

2017 Accident & Safety Review

by Manny Casiano

As you likely know, MMOPA was originally founded to improve the safety record of the PA46 airframe, and that's what we've been doing for the past 27 years. The annual Safety Review is an important learning part of each year's convention; unfortunately, Mother Nature had different ideas this year, and our Charleston convention had to be canceled due to Hurricane Irma.

This article will give you a summary of our past year's accidents, and some overall impressions and suggestions. I'll focus on the accidents in the NTSB database since our last convention, but also add incidents or foreign accidents to help improve our awareness. By the time you read this, I hope to have a narrated video of the safety review, with much more detail, available on the MMOPA website for download/viewing.

Before going further, let me give my standard disclaimer. I was not present for any of the accidents presented here – I take NTSB and public source data to guess what might have happened, for the purposes of learning. I'm not trying to affix blame (I'll let the FAA do that). Rather, my purpose is for us to learn from someone else's misfortune. Life's too short for all of us to learn everything we need to know firsthand. I mean no disrespect to any pilot, even when I speculate on pilot error as a cause. Even the best professional can have a bad day.

First, I'd like to briefly mention

an older accident: N186CB. I presented this scud-running accident in New Orleans, but couldn't really explain what happened. Britain's equivalent of the NTSB did an excellent report on this heartbreaking fatal accident, and concluded that this was probably a case of unintentionally overpowering the autopilot. The result was some wild up-and-down pitch excursions, culminating in a stall-spin, killing the pilot, his wife and two of their children. The accident report is well worth reading: http://assets.publishing.service.gov.uk/media/57ff8dd140f0b67135000004/Piper_PA-46-350P_Malibu_Mirage_N186CB_11-16.pdf

We all know overpowering the autopilot is a bad thing to do; this report graphically illustrates the possible outcome in IMC.

2017 Was a Good Year

Now, the 50,000-foot safety view since last convention: We had a pretty good year for the PA46, based

on historical comparisons. We had six accidents recorded in the NTSB database since last convention; typical counts have been more in the 12-16 range. We had "only" one fatal accident (for the past two decades, we've averaged 2-8 fatalities annually). And our total accident rate and fatal accident rate both continue to decline.

So, let's pause briefly to give ourselves a light pat on the back. OK, now let's look at what we can learn from these accidents, so that we can strive for even fewer accidents (and zero fatal accidents) next year.

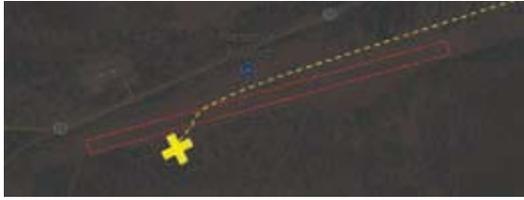
This figure shows the geographic distribution of accidents for last year:



The blue pushpin is an accident that doesn't appear in the NTSB database, and there is also an accident in Germany that the NTSB doesn't record.

This table (below) shows the eight accidents since last convention, which I'll briefly discuss here:

N#	Mo/Yr	Model - Event	Cause	Fatalities	Location
N563WT	9/2016	Matrix – landing LOC	Pilot		Reserve, NM
N4149R	12/2016	JetProp – hard landing	Pilot		Midland, VA
N301BK	12/2016	Mirage – landing LOC	Pilot?		Nashville, TN
D-ECBE	1/2017	Meridian – landing LOC	Pilot?		Bavaria, Germany
N600ST	3/2017	M600 – landing LOC	Pilot		Bellefontaine, OH
N123SB	4/2017	Malibu – IFR approach crash	Pilot	4	Harrisburg, OR
N41827	7/2017	Mirage – landing nose gear collapse	?		Franklin, VA
N786MD	7/2017	Mirage – engine failure cruise	Mech?		Tahlequah, OK



The first accident was a runway excursion after 8+ hours of flying a Matrix from Michigan to New Mexico. The pilot couldn't get the pilot-controlled runway lights to go on, and on his second attempt to land on the unattended unlighted field in the dark, he landed off the side of the runway. The plane veered across the runway and down an embankment, and the gear collapsed. We've seen night landing mishaps before. In this case, there was a lighted, attended airport with an RNAV approach 30 miles away – that would have been a wise diversion.

The second accident is a JetProp with pilot and instructor doing annual recurrency training. The pilot had 2,400 total hours, but only 236 in the PA46 (unclear how many of those hours in the turbine version). They were practicing short-field landings, using a technique of crossing the numbers at 50 feet and 75 knots, then cutting the power to idle to dive to a flare. My experience is that a JetProp sinks rapidly at idle and slow speed; not a place I like to be. In any case, the result was a hard landing with a prop strike and fuselage damage. My suggestion would be that in a turbine with reverse thrust, I'd keep in a little power in until the flare – short fields should not really be a problem.

Next is another landing accident. (Are you starting to see a pattern?) This was a Mirage with an experienced pilot. The landing runway in Nashville had a direct right crosswind at 15-17 kts. The pilot didn't like his first approach, and (wisely) went around. On his second approach, he landed on the centerline, but then veered left and



the pilot tried to abort the landing with power. The plane ended up in a ditch off the runway, with significant damage to the wings, but with no injuries. I don't know yet if there were any mechanical factors contributing to the loss of control.

My takeaways from this accident are to practice and be cautious with strong and/or gusty crosswinds. I personally don't use full flaps with strong crosswinds, but that's personal preference. Finally, once you're on the runway, and losing directional control, do **NOT** try to take off again. There are too many PA46 accidents that have been converted from airframe damage with no injuries (the usual with low speed runway excursions) to fatalities at high speed/low altitude. You are almost always safer staying on the ground

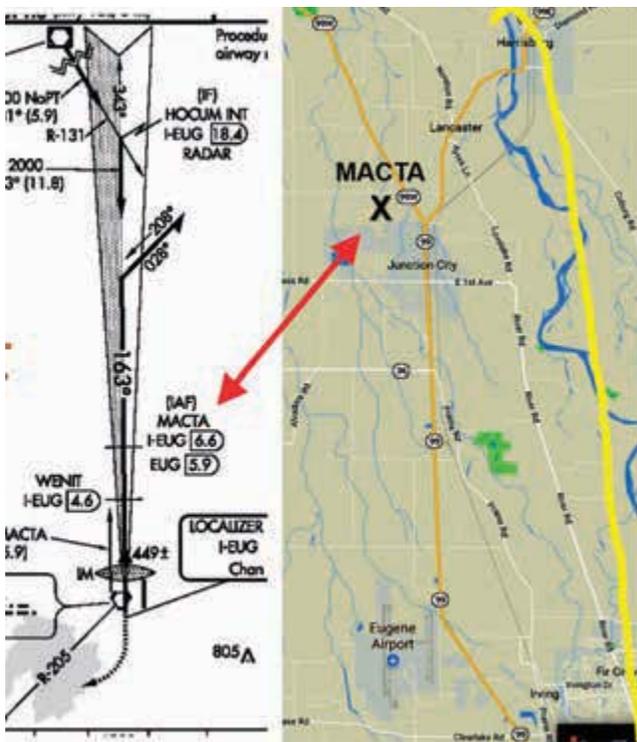
at decreasing speed, than trying to salvage a loss of directional control at full power.

This next accident, in Germany, doesn't appear in the NTSB database. But I've included it because it reinforces the pattern we're seeing.

This was a Meridian landing in strong, gusty crosswinds. The plane departed the runway after landing. I don't have any investigative data, but from press reports it was a windy, clear day. Again, there were no injuries in this runway excursion accident.

The next is a gorgeous new M600; the accident isn't in the NTSB database, but I think it's instructive, and continues the landing pattern this past year.

The wind was a gusty, right crosswind (12 kts gusting to 19).



After touchdown, the plane ran off the runway to the left, and the nose gear collapsed; there were no injuries. Again, I don't have any investigative data yet regarding any possible mechanical issues, so I've tentatively recorded this as pilot error.

Next is our only fatal accident since last convention. This was a trip from Van Nuys to Eugene, Oregon, in a Malibu. The destination weather was challenging: visibility 1-3 miles in rain/mist, winds from the south at 25 gusting to 35, and overcast at 3,700 feet. There were reports of moderate to severe turbulence, with low level wind shear. Not a comfortable flight.

I don't have a final NTSB report, so I am speculating here for learning purposes. Given the strong southerly winds, I expect the pilot was landing to the south, probably using runway 16R at EUG.

Using the FlightAware path, a street map and the EUG approach plate, I constructed the composite show on the left to try to understand what was happening with this flight. On the right is a street map with the FlightAware track superimposed in yellow. On the left is the plan view for the ILS 16R. I've shown the location of the IAF (MACTA) on the street map for reference.

I don't have NTSB factual detail, but it looks to me like the pilot was being vectored to join the ILS outside of MACTA, which would make sense. Again, remember strong, gusty winds and moderate-severe turbulence.

On the following page is the same map, with the FlightAware headings, altitudes, and groundspeeds shown. (Note that these are not ATC radar data, but rather the less accurate FlightAware data.)

RON COX

AVIATION SERVICES



**Expert Flight Instruction
& Consultation Services**

All courses are taught by Ron Cox. Ron has over 25 years experience in the advanced aviation training business.

PA-46 TRAINING SPECIALIST

MERIDIAN: LEGACY • M500 • M600

JETPROP MALIBU MIRAGE MATRIX

INITIAL/REFRESHER COURSES • S.O.E. INSURANCE APPROVED

Syllabus Includes: System, Avionics, Autopilot, Emergency Training

Locations: KVRB, Mobile Onsite, Anywhere USA

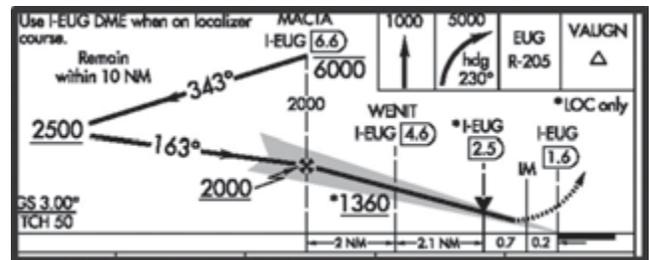
eTRAINING NOW AVAILABLE

FOR ADDITIONAL INFORMATION VISIT:

www.roncoxaviation.com

E-mail: info@roncoxaviation.com

Mobile: (772) 538-1965



Above is the profile view from the ILS plate.



Again, it looks like the plane was being vectored to intercept the ILS. The headings make sense for that, and the altitudes are close to what one would expect from ATC. The initial north heading at 155 kts groundspeed seems right, remembering the strong southerly winds.

DAHER

THE ULTIMATE

| COCKPIT TECHNOLOGY |

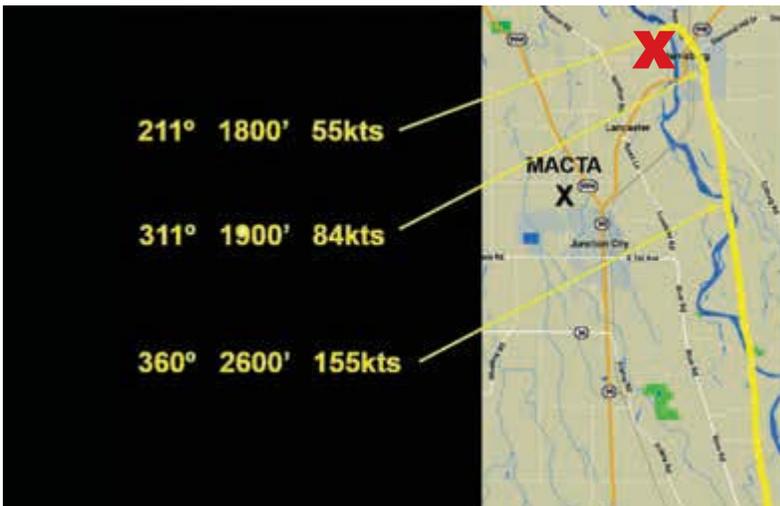


Daher's TBM 910 combines the most cost-efficient high-speed turboprop aircraft with the ultimate in cockpit technology. The modern processing power of Garmin's G1000 NXi integrated flight deck instantly brings all the information a pilot needs to large-format displays, and is further enhanced by wireless connectivity to the electronic flight bag.

Together with a stylish cabin design and the optional "Elite Privacy" enclosed toilet compartment, the fast new TBM 910 has it all.

Speak to a TBM expert:
(Americas) +1(954) 993-8477
(International) +33 5 62 41 77 88
www.tbm.aero

TBM
910

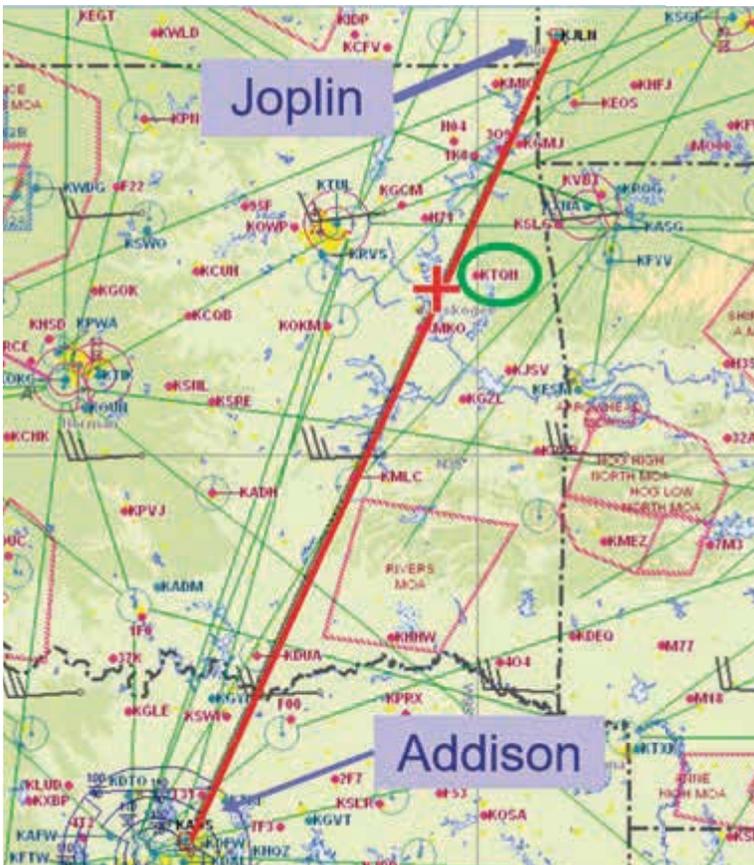


The descent from 2,600 feet makes sense (give or take 200 feet). What doesn't make sense to me is the groundspeed on the descent/level off. Of course, as the pilot turns back into a stiff wind, the groundspeed will drop a lot – but 55 kts groundspeed, at a point still 10 miles from the runway threshold, just seems too slow to me, even accounting for the winds at 1,800 feet.

The wreckage of the plane was found in a field near the red **X**; the four people on board died.

We'll know more when the factual NTSB report is released. But at this point, it looks suspiciously like a stall/spin accident during an approach in turbulent conditions. I am certain the weather paid a large role in this tragic outcome.

Next, we have another landing accident, this one due to deer on the runway. Deer and airplanes don't mix, as we've seen in multiple prior accidents. The pilot landed, and



then swerved off the runway to avoid deer. His nose gear collapsed in the soft ground.

I don't have any more details, especially if he was landing into the sunset, it could have been hard to see the deer on the runway. Or the pesky critters could have run onto the runway after he was down. Fortunately, there were no injuries.

Finally, we have a piston-engine failure during cruise. This was a Mirage on a daytime flight from Joplin, Missouri to Addison, Texas, VFR at 12,500 feet, with flight following.

Approximately a third into the trip, the plane lost some, and eventually all, engine power, right around the red **X** (below left).



He turned toward Tahlequah (TQH), which was the closest field; you can see the nice smooth turn and track to that nearest airport on the FlightAware track.

Unfortunately, he never got a green light for his nose gear down. It looks like he circled once just south of the field.

Perhaps he was distracted by the gear light, but he ended up landing in a field about 300 feet short of the runway. The wing struck a hay bale, causing structural damage (which is why the accident ended up on the NTSB list). Fortunately, none of the four people on the plane were hurt. My only comments would be: 1) stay high during an engine-out approach, and 2) that we normally practice engine-outs alone or with an instructor; the plane will sink faster with four on board.

Those are the eight accidents since last convention; with six of them appearing in the NTSB database. That's a much lower number than the past few years, so perhaps the constant drumbeat about safety is having some effect. I'd like to think so...

But note that five of the eight accidents in this list are landing loss-of-control in good weather, most associated with strong crosswinds. Fortunately, as I said earlier, landing loss of directional control rarely results in serious injuries, and in these five there were no significant injuries. That's the good news. The bad news is these are usually expensive accidents; don't hold your breath for lower insurance premiums across the fleet.

The Nall Report for non-commercial general aviation shows a bit under one-third of accidents as landing, with half of those loss of directional control, and a quarter being

The New Face of Your Trusted Aviation Partner for Over 35 Years



Ken Dono,
TBM Sales and
Sales Manager



Clay Hammond,
Piper Specialist



Chris Reece,
Piper Specialist

800-787-5001

www.columbiaairservices.com



Distributors of New and Select Preowned Aircraft

   sales@columbiaairservices.com

hard landings. For whatever reason, we've had a number of years in the PA46, this being one, where landings are our single biggest phase of accidents. This year there was a strong association with gusty crosswinds.

All I can say is go out and practice crosswind landings with a good instructor. It's fun, and might help you avoid showing up on this safety review list next year.

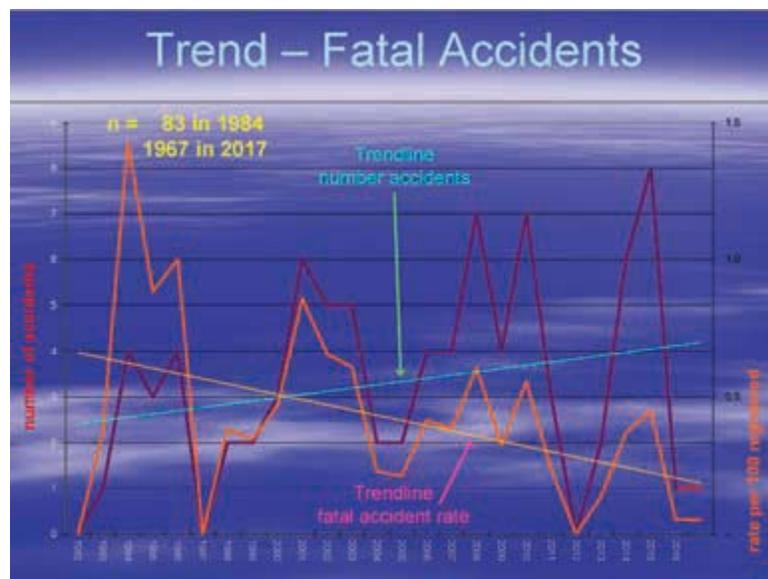
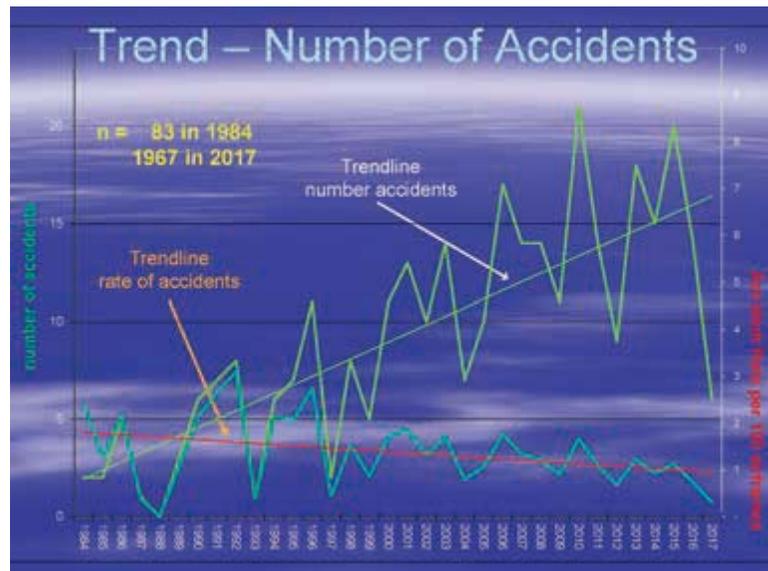
Here (right) is our overall accident count, for the past three decades of calendar years, in green (of course, 2017 isn't done yet).

As you'd expect, as the fleet size increases, the raw accident count increases as well.

The FAA doesn't keep hours flown statistics for the PA46. So, to create a rate, I've calculated accidents per 100 flying aircraft. That's shown in blue on the chart, and shows a downward slope (similar to the rest of general aviation statistics). That decreasing rate is a good thing (though I'd love to see it going down quicker).

Here (right) is the same type of chart, but just for fatal accidents.

You can see we've had three of the past 25 years with zero fatal accidents, and 2016 and 2017 with only one fatal



Buy or Rent

<i>the World's...</i>	<u>4-6 MAN</u>	<u>9-13 MAN</u>
• smallest package	4" x 12" x 14"	5" x 12" x 14"
• lightest weight	12 lbs.	18 lbs.
• least expensive	\$1,510	\$1,960

NEW!! FAA TSO Approved Life Rafts

Emergency Liferaft

Call Survival Products, the manufacturer, for customer/distributor/service information.

MADE IN USA



TSO'd & Non-TSO'd

SURVIVAL PRODUCTS INC.

PHONE: (954) 966-7329 FAX: (954) 966-3584
5614 SW 25 St., Hollywood, FL 33023
WEB: www.survivalproductsinc.com
EMAIL: sales@survivalproductsinc.com

each so far. That's pretty good, but our traditionally most dangerous season (winter holidays) is coming up.

What's important to note is the fatal accident trend line, which is going down nicely. Despite the fact that 2014 and 2015 were terrible years (with six and eight fatal accidents respectively), we should note that we've reduced our fleet fatal accident rate by almost 75 percent since the early days of the PA46, and our trend line down is much better than GA as a whole.

So – 2017 has been pretty good, **but let's not get complacent**. Let's keep striving to replicate the three years in PA-46 history we've had ZERO fatal accident. Fly safe! MMOPA

Manny Casiano is the past president of MMOPA and presents a Safety Review at the Annual Convention & Fly-In.



DES MOINES
FLYING SERVICE

SERVING
AIRCRAFT OWNERS
SINCE 1939,
WE HAVE EARNED
OUR REPUTATION
FOR FAIR, RELIABLE,
QUALITY SERVICE AND
SECOND-TO-NONE
CUSTOMER SATISFACTION.

Excellence
in Piper Sales and Customer Service
Over 75 Years



Piper[®]



800.622.8311

DMFS.com



Managing What's In Your Control

Avoid becoming an accident statistic by mitigating unnecessary risk, properly maintaining our aircraft and keeping our skills sharp.

by **Dave McVinnie**

I was chatting with Dave, a local avionics guru, about a couple installs in the shop, and we were coordinating the shakedown and transition training that comes with the work. On the other side of the hangar, a rescue/recovery operation was underway for a late model Skyhawk. A technician was bolting new tail feathers on a trainer that recently trashed a runway light. The repair was going to be expensive, somewhere around \$40,000 to get it back on the line. The technician was experienced as the company he works for specializes in putting heavily damaged machines back in the air. I'd met him before when he worked on an ill-fated Malibu that experienced a gear collapse during taxi.

The technician pointed to an older Malibu parked behind the Skyhawk. He said the Cessna repair would be cheap compared to the estimated \$200,000 minimum repair bill that's normally associated with a PA46 gear-connected event. That cost explains why some ships never fly again. If there's any relief in this accounting, none of the gear-related events involved serious occupant injuries.

Over the past two years, there have been some 38 "events" that include everything from lightening/bird strikes to fatal tragedies.

Twenty-two involved nose gear issues and included everything from tires, hard landings, mount failures, etc. You don't need a calculator to know we're talking big bucks!