

Lava Lament

A CH-53D *Sea Stallion* with a full load of troops on board was conducting insertion missions from an Army airfield to a landing zone in a lava field 6,560 feet above mean sea level. The pilot and copilot conducted hover power checks before departing the airfield. Winds at departure were 300 degrees at 10 knots, gusting to 15. The helo proceeded to the landing zone, dropped off the troops, returned to the airfield, took on another load and returned to the lava field.

On final approach the copilot, who was at the controls, began a descent rate to establish the aircraft on glide slope for landing. Both the pilot and copilot were unaware they were experiencing a tailwind. The copilot slid the *Sea Stallion* to the left to avoid ground support vehicles located along the approach path.

The combined effects of being slow, with a tailwind, in an environment of high density altitude, and in a high gross weight configuration, placed the



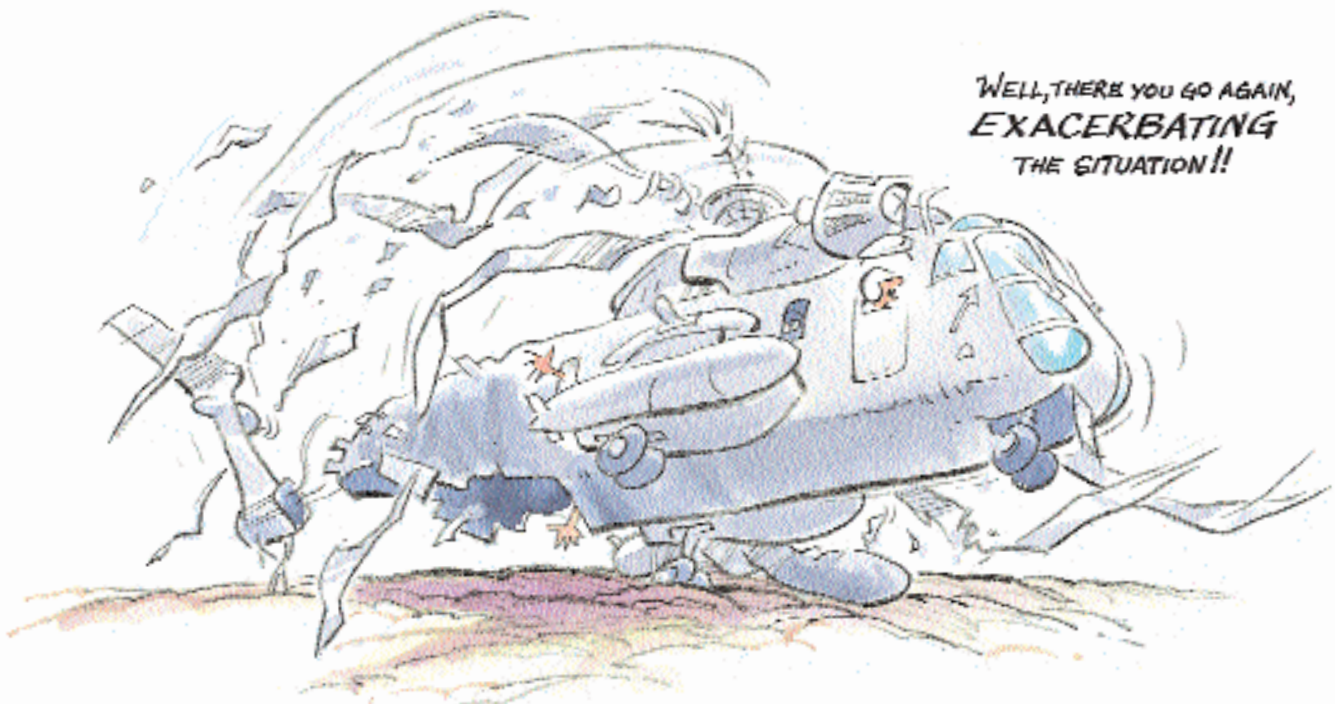
CH-53D in a hover-out-of-ground-effect situation without sufficient power. The induced rate of descent exacerbated the situation, and the CH-53D began dropping to the ground uncontrollably. This is sometimes called “settling

without power.”

Realizing the severity of the helo’s condition, the pilot (aircraft commander) pushed both speed control levers full forward in an attempt to increase power. The crew chief called for power and the aerial observer called for a waveoff. The collective was already at its upper limits as the pilot took over the controls. He tried to regain control by pushing the nose over and lowered the collective to execute a waveoff.

Instead, the helo struck the lava field short of the landing zone with little forward airspeed or vertical velocity. The tail rotor and left main mount struck lava rock. Simultaneously, the tail skid lodged in the lava rock causing it to fail aft. The tail rotor blades disintegrated on impact. The tail pylon separated from the aircraft, which then lifted 10 feet off the ground and began rotating counterclockwise.

The *Sea Stallion* struck the ground a second time and rolled nearly inverted. The engines continued to drive the main gear box



and rotor head throughout the sequence, arcing the fuselage around until all the blades were completely sheared off from the rotor head.

Fortunately, this helo was equipped with three-point-restraint troop seats, and vertical deceleration forces were not sufficient to dislodge the seats. As a result, none of the crew and passengers sustained serious injuries.



Grampaw Pettibone says:

What a carousel ride that musta been! I'll bet more than one heart leapt from chest to throat during that spin-around atop the lava field.

The helo was flying at 30 to 40 knots at 100 feet above the ground on the approach. These numbers are consistent with a *Sea Stallion* when it's hitting its Naval Air Training and Operating Procedures Standardization-prescribed parameters. Technically, it was the aerodynamic limitation imposed by the tailwind that did in the CH-53D. The pilots failed to determine the wind direction. Had they done so, they could have adjusted approach direction and stayed within the proper flight envelope. Situational awareness went by the board at a perilous moment.

There was a range flag nearby and two forward air controllers in the landing zone, which means there was ample opportunity to keep tabs on the wind. Plus, the pilot was a bit late taking action when things went haywire. Aircrew coordination took a holiday right along with situational awareness. Thank heaven for the crash-attenuating, three-point-restraint troop seats.

The Trouble with Troubleshooting

An F-14 *Tomcat* was at 600 feet, landing checklist complete, on the downwind leg in an approach to the

carrier. The jet was decelerating through 160 knots when the pilot discovered that the direct lift control (DLC) was inoperative.

The pilot depressed the master reset button and tried to engage the DLC but this didn't correct the problem. There were no caution lights illuminated. The pilot then pulled out and reset the pitch-and-roll computer circuit breakers. In effect, this disabled the inboard and outboard spoilers except for the left



outboard No. 4 spoiler which was visually confirmed as being up with no other left wing spoilers deflected.

The F-14 began an uncommanded left roll to 20 degrees left wing down. The pilot applied right and forward stick, right rudder and asymmetric thrust on the downwind engine. The aircraft became wings level with 10 degrees pitch up beyond the normal approach attitude. The pilot noted, but could not identify, a number of caution/advisory lights that came on during the rolloff.

The radar intercept officer (RIO) asked the pilot, "Have you got it?"

The pilot answered in the affirmative and said, "Break out the book."

The pilot checked various switches which were, properly, ON. The RIO reported to the ship, "*Tomcat* on the downwind's got a stuck-up spoiler."

The aircraft then commenced a second uncommanded roll and the pilot again put in full right and forward stick, full right rudder and asymmetric thrust. The No. 4 left outboard spoiler was still up. This led to the departure of the aircraft from controlled flight.

The pilot said, "Get us out of here," upon which the RIO initiated successful command ejection. The aircraft was at 600 feet traveling at 150 knots. The F-14 was lost. The pilot and RIO sustained only first-aid injuries.



Grampaw Pettibone says:

A favorite axiom of John Wooden, the legendary UCLA basketball coach, is "Be quick, but don't hurry." Not bad advice for Naval Aviators, either.

This pilot tried troubleshooting a problem down low in the landing pattern close to the flattop, which is tough to do while executing the precision maneuver we call a carrier approach and landing. It's the natural instinct in most Naval Aviators to fix a problem fast, but sometimes you can be too fast. When the pilot exercised those circuit breakers, it played havoc with the spoilers. Turns out the pitch-and-roll computers in the *Tomcat* have had a somewhat high failure rate. Engineers are working on the problem, but that didn't help this crew.

Still, as the investigators noted, the pilot inappropriately troubleshooted a deferred action, secondary flight control failure at low altitude in a critical phase of flight. But Gramps is happy he and the RIO got out OK.