

Piper PA-28-181, G-NERI

AAIB Bulletin No: 2/99 Ref: EW/G98/08/08 Category: 1.3

Aircraft Type and Registration: Piper PA-28-181, G-NERI

No & Type of Engines: 1 Lycoming O-360-A4M piston engine

Year of Manufacture: 1978

Date & Time (UTC): 6 August 1998 at 1157 hrs

Location: 1 mile east of Bristol Airport

Type of Flight: Private

Persons on Board: Crew -1 - Passengers -None

Injuries: Crew - Minor - Passengers - N/A

Nature of Damage: Both wings detached and fuselage severely distorted

Commander's Licence: Private Pilot's Licence

Commander's Age: 37 years

Commander's Flying Experience: 144 hours (of which 90 were on type)
Last 90 days - 34 hours
Last 28 days - 4 hours

Information Source: Aircraft Accident Report Form submitted by the pilot
weather aftercast from the Meteorological Office and
correspondence from the aircraft owner

The pilot departed from Aberdeen at 0835 hrs for a solo VFR flight to Bristol. The intended route was Aberdeen - St Abbs Head - Newcastle - Gamston - Daventry - Bristol. The flight proceeded without incident and when approximately 30 miles from Bristol the pilot established two-way radio contact, requested a Flight Information Service and joining instructions. He was passed the QNH of 1027 mb along with the latest weather and the runway in use. At about 8 miles from the airfield he was transferred to the Tower frequency and requested to report right base for Runway 27 and advised he was No 2 in traffic. At this point he was visual with the Airfield and could see the traffic ahead close to touchdown on Runway 27.

The pilot positioned the aircraft for a right base whilst carrying out the 'downwind checks', including setting the carburettor heat to Hot. He reported turning finals for Runway 27 to ATC at which point 'the engine started to wind down'. The throttle was advanced and retarded without effect. The pilot's last recollection was trying to avoid the rooftop of a house in order to reach a clearing beyond the property. He vaguely recalls making a Mayday call and advising the Tower of an engine failure. His next clear recollections are of waking up in Bristol Royal Infirmary some hours later.

ATC received the pilot's transmission, "Mayday, Engine failure on final". The call was acknowledged, the 'Aircraft Accident' procedure was activated and the A38 traffic lights were selected red to stop the road traffic. The controller transmitted the surface wind, advised the pilot that the traffic had stopped, that he could be seen from the tower and that the RFFS were on their way. The pilot replied that he would not make the runway and when asked how many Souls On Board he replied, "Just me". The aircraft was seen to land in a field east of the A38 road, about 1 nm short of the threshold of Runway 27 at 1157 hrs.

A Robinson R22 inbound to Bristol was asked to position over the aircraft and the helicopter pilot confirmed that it was an aircraft accident rather than a forced landing. ATC made one further call to advise the pilot that the fire vehicles were on their way and would be with him soon; no acknowledgement was received. The rescue vehicles located the aircraft with the assistance of the helicopter and had to cut the pilot from the fuselage.

During the aircraft recovery some fuel was noted leaking from the fuel tank filler of the inverted left wing at a rate of about '15 drops/minute'. Approximately 1 gallon was recovered from the right tank and 5 gallons from the left tank. The engine was not seized and did not exhibit any external evidence of mechanical failure.

The pilot provided a copy of his log for the trip, which had been compiled on a pro-forma printed with cruise speed and fuel consumption figures for a Piper PA-28R-201T, which included his pre-flight route planning and some airborne progress notes. The routing was as above, with a planned cruising altitude of 3,000 feet with the track and distance for each segment noted. The total planned distance was 385 nm. The log did not contain any information on the intended cruising speed, forecast winds or any calculations of the estimated ground speed, elapsed time or fuel required for any route segments. The figures recorded in the 'time' column, but not annotated as to their significance, were 9.40 and 12.50, times close to the local times for departure and arrival, alongside a figure of 3.10, 3 hours and 10 minutes the difference between the times noted.

The aircraft had departed with full fuel tanks and the pilot had noted on the log the times of changing fuel tank selections:-

Departure on the right tank 0935 hrs (0835 hrs UTC)

Change to left tank 1020 hrs

Change back to right tank 1055 hrs

Change back to left tank 1125 hrs

Change back to right tank 1205 hrs

Accident on right tank 1257 hrs (1157 hrs UTC)

Total time on left tank = 1 hour 15 minutes. Total time on right tank 2 hours 7 minutes.

Average ground speed (assuming planned route followed) = 114.4 kt.

An aftercast of the winds during the period of the flight indicated the following:-

2,000 feet - 300_/15 kt soon becoming 270_/30 kt over the Borders then GRADU becoming 280_/22 in the Bristol area.

5,000 feet - 270_/25 kt becoming 270_/40 kt over the Borders then GRADU becoming 300_/15 kt in the Bristol area.

The route segment tracks from Aberdeen to Daventry (308 nm) varied between 167_ and 190_M, and the track from Daventry to Bristol was 236_M. Therefore the winds resulted in little difference between airspeed and groundspeed for the majority of the flight but constituted more of a head wind for the final segment.

The owner/operator of the aircraft reported that a fuel consumption of 38 litres an hour had been arrived at from experience when flying at an airspeed of 110 kt with the mixture leaned for cruising flight; a similar figure of 8 gallons an hour was quoted by the pilot. The usable fuel available in each tank when full was reported to be 85.5 litres (approximately 5 litres unusable). This would result in each tank being capable of supporting cruising flight, as defined above, for 2 hours 15 to 20 minutes.

