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AIRCRAFT ACCIDENT INVOLVING ROYAL AIR FORCE JET PROVOST T3A XM 366

Date: 22 October 1981
Parent Airfield: Royal Air Force Church Fenton, Yorkshire
Place of Accident: Holme-on-Spalding Moor, Humberside
Crew: Student Pilot
Casualties: Nil

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CIRCUMSTANCES

1. On 22 October 1981 the student pilot took off from Royal Air Force Church Fenton for a solo general handling sortie which was to include aerobatics. The sortie was uneventful until the pilot pulled up to execute a stall turn. As he reached the top of the manoeuvre, the engine RPM began to reduce. The pilot recovered the aircraft to a glide at 125 kts and attempted a hot relight of the engine; this was unsuccessful so he turned the aircraft towards the nearest airfield at Holme-on-Spalding Moor. During the descent through cloud, 3 further relight attempts were made but the engine continued to windmill at 7 to 8% rpm with zero jet pipe temperature. The aircraft emerged from cloud at 2000 ft within sight of the runway at Holme-on-Spalding Moor but, as he neared the threshold, the pilot judged that his approach was too shallow to make a successful forced landing and he ejected at 600 ft. The ejection was successful and the pilot was uninjured; the aircraft impacted about 400 m short of the runway threshold and was destroyed. There were no civilian casualties and damage to agricultural land was slight.

CAUSE

2. The engine was removed and sent to the manufacturer for examination. Two separate defects were discovered; firstly, tiny particles of solid matter were found within the fuel control system. These particles had interfered with the control of the high pressure fuel pump and had momentarily cut off fuel to the pump and starved the engine of fuel causing it to flame-out. It has not been possible to establish positively the origin of the contaminants although it is probable they were introduced either when the component was built or at a previous servicing. Secondly, the atomisers, which fuel the engine for starting and

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relighting, were found to be partially blocked with carbon deposits. Although the pilot carried out the correct drills on each of his relight attempts, the fuel flow into the engine was too low and the spray pattern too irregular for a stable flame to be formed. At the time the emergency occurred the pilot's height and distance from the nearest airfield were such that a successful forced landing was unlikely.

SUBSEQUENT ACTION

3. This is an isolated case as the Viper engine in the Jet Provost has proved extremely reliable and has no previous history of the kind of defects revealed during this investigation. All concerned have been reminded of the need to avoid contamination of sensitive aircraft components, both during assembly and subsequent servicing, and inspections of installed fuel systems for cleanliness will be carried from time to time. A new standard of primer-atomiser will be introduced, and in future these items will be replaced at regular intervals to ensure that the fuel flow and spray patterns remain within the design limits. Furthermore, the Jet Provost inspection schedules have been changed to include functional and independent checks of the 2 igniter units and the adjacent atomisers.

CLAIMS

4. A claim was received for damage to a recently cultivated field caused by both the crash and the recovery vehicles. This was settled for £250. A further claim is possible after autumn harvesting this year if it is found that the fuel spillage resulting from the accident has adversely affected the crop.

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