



MINISTRY OF DEFENCE

Military Aircraft Accident Summaries

MAAS 12/83

6 May 1983

ACCIDENT TO ROYAL AIR FORCE HUNTER T MK 7 XL 583

Date:

1 December 1981

Parent Airfield:

RAF Brawdy Dyfed

Place of Accident:

1½ nm North of RAF Brawdy

Crew:

2 Pilots

Casualties:

2 Pilots Major Injuries

CLASS

DATE

16/5/83

MOD. PR

CIRCUMSTANCES

1. Hunter XL 583 was flown by two instructors from the Tactical Weapons Unit (TWU). The captain, who occupied the left hand seat, was conducting an annual check on the instructional standard and ability of his colleague, in accordance with the TWU staff continuation training syllabus. This required him to adopt the role of a student and, after a low-level navigation exercise, he flew the aircraft back to the airfield. The intention was that each pilot in turn would practise approaches and landings. The captain joined the airfield visual traffic pattern, selected the undercarriage down and then moved the throttle slightly forward before beginning his final turn towards the runway. The aircraft was 1000 ft high, decelerating through 200 kts, with the undercarriage lowering, when both pilots became aware of a low frequency vibration from the engine. They decided to land from the approach but, shortly afterwards, noticed that the engine RPM indication was considerably less than they expected. The captain moved the throttle forward but the RPM did not increase; both pilots realised that the engine power was insufficient to permit the aircraft to reach the runway. The instructor in the right hand seat was given control, while the captain operated the Fuel Pump Isolate Switch (FPIS) which was the only means of overriding the automatic fuel control system. Meanwhile, the undercarriage was selected up to reduce the rate of descent. The engine RPM increased momentarily but quickly decayed again, and ground observers noticed a plume of flame coming from the jet-pipe. By now the aircraft was descending through a height of 250 ft; the pilots realised that there was no prospect of recovering the aircraft and ejected, each sustaining spinal injuries. The aircraft crashed in open pastureland and was destroyed.

CAUSE

2. An exhaustive investigation revealed that a diaphragm is one of the critical components of the engine control system had ruptured in flight. An experiment by the manufacturers confirmed that such damage would result in the compressor being choked by air at low RPM, preventing the engine from accelerating normally in response to the throttle. This would have caused the vibration reported by the pilots. Use of the FPIS in these circumstances would have produced a degree of over-fuelling which the engine could not accept, resulting in flame from the jet-pipe and overheat damage to the turbine. Such damage was evident from an examination of the engine, and this would have caused the subsequent decay of RPM. It was determined that the ruptured diaphragm was the primary cause of the accident, and that in the circumstances the crew could have done nothing to prevent the loss of the aircraft. Use of the FPIS was judged to have been reasonable, since the only other option available to the crew was immediate abandonment.

SUBSEQUENT ACTIONS

3. An improved diaphragm material has been developed and tested. This has been used in the manufacture of the appropriate components which have now been fitted to all in-use engines of the type installed in XL 583. Component quality control, assembly and testing arrangements have been revised and the performance of the new diaphragms will continue to be regularly monitored until the requisite degree of confidence has been assured by service use.

CLAIMS

Two Claims were received and settled in the sum of £337.50 for damage to land and fencing.

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