

Streak Shadow, G-BUVX

AAIB Bulletin No: 6/99 Ref: EW/G98/12/20 Category: 1.3

Aircraft Type and Registration: Streak Shadow, G-BUVX

No & Type of Engines: 1 Rotax 582, 2-stroke piston engine

Year of Manufacture: 1994

Date & Time (UTC): 6 December 1998 at 1505 hrs

Location: Farm strip, near East Fortune, Scotland

Type of Flight: Private

Persons on Board: Crew - 1 - Passengers - None

Injuries: Crew - None - Passengers - N/A

Nature of Damage: Nose and left main landing gears broken, tail boom buckled and nosecone shattered

Commander's Licence: Private Pilot's Licence

Commander's Age: 50 years

Commander's Flying Experience: 171 hours (of which 87 were on type)

Last 90 days - 10 hours

Last 28 days - 2 hours

Information Source: Aircraft Accident Report Form submitted by the pilot

The accident occurred on 6 December 1998, following which the pilot submitted a Mandatory Occurrence Report (MOR) to the Civil Aviation Authority. He did not realise that, as a notifiable aircraft accident, the correct procedure was to contact AAIB and hence there was some delay in providing him with the appropriate Aircraft Accident Report Form for completion. As a narrative of the events, he provided a detailed and analytical two-page article written for the newsletter of the Popular Flying Association, East of Scotland Strut. This Bulletin is largely a digest of that article.

The pilot was flying one of two microlight aircraft, with a friend flying the other, which took off from East Fortune for a short flight together. The weather was cold, with snow on the ground and the temperature and dew point only one degree apart and close to freezing. The wind was westerly at about 5 kt. As he turned left into the circuit, the pilot of G-BUVX lost sight of his companion and guessed that he might have proceeded to his farm strip base at Sheriffhall. He climbed 'VX' out of the downwind leg to 2,500 feet agl and orbited a couple of times before setting off for Sheriffhall to look for him.

Arriving at his destination, the pilot closed the throttle to idle and commenced a glide down to 500 feet agl for a 'standard join' for the circuit. Flying parallel to the runway on the downwind leg, he could see no sign of his friend so he opened the throttle to return to East Fortune. However, the engine ran roughly so he eased the throttle back and the engine ran more smoothly. He then opened the throttle again whence the engine ran roughly for a few seconds before it stopped completely. The pilot had trimmed the aircraft nose-down for the descent and he realised that, to maintain the 'best glide speed' (quoted as 48 kt, actually the minimum sink-rate speed), he had to hold the control stick right back, as he could not re-trim. His aircraft was fitted with an electrical pitch trim system powered from the alternator, thus he no longer had electrical power once the engine stopped.

Now at about 400 feet agl downwind, the pilot believed he could follow his customary practice of gliding through base leg and finals, which he would normally do with the engine at idle and judged that he should actually extend the downwind leg somewhat in order to arrive at the threshold. As he turned tightly through base leg and finals, he suddenly realised that he was not going to make the runway; he estimated his glide performance was such that he was only going to cover about half the distance he had expected. He saw a line of trees ahead so he 'jinked' left and right to avoid them before clearing a stone dyke by about 15 feet and touching-down in a recently ploughed and sown field. He reports the landing as harsh with a violent deceleration accompanied by a loud bang and scraping sounds as the aircraft came to rest leaning on its left wingtip. The pilot had landed 200 metres short of the farm strip and, although he was uninjured, the aircraft had suffered failures of the left main and nose landing gears, a shattered nose cone and buckled rear fuselage boom. Assistance was rendered by a microlight pilot who witnessed the accident from the air and the pilot's missing friend who appeared overhead.

Discussion

In the aforementioned article, the pilot gave a very candid analysis of what he considered to be the mistakes made which led to the accident. He is of the firm opinion that carburettor icing was responsible for the engine failure, acknowledging that, whilst it is considered a rare phenomenon with Rotax two-stroke engines, he had become complacent about the possibility, particularly as he had fitted the manufacturer's water-heated carburettor warming kit. Certainly, the weather conditions were very conducive to icing and the long descent made without opening the throttle would make it extremely probable in engines prone to such a problem. Microlight training organisations advocate frequent power increases during long descents to warm the engine anyway, regardless of the risk of carburettor icing, not only to maintain the engine and coolant temperatures but also to check that the engine will respond when required. The importer of Rotax engines in the UK advises that carburettor icing is almost unknown on engines fitted with the carburettor heating modification, but there is considerable risk of spark-plug fouling if the engine is run for prolonged periods at idle without periodic bursts of power to clear them.

The pilot makes the valid point that he did not need to descend as low as 500 feet to observe any activity on the airstrip, and that this could have been achieved at 1,000 feet, giving him more height if the engine failed. Equally valid is the observation that it was a mistake to try and perform a normal glide approach onto the runway as though he still had use of the engine.