with drones and a RIB boat.



This video is from the Navy ship & drone.

You can see the prop isn’t turning.

They found the two people in a raft, and rescued them.

We don’t know the cause of the engine stoppage; hopefully we’ll find that out at some point.

But great piloting job of the ditching, as well as being well-prepared for an evacuation with proper survival equipment.

And kudos to the Danish Navy, as well.

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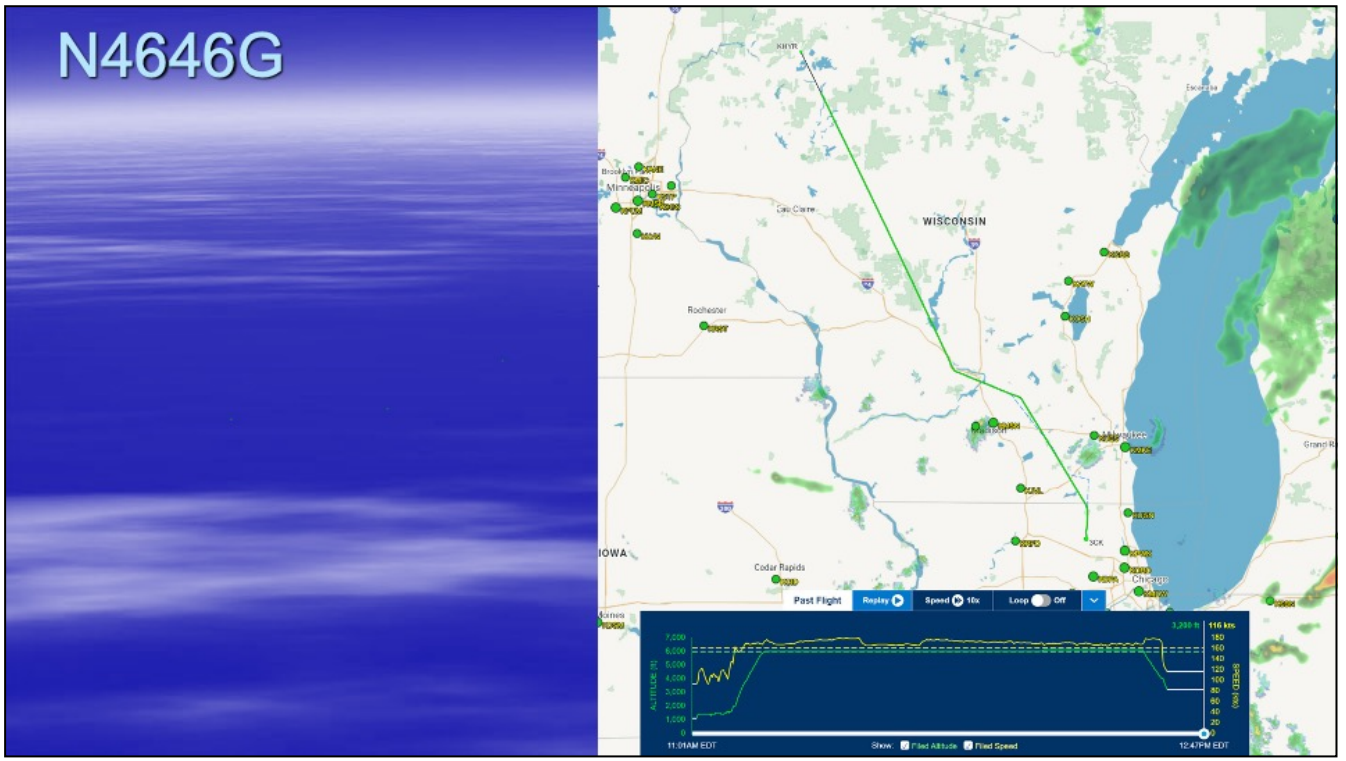
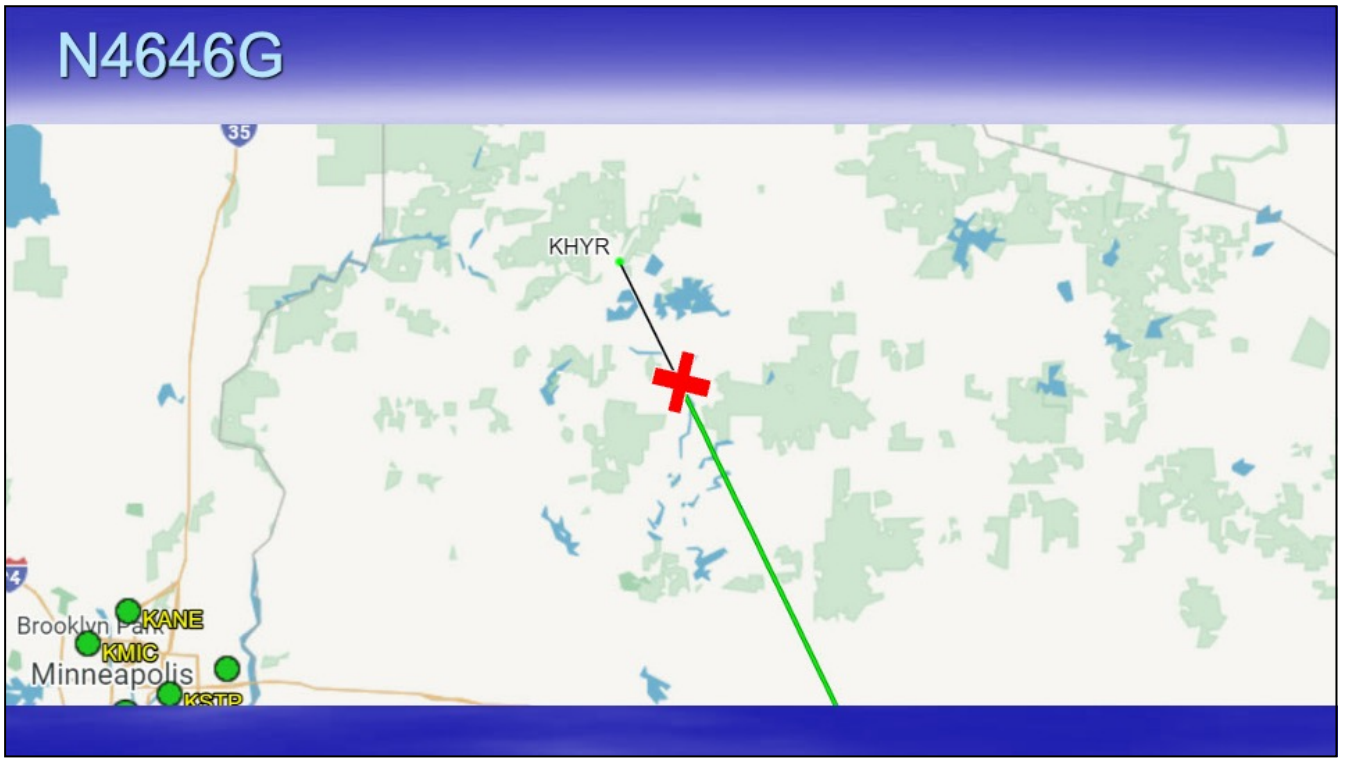
N629AG	9/24	Mirage – go-around stall	Pilot ?	4	Anderson, IN. Stall/spin go-around

And here's another Malibu power loss.

This is an ‘85 Malibu.



The solo pilot was flying from Illinois to Hayward Wisconsin.



Roughly 25 miles from his destination, the engine lost power.

The pilot declared an emergency, and landed in a grass field, and exited the plane with no injury, though the plane had significant fuselage and tail damage.

So good job on the off-airport landing.

The preliminary FAA report hints at fuel leakage at a fuel pressure test port on the Continental 550C engine, but I have no solid information at this time regarding the

cause of the loss of power.

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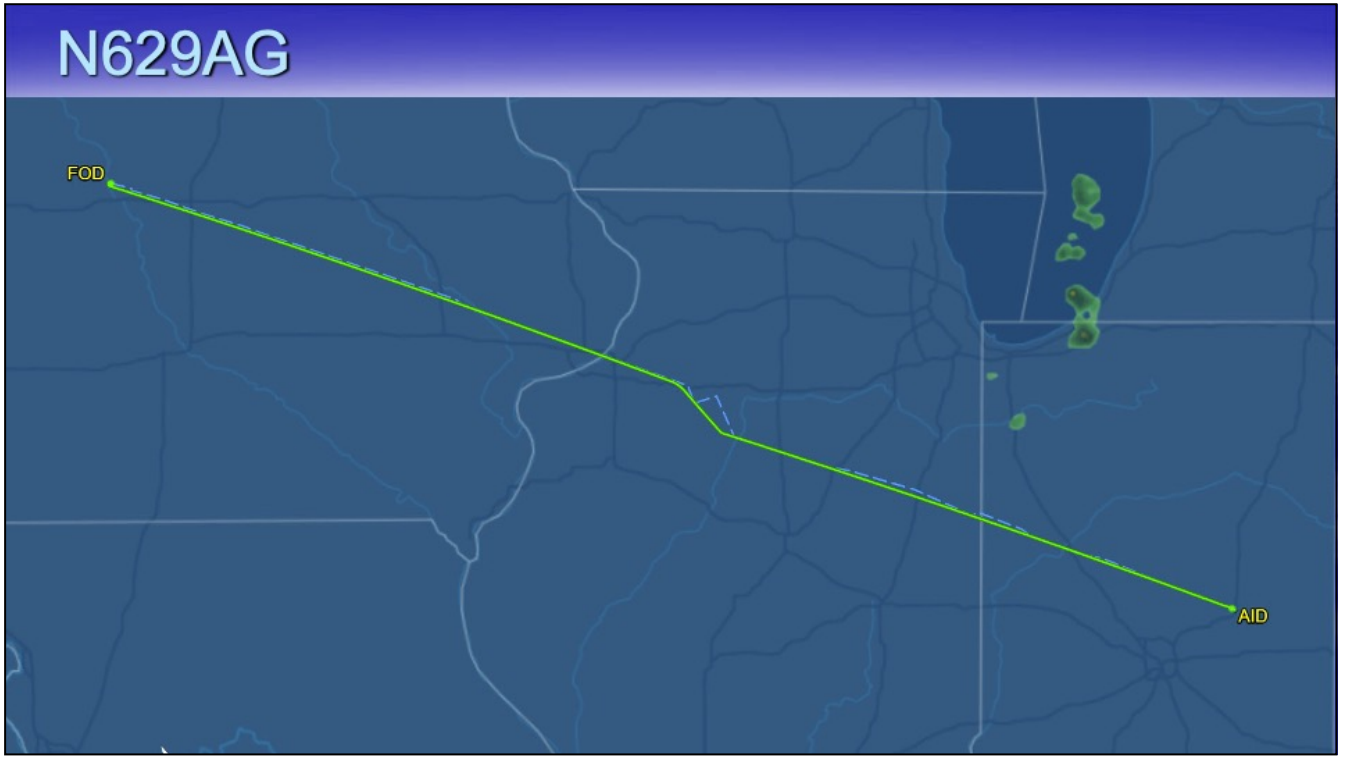
N629AG	**9/24**	**Mirage – go-around stall**	**Pilot ?**	**4**	**Anderson, IN. Stall/spin go-around**
N62VM	9/24	Malibu – bird strike			Minneapolis, MN.

And finally, yet another fatal accident in September that is just tragic.

This is a 2014 Mirage.



The pilot and 3 passengers were flying from Fort Dodge, Iowa to Anderson, Indiana.

Anderson is a towered airport, elevation 919 feet.

According to the Anderson METARS, the weather was easy VFR, with calm winds and a broken layer at 6000 feet.

Time (EDT)	kts	mph	feet	Rate
Fri 09:43:07 AM	189	217	6,900	-225
Fri 09:43:37 AM	199	229	6,675	-750
Fri 09:44:07 AM	207	238	6,150	-1,125
Fri 09:44:37 AM	190	219	5,550	-1,275
Fri 09:45:07 AM	177	204	4,875	-1,325
Fri 09:45:37 AM	168	193	4,225	-1,300
Fri 09:46:07 AM	164	189	3,575	-1,304
Fri 09:46:23 AM	166	191	3,225	-1,266
Fri 09:46:39 AM	165	190	2,900	-1,406
Fri 09:46:55 AM	169	194	2,475	-1,734
Fri 09:47:11 AM	165	190	1,975	-1,453
Fri 09:47:27 AM	149	171	1,700	-797
Fri 09:47:43 AM	126	145	1,550	
Fri 09:47:59 AM	105	121	1,700	563
Fri 09:48:15 AM	92	106	1,850	516
Fri 09:48:31 AM	91	105	1,975	409
Fri 09:48:48 AM	86	99	2,075	353

13 miles from the destination, he was at 6000 feet AGL going 189 kts, and Indy Center cleared them for a descent to 3000’.

I don’t know why ATC kept him high this long, but regardless, the pilot should have expected he was going to have a lot of altitude to lose.

He started a rapid descent, mostly at 165-170 kts, with a descent rate of 1300-1700 ft/min.

3 minutes later, the pilot reported the field in sight, and was cleared for a visual approach.

At that point he was 4 miles from the field, 2600 feet AGL, and still going roughly 165 knots.

When he was 1 mile from the runway, he was still 1000 feet AGL going about 150 knots.

He wisely told the tower he had to go around, and was given a right turn and climb to 3000 feet.

He began to climb, and reached 1200 feet AGL, but his last radar hit showed a speed of only 84 kts.

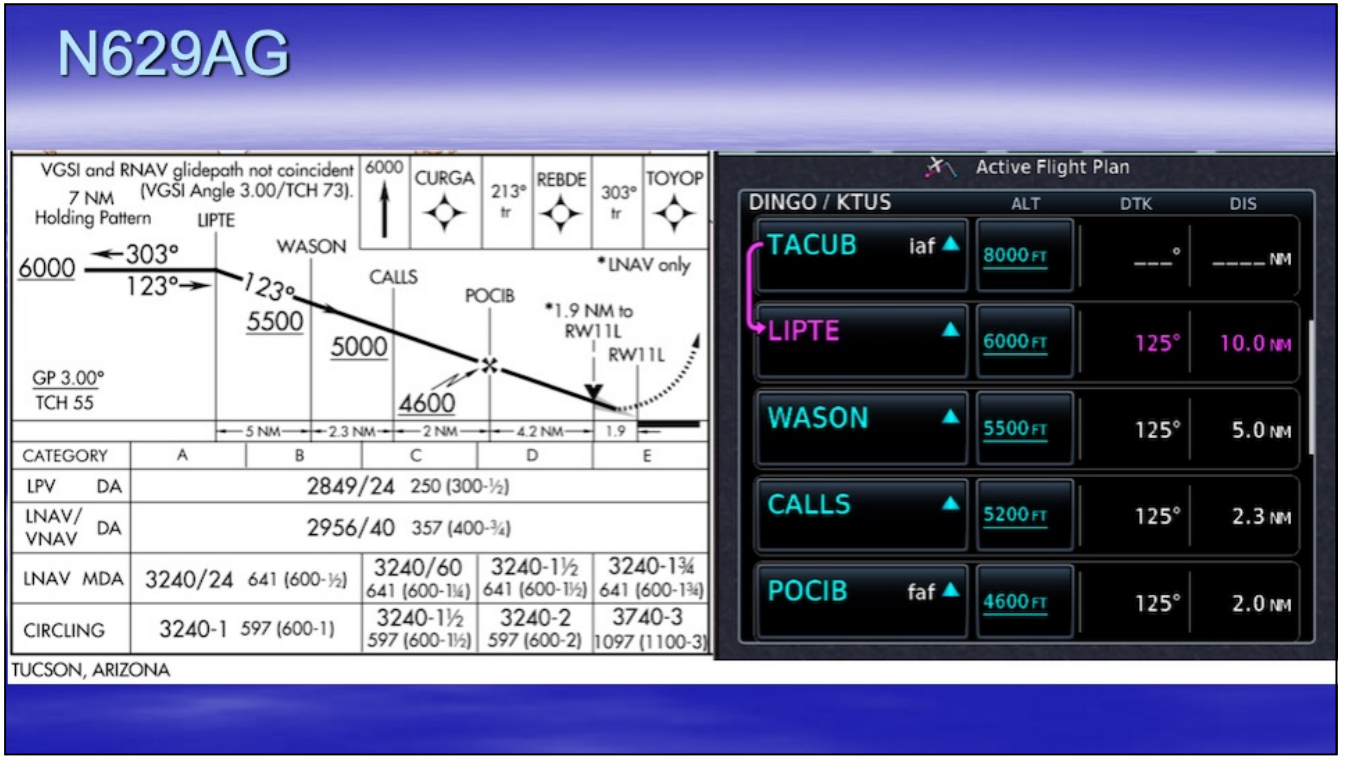
The gear was still extended, and a witness reported seeing the plane “flip over” before “nose-diving into a cornfield” 2 miles southeast of the airport.

This certainly sounds like a stall/spin.

The four people aboard died.

I think it’s likely that he had the engine pulled way back for his fast descent, and just forgot, or was distracted, and didn’t add power as he climbed on his go-around…

The four people aboard died.



It's pretty clear that the descent planning at the end of this flight was inadequate, resulting in an approach from which a landing was impossible.

Modern cockpit navigators have plenty of help for descent planning.

This plane had a Garmin G1000, which shows you clearly the fix altitudes for an instrument approach, as shown here. The navigator can continuously tell you the descent rate required on the VNAV page.

But I think this capability is also quite valuable for a visual descent, like this pilot had.

You can enable a visual approach, as shown here. Then you can activate VNAV for the 3 mile fix, and you should have good situational awareness.

Or you can just put in pattern altitude at the destination airport on the flight plan page, and plan to fly a pattern when you arrive.

If you haven't used this avionics functionality, I'd suggest trying it out – it's very helpful in many visual approach situations.

Finally, even if you don’t use any of this fancy avionics stuff, but see that you’re fast and high (as this pilot was), he could have asked the tower to descend in the pattern or perform a 360 a little away from the airport.

Again, we should be practicing go-arounds routinely; things happen quickly near the ground, and we need to be very confident in this rarely performed procedure.

Four people should not have died on this flight.

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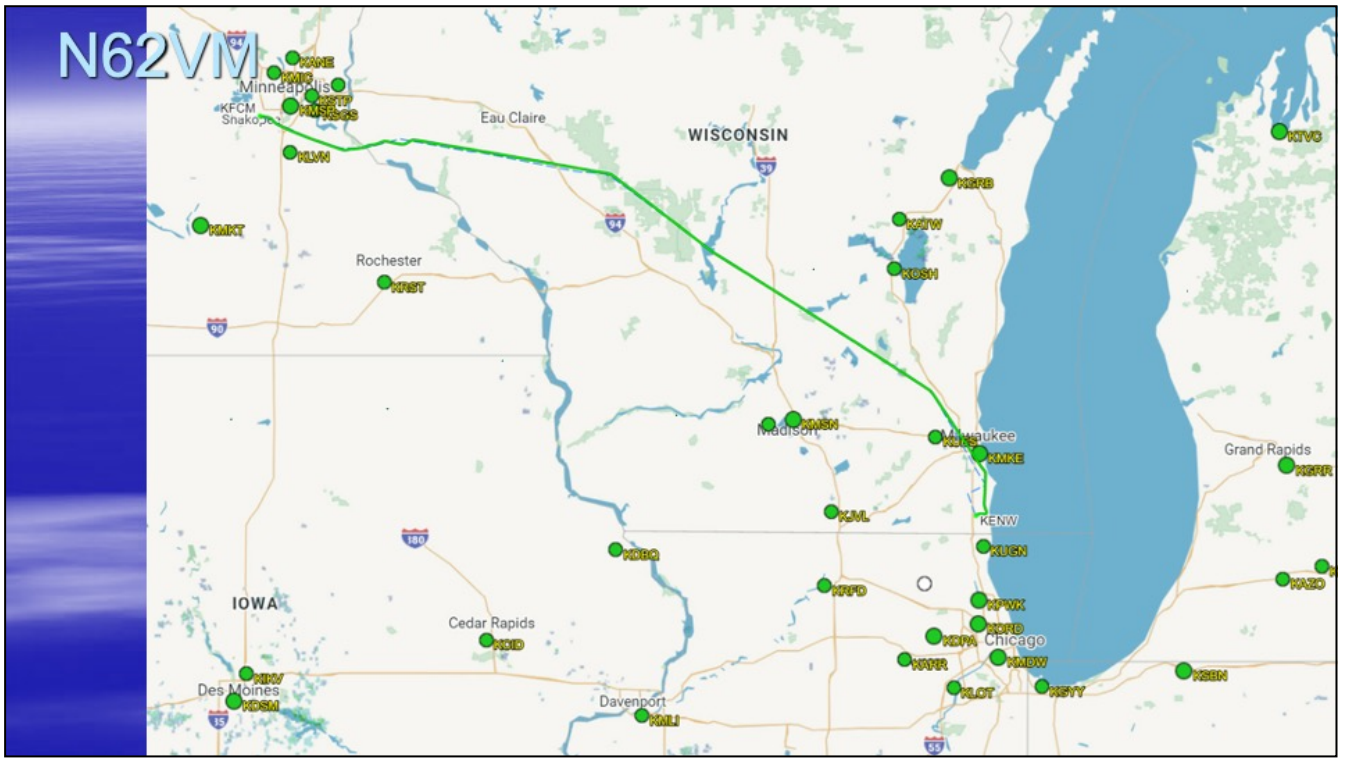
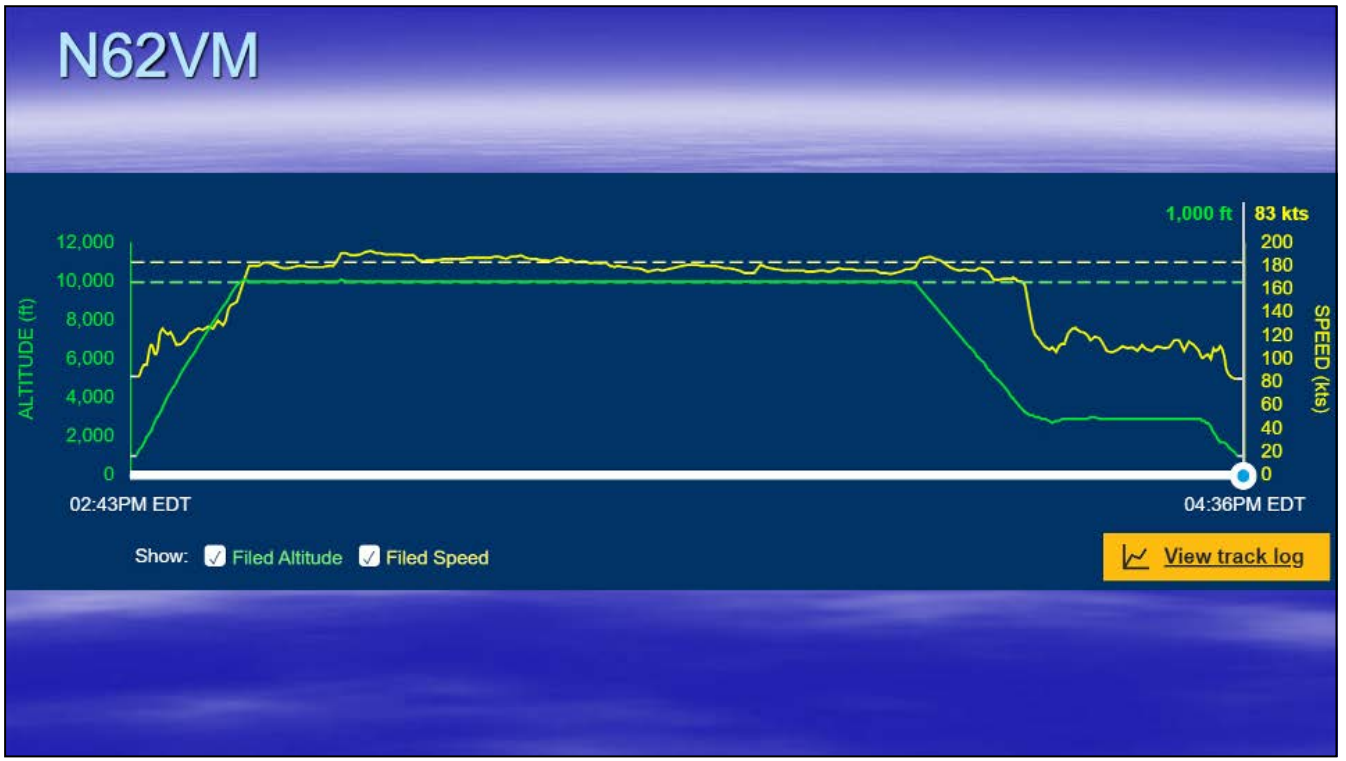
N629AG	9/24	Mirage – go-around stall	Pilot ?	4	Anderson, IN. Stall/spin go-around
N62VM	**9/24**	**Malibu – bird strike**			**Minneapolis, MN. Left wing dent.**

And finally, a bird strike.

This is a 1986 Malibu in excellent shape, with a relatively new paint job.



The flight was from Kenosha Wisconsin, to Minneapolis.



Most of the flight was at 10,000 feet.

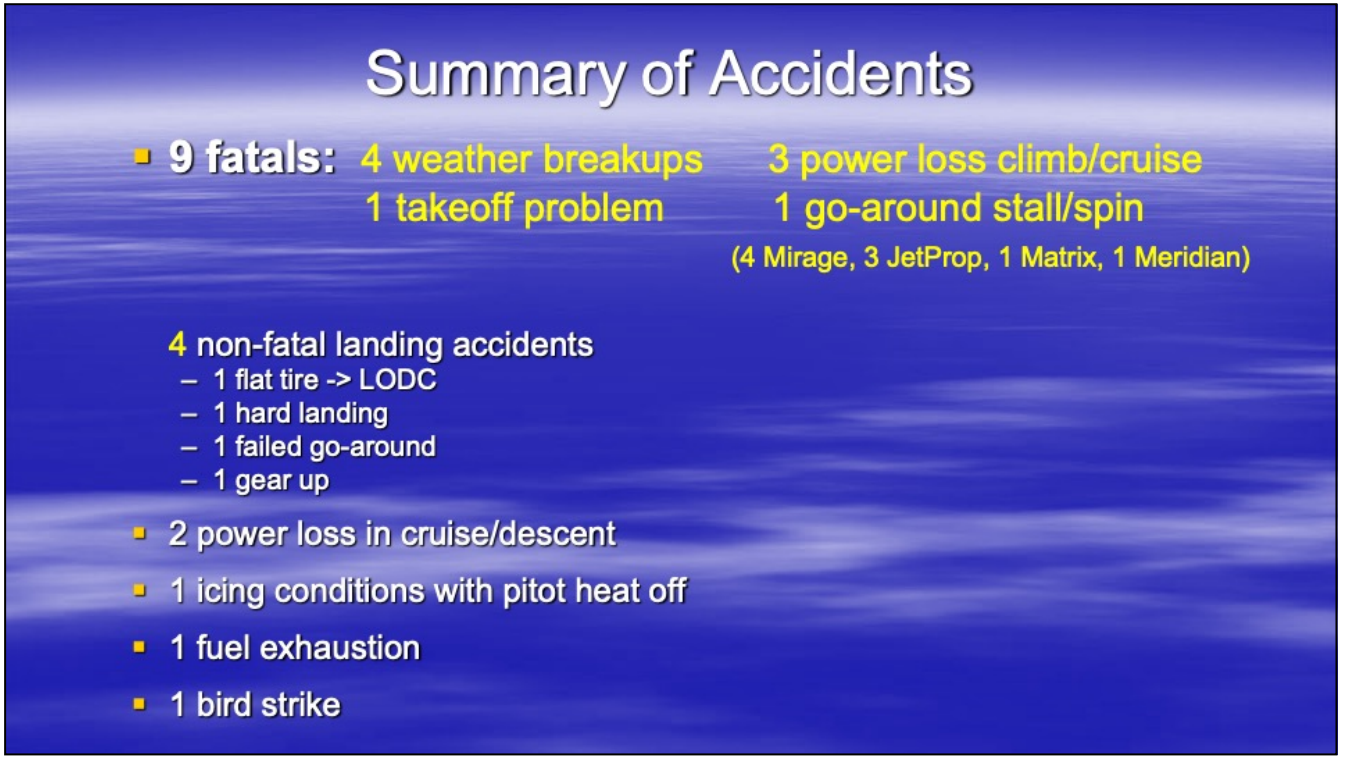
But, as is typical in busy airspace, half an hour from the destination, the plane was descended to 3,000 feet.

Somewhere along there, close to the destination, they had a bird hit the left wing, leaving a dent.

I'm not sure why this is currently classed as an accident, versus an incident. You might remember from one of my first slides that dents to airplane skin is not

considered significant damage, but I don’t know if the wing damage was more extensive.

If not, once that is determined, this event might be reclassed as an incident.



So here's is a summary of these 18 accidents.

We have too many bad weather judgement fatals, as well as power loss glides gone bad.

One good thing is this year we don't have any IMC approaches gone bad, which are often fatal. So that's one bright spot.

As has been the case for years, note the predominance of landing accidents among the non-fatals.

The really sad thing for me is that at least half of these 18 accidents were completely avoidable with better judgement and/or better technique. This is one driver of our initiative to incorporate decision-making more firmly into initial & recurrent training.

Incidents since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Notes
N1071S	10/23	Meridian – missed taxiway?	Pilot	Kansas. Landed; turned off into mud.
N819RL	1/24	M600 – aggressive braking?	Pilot?	Nevada. Landing skid -> off runway
N19JP	2/24	Mirage – hit ice on runway	Apt	Arizona. Large ice chunks on runway.
N1202H	3/24	Mirage – taxied off into grass	Pilot	Arizona. Unclear situation.
N50GK	4/24	Meridian – brake fluid fire		Colorado. Aborted takeoff.
N408C	4/24	Mirage – landing LODC	Pilot?	Mexico. Veer off runway; NLG collapse.
PR-VTF	4/24	Meridian – flat tire	Mech	Brazil. Veer off runway.
N614ST	6/24	Mirage – hard landing	Pilot	California. NLG collapse on bounce.
C-GTJB	7/24	Mirage – landing LODC	Pilot?	Canada. Veer rt off runway; NLG collapse.
SP-AMP	7/24	Mirage – gear-up landing	Pilot	France.
N28NK	9/24	Meridian – taxi accident	Pilot	Newport News, VA. Struck parked plane

This list is an unofficial list of PA46 incidents since last convention. Only a couple of these are in the FAA database; the rest are culled from online reports.

Again, as is true every year, most incidents tend to occur during the landing phase.

Here we have a couple of strange turns off the runway into soft ground, instead of onto a taxiway.

We also have a runway departure, probably due to aggressive braking and a skid.

We have one plane hitting a big chunk of ice on a runway that had been plowed poorly and not checked by airport personnel afterwards.

Then an aborted takeoff with hard braking, resulting in a brake fluid fire in one main gear assembly.

We have a couple of landing loss of directional control, one due to a flat tire, and a hard landing and a gear-up

landing.

And finally, a taxi accident, striking another parked plane.

Incidents since Sept 2023

N#	Mo/Yr	Model - Event	Cause	Notes
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But thankfully, what we don't see here this year is the multitude of landing loss of directional control accidents.

Last convention, we had 13 landing losses of control, between the accidents & incidents. This year: 6 or 7, if you include the two flat tires.

We've been emphasizing for the past few years not landing too fast, holding the nosewheel off, tire pressures, and just a general focus on landing skills – I'd like to think that this emphasis has made a difference regarding these loss of directional control accidents.

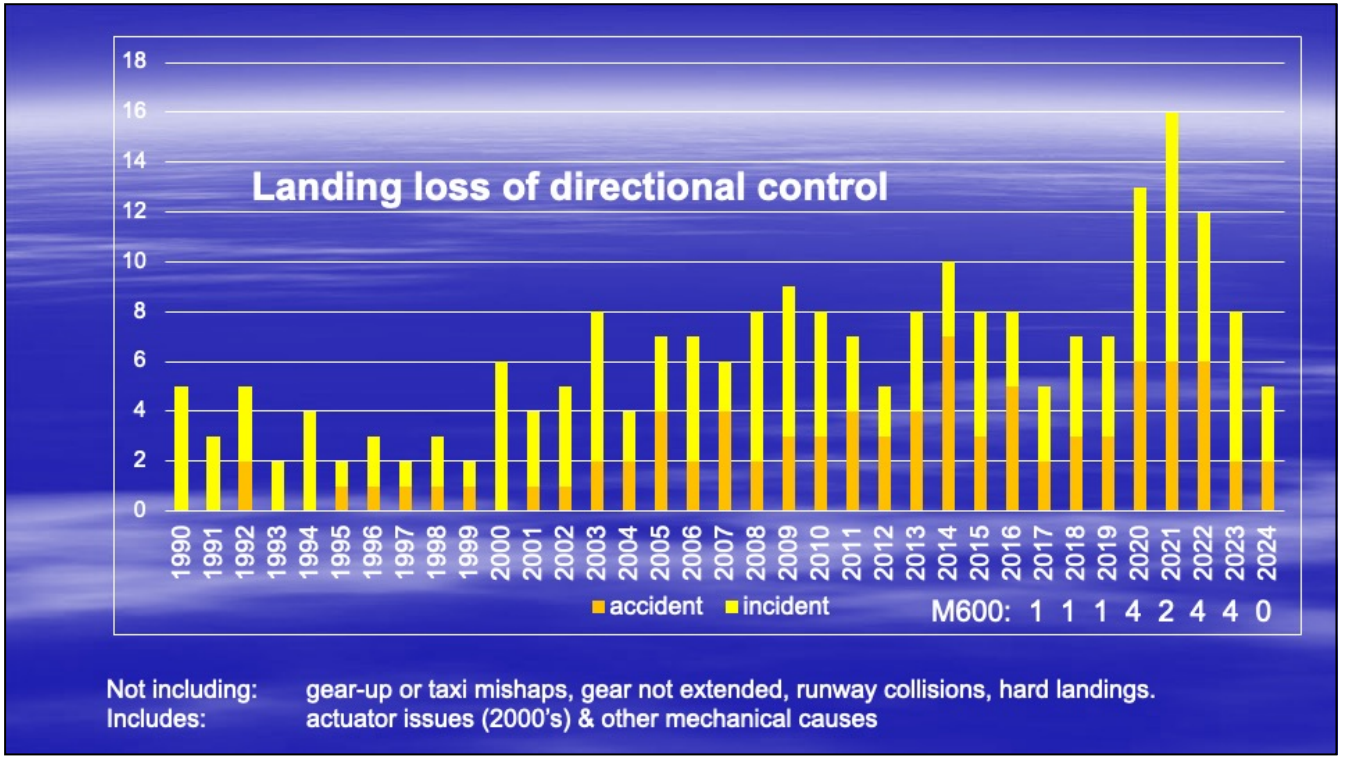
But we'll see over the next couple of years whether this is a permanent improvement in practice among our fleet.

Over the last few years I've used this slide, and the only change this year is I moved IMC approaches to the bottom; but I won't remove it completely, since for almost a decade prior to this year, we've had at least one fatal in that category every year.

This was a particularly bad year for deciding to fly into convection. And we also had several accidents from non-convective weather where the pilot's skills just weren't up to it.

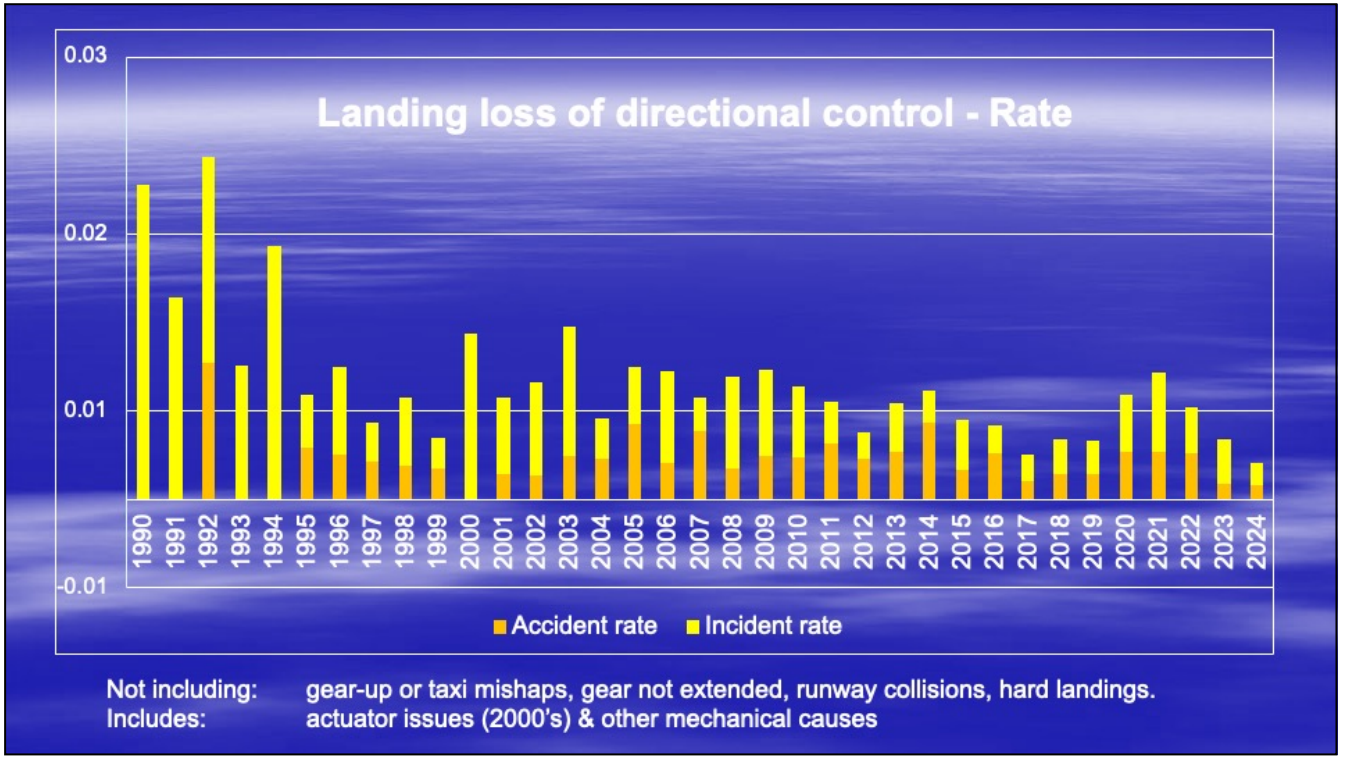
VFR landing accidents are usually not fatal, but they remain pervasive in the fleet.

And as I repeat every year, if you can land off-airport, under control, not in a stall/spin, you have a very good chance of surviving.



Here are landing loss of directional control excursions over the past 35 years. This chart presents raw annual counts. I realize that 2024 still has 2 months to go, but hopefully this is final data.

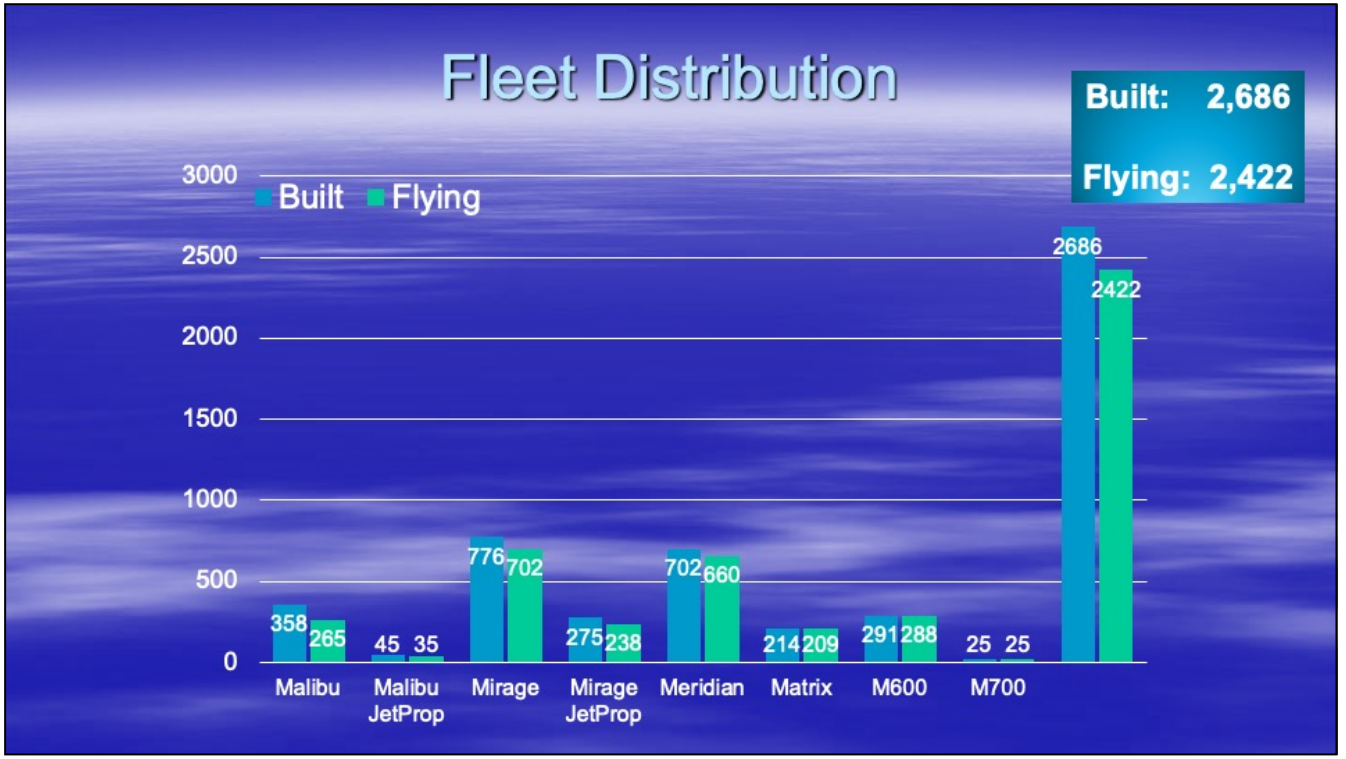
You can see the decrease in this type of landing issue this year, despite an ever increasing number of planes flying…



Here's exactly the same data, but presented as a **rate** of landing control issue per flying plane each year.

You can see that this year so far is clearly an improvement over most prior years.

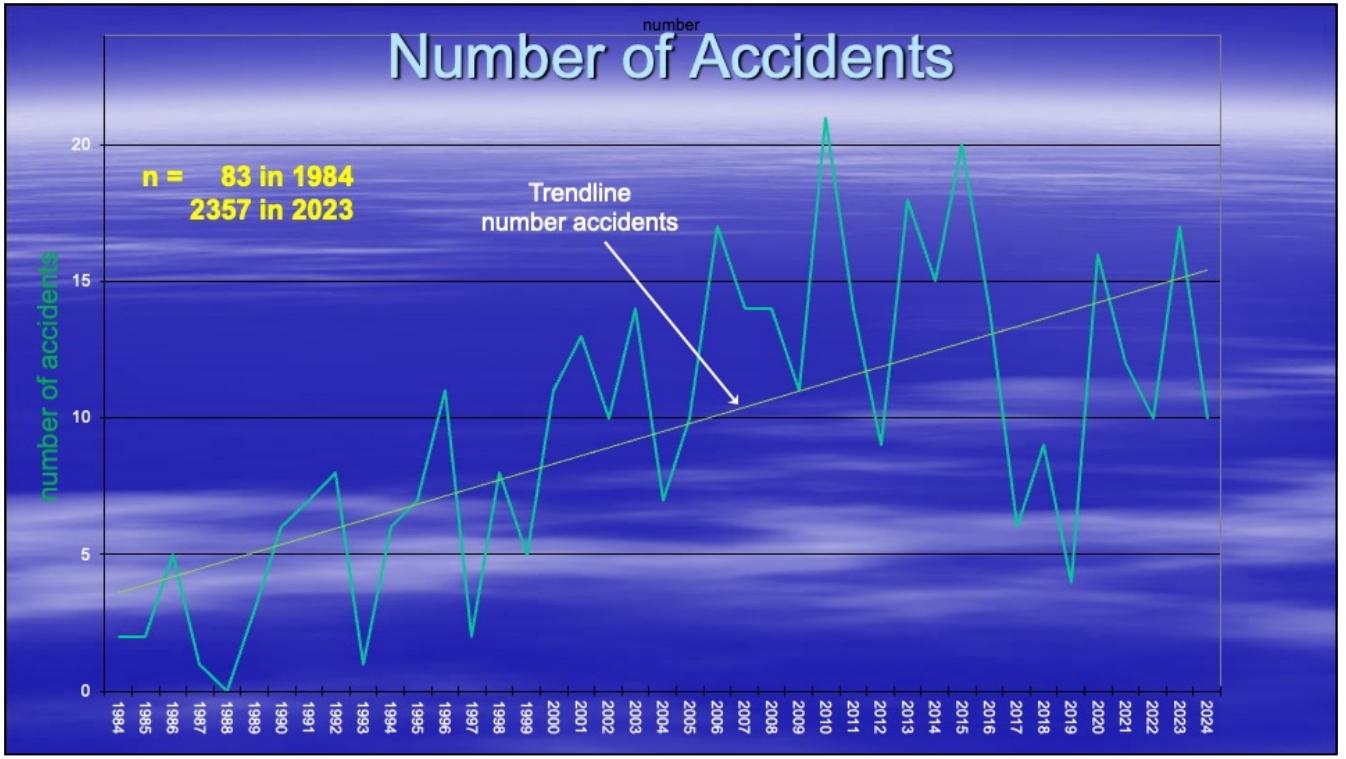
As I mentioned last year, it will be very interesting to track the landing records of M600's after the nose gear redesign, as well as the M700's, going forward. I would not be at all surprised to see those models having fewer landing loss of directional control events.



Let me conclude with a big picture overview.

Once again, my sincere thanks to Dave McVinnie for these fleet numbers. How many of each model were built, and how many are still registered as flying. As I've said many times, Dave is the master of PA46 fleet statistics; he tracks every serial number built.

We have a total, as of this summer, of <CLICK> a bit over 2400 planes flying worldwide.

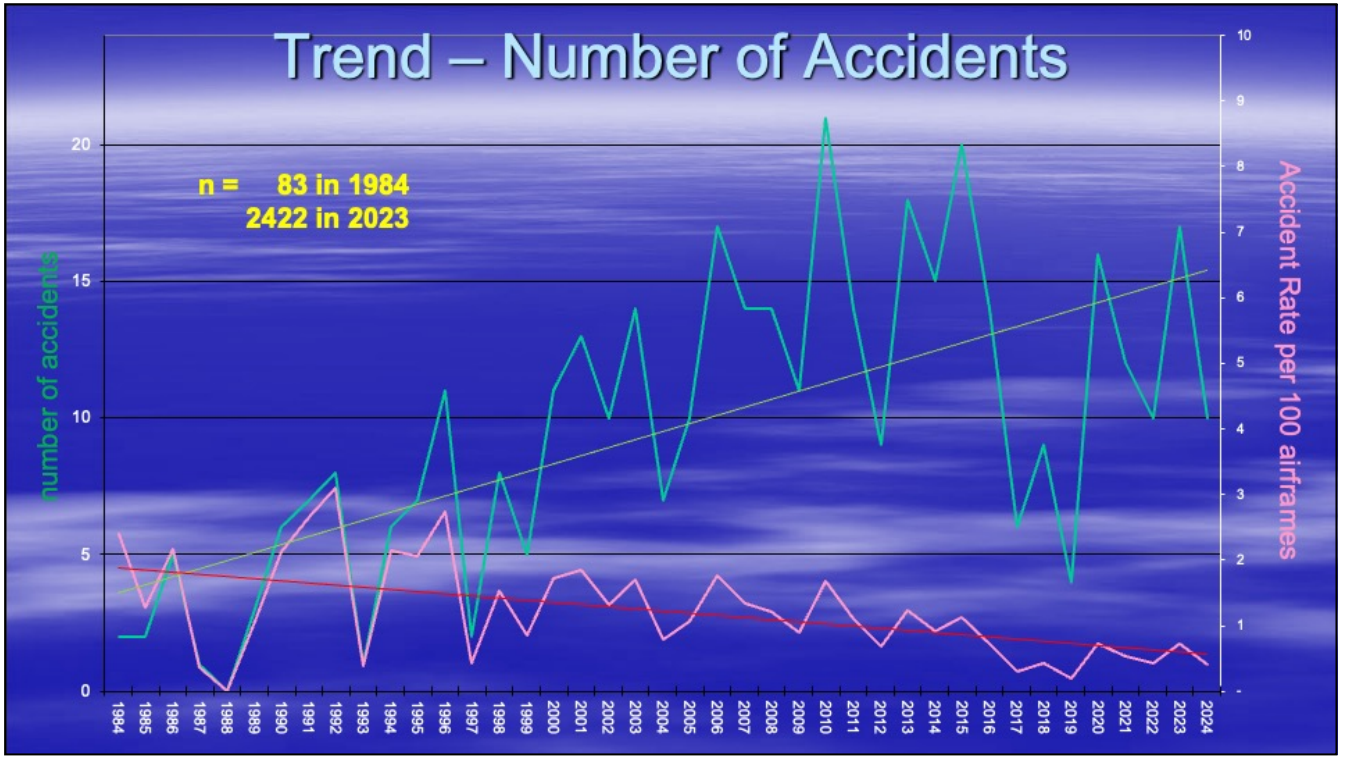


Here are the NTSB accident numbers from 1984 to the present, by calendar year (rather than convention year).

We had a lousy ten years from about 2006 thru 2016, and then three encouraging years of decreased accidents from 2017 thru 2019.

The last few years are a little below the previous trend line, but still high, as you've seen this year.

But let's also look at the accident rate.

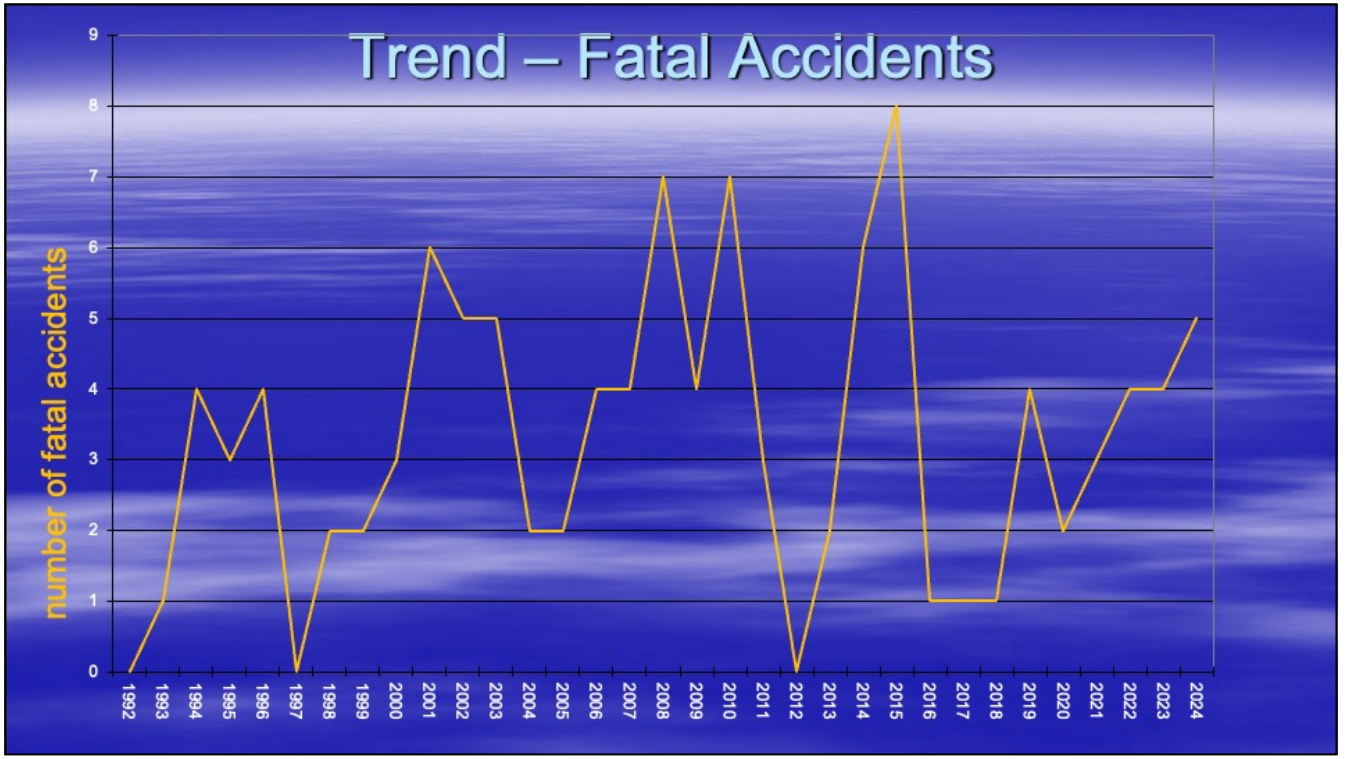


Again in this chart, I've used accident rate per flying PA46 aircraft – that's the pink line, with the slowly decreasing trend line.

So, over time, our overall accident rate is dropping, which is good.

This slow decline is about the same as that seen throughout general aviation, from the latest Nall Report. Again, you see lower numbers in 2017-19, and then back up to the trendline.

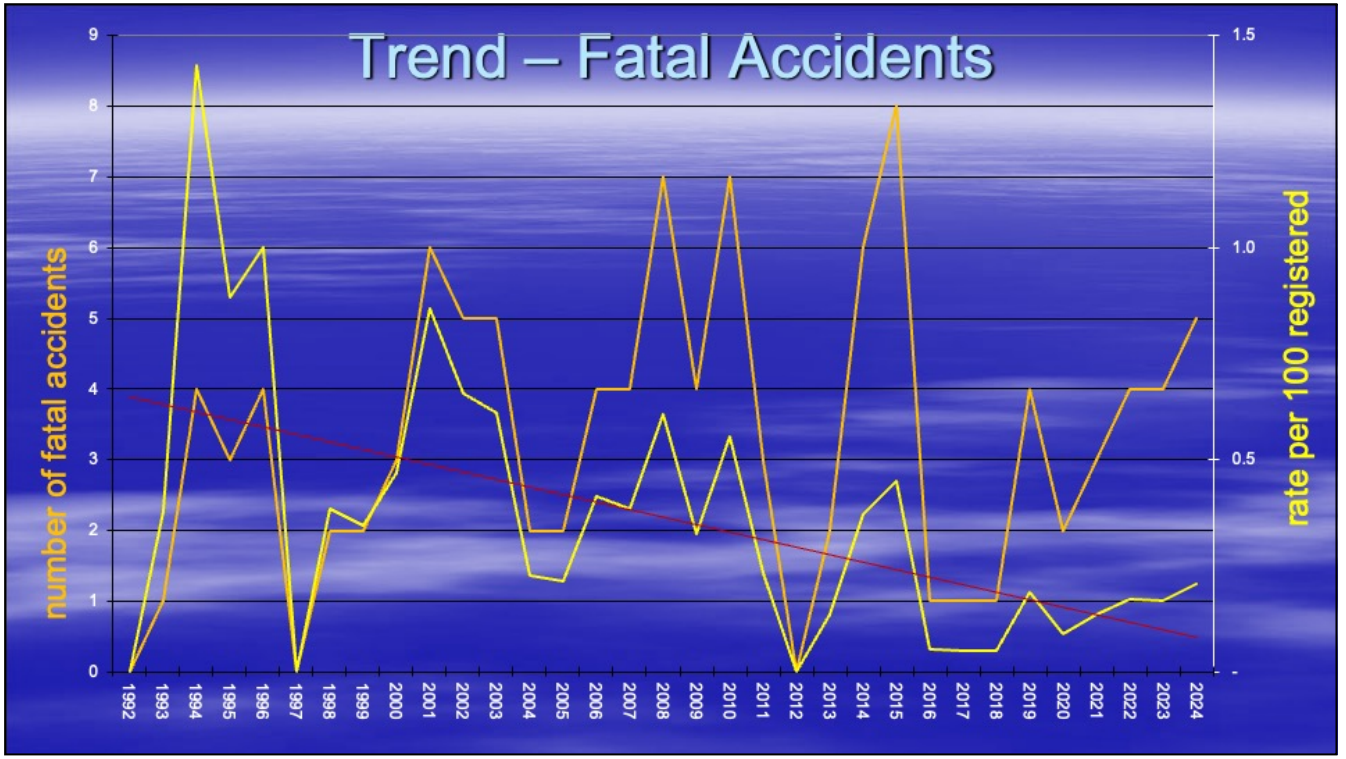
We can do better…



Where things get ugly is counts of **fatal** accidents, again, from 1992 to the present by calendar year.

You can see that we had kept fatals down to just one a year from 2016-2018, but jumped back up over the past few years.

The counts from 2020 to now are not good, and remember that 2024 isn't yet over...



The fatals rate per 100 flying aircraft is the yellow line, with a decreasing trend line.

It is true, taking the long view, that we've reduced the PA46 fatal accident rate by over 80% since the early days of the PA46, and that our fatal accident trend line is going down faster than GA as a whole.

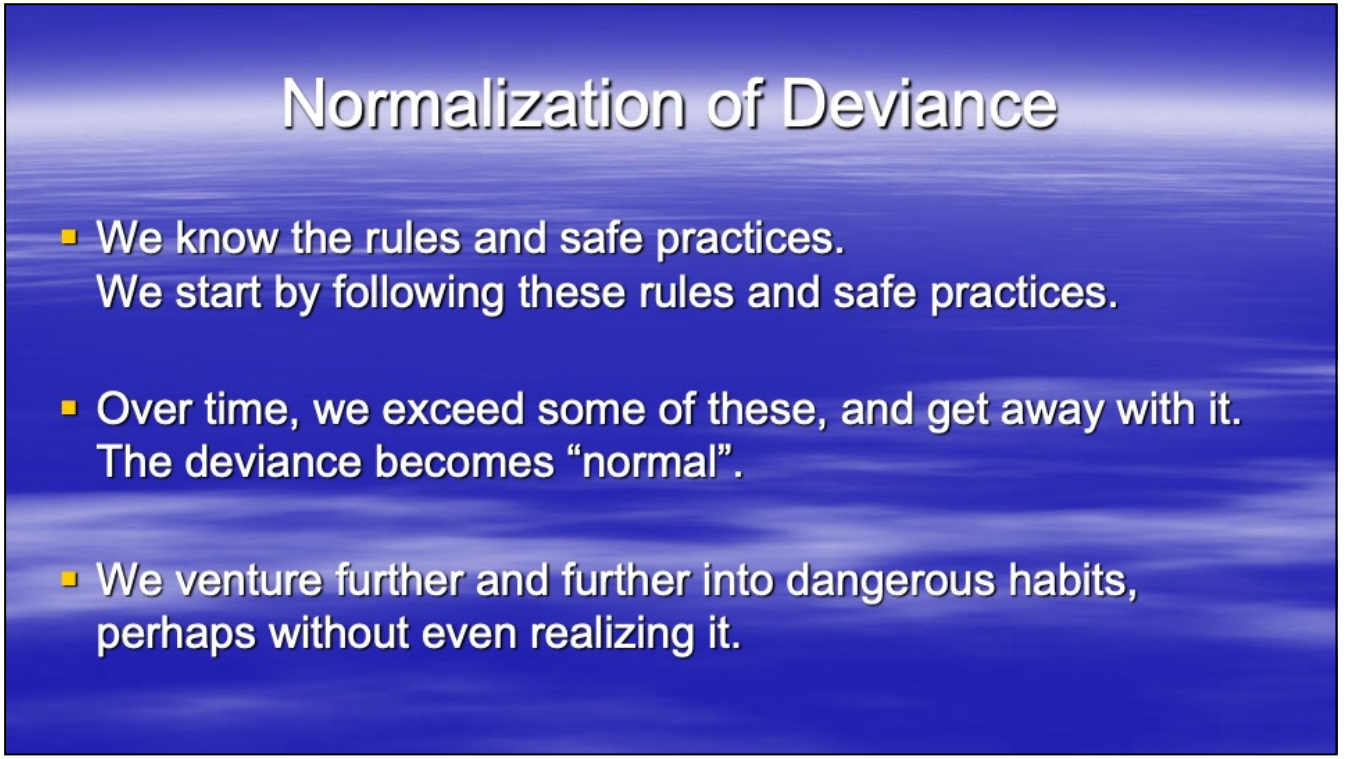
Nevertheless, the last few years our fatals rate has been steadily rising over the trend line, which is bad.

I say it every year, but zero fatal accidents should be our goal… We've achieved 0 or 1 fatal accident in six of these past 32 years, so it is possible.

We can only achieve that goal with better decision-making.

I expect that the emphasis on pilot decision-making in our new training syllabus could be very helpful here.

So once again, here are my appeals to all PA46 pilots.



Before closing, I just want to mention a human factor in accidents that I think plays a key role in many of the accidents and incidents I’ve talked about today.

Normalization of deviance …

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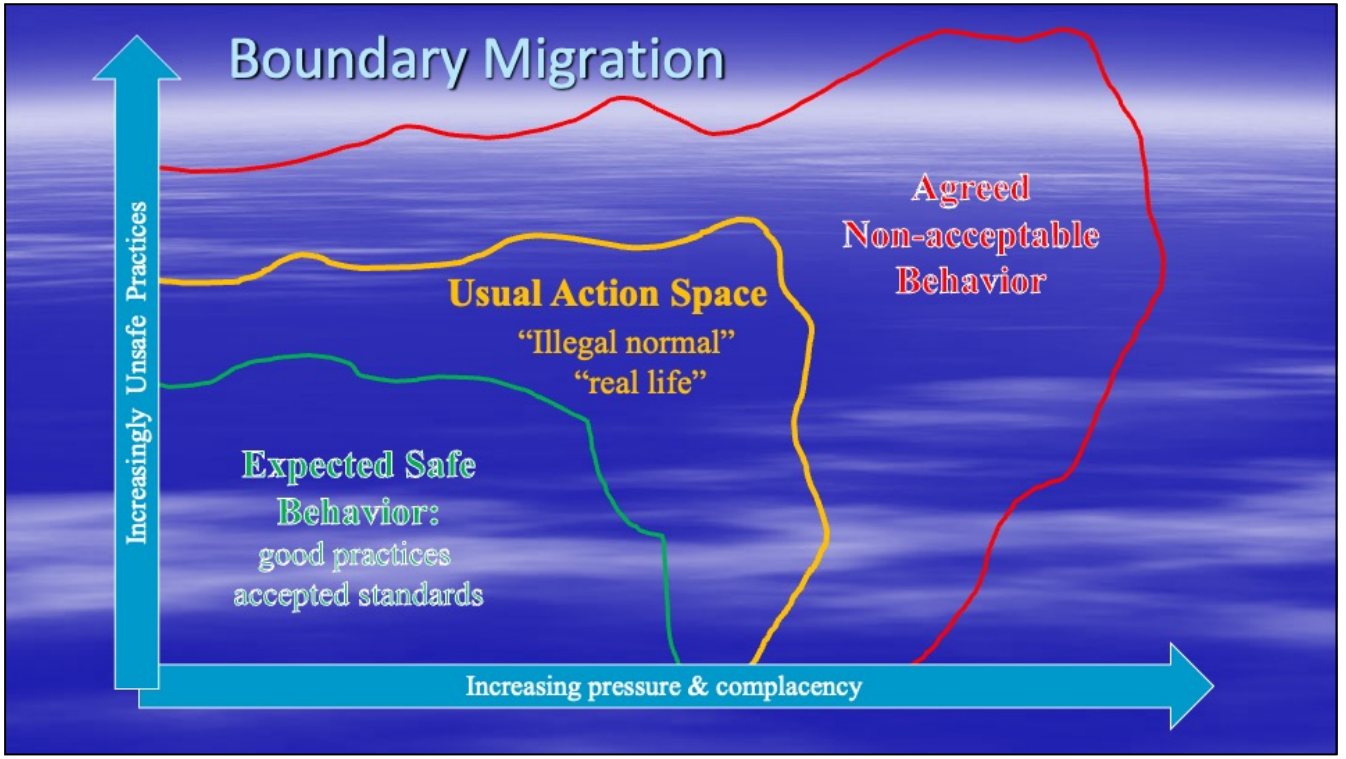
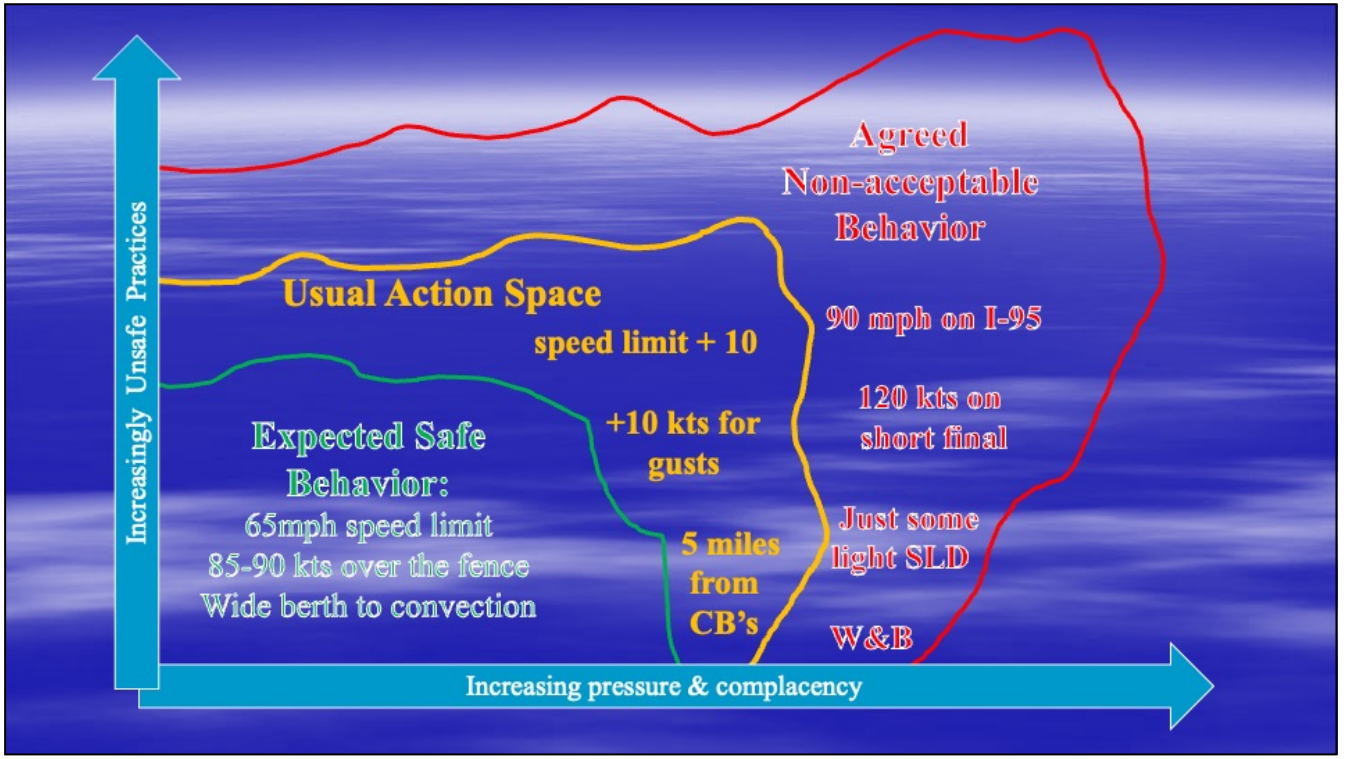


Here's that graphically illustrated.

We start off in the inner green area – Expected & legal behavior.

We exceed those limits, and nothing bad happens, so we start to accept that deviance as normal. This could be loading our planes a little overweight, or stretching our weather tolerance, or anything else.

Eventually we may unwittingly [or consciously] migrate into clearly dangerous behavior.

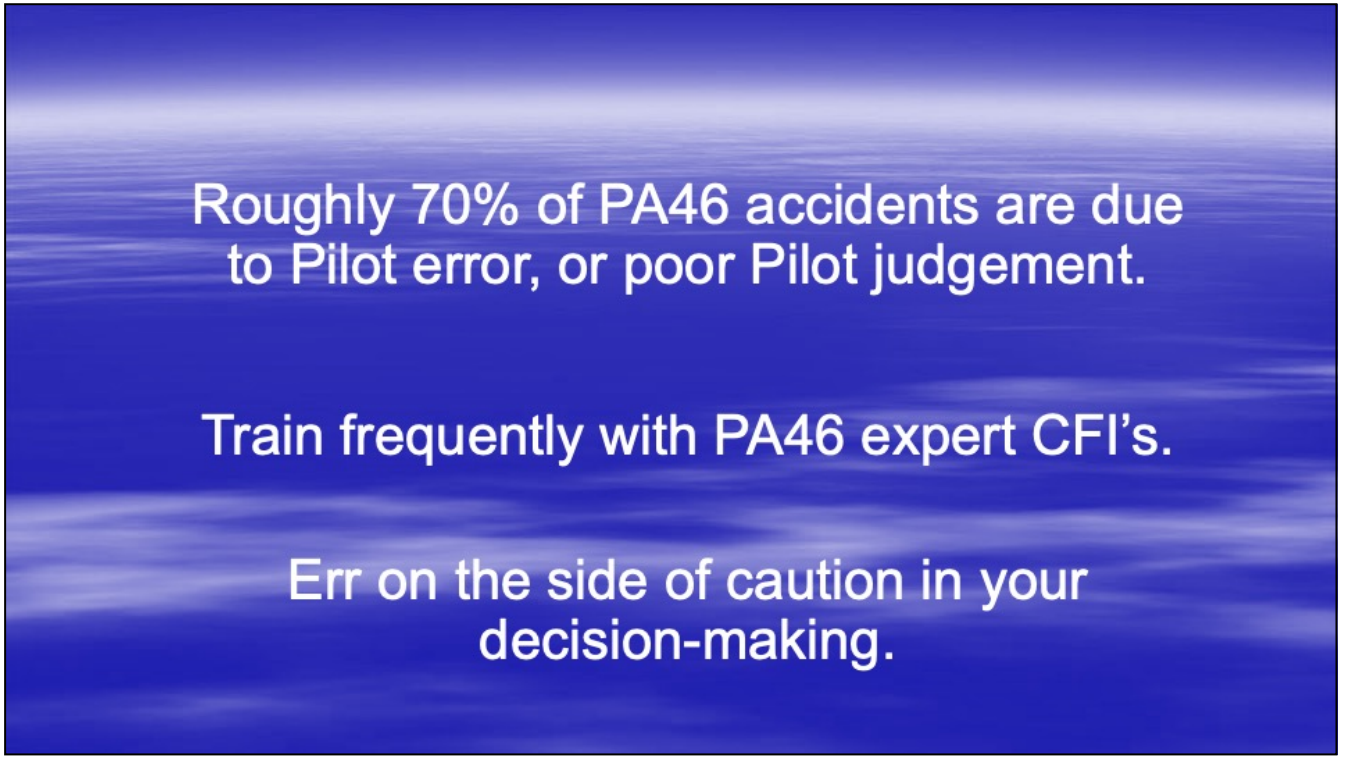


<Read chart>

I suspect this is why the accident statistics show two accident rate peaks for time-in-type pilots.

There is a peak of accidents with low time-in-type PA46 pilots, likely due to lack of familiarity and experience.

But then there is a second peak around 500-1000 hours time-in-type, likely because some of these more experienced pilots have slipped into the yellow and red areas of this chart over time, and eventually they get bit in the rear.



Let me close by remembering that **we** are the weak link in aviation safety.

Don't allow yourself to normalize your deviations from safe practice.

Train frequently and well, do conservative preflight and inflight risk assessments, and don't take dumb chances.

Thanks very much.

I'll post these slides on the website in the next week or so.

Be safe out there!!