

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

MQ-1B, T/N 05-3145, 13 August 2009

19 NOVEMBER 2009

On 13 August 2009, at approximately 0451 Greenwich Mean Time (GMT), a MQ-1B Predator remotely-piloted aircraft, serial number 05-3145, impacted uninhabited terrain southwest of Joint Base Balad (JBB) while conducting a combat support mission for Operation IRAQI FREEDOM. The mishap remotely piloted aircraft (MRPA) was an Air Force Special Operations Command asset from the 3rd Special Operations Squadron at Cannon Air Force Base, New Mexico. The MRPA launched from JBB, Iraq, while the Air Combat Command crew, consisting of the mishap pilot (MP) and mishap sensor operator both from the 15th Reconnaissance Squadron, operated the MRPA from Creech AFB, Nevada. The estimated repair cost of the aircraft is \$2.78 million. There were no injuries and there was no known damage to other government or private property.

After normal maintenance and pre-flight checks, the MRPA taxied and departed from JBB for a combat support mission at 1815 GMT on 12 August 2009,. Approximately 10 hours and 28 minutes into the flight, the MRPA began to lose airspeed, experiencing both a loss of engine RPM and an associated loss of thrust. The MP attempted to regain control of the engine and propeller throughout the majority of the un-commanded descent from 9,500 feet mean sea level until the MRPA crashed. The MP attempted to regain control by cycling the preprogrammed mode on, as well as altitude and airspeed hold functions, and appropriate throttle and pitch inputs in order to regain the desired altitude and airspeed. The MC performed the Loss of Control Prevent emergency procedure and the Engine Failure checklist in an attempt to regain control of the power-deficient MRPA.

The Accident Investigation Board President determined, by clear and convincing evidence, that the cause of the mishap was the failure of the variable pitch propeller push/pull shaft, also known as the "quill shaft." The quill shaft failed due to multiple quench cracks as a result of improper tempering at the time of manufacture. Through normal wear and stress, the quench cracks eventually caused the quill shaft to shear. The shaft failure caused the pitch of the propeller to initially fluctuate and then become totally unresponsive to MP power inputs. Due to the inability to control the propeller and engine power, the MRPA entered an un-commanded descent and eventually impacted uninhabited terrain southwest of JBB.

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.