

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

F-22A, S/N 03-4045

LANGLEY AIR FORCE BASE (AFB), VIRGINIA

20 OCTOBER 2005

On 20 October 2005, at 2030L (0230Z), an F-22A, S/N 03-4045 ingested a nose landing gear (NLG) pin in the right engine. The mishap aircraft (MA), assigned to the 27th Fighter Squadron, 1st Fighter Wing, Langley Air Force Base, Virginia, was starting engines as part of a night surface attack tactics mission. The right engine suffered significant damage at a cost of approximately \$6,754,275.36. There were no injuries to personnel or damage to other government equipment.

The MA had a recent history of not recharging the stored energy system (SES) sufficiently, which could prevent flight above 34,000 MSL (which was required for the mission). Therefore, SES servicing equipment was positioned near the MA with the intent to service the SES after auxiliary power unit (APU) start. The MA remained safe for maintenance, meaning landing gear pins remained installed as required by technical order (T.O.) data. After APU start, the mishap pilot (MP) told the mishap crew chief (MCC) SES servicing was not required. The equipment was consequently moved away, and the MA engines were started. The MCC realized the nose landing gear (NLG) pin was still in and instructed the pilot to shut down the left engine so the pin could be removed. The MCC maneuvered himself inside the nose gear well and removed the nose landing gear pin. The suction force from the operating right engine grabbed the NLG pin streamer and tore the pin from the MCC's hand with subsequent ingestion by the engine. The MP shut down the engine and egressed the aircraft normally.

The cause of this mishap, supported by clear and convincing evidence, is the mishap crew chief's failure to control the NLG streamer during removal, which allowed it to be caught in the suction field of the operating right engine and torn from his hand with subsequent ingestion by the right engine. Failure to remove the NLG pin prior to engine start was a direct result of inadequate and incorrect technical order guidance that led to the NLG pin remaining installed during engine start forcing the mishap crew chief to revert to training and experience to resolve the situation.

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 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 or statements.