

**Carl Pascarell**

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Once in a great while a hangar session concludes with, "[He/ she] is the best pilot I've ever seen." When such praise comes from pilots who are themselves remarkably talented, it's time to find out about whom they are talking. In this case, it's 42-year-old Continental Airlines Captain Carl Pascarell of Jacksonville, Florida.

Pascarell has an impressive résumé: U.S. Navy attack pilot; aircraft carrier landing instructor; type rated in the Learjet, Boeing 727 and 737, and Douglas DC-9; acrobatic competency evaluator; test pilot for Swearingen and Velocity aircraft; and member of the Redhawks precision formation acrobatic team. He has more than 17,000 flight hours. But résumés do not prove a pilot's skill in the cockpit.

Emergencies offer the true test of piloting ability, and Pascarell has had his share. He holds the Navy Air Medal with Bronze Star for landing safely in 1977 after his A-7E Corsair II caught fire on his first familiarization flight in a single-seat model. But a civilian test flight provided an even greater test.

It was mid-afternoon on March 29, 1989, and Pascarell had just departed St. Augustine Airport, Florida, on his thirteenth flight in the new Velocity aircraft to assess its stall behavior. He had previously completed 400 stalls in the aircraft with the center of gravity accurately placed in one of eight positions. For the March 29 test the CG was placed in the most rearward position, but still within safe limits. The aircraft is equipped with a canard, a small wing extending from either side of the nose and designed to stall prior to the main wings, theoretically preventing the main wings from ever stalling.

Pascarell put the aircraft through a series of wings-level stalls and found stall behavior to be normal. The final test was intended to prove that the aircraft will not enter a "deep stall," also known as a "pitch hangup," and was begun from 9,500 feet above the Atlantic Ocean.

He reduced power to idle and maintained a 16-degree nose-up attitude.

As it was designed to do, the aircraft pitched nose down. The procedure was to release back pressure until the aircraft is 10 to 15 degrees nose low and the airspeed reaches 85 knots. Then the aft stick was reapplied to induce an accelerated stall; as expected, the stall occurred when the nose reached five degrees above the horizon, and the nose started to drop.

Then, completely out of character, the nose stabilized one degree above the horizon — even with the stick in a neutral position. Airspeed was zero. Pascarell applied full power and full forward stick in an attempt to lower the nose, but it wouldn't budge. The rate of descent fluctuated between 1,500 and 2,000 feet per minute. The pusher propeller made a strange, cavitating sound as the relative wind hit it from below at a 90-degree angle. He radioed FBO owner Jim Moser for "...any suggestions you might have." The aircraft was neither yawing nor rolling, and the ride was strangely comfortable. Rudder and elevator were useless.

To move the center of gravity forward, Pascarell, wearing a parachute, unstrapped and slid as far under the instrument panel as possible. No luck. He tried to rock the nose up and down by using coordinated power and elevator. It didn't work. The altitude was now 6,500 feet. "I might have to leave the airplane," he told Moser. Below, a boy on the beach noticed an aircraft dropping straight down as though suspended from a parachute.

Oscillating the aircraft with coordinated rudder and aileron, he was able to achieve a 30- to 45-degree bank and a 20- to 30-degree nose-low attitude. Progress? The airspeed indicator showed 20 to 30 knots, and the descent rate increased to 2,500 fpm; but several coordinated 360-degree turns later it was clear that the new method was useless. Controls were reversed and the aircraft returned to an apparently benign, 1,500-fpm, zero-air-speed descent. The altitude was 5,500 feet. There was one last trick to try. It was time for an out-of-cockpit experience.

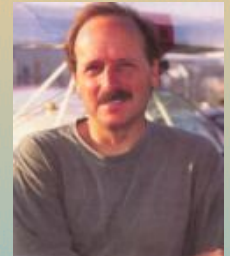
Pascarell opened the side-latched canopy and stood with one foot on the wing, the other on the seat. The relative wind was unnoticeable. While stretched precariously over the airframe, watching the horizon for some sign of nose-down pitch, he grasped the left canard with both hands, in order to move the CG forward an inch or two, and waited nearly 30 seconds. No luck. He decided to ride it down. After all, it appeared to Pascarell to be a slow descent rate.

Source:

Alton K. Marsh

AOPA PILOT

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Carl Pascarell



St. Augustine



Velocity aircraft

At 50 feet Pascarell got his first visual cue that the rate of descent was higher than he thought. The impact was jarring but not life threatening. Mostly, he was angry at the aircraft. "It betrayed me," he says.

The aircraft also made a good boat and was towed to shore, where it was repaired to fly again, even though the rescue vessel had backed over it once. Pascarell was rescued by a Navy helicopter. His test flight resulted in a redesign that cured the Velocity's stall problem.

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