

TURBINE PILOT |

TBM owners turn safety lessons
into fun challenges

BY THOMAS B. HAINES
PHOTOGRAPHY BY THE AUTHOR

Perfect *pitch*



TBMS LINE UP in Naples, Florida, for their chance to participate in the TBM Spot Landing Contest organized by pilot owners (right). The data card from the Garmin G1000s and G3000s is the key to understanding what is happening with the airplane in the final seconds before and during touchdown—and how the pilot can improve his or her performance (below, center). The contest is not just about safety, it's also a time for the TBM owners to socialize and trade hangar tales.



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Big data sounds scary and like no fun at all. But a group of TBM owners have figured out how to leverage data to create a fun competition that can lead to increased safety and a whole lot of socialization. The second TBM Spot Landing Contest took place in Naples, Florida, in February with nearly 20 airplanes participating and nearly 50 people in attendance. Andy Davidson of New York City won the two-day contest in his TBM 850, but credit goes to another TBM owner for helping galvanize the owner community into taking action to improve precision landings among the fleet and reduce the number of prop strikes.

Richard Krulik of Hauppauge, New York, never intended to start a movement when he had a prop strike upon landing his TBM 850. “Obviously, I was hugely upset about having a prop strike after 15 years of flying.” He just wanted to put the incident behind him and get his confidence back. Although he had owned the TBM for about two years at the time, his training hadn’t focused enough on the nuances of setting up the airplane for a precision touchdown. “I hadn’t learned, apparently, correctly how to get the right speeds and the right power settings and

attitudes and had a prop strike.” The staff at Daher, which manufactures the TBMs, encouraged him to “go to the prop strike guru.”

Meet Bill Panarello, an airline pilot who also conducts TBM training on the side. Whether it’s flying the Boeing 737

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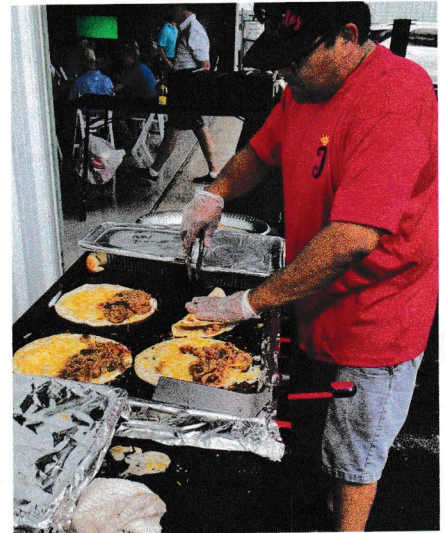
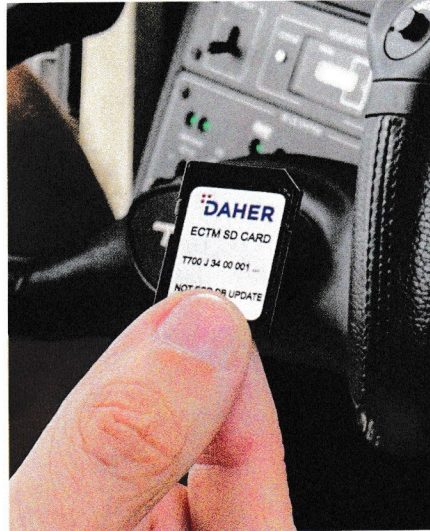
or the TBM—or during his airborne radar and icing training courses—Panarello approaches flying from an analytical point of view. He likes data. In instructing Krulik, Panarello discovered a rich

data set built into the Garmin G1000s and G3000s common on many TBMs. The software records dozens of parameters, including pitch, speed, torque settings, and position, which can be used to gauge how and where a pilot is touching down on the runway.

“We noticed that within the data that was available, we could tell when Richard bought the airplane. We could tell when Richard had the prop strike. And then, what was even more remarkable, after the training sessions to have him understand [angle of attack] and get confident again, we could record the incredible ability to just be retrained and to have him safely feel that he has control back.”

To help analyze the data, Panarello turned to Dierk Reuter, a TBM owner and aeronautical engineer. Reuter, with help from others in the community, wrote a program to analyze the Garmin data and create a report about each landing, focusing on speed, power setting, and pitch at touchdown. Reuter then created a simple website where owners can upload their data and get an email report back within a few minutes.

After some trial and error and working with data from Daher, the group

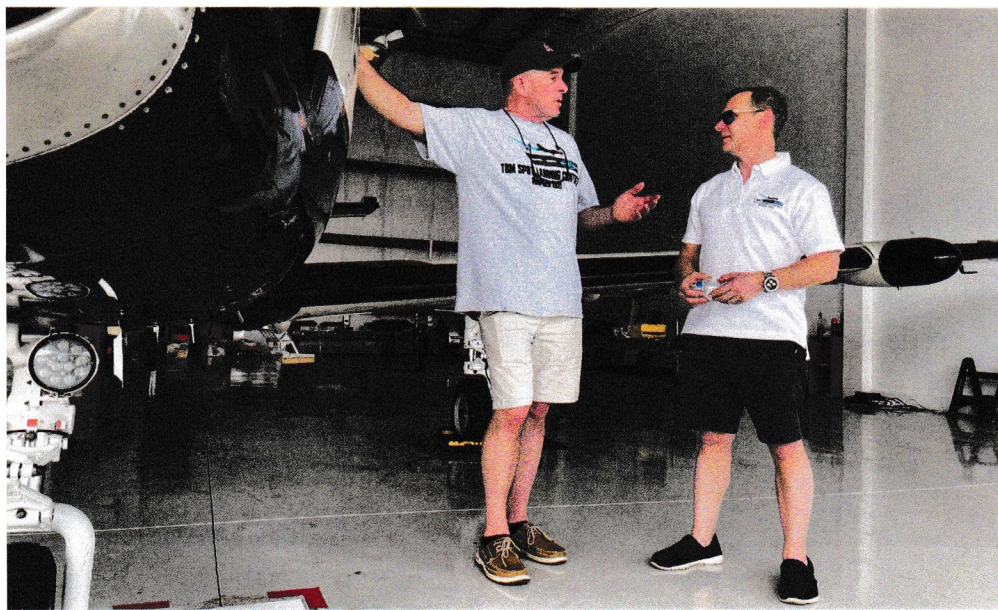


nailed down the precise speed, power settings, and pitch necessary to improve the accuracy of landings while reducing the chance of the prop strikes.

Too often owners were landing fast—sometimes 15 to 20 knots too fast—resulting in a porpoise that gets the prop, which can result in an engine teardown and prop replacement, all at a cost of some \$400,000. The higher speed also

meant unstable approaches and using more runway than necessary. Jerry Chipman, a TBM instructor at SimCom Training Centers, points out that while the TBM has about eight inches of prop clearance when sitting on the ramp, it's only about five inches when the nose strut compresses during landing. With a top speed for some models at around 330 knots true airspeed and appropriate

landing speeds of about 80 knots at some weights, the airplane has a very wide speed envelope. Because of its size and top speed, pilots want to believe the TBM must be landed at something closer to 100 knots, but with careful management it can be safely flown with touchdown speeds below 80, which deceives operators. The data shows many operators making significant torque setting and



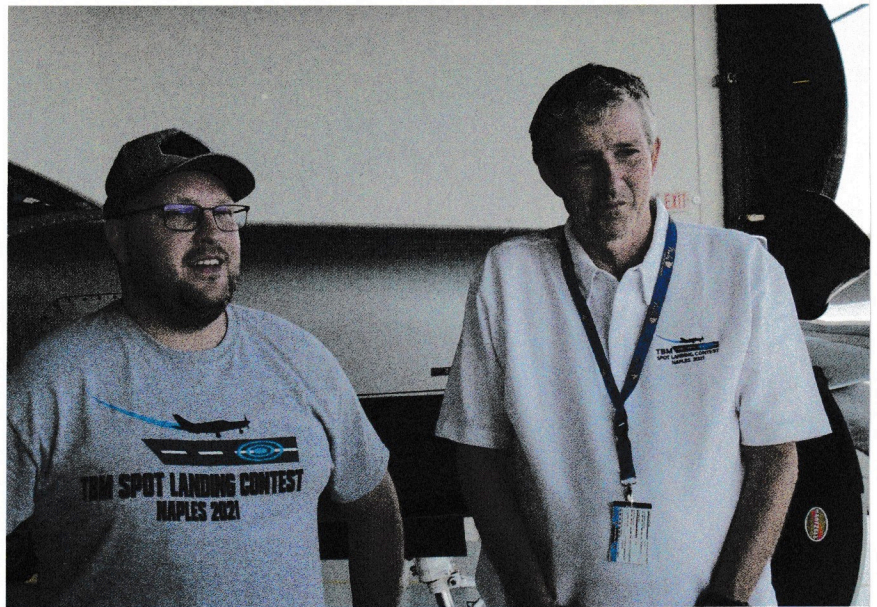
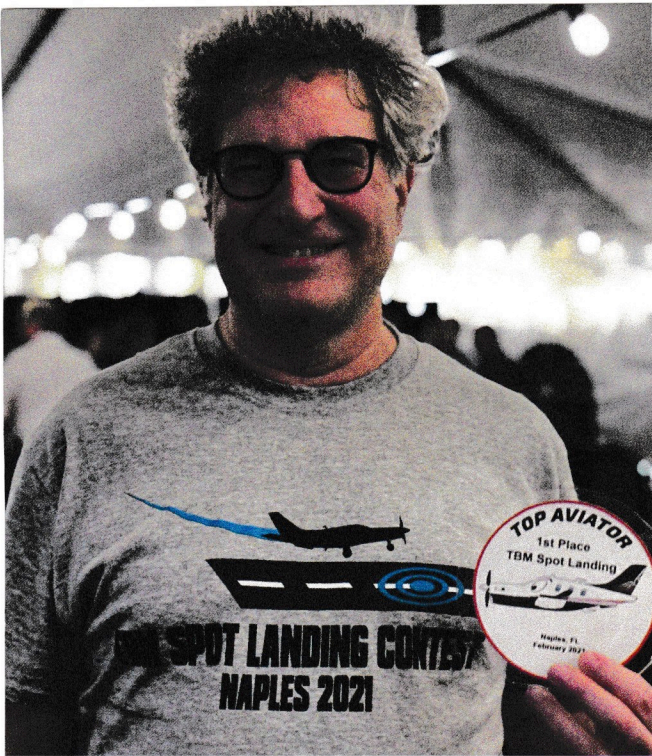
RICHARD KRULIK (on right) relives his prop strike while receiving coaching from “prop strike guru” Bill Panarello. The incident was one that helped uncover the value of data analysis to understand prop strike issues. TBM Spot Landing Contest winners got no bonus points for their precision touchdowns in a stiff crosswind (top photo).

pitch changes on short final to attempt to salvage a poorly established approach.

In an effort to spread the word about the data analysis and improve safety of the fleet, Reuter partnered with fellow TBM owner Phillip Bozek. The two had previously set a world speed record from New York to Paris in Reuter’s TBM. With

the TBM Owners and Pilots Association meeting canceled in 2020 because of COVID-19, the pair were looking for a way to bring pilots together in a smaller group but to retain a safety and socialization theme. Their solution was the first TBM Spot Landing Contest in July in Michigan. Seven TBMs and about 17

people participated (“TBM Technique: Landing in Style,” January 2021 *AOPA Pilot*, Turbine Edition). As with the Naples event, each aircraft was equipped with an action camera on the bottom of the radome under the left wing. The video, combined with data from the Garmin system, helped determine the winner. The goal was to



touch down on the 1,000-foot marker, with points also accrued for proper speed, pitch on final, power setting, flap setting, flight path, descent rate, and touchdown pitch.

At the Naples event, pilots practiced with instructors on board on Friday. The competition was Saturday. In between there was plenty of socializing and hangar flying. Each pilot was eligible to win 155 points—up to 100 for a stable approach, 50 for hitting the leading edge of the touchdown spot, and five for proper torque setting.

Davidson won with 147.8 points. The close second went to John Benediktsson of Lake Tahoe, Nevada, with 147.1 points. Jim Thorpe of Naples, Florida, took home third place. The winners got plastic trophies, and everyone got a shirt.

“I’ve been practicing, just doing the disciplined landings,” Davidson said at the Saturday evening banquet when he was

announced the winner. “I knew that they were all going to be good. I’m surprised that I came out on top, but very happy for that to happen.

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Michel Adam de Villiers, vice president for sales, attended the event to show support from Daher. The company launched its Me&MyTBM app several years ago to track maintenance and provide other services to owners. The latest versions also include a feature called the Aviator Challenge, which allows pilots to compare their adherence to established flight standards to others in the fleet. The effort

ANDY DAVIDSON proudly shows off his trophy for winning the TBM Spot Landing Contest (top, left). Phillip Bozek and Dierk Reuter (above, right) organized the contest, with support from the Naples Air Traffic Control Tower staff, Robinson Aviation, and numerous volunteers.

by Reuter and Bozek blends in additional data from the cockpit to build precise profile reports for the landing phase.

Wayman Luy, Daher's director of training and standards, is also a believer in the effort. "With this we can show customers that they are improving because we have an objective number with objective scoring that is well known," he said. The result, especially for new owners, is that they can gain confidence in their skills more quickly.

"The first and foremost mission of this whole weekend is that safety does not have to be boring, and safety should not be boring," said Bozek. "We wanted to make the user interface more fun and get people involved so that they actually want to attend a safety meeting or a safety event."

Reuter said that about 125 aircraft are involved in the data portion of the program. His goal is to have 300—or about 30 percent of the fleet—involved by EAA AirVenture in July of this year. At that level, the use of the data to analyze performance standards becomes a part of the TBM culture, he anticipates.

Also, at that point, he believes the insurance companies may begin to take notice.

He encourages all users of the "Pathfinder" system, the overarching name for the Me&MyTBM app combined with the scoring his website provides, to let their insurance companies know about it and to report efforts to improve. Being proactive can only help moderate recent insurance premium increases.

While there's much more to do, Bozek and Reuter are feeling good about the result so far.

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—Phillip Bozek

"We have owners who are coming to us and saying, 'this is where I was,' admitting where they were was not safe," Bozek said. "And now by doing things like this, they say, 'I'm safe. I'm improving my scores 30, 40, 50 plus percent.' I mean, these are dramatic increases." **AOPA**

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