

46th EXPEDITIONARY RECONNAISSANCE SQUADRON



MISSION

LINEAGE

46th Expeditionary Reconnaissance Squadron

STATIONS

ASSIGNMENTS

COMMANDERS

HONORS

Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

EMBLEM

On a disc Sable, a terrestrial globe Proper issuant from base with an all-seeing eye Argent, iris Azure and pupil of the first in middle chief with three lightning bolts radiating in chevron Or to the globe, all within a narrow border Black. Attached below the disc, a White scroll edged with a narrow Black border and inscribed "46 ERS" in Black letters. **SIGNIFICANCE:** Ultramarine blue and Air Force yellow are the Air Force colors. Blue alludes to the sky, the primary theater of Air

Force operations. Yellow refers to the sun and the excellence required of Air Force personnel. The all-seeing eye represents the persistent stare of the unit maintaining a continuous watch of the land. The three lightning bolts stand for the combined Air Force components consisting of Active Duty, Reserve, and National Guardsmen bringing a strike capability to those who wish harm on the United States and its allies.

MOTTO

NICKNAME

OPERATIONS

On 30 July 2007, at 2300 local/1900 Zulu (Z, or Greenwich Mean Time), an MQ-IB Predator, a remotely piloted aircraft, tail number 04-003133, impacted the ground short of runway 32 on final approach to Balad Air Base (AB), Iraq. The Mishap Aircraft (MA) was forward deployed to Balad AB from the 432d Wing, Creech Air Force Base, Nevada, in support of Operation IRAQI FREEDOM. The Mishap Crew (MC) was assigned to the 46th Expeditionary Reconnaissance Squadron as part of the launch and recovery element. Damage to the MA and runway lighting totaled approximately \$2.21M. There were no deaths or injuries associated with this mishap.

The MC, consisting of the Mishap Pilot (MP) and Mishap Sensor Operator, assumed control of the MA for the final 18 minutes of the 20.4 hour sortie. The MC was current and qualified to conduct the mission.

Nine minutes after assuming control, the MC detected engine overheat indications, including fluctuating exhaust gas temperature readings in two of the MA's four cylinders. The MC declared an In-flight Emergency for "Engine Overheat" 15 miles from Balad AB. The MP was issued immediate clearance inbound. During the final 11 minutes of flight, the MA experienced abnormal engine operations that resulted in power losses. The MC applied "Engine Overheat" checklist items and were initially able to maintain glidepath and appropriate airspeed parameters. Approximately one mile from the runway threshold, the MA engine lost power in two cylinders. Approximately 17 seconds later, the final two cylinders lost power, resulting in engine failure. A failing, and ultimately failed, ignition system caused the engine-out condition. This engine failure occurred on short final, a critical phase of flight, and left the aircraft without sufficient energy to glide to the airfield. The loss of power induced a stall and an irrecoverable loss of airspeed. The MA impacted 92 meters short of the runway on the unprepared under-run surface.

The Accident Investigation Board President determined, by clear and convincing evidence, the primary cause of this mishap was the result of a failed Ignition Module (1M). The IM is comprised of two redundant Capacitive Discharge Ignition (CDI) circuits. The first CDI failed due to an improperly manufactured wire-to-wire connection that was not soldered as required. This failure increased the electrical load on the remaining CDI while reducing the IM to a single point of failure. The second CDI failed due to low reliability at higher than normal operating temperatures caused by higher engine settings, increased electrical load, and an IM enclosure design that could not adequately dissipate the resulting heat.

An MQ-1B Predator Remotely Piloted Aircraft (RPA) crashed shortly after takeoff near Joint Base Balad (JBB), Iraq on 16 August 2010. The aircraft belonged to the 432d Reconnaissance Wing at Creech Air Force Base (AFB), Nevada, but was deployed at the time in support of Operation IRAQI FREEDOM. The crew flying the aircraft was also deployed to JBB from Creech AFB and was assigned to the 46th Expeditionary Reconnaissance Squadron at the time of the mishap. No one was injured, and no private property was damaged. The aircraft and its system were catastrophically damaged during the crash. The total mishap cost was approximately \$3,900,278.

All aircraft systems were functioning normally prior to liftoff, but as soon as the mishap pilot (MP) raised the nose of the aircraft for takeoff, flight control became erratic and remained so throughout the approximately two-minute long flight. Just after the MP raised the landing gear, the aircraft pitched up, rolled dramatically to the right, and ultimately impacted the ground. No maintenance issues that would have caused the mishap were documented or discovered after extensive post-mishap testing on the aircraft and ground control station. A review of the audio and video from the crew's ground control station, as well as analysis of the flight parameters, revealed that the aircraft's Stability Augmentation System was never turned on, prior to or during the flight, and this caused the departure from controlled flight.

The Board found by clear and convincing evidence that the cause of the mishap was due to pilot error when the MP failed to correctly execute the procedure to turn on the aircraft's Stability Augmentation System. The Board further found by a preponderance of the evidence that the human factors of Checklist Error, Inattention, and Expectancy substantially contributed to the mishap.

Air Force Order of Battle

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Sources

Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.

The Institute of Heraldry. U.S. Army. Fort Belvoir, VA.