

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

**F-22A, S/N 01-019, TYNDALL AFB, FLORIDA
8 APRIL 2009**

On 8 April 2009, an F-22A assigned to the 43d Fighter Squadron, Tyndall Air Force Base, Florida, experienced brake failure during a rollover tire check, departed its parking spot, and traveled 1642 feet before colliding with a Canadian CF-18. The mishap pilot (MP) safely egressed from the aircraft and sustained no injuries. The F-22A's integrated forebody, left nose gear door, lower fuselage, and left inlet cap were damaged, with repair costs estimated at \$981,574.00. The CF-18's missile rail, nitrogen receiver, and horizontal stab were damaged with an estimated repair cost of \$153,498.00. No private property was damaged.

After an uneventful NIGHT-1 sortie, MP landed and taxied to his assigned parking location. The crew chief marshaled him in and the recovery assistant chocked the right wheel. After removing the chocks to perform an aircraft rollover and tire check, the brakes failed and the aircraft began accelerating out of its parking spot. MP attempted to switch the brakes to MANUAL and also attempted to set the parking brake, without any effect. He impacted the CF-18 at low speed, having turned off his engines in order to slow the speed of the aircraft.

The Accident Investigation Board President determined, by clear and convincing evidence, the cause of the mishap was two unrelated failures in the aircraft, an IVSC (Integrated Vehicle Subsystem Control) A2 processor failure due to a voltage wraparound test failure internal to the processor card and a simultaneous short in the Brake Solenoid Valve B2 wiring harness. Subsequent Lockheed Martin testing revealed the wraparound failure was attributed to excessive noise levels caused by a faulty C259 capacitor. The Board President also found by clear and convincing evidence that because the A2 failure did not alert the Mishap Pilot (MP) through an ICAW (Integrated Caution Warning Advisory System) to this particular failure mode, this was causal to the mishap, as an ICAW would have led MP to abort the Mishap Aircraft. The Board President found a substantially contributing factor to the mishap was the implementation of TCTO (Time Compliance Technical Order) 1F/A-22-813, which installed a manual tow brake valve in the right wheel well. As a result, the pilot was unable to potentially use the last possible method to bring the aircraft safely to a stop.

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.