MINISTRY OF DEFENCE

Military Aircraft Accident Summaries

MAS Mod PR 22/83
26 August 1983

ACCIDENT TO ROYAL AIR FORCE HUNTER T MK7 XL593

Date:	5 August 1982
Parent Airfield:	RAF Brawdy, Dyfed
Place of Accident:	4½ miles NW of Carmarthen
Crew:	2 Pilots
Casualties:	Nil

Circumstances

1. The Captain of Hunter XL593 was an instructor on the staff of the Tactical Weapons Unit (TWU) based at RAF Brawdy. His student was undergoing a short refresher flying course and was in the left hand seat practicing low-level manoeuvring. Some 15 minutes after take off both pilots noticed the onset of a high frequency vibration which persisted for about 2 seconds. On checking the engine instruments, the pilots noticed that the Jet Pipe Temperature (JPT) gauge indicated above full scale deflection and that the oil pressure gauge showed a very low reading. The instructor took control, initiated a climbing turn towards the nearest suitable airfield, and transmitted an emergency call. Diagnosing an engine surge, he closed the throttle but the JPT indication remained abnormally high. The instructor then told the student to close down the engine and to relight it when the JPT had decreased. The student did so, and the engine was restarted when the JPT had fallen to 400°C. At this stage the aircraft was in a shallow descent, passing a height of 4,000 feet, with an airspeed of 190 kts. The instructor slowly advanced the throttle, and this action produced an RPM of 5500 with a normal oil pressure indication. However, the JPT rapidly exceeded 600°C and thrust was insufficient to maintain height. The instructor transmitted a Mayday call, warning of a likely imminent abandonment, and then moved the throttle further forward. The JPT again increased to over 800°C but there was no noticeable increase in thrust and the instructor, abandoning his attempt to reach an airfield, turned the aircraft towards the coastline now visible to the south. The student once more closed down and relit the engine but the result was the same as before. The instructor then checked that the throttle was closed and instructed the student to operate the fuel pump isolate switch in order to override the automatic fuel control system. There was no improvement in engine performance so the instructor, in a final attempt to regain power, opened the throttle fully. Again there was no increase in thrust so, descending through about 1500 feet, the instructor ordered the student to eject. On seeing the student's seat fire he initiated his own ejection. Both pilots parachuted to safety whilst the aircraft crashed in open farmland.

/...

Cause

2. An initial examination of the wreckage at the crash site indicated that an in-flight mechanical failure in the engine had occurred. This diagnosis was confirmed during a subsequent strip examination by the manufacturer, who found that a first stage compressor blade had become detached from the rotor; part of the blade had been ingested by the engine, causing extensive secondary damage to the remaining compressor stages and resulting in severe overheat damage to the turbine. The temporary low oil pressure indication was attributed to the effect of high frequency vibration on the oil pressure transmitter. It was concluded that in the circumstances, the pilots had been powerless to prevent the loss of the aircraft; indeed, it was recognised that they had displayed commendable skill and airmanship in coping with the emergency.

Subsequent Actions

3. The rotor blade failure has been attributed to metal fatigue. The Service engineering authority is collaborating with the manufacturer to determine whether any remedial action is necessary to prevent further similar failures.

Claims

4. A claim was received, from the owner of the land on which the aircraft crashed, for damage to hedges, crops and topsoil, loss of production and milk loss by cows. It was settled for the sum of £5,710.

Issued by - Public Relations (Royal Air Force)
Ministry of Defence
Main Building
Whitehall
London SW1A 2HB

01-218 3253/54