

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION T-38A, T/N 68-8153 EDWARDS AIR BASE, CALIFORNIA 21 MAY 2009

On 21 May 2009, at 1319 local time, a T-38A aircraft assigned to the 412th Test Wing, tail number (T/N) 68-8153, impacted the ground 12 miles north of Edwards Air Force Base (AFB), California, while participating in a United States Air Force Test Pilot School (USAFTPS) training mission. The mishap navigator (MN) ejected from the aircraft and sustained serious injuries. The mishap pilot (MP) did not initiate ejection and died upon impact with the ground. The mishap aircraft (MA) was completely destroyed upon impact. The mishap caused minimal damage to unimproved private land.

The MP and MN, both students at the USAFTPS, were conducting a Flying Qualities Longitudinal Static Stability Data mission. This sortie required flying a series of test points at 0.9 Indicated Mach Number and 20,000 feet Mean Sea Level. The MP performed a series of “Pushover” data points, stabilizing the aircraft for level flight and then pushing the nose over to achieve various stable gravitational “g” loadings: 0.7g, then 0.5g, and finally 0.0g conditions. During the last of these tests, the MP’s unsecured hand-held force gage floated up and landed on the ledge above and behind his ejection seat. The MP told the MN he was going to attempt to get the force gage to float back forward to retrieve it. The MN felt a sudden sharp, unexpected nose down (negative “g”) onset, and saw the MP rising up, hitting his helmet on the canopy. The MN experienced total or near-total loss of consciousness. Upon regaining awareness, the MN could see only white. The MP did not respond to the MN’s repeated calls and did not appear to be on the controls. The MN could not sense aircraft movement, and upon making stick control inputs felt the aircraft was not responding. After calling for the MP to eject, the MN ejected from the aircraft. All egress equipment worked properly, but the MN sustained serious injuries due to the out-of-envelope ejection. The MP did not initiate ejection and died upon impact. Site recovery operations indicated at impact the engines were at idle, gear and flaps were up, ailerons and horizontal stabilizer were neutral, and the rudder was 30 degrees left full limit.

The AIB president found clear and convincing evidence that the cause of this mishap was the failure of the rudder operating mechanism, causing the rudder to deflect 30 degrees left. This hardover rudder induced an uncontrollable yaw and a resulting roll, causing the aircraft to depart controlled flight. This condition is unrecoverable in the T-38. The AIB president found substantial evidence to conclude that due to a maintenance error, one of the seven bolts securing the rudder operating mechanism “Critical Safety Items” was improperly secured. The unsecured bolt worked its way free over an unknown period of time, eventually backing out of its location sufficiently to allow the two critical components to separate, thus disconnecting the flight controls from the rudder actuators. The pilot’s properly-executed zero-to-negative-g input was the final—but not causal—condition that allowed the bolt to finally work free, disconnecting the rudder’s controls. The pilot-induced pitch down, followed immediately by a non-pilot-induced rapid yaw and roll, incapacitated the MP, from which he never recovered. Improper maintenance practices, including training, documentation, and oversight of maintenance personnel, were a factor in allowing this mishap.

Under 10 U.S.C. 2254(d), any opinion of the accident investigators as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.