

EXECUTIVE SUMMARY

On 3 April 2001, F-16DJ, tail # 90-0837, assigned to the 13th Fighter Squadron, 35th Fighter Wing (FW), Misawa AB, Japan, crashed after suffering catastrophic engine failure. Crash occurred at 1621L, approximately 10 miles northeast of Misawa on Ripsaw Range, Japan. The aircraft was a complete loss; however there were no deaths, or injuries, and no collateral property damage.

Mishap aircraft was #2 of a two-ship formation on a Mission Qualification Training sortie. The mishap pilot had recently arrived on station after completing F-16 transition training at Luke AFB, Arizona. Sortie profile included medium-altitude Suppression of Enemy Air Defense (SEAD) training followed by a back-up range profile. Sortie proceeded without incident until operations on Ripsaw Range. As the MP completed his first visual level delivery, he reported an engine problem. While turning toward Misawa AB the MP remained below the weather and attempted to air start the engine without success. The engine would not start due to catastrophic failure of the engine case. Mishap aircraft engine's failure to air start resulted in the MP's decision to eject. Approximately 70 seconds after reporting an engine problem, MP successfully initiated ejection and parachuted with minor injuries into the Pacific Ocean. Mishap aircraft was totally destroyed upon impact with the water.

Inspection of the damaged engine revealed foreign object damage (FOD) to blade #30 of the 3rd stage compressor. The impact resulted in a tear and radial bend at the leading edge of blade #30. The time of damage is unknown, but the FOD started the accident chain of events and remained undetected for a sufficient amount of time to allow a fracture to develop. It remained undetected because of its location, which would have necessitated a complete engine teardown to discover. This type of FOD gave no indication to maintainers that a teardown was warranted or should be conducted.

On 3 Apr 01, the fracture had propagated to such a point that the remainder of the blade failed through tensile overload. The blade was liberated and lodged in the compressor section in the 1:00 to 2:30 clock position of the compressor case. A titanium fire resulted from blade friction and created a burn-through of the compressor casing. The resulting breach in the compressor case prevented normal engine operations. Damage to the #30 blade, subsequent liberation, and compressor case burn-through caused the engine to fail.

Board President opined that there were three causes of the mishap: (1) FOD to 3rd stage compressor blade #30, (2) subsequent failure of blade #30, and (3) a titanium fire and burn-through of the compressor case. Once the engine case was breached, air pressure to the engine was lost and the engine could not produce thrust, nor could it be restarted by following critical action procedures. Regardless of pilot action, because the catastrophic engine failure occurred at low altitude, recovery to a useable runway was not possible and therefore the decision to eject was prudent, proper, and correct.

Under 10 U.S.C. 2254(d), any opinion of the accident investigators as to the cause or causes of, or 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 of the United States or by any person referred to in those conclusions or statements.
