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ACCIDENT TO ROYAL AIR FORCE HUNTER FGA9 XG151

Date: 3 April 1981

Parent Airfield: Royal Air Force Lossiemouth,
Morayshire

Place of Accident: RAF Lossiemouth

Crew: One pilot

Casualties: Nil

CIRCUMSTANCES

1. Hunter XG151 was flown by an experienced Tactical Weapons Unit (TWU) staff pilot as the No 2 of a pair of aircraft. The pilot of the lead aircraft was a student who was nearing the end of his course. The sortie was a low level simulated attack mission with the practice attacks against two targets. The weather was good, with excellent visibility below a main cloud base of 2,000 to 2,500 ft above sea level. Nothing untoward occurred for the first part of the sortie; however, while en-route to the second target, and flying at 500 ft above ground level, the student noticed a stream of vapour trailing from XG151. He reported this and closed with the aircraft to determine the nature and origin of the leak. The vapour appeared to be unburned fuel emanating from the under fuselage area forward of the wing trailing edge. On being appraised of this, the staff pilot decided that it would be prudent to terminate the exercise and land as soon as possible. He took the lead of the pair, climbed to just below cloud and set course for base ordering the student to remain close enough to monitor the leak. He assumed this to be relatively minor, since his fuel gauges indicated the expected contents, and there was no internal indication of any defect. Shortly afterwards, the student reported experiencing abnormal fuel indications himself. The staff pilot assisted him in dealing with this emergency and then asked for a check on their relative fuel states. This revealed that XG151 had consumed considerably more fuel than the other Hunter and the staff pilot calculated that his fuel contents were now reducing at approximately 3 times the normal rate. However, at this stage the aircraft were within 15 nm of the airfield and, even allowing for the relatively high fuel consumption, reserves were more than adequate to allow XG151 to recover safely. Both aircraft joined the visual traffic pattern at 1,200 ft and 350 kts, the pilot of XG151 having advised air traffic control of his problem and his intention to carry out a precautionary landing. He turned gently downwind, delayed his under-carriage selection and attempted to fly the final approach high and fast. All engine indications were normal and he lowered full flap. With about 1 nm to go to the runway threshold, he needed a small power increase and nudged the throttle forward. There was no response. He moved the throttle further forward, eventually to

the fully open position. He now became acutely aware of a loss of thrust, a shallow descent with a high nose attitude, and a decaying airspeed; he assessed that his chances of making a safe landing were extremely remote. He pulled the control column hard back to arrest the rate of descent, simultaneously transmitting that the engine had flamed-out. Ejection was the only possibility so he also indicated his intention to do so. In fact ejection took place at 60 ft above ground level and he landed beside the runway threshold after a very short parachute descent. The aircraft hit the runway undershoot area, bounced, then slewed off onto the grass; it was damaged beyond repair.

CAUSE

2. An investigation by the manufacturer indicated that the engine has been rotating at a low RPM when the aircraft first hit the ground, and that it had flamed-out shortly thereafter. However, it was established that the aircraft's fuel reserves were adequate. An exhaustive examination of the wreckage failed to reveal any defect other than a ruptured seal in one of the components of the engine high pressure fuel system. It was confirmed that such a seal failure in flight would have resulted in a worsening fuel leak, a consequent decay in engine RPM and, ultimately, a flame-out. Since these symptoms correlated closely with the evidence of the pilots concerned, it was concluded that the observed fuel leak had led to a loss of engine power at a critical stage on the final approach. The accident has therefore been attributed to a technical failure over which the pilot had no control.

SUBSEQUENT ACTIONS

3. Pending modification, all engines of the type fitted to XG151 were subjected to a daily ground run to check the high pressure fuel control system for leaks and seal deterioration. Two interim modifications were embodied on these engines as a precautionary measure while the pipe couplings from which leaks had originated were being redesigned. One part of this latest modification to the fuel system has already been introduced into service and the other is scheduled for embodiment when the respective fuel system components are replaced during servicing.

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