

# UNITED STATES AIR FORCE AIRCRAFT ACCIDENT INVESTIGATION BOARD

## EXECUTIVE SUMMARY

### CV-22B OSPREY, T/N 02-0024 KIRTLAND AIR FORCE BASE, NEW MEXICO 2 MARCH 2009

On 2 March 2009, at approximately 1422 hours local time (L), a CV-22B Osprey aircraft, tail number 02-0024, suffered a compressor stall and subsequent engine failure of the left engine shortly after takeoff at Kirtland Air Force Base (AFB), New Mexico (NM). The mishap aircraft (MA), assigned to the 71st Special Operations Squadron (71 SOS) of the 58th Special Operations Wing, Air Education and Training Command, was conducting a local student training sortie when the mishap occurred. The mishap crew (MC), members of the 71 SOS, consisted of the mishap instructor pilot (MIP), the mishap student pilot (MSP), the mishap instructor flight engineer (MIF), the mishap student flight engineer (MSF), and the mishap tail scanner (MTS). The primary damage was to the aircraft's left engine which was estimated at \$1,154,773. There were no ground injuries and there was no damage to other government or private property.

At 1422L, after normal maintenance and pre-flight checks, the MA performed a standard takeoff departing to the west of Kirtland AFB, NM to conduct a local student training sortie. Twenty seconds after becoming airborne, at an altitude of 103 feet and calibrated airspeed of 96 knots, the MA's warning caution and advisory (WCA) system displayed a compressor stall caution for the left hand (LH) engine; seconds later, the MA's WCA system announced LH engine failure while the aircraft automated control system initiated shutdown of the LH engine. Operating on single engine power, the MC declared in flight emergency and coordinated an emergency landing with the local air traffic control tower. The MC followed the required emergency procedures for engine failure and landed at Kirtland AFB, NM, without further damage to the MA or any injuries to the MC.

The Accident Investigation Board President determined by clear and convincing evidence that the cause of the mishap was due to the LH engine ingesting foreign object and debris (FOD) originating from the aircraft's LH Central De-ice Distributor (CDD). Evidence identified the ingested FOD as a mounting bolt from one of the bonding strap mounting locations of the LH CDD. Further, a bonding strap nutplate on the CDD was inadequate in keeping the mounting bolt in place, and over time, centrifugal and vibratory forces allowed it to loosen and eventually back out. There was substantial evidence showing that CDD mounting components on the CV-22 have a history of structural compromise, and this trend is common and well documented by the MV-22/CV-22 community. Based on this evidence, the board president concluded that a design issue associated with the mount support brackets, bonding straps, and bonding strap mounting hardware on the CDD units was a contributing factor to 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.*