ACCIDENT

Aircraft Type and Registration:	Jodel DR1050 Ambassadeur, G-ATGE
No & Type of Engines:	1 Continental Motors Corp O-200-A piston engine
Year of Manufacture:	1960
Date & Time (UTC):	12 June 2009 at 2006 hrs
Location:	Belmont Road, Kilkeel, Co Down, Northern Ireland
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 2
Injuries:	Crew - 1 (Fatal) Passengers - 2 (Fatal)
Nature of Damage:	Aircraft destroyed
Commander's Licence:	Private Pilot's Licence
Commander's Age:	53 years
Commander's Flying Experience:	1,022 hours (of which over 150 hours were on type) Last 90 days - 25 hours Last 28 days - 14 hours
Information Source:	AAIB Field Investigation

Synopsis

The aircraft was on the return leg of a flight to the Isle of Man with three people on board. Deteriorating weather meant the pilot was unable to land at his destination, so he diverted to a nearby airfield, which had a grass runway oriented north-south. The aircraft passed over the northern threshold of the runway heading west and began a tight turn to the right. During the turn the nose dropped, probably as a result of a stall, and the aircraft dived into the ground. The occupants were fatally injured and the aircraft was destroyed in the fire that followed.

History of the flight

G-ATGE departed Andreas airfield on the Isle of Man at 1920 hrs with three people on board for a flight to a private airfield, Mourne Flying Club, in County Down. The pilot had made the same return flight earlier in the day and it was reported that he was "just his normal self". The airfield is on a slope on high ground, at an elevation of 600 ft amsl.

At about 1945 hrs, the owner of the airfield called the pilot on the radio; it was drizzling and he wanted to pass on that information. The pilot acknowledged the call and said he was 18 nm away with an ETA of 2005 hrs. A few minutes later, the pilot transmitted that he was 9 nm away.

At the same time that the pilot reported his range as 9 nm, the owner of the airfield received a phone call from the owner of another private airfield, near Kilkeel.

This airfield is 2.5 nm south of the Mourne Flying Club, on lower ground near the coast. This grass runway is also oriented north-south and is at an elevation of 50 ft amsl. The owner, looking from his airfield, thought the weather at the Mourne Flying Club field looked poor and suggested that the pilot should be told that Kilkeel airfield was available for him to use. The owner of the Mourne Flying Club airfield did not suggest to the pilot that he should divert but, as the aircraft approached, the pilot transmitted that he had two miles to run and was diverting to the airfield near Kilkeel. The owner then relayed to the pilot a message from the owner of the Kilkeel airfield that the aircraft was clear to land, with the wind "down the runway". This message was not acknowledged.

The aircraft passed the northerly end of the runway heading west and began a "tight right hand turn" which, if flown through 270°, would have brought the aircraft onto a final approach for the runway. After a turn of approximately 240°, and as the aircraft turned towards the runway threshold, the "nose dropped" suddenly and the aircraft "went straight down into the ground nose first and immediately burst into flames". The aircraft was completely destroyed in the fire and the occupants were fatally injured.

Witness information

The owner of the Kilkeel airfield and another pilot were sitting in a caravan close to the touchdown point at the northern end of the grass airstrip. The weather had deteriorated rapidly from about "50 mile visibility to a hazy 3 nm in mist and drizzle". As the aircraft passed them heading west, the engine "spluttered" as the power was reduced. During the subsequent turn, the aircraft appeared "too high for the field and too close in". The height during the turn was estimated by these witnesses to be "about five aircraft wingspans", which would correspond to a height of about 100 ft agl, depending on the angle of bank.

A further witness saw the accident from his house, which was 130 m from where the aircraft came to rest. His attention was attracted by the engine "spluttering three times after which it went quiet". The aircraft was flying just below the cloud and continued normally for a short while, after which the "nose dropped and it dived straight into the ground".

Wreckage information

The aircraft was built in 1960 and the current owner had owned it since 2005. It had a current Certificate of Airworthiness and a recent Annual inspection.

Examination revealed that the combustible elements of the wreckage, lying close to the impact point, had been almost entirely destroyed by fire, with aluminium alloy sheet melted or softened and distorted by the fire. Steel components and more substantial aluminium alloy parts had survived. Small fragments of timber structure and transparencies were distributed sufficiently far from the wreckage site to remain unburnt.

The initial impact point was approximately 460 m from the threshold of the runway and took the form of a distinct impression in the firm, stony ground.

Structural integrity

Although the aircraft was effectively consumed by the fire, the remains of the left wing tip and navigation light, the aft part of the left aileron and a small section of left wing trailing edge, abutting the aileron, were identified. A section of right aileron, at the junction of the trailing edge and the tip, and the outer extremity of the right wing tip, with attached navigation light, was also found at the site. The left outer section of the tailplane, with

the tip of the elevator still attached, was identified, as was a portion of the trailing edge of the other elevator at the tip. Although nothing of the right tailplane survived, the presence of the tip of the elevator, which is hinged to the tailplane, indicated that the tailplane was structurally complete at impact. The rudder, (a single all-moving surface) was not identified but the aft navigation light (rudder-mounted) and a length of its electrical wiring were found in an area of ash, indicating that the rudder was present before the fire.

Metal components in the form of the airbrake torque tubes and ribs, together with the landing gear legs and wheels were present at the site. Control cables for ailerons, rudder and elevators were also identified in the wreckage area and appeared complete. Examination of the propeller revealed considerable evidence of rotation under power at impact.

Weather forecast

The weather forecast issued by the Met Office for the time of the flight is shown at Figure 1.

The flight took place predominately in area B1 where visibility was forecast to drop occasionally to 1,500 m in drizzle and mist. Isolated areas with visibility of 200 m were to be expected in coastal areas. Areas of broken stratus were forecast with bases between 300 ft and 800 ft amsl, although the base would be at ground level in any fog.

The nearest airports for which forecasts were issued were Belfast and Dublin and neither was forecasting poor conditions. It is not known whether the pilot saw these forecasts before his flight.

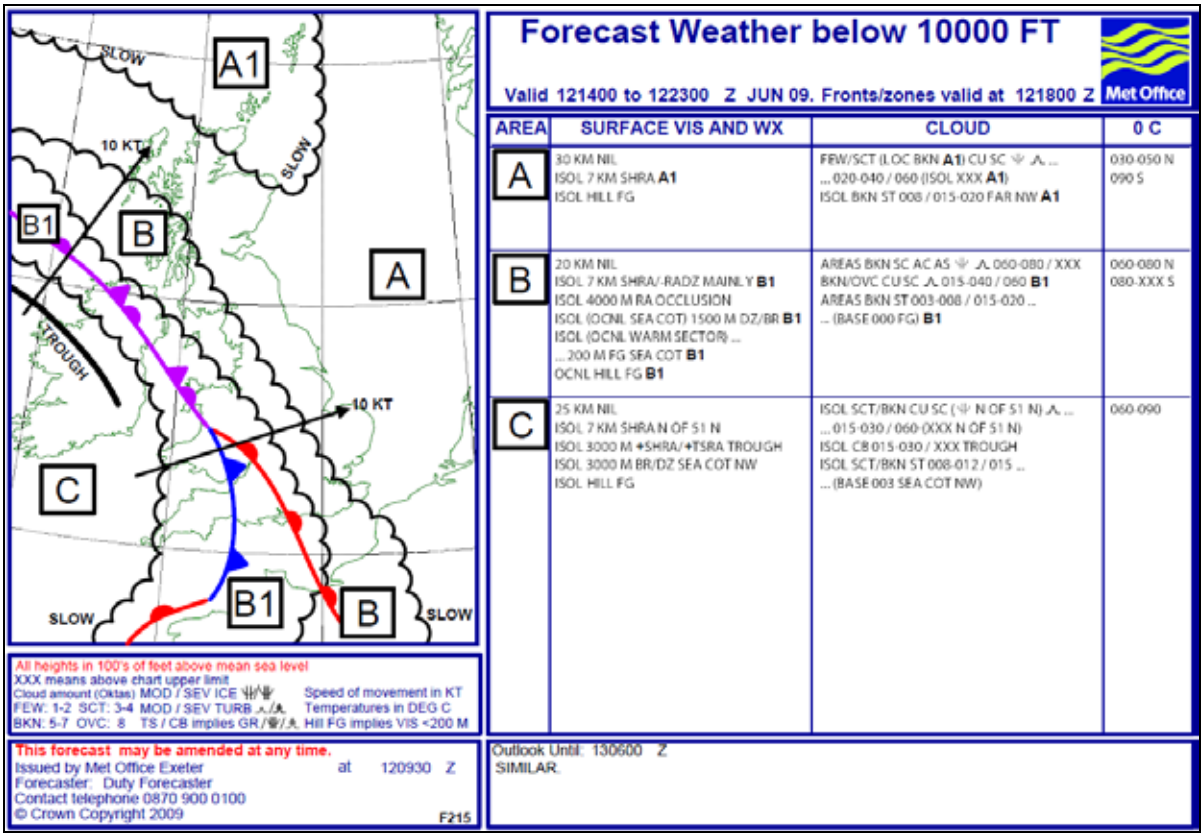

Figure 1

Met Office weather forecast valid at the time of the accident

Weather aftercast

The Met Office produced an analysis of the weather that was present at the accident site at the time of the accident. The report stated that:

> *'there is evidence that mist or fog, lying along or off the coast of the Irish Sea, may have extended inland to affect the area of the accident site. It is possible that very light drizzle was present. Low stratus is considered likely in the area. Best estimate is of bases 300 to 600 ft amsl with tops 500 to 1,000 ft amsl. Visibility may have varied anywhere in the range from below 200 m in hill fog up to 5,000 m in mist.'*

The general surface wind in the area was assessed to be from 130° to 140° at 12 to 14 kt. However, a wind observation five nautical miles west of the accident site suggested that local conditions were backing the surface wind to 100° or 110° and this could not be discounted for the accident site itself.

Further information

A pilot who had flown G-ATGE stated that reducing power to about 1,500 rpm on final approach led to the engine "rough running". It "sounded like the engine wanted to stop" although there was "no undue loss of power beyond that caused by the reduction in rpm". He also stated that the accident pilot would carry any rear-seat passenger on the right side of the aircraft.

Visibility from the pilot's seat in this model of aircraft is good because the canopy extends to just behind the rear seat. It is possible to look towards the centre of a right turn even from the left front seat with a rear-seat passenger on the right side.

The wreckage trail was so short that it could not be used as a reliable indication of the precise direction of travel prior to impact. The wreckage itself was 720 ft to the west of the runway extended centreline and was 1,500 ft, from the threshold. At this range, an aircraft on a 3° glidepath (for instance) would be about 80 ft above the touchdown point.

Analysis

The pilot was on the return leg of a flight to the Isle of Man, a trip that he had already made once that day. It is not known whether he considered the weather forecast for the area but the conditions had been suitable earlier and it is possible he assumed they would remain so. In the event, the weather deteriorated rapidly to give actual conditions close to the worst conditions forecast. It is likely that as he approached the airfield near Kilkeel he was flying in light drizzle, under a low cloud base. With very limited alternate options, is also possible that the pilot felt under pressure to land quickly due to the worsening weather.

The aircraft was seen to fly over the threshold heading west and begin a tight turn to the right, manoeuvring unusually low due to the low cloud. The pilot was flying from the left seat and it would have been difficult to judge his displacement from the approach path for at least the first 90° of the turn. After 90° of turn, the aircraft would have been heading approximately north and the runway might have become visible over the pilot's right shoulder. There is no evidence as to where the pilot was actually looking during the turn, but the aircraft was still over 720 ft from the approach path as it began to point at the runway.

Witness descriptions of subsequent events suggested that the aircraft stalled, causing its nose to drop and the aircraft to dive into the ground. The evidence suggested

that power was reduced in the final part of the turn, causing the engine to splutter but some spluttering at reduced power was considered normal for the particular engine in G-ATGE and the investigation did not consider it evidence of engine failure; evidence from the wreckage was that the engine was delivering power at impact which suggested that power was applied again before impact. It is probable, however, that power had been significantly reduced in the final turn, shortly before the aircraft stalled.

From the vantage point near the runway threshold, the aircraft appeared to the witnesses to be in a tight right turn, high for a normal approach and too close in, and the pilot would probably have reduced power to adjust to a better approach path. It is likely that, in the turn, the reduction in airflow over the wings, due to the reduction in power and airspeed, was sufficient to induce the stall.