

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION

MQ-1B, T/N 04-3125 CAMP LEMONNIER, DJIBOUTI 21 FEB 12

On 21 Feb 2012 at 0508 GMT, a crew assigned to the 60th Expeditionary Reconnaissance Squadron at Camp Lemonnier, Djibouti uneventfully launched the Mishap Aircraft (MA), a MQ-1B, tail number 04-3125. The MA was handed to the Mission Control element (MCE) from the 3rd Special Operations Squadron at Cannon AFB, NM. Beginning at approximately 0700 GMT the aircraft experienced numerous engine anomalies while on target in support of mission operations. At approximately 0855 GMT, the MP directed the MA back to the Launch and Recovery Element (LRE) due to the MA inability to hold mission altitude and a decreasing oil level trend. At 1010 GMT, the MA engine failed due to low oil quantity and at 1025 GMT, the MA impacted the water 90 miles from Camp Lemonnier, Djibouti and was destroyed on impact. The MA structure and components were destroyed on impact and no significant components were recovered from the ocean site. There were no injuries and there were no damages to other government or private property.

The Abbreviated Accident Investigation Board (AAIB) President found, by clear and convincing evidence, the cause of the mishap was the failure of the turbocharger bearing which resulted in the eventual engine failure and the destruction of the MA. Initially, the turbo charger wastegate was working above expected levels based on altitude and requested power settings. It performed its function of providing additional thrust increasing air pressure in the combustion chamber above 10,000 ft. However, as the aircraft crossed 10,000 ft, the wastegate increased turbocharger output erratically and remained erratic after reaching cruising altitude until it reached 100%. These events are consistent with the turbocharger bearing failure. The mission cruising altitude for this mission was 18,000 MSL. After approximately three hours of flight, the aircraft began a gradual uncommanded descent. This is consistent with the turbocharger not producing the additional boost needed to maintain level flight at altitudes greater than 10,000 ft for airspeed commanded.

As the turbocharger wastegate attempted to overcome increased friction from the bearing failure, the degraded bearing damaged the turbocharger oil seal which caused oil to leak the into the intake manifold closest to #2 engine cylinder; causing poor combustion, decreased engine power and corresponding lowered Exhaust Gas Temperature (EGT). Available evidence indicates the engine oil loss was caused by the turbo charger bearing failure. The MA was enroute to the LRE location when the engine failed. Upon determining the MA would not reach the LRE location, the MP and MSO sought and received guidance from the supported unit, directing a "hard-ditch" or an increased rate of descent to ensure destruction upon impact with the water. At 1025 GMT, the MA and one AGM-114P Hellfire missile were destroyed upon impact and no significant parts were recovered. The estimated government loss is valued at \$4.4M.