

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

C-141C, S/N 61-002778

MEMPHIS IAD (ANG), TENNESSEE

21 DECEMBER 2001

On 21 December 2001, at 2030 CST, a C-141C, S/N 61-002778, experienced a left wing fuel tank overpressurization. The C-141C, assigned to the 155 Airlift Squadron, 164th Airlift Wing, Memphis IAD (ANG), Tennessee, was preparing to depart for Germany in support of a European Strategic Inter-theater Deployment. While being refueled in preparation for departure, the left inboard main, auxiliary, and extended range tanks ruptured and released pressure explosively. The mishap aircraft's left wing collapsed, fell to the ramp, and was destroyed; and two engines were severely damaged. Three personnel sustained minor injuries.

Originally, the mishap aircraft was scheduled to depart Memphis IAD (ANG), Tennessee on 20 December 2001. During preflight inspection a fuel leak was discovered behind engine number two. Maintenance personnel evaluated the fuel leak and determined that repairs would be required prior to the mishap aircraft's departure. The mishap aircraft was defueled and towed to the fuel cell hangar for repairs. Maintenance personnel entered the fuel tank during the early morning hours of 21 December but were unable to locate or repair the fuel leak. Later that morning, maintenance personnel inserted fuel tank vent plugs and pressurized the fuel tank to locate the leak. Insertion of fuel vent plugs requires a mandatory entry in AFTO Form 781A LAW T.O. 1-1-3. This was not accomplished. Once the leak was located, the fuel tank was depressurized and maintenance personnel entered the fuel tank to repair the leak. Once the repair was completed, the fuel systems technician exited the fuel tank but failed to document or request an in-progress inspection (IPI) be accomplished in accordance with *Air Force Technical Manual* (TO 1C-141B-2-28JG-00-1). An IPI is required to ensure all tools and materials are removed from the fuel tank; and fuel tank plugs (if used) are extracted from the fuel tank vents. The fuel systems technician who completed the original repairs cannot accomplish an IPI. Due to failure, by the technician, to inventory tools and equipment prior to or after maintenance actions and failure to document the requirement for an IPI, a fuel vent plug was not removed. Wing panels were closed, with a lone fuel vent plug installed, and the mishap aircraft towed to spot number 4 for refueling. As the mishap aircraft was being refueled, upon reaching approximately 120,000 pounds of jet fuel, the interior left wing fuel tank pressure exceeded wing structural tolerances, as pressure was unable to vent due to the forgotten fuel vent plug. Over-pressurization resulted in catastrophic failure of the left wing structure at the wing root.

The AIB President found by clear and convincing evidence that the primary cause of the mishap was over-pressurization of the left wing fuel tanks. The over-pressurization was the direct result of the fuel systems technician's failure to remove a fuel tank vent plug. The forgotten fuel tank vent plug, in turn, caused the fuel tank overpressurization leading to its rupture.

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 proceedings arising from an aircraft accident, nor may such information be considered an admission of liability by the United States or by any person referred to in those conclusions.