PA-46 Accident Review

Into the water in the Bahamas

BY DICK ROCHFORT, ATP, CFII – MASTER INSTRUCTOR
PHOTO BY PAUL BOWEN

NTSB Identification: ERA13LA380
14 CFR Part 91: General Aviation
Accident occurred Sunday, Aug. 25, 2013, in Cat Cay, Bahamas
Aircraft: Piper Aircraft Inc. PA-46R-350T, registration: N720JF
Injuries: Two minor, three uninjured.

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected when the final report has been completed. NTSB investigators may not have traveled in support of this investigation and used data provided by various sources to prepare this aircraft accident report.

On Aug. 25, about 1415 Eastern Daylight Time, a Piper PA-46R-350T, N720JF, impacted the water immediately after takeoff from the Cat Cay Airport (MYCC), Cat Cay, Bahamas. The airline transport pilot and four passengers received minor or no injuries. The airplane sustained substantial damage to both wings. The airplane was registered to, and operated by, Pure Beauty Farms under the provisions of Title 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed in the area, and no flight plan had been filed for the flight, which was destined for the Kendall-Tamiami Executive Airport (KTMB), Miami.

The pilot stated that he aligned the airplane with the runway centerline for takeoff and applied full engine power, observing that all engine instruments were within their parameters and that the wing flaps were at the 10-degree setting. After releasing the brakes and as the airplane began the takeoff roll, he again confirmed that all flight instruments were "in the green." The airplane became airborne around 80 knots and, about 150 feet above ground level, the airplane's engine "stopped" and the pilot lowered the nose. The airplane impacted the water in a flat pitch attitude and subsequently came to rest upright.

TALKING POINTS:

As of this writing, I see only two possibilities with respect to the cause of this accident:

1. Engine failure: The pilot suffered a catastrophic engine failure immediately after takeoff, and he responded appropriately.

2. Confirmation bias: The pilot perceived a catastrophic engine failure and responded appropriately to that perception. (If you believe your engine has failed, all additional observations will tend to confirm that belief.)

Engine failures account for only 1.5 percent of General Aviation fatalities. If we discount the ones that are pilot-induced (mostly fuel starvation), this number drops to .75 percent. If we discount aircraft that are known by the pilot to be non-airworthy, the number drops to .375 percent. A PT-6 engine is 100 times more reliable than a piston engine which brings the number down to something like .00375 percent for turbine-equipped aircraft. While most pilots believe engine failure to be the 500-pound gorilla in the cockpit, statistically it is not. Preparing for a low-altitude engine failure is an important part of your training. It should be completed within FAA standards for the commercial pilot, but it should not dominate your training program. If you spend more than five minutes of a two-day recurrent training program discussing and practicing engine failure, you are, figuratively speaking, watching the wrong hand.

I offer the following suggestions for managing the risk of a low-altitude engine failure or a perceived engine failure:

Get regular maintenance from an experienced type-specific mechanic whom you trust.

Supervise the fueling operation. Half of all engine failures are fuel-related. The Matrix/Malibu/Mirage aircraft looks suspiciously like a JetProp to the new line personnel. Verify that the proper quantity of the correct fuel is placed in the proper tank(s). If there is any doubt about contamination of 100LL fuel, you can easily test it with a paper towel. If a drop of fuel leaves an oily stain, the av gas is contaminated with Jet A. Do not accept it. If you are still unsure, get a test kit from Blackstone and have a professional analysis performed before you fly the aircraft. If there is water in the 100LL sample, drain it all out and know that more is still in the tank; it is trapped in the wet-wing structure. If this is the case, consider topping off the tanks with 100LL with Prist (the fuel additive, not the window cleaner). Use the blue-label, low-flow variety per the instructions on the can. Prist is hygroscopic (with a "G"), and it will, therefore, absorb the remaining water in the tank.

Concern yourself with tire pressure. Looks are deceiving. Ensure the tire pressures are correct with a gauge. If this is not convenient, pay a qualified mechanic or aircraft manager to do it for you. Rolling resistance and the propensity for hydroplaning vary inversely and exponentially with tire pressure. This is a significant risk, particularly when the aircraft is fully loaded. Do not ignore tire pressure. The use of pure nitrogen does not hurt, but it does not add to performance or safety in any significant way.

Evaluate the takeoff performance for each departure. If the performance chart in the POH indicates inadequate runway length, go no further. If your experience with short runways is limited, add 10 percent to 30 percent of the POH values to your takeoff distance requirements,

depending on conditions.

Monitor the engine during engine start, taxi and run-up. Run up on the fullest tank and do not switch fuel tanks after the run-up. ("Dance with the girl you brought.")

Set up the flight director for an 8.5-degree climb straight ahead and configure the aircraft for departure: 10 degrees of flaps or 20 degrees for short field in accordance with the POH. There are a variety of ways to accomplish the autopilot setup, depending on the panel in your aircraft. Ask your flight instructor to make recommendations in this regard.

Use proper callouts on takeoff. The 60-knot callout is your last chance to detect a performance issue which can be the result of many factors unaccounted for in the POH performance data — low tire pressures, intake manifold leaks, compression issues, density altitude, runway slope, humidity, snow, slush, wet grass, tall grass, etc. This callout and the distance remaining verification should routinely occur prior to 1,000 feet of ground roll in just about any situation in the PA-46. In any case, you must be at 60 knots before the halfway point or the takeoff should be aborted. The reasons for the performance deficiencies must be understood and corrected before another takeoff is attempted.

Set the friction lock when you reach 60 knots during the takeoff roll and verify the distance needed to accelerate to that speed. When you rotate, move your right hand away from the power lever and place it on the yoke. This move can prevent bumping the PL causing an un-commanded rollback, which the pilot is likely to perceive as an engine failure. It can also prevent your right hand from doing something your brain has not commanded.

Verify positive rate of climb, retract gear and flaps promptly but without rushing. If obstacles are present, climb 12 degrees nose up (90 knots). After clearing obstacles, lower the nose to 8 degrees, bring flaps to 10 degrees and retract the landing gear. Then, when passing 100 knots, bring up the remaining flaps. Trim for the flight director bars, verify airspeed rising above 110 knots and engage the autopilot. If an ODP exists, you should be using it, regardless of weather. Climb at the rate required for the ODP. After that, consider 130 knots in the climb for ice penetration and Va. If you have a FLC (flight level change - FILCH) button, use it.

The key to benefitting from pitch-power-configuration is to know the resultant airspeed for a particular pitch/power/configuration.

There aren't too many left, but if you fly an older Malibu with Gar Kenyon hydraulics, there are some exceptions to the aforementioned procedures. Check with your flight instructor for the modifications to these procedures.

Good pilots are not thrill-seeking risk takers. Good pilots are well-trained risk managers. Always strive to improve your risk management capabilities by insisting on excellent training. Excellent training is achieved with procedural discipline in the use of checklists, flows, memory items and standard operating procedures — the same way, each and every time. Excellent training does not cost any more or take any longer.

If you are flying any PA-46, you should consider yourself lucky. In my opinion it is the most capable GA aircraft available today, and it is getting better every year. MMOPA

Dick Rochfort is an airline transport pilot and Master Certified Flight Instructor and has been a full-time flight instructor for more than 20 years.