

## **EXECUTIVE SUMMARY**

### **ABBREVIATED AIRCRAFT ACCIDENT INVESTIGATION MQ-1B, T/N 06-3178 FORWARD OPERATING BASE (FOB), AFGHANISTAN 20 AUGUST 2011**

On 20 Aug 11, at approximately 15:36 Zulu (Z) time, an MQ-1B Predator remotely piloted aircraft, T/N 06-3178, impacted the ground approximately 1.7 miles southwest of a forward operating base (FOB) in Afghanistan after approximately 17.2 hours of a surveillance mission. The mishap remotely piloted aircraft (MRPA) was forward deployed from the 432d Air Expeditionary Wing, Creech Air Force Base (AFB), Nevada. The MRPA was operated by the 3d Special Operations Squadron, Cannon AFB, New Mexico. The MRPA, one air to ground Hellfire missile and one missile rail were destroyed on impact. Two civilian residential structures were also damaged. The total damage to U.S. Government property was assessed to be \$3,844,825.00. There were no injuries or damage to other government or civilian property as a result of the mishap.

On 19 Aug 11, at approximately 22:27Z, after normal pre-flight checks, the MRPA taxied and departed the FOB. Handover from the Launch and Recovery Element (LRE) to the Mission Control Element (MCE) was uneventful. On 20 Aug 11, at approximately 15:18Z, the Mission Control Element Pilot (MCEP) was hand-flying the MRPA with the altitude hold on at 18,000 feet (ft) mean sea level (MSL) when he noticed the MRPA had lost approximately 3,000 to 4,000 ft and was descending at approximately 1,200 ft per minute. The MCE crew began troubleshooting the emergency and decided to return to base. The MCE Mission Director notified the LRE crew that the MRPA was “falling out of the sky” and they needed to get prepared to take it immediately. The LRE crew immediately stepped to the Ground Control Station to prepare to recover the MRPA. At approximately 15:31Z the LRE conducted an emergency takeover and gained control of the MRPA. When the LRE took control of the MRPA, it was approximately 4,880 ft MSL and approximately five miles from the FOB. After confirming the engine was out, the Mishap Pilot (MP) made the determination that the MRPA did not have enough altitude to reach the FOB and directed the Mishap Sensor Operator (MSO) to find an alternate place to land the aircraft. The MSO located a rural, non-populated area, and the MP turned in that direction. However, due to the rapid descent rate, the MRPA was unable to reach the designated landing site and crashed in a civilian residential area.

The Abbreviated Accident Investigation Board (AAIB) President determined, by clear and convincing evidence, the cause of the mishap was a broken variable pitch propeller quill shaft. The broken quill shaft forced the mishap MRPA’s propeller to an abnormal angle which generated increased drag and caused the MRPA to rapidly descend. By the time the MCEP was able to diagnose the emergency, take action, and handoff the MRPA to the LRE crew, the MRPA had lost too much altitude and was unable to reach the FOB. Furthermore, the AAIB President found, by a preponderance of the evidence, the lack of USAF maintenance guidance defining the serviceable life of a MQ-1B VPP quill shaft substantially contributed to the 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, if any, 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.*