

ACCIDENT

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| Aircraft Type and Registration: | Thruster TST Mk 1, G-MVIU | |
| No & Type of Engines: | 1 Rotax 503 piston engine | |
| Year of Manufacture: | 1988 | |
| Date & Time (UTC): | 28 November 2010 at 1500 hrs | |
| Location: | RAF Mona Airfield, Anglesey, Wales | |
| Type of Flight: | Private | |
| Persons on Board: | Crew - 1 | Passengers - 1 |
| Injuries: | Crew - None | Passengers - None |
| Nature of Damage: | Damage to fibreglass cockpit, cabin floor cracked, wing strut bent, fuselage spar damaged and left mainwheel sheared off | |
| Commander's Licence: | Private Pilot's Licence | |
| Commander's Age: | 46 years | |
| Commander's Flying Experience: | 3,670 hours (of which 1 was on type) Last 90 days - 58 hours Last 28 days - 17 hours | |
| Information Source: | Aircraft Accident Report Form submitted by the pilot | |

Synopsis

Just after lift-off, the pilot perceived that the aircraft was not climbing as expected due to a suspected lack of engine thrust. He abandoned the takeoff but after touchdown, the aircraft deviated to the side of the runway causing significant damage. Calculations performed after the accident confirmed that the aircraft was above its maximum takeoff weight by approximately 13 kg.

History of the flight

After completing the engine warm-up procedure, the pilot taxied the aircraft to Runway 04 where he lined up for takeoff with approximately 4,700 ft of takeoff distance available. A second 'full and free' control

check was performed prior to takeoff and no problems were identified. Weather conditions were benign but the pilot described the runway surface as "slippery".

He applied full power and the aircraft accelerated, taking off before the intersection with a disused runway. Just after lifting off, at a height of approximately 10 ft, the pilot felt that the aircraft was not climbing so he reduced power and abandoned the takeoff. The aircraft landed back on the runway just past the intersection and to the left of the centreline. Almost immediately it began deviating to the left. The pilot attempted to correct the deviation with rudder but the aircraft left

the paved surface and ran into heavy mud, bringing it to an abrupt halt and briefly tipping on its nose. Both occupants, who were wearing full harnesses, escaped uninjured.

Aircraft takeoff weight

In 2001 the aircraft was fitted with an approved modification for an enclosed cockpit. The effect of the additional weight of this modification was that there was a need to carefully monitor the aircraft takeoff weight and, if necessary, carry less than the maximum fuel load if the zero fuel weight was high enough. This information was included in the Pilot's Operating Handbook and was placarded on the fuel tank.

The aircraft basic weight was 186 kg with a maximum takeoff weight (MTOW) of 360 kg. The pilot indicated that the aircraft was fully fuelled, carrying approximately

25 kg. The total weight of the two occupants was 162 kg giving a takeoff weight of 373 kg, 13 kg above the MTOW.

Discussion

The registered owner of G-MVIU changed on 20 October 2010. The pilot indicated that when the aircraft was purchased, he did not perform a thorough review of the manuals and was therefore unaware of the weight restriction imposed by the enclosed cockpit modification. It was for this reason that he considered that the aircraft was overweight on takeoff. He also suspected that a shortage of engine thrust may have contributed to the perceived limited climb performance. He assessed that as the takeoff was aborted, he may have reduced power too quickly, leading to insufficient rudder authority available to correct the deviation on the slippery runway.