

EXECUTIVE SUMMARY  
AIRCRAFT ACCIDENT INVESTIGATION  
MQ-1L PREDATOR S/N 99-3064  
DEPLOYED LOCATION  
30 MARCH 2005

On 30 March 2005 at 0804 local time, an MQ-1L PREDATOR, S/N 99-3064, callsign SPECK 32, 15<sup>th</sup> Reconnaissance Squadron, Indian Springs Air Force Auxiliary Field, Nevada, crashed during a reconnaissance mission while operating from a deployed location in the CENTCOM AOR. Upon ground impact, the unmanned aircraft was severely damaged with losses valued at \$4,359,991. No one was injured in the accident. Other than the mishap aircraft, there was no damage to government or private property. Media interest was minimal.

Approximately 12.2 hours into a 20 hour sortie, the aircraft sustained a momentary engine anomaly followed by a near instantaneous loss of airspeed and a sink rate exceeding 1500 feet per minute (fpm). Approximately 2 seconds later, the aircraft engine recovered to normal operations; however, the low airspeed and high sink rate continued. To maintain flying airspeed, the mishap pilot established a nose low attitude, but the abnormal sink rate of approximately 1400 fpm remained. 20 seconds prior to ground impact, the mishap pilot began lining up on an open dirt area for landing. The mishap pilot attempted to land the aircraft using normal references and used his excess airspeed to lessen the high sink rate. The aircraft impacted the ground 6 minutes and 28 seconds after the initial anomaly while traveling at 55kts with a sink rate of 882 fpm.

There is clear and convincing evidence that this mishap was caused by the failure of the pilot bearing that encases the variable pitch propeller quill shaft. Damage analysis of the pilot bearing and quill shaft suggests a long duration, progressive failure within the unit. The failed pilot bearing, which is supposed to allow the propeller shaft to spin freely around the fixed quill shaft, caused enough friction to torsionally sheer the adapter which holds the quill shaft in place. The engine anomaly occurred during the initial sheering action as heavy drag was being placed on the engine via the propeller shaft. Once the adapter sheered, the quill shaft then unscrewed itself from the variable pitch propeller servo and drove the propellers to a negative pitch setting causing severe drag and high sink rates. As supported by clear and convincing evidence, the aircraft hit tail first, with its landing gear up, and the engine in full power. The impact caused the three tails to snap off as it slid on its wing-mounted Hellfire missiles for nearly 30 meters before stopping after hitting a small earthen berm. Upon impact with the berm, the right Hellfire missile was buried in the berm and the left Hellfire missile and its missile rail tore nearly half of the left wing off. The sensor ball on the underside of the nose was destroyed after being driven into the nose of the aircraft. There is clear and convincing evidence that the engine continued to run after impacting the ground and had a catastrophic failure due to extreme overspeed conditions.

*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.*