

## **EXECUTIVE SUMMARY**

### **AIRCRAFT ACCIDENT INVESTIGATION**

#### **MQ-1B, 03-3122 KANDAHAR AB, AFGHANISTAN 30 JANUARY 2012**

On 30 January, 2012, at approximately 1000 hours Zulu (Z) time, the mishap remotely piloted aircraft (MRPA), a MQ-1B Predator, tail number (T/N) 03-3122, operated by the 18th Reconnaissance Squadron (RS), 432d Wing (WG), Creech Air Force Base (AFB), made a forced landing just outside the perimeter fence of Kandahar Air Base (AB). The crash site was an unpopulated area adjacent to the base. There were no injuries and there was no damage to other government or private property. The estimated loss is valued at \$4.5 million and includes the MRPA and one AGM-114 Hellfire missile.

After normal preflight checks, the MRPA taxied and departed from a forward operating location at 0632Z. During flight, the Mission Control Element (MCE) crew, mishap crew #1 (MC1), observed abnormal engine temperature indications. The abnormal temperature indications worsened, accompanied by a significant loss of thrust and an uncommanded descent in altitude. MC1 began an emergency diversion to the closest suitable divert field, Kandahar AB. At 0922Z, MC1 lost video feed and positive flight control of the MRPA, but monitored flight data as it began a slow descending right-hand spiral through a full circle. At 0933Z, the Launch and Recovery Element (LRE) crew at Kandahar AB, mishap crew #2 (MC2), regained positive flight control of the MRPA and guided it to a forced landing.

The Abbreviated Accident Investigation Board (AAIB) President found, by clear and convincing evidence, the cause of the mishap was a loss of coolant. During the mishap flight, the coolant pump supply line failed, releasing the engine's coolant. As the coolant supply decreased, the Cylinder Head Temperature increased excessively. Heat expansion of the cylinders permitted compressed gases from the combustion chambers to "blow by" the pistons, reducing power output and preventing sustained flight.

The AAIB President found, by a preponderance of evidence, that a significantly contributing factor to the loss of the MRPA was the failure to detect damage during a 60-hour engine inspection on 26 January 2012 on the coolant pump supply line and the oil cooler-to-oil pump oil line, which were routed in a manner that permitted friction chafing. Additionally, the AAIB President found, by a preponderance of evidence, that a significantly contributing factor to the loss of the MRPA was Mishap Pilot #2's (MP2) unintentional "hostile takeover" of the MRPA at 0922Z, when MP2 failed to ensure the Line-of-Sight control link transmitter was unpowered as MP2 turned the ground antenna toward the MRPA. The 1,200 feet of altitude lost in the ensuing unintentional spiral prevented a safe recovery of the crippled aircraft.

**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.**