

## Evil Icing

An SH-60B *Seahawk* with two pilots and three other personnel on board launched from NAS West Coast on a cross-country flight that involved transit over mountainous terrain. The NAS weather forecaster advised the pilot in command that icing conditions existed along part of the route at altitudes ranging from 5,000 to 12,000 feet. The *Seahawk* launched and received several reports of icing experienced by other aircraft along the intended route.

One hour after takeoff, while level at 9,000 feet and on the planned airway, the pilot requested a climb to 10,000 feet to “avoid icing conditions.” Air Traffic Control (ATC) granted the request. Subsequently, the pilot reported icing at 9,500 feet and requested an immediate descent. ATC denied this request and directed the aircraft to contact the next controller. The pilot complied, then declared an emergency for “icing conditions” and requested an immediate descent. He was cleared to 8,000 feet, the minimum altitude for the area.

Still in instrument meteorological conditions at 8,000 feet, the pilot asked for further descent to “exit icing conditions.” The controller directed the *Seahawk* to turn left and maintain 6,000 feet in an apparent attempt to reverse the helicopter’s course. The pilot executed a sharp descending left-hand turn and reported level at 6,000 feet but still in icing conditions. The controller then cleared the aircraft to 5,000 feet and assigned a heading of 130 degrees. The controller next directed a turn to 090 degrees and asked if a lower altitude was required, to which the pilot replied, “Yes.”

The *Seahawk* turned left of the assigned 090-degree course and was cautioned by the controller,



*When Gramps Shaved*

“Don’t go north.” This was the last communication with the aircraft, and radar contact with it was lost. The SH-60B crashed into a west-facing ridge line located at 5,000 feet between two mountains, 1,000 yards north of the intended course. All five on board were killed instantly.

**Grampaw Pettibone says:**



**Great balls of fire! We learned a long time ago that aircraft and icing don’t mix. This crew was hell-bent on getting to their destination and violated OPNAV 3710 by flying into KNOWN ICING CONDITIONS!**

**The air traffic controller made things worse. An emergency obstruction video map and radar**



return would have shown the *Seahawk* descending to 5,000 feet in an area where the highest obstacle was indicated at 5,900 feet. The controller issued a heading that resulted in the aircraft turning left more than 270 degrees from the original airway course to parallel rather than exit the area of high terrain. Moreover, had the aircraft continued with the assigned 090-degree heading, it would have encountered a mountain peak at 5,290 feet less than one mile further along the course. The controller also failed to issue required safety alerts when the aircraft deviated from assigned altitude and course in the final 20 seconds before the crash. On top of that, seems to Gramps that the copilot coulda been more help during this emergency, especially with navigation and scanning the instruments.

A good rule when caught in icing: reverse course and get out of there. In this case, icing caused a hazardous descent over unknown terrain, one of an aviator’s worst nightmares. The cause of this tragedy was the violation of a time-tested rule that has been hammered into Naval Aviators for generations: never fly into known icing conditions. Mother Nature is tougher and more dangerous than any human being, or any aircraft that human beings can build.

## Fooled by FOD

An F-14B *Tomcat* was on takeoff roll at 130 knots when both the pilot and radar intercept officer (RIO) heard two distinct thuds emanating from the fuselage. At the same time, the pilot sensed a “black blur” passing the right side of the canopy at

the two o'clock position. The RIO believed the thud came from the nose gear well; the pilot thought the F-14 had suffered a bird strike. The RIO declared an emergency. It was 17 seconds into the flight.

The *Tomcat* lifted off, the crew flying Naval Air Training and Operating Procedures Standardization rules for a "Blown Tire on Takeoff, Takeoff Continued." Climbing through 100 feet, a loud banging from the fuselage indicated a compressor stall or damaged landing gear. There were no indications of malfunction on the instruments nor were caution/warning lights illuminated. Yet the severity of the banging increased as the flight continued.

The pilot began a slight, climbing right turn. The tower advised the southwest runway was available. The *Tomcat* stabilized at 715 feet, 220 knots, continuing the right turn for landing. Setting full flaps, the pilot dumped fuel to decrease gross weight. The frequency and severity of the banging continued. A minute and a half into the flight, the pilot perceived a possible loss of flight hydraulics, but still no warning lights illuminated in the cockpit. He believed the source of the problem was the starboard engine, remembering the black blur that whipped by his right side at takeoff.

The tower advised the *Tomcat* that smoke was streaming from the rear of the aircraft. Between the 90- and 45-degree position on the approach, the pilot continued to troubleshoot the problem. The pilot cycled the starboard engine's throttle to idle and then back to military power. This did not improve the situation and had no effect on the banging the crew was experiencing. At no time were there indications of a port engine stall—even though the port engine, it was now noted, was producing reduced thrust.

Continuing toward the runway the pilot retarded throttle to decelerate to an "on-speed" condition. At the 45-degree position the throttles were retarded and the right wing

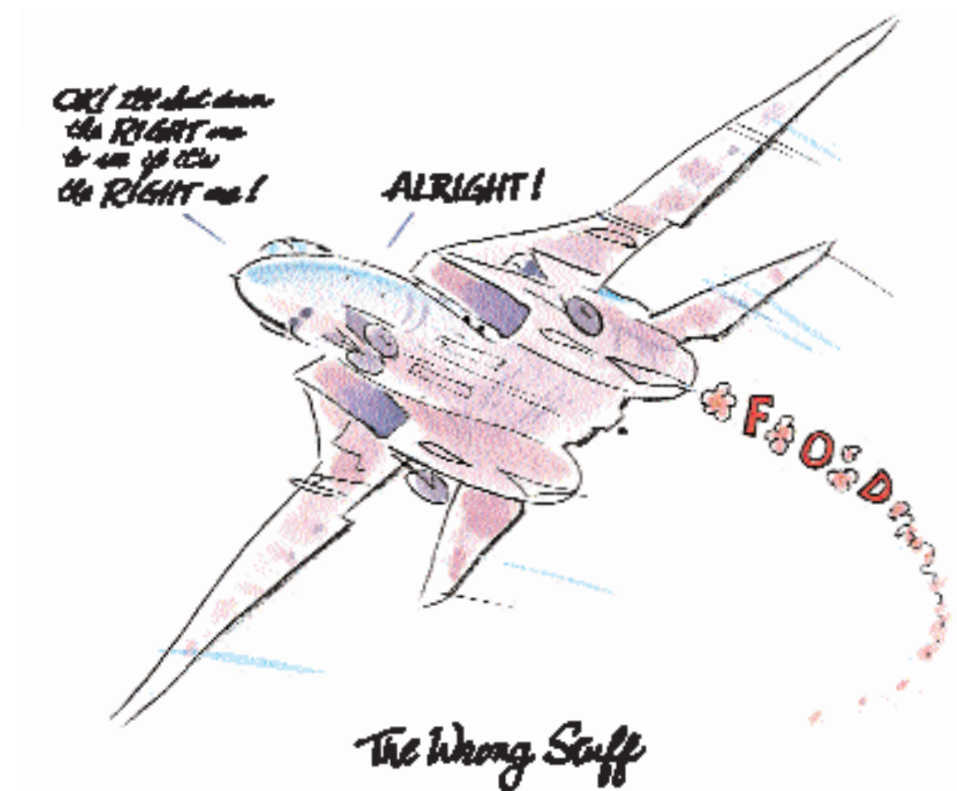
immediately dropped. The pilot now perceived a starboard engine RPM rollback. Consequently, he secured the starboard engine, went to full afterburner on the port engine and raised the landing gear.

At 400 feet, once clear of populated areas, the pilot jettisoned the external tanks. He brought the starboard throttle to idle, then military power, attempting to restart the engine. As the *Tomcat* descended below 150 feet, unable to control the increasing angle of attack and to

trying to troubleshoot the problem in the critical phase of the emergency approach.

The aircraft's engine warning system didn't help matters because, it turned out, the port engine, not the starboard, had ingested FOD while on the runway. The pilot shut down the wrong power plant!

That mysterious black blur whizzing by his side was misleading. The crew might have been better off orbiting briefly to sort



reduce the F-14's descent rate, the crew successfully ejected. The aircraft was destroyed.

**Grampaw Pettibone says:**



Foiled by FOD—that dreaded enemy of jet engine intakes: foreign object debris. These *Tomcat* drivers were pitched into a world of trouble at, arguably, the worst time for an emergency—well into the takeoff roll. FOD created a tough situation, made tougher by the pilot

out the problem before committing to the approach. Gramps knows this was a difficult decision to make under the circumstances, but troubleshooting during the approach can become a world class nightmare. Also, it sounds to Gramps like the pilot and RIO weren't talking to each other, i.e., helping each other get through the crisis.

In situations like this, the old axiom still applies: AVIATE FIRST, THEN NAVIGATE, THEN COMMUNICATE. In that order.