

**No:** 2/91

**Ref:** EW/C1183

**Category:** 1c

**Aircraft Type and Registration:** Piper PA-28 Turbo-Arrow 4, OY-JEW (formerly N4370N)

**No & Type of Engines:** 1 Continental TSIO-360-FB9 piston engine

**Year of Manufacture:** Unknown

**Date and Time (UTC):** 23 November 1990 at 1145 hrs

**Location:** In the Irish Sea south of Ailsa Craig, Scotland

**Type of flight:** Commercial (ferry flight)

**Persons on Board:** Crew - 1 Passengers - None

**Injuries:** Crew - Believed fatal Passengers - N/A

**Nature of Damage:** Aircraft missing; believed destroyed

**Commander's Licence:** FAA Commercial Pilot's Licence with Instrument rating

**Commander's Age:** 26 years

**Commander's Total Flying Experience:** Approximately 950 hours (of which 50 were on type)

**Information Source:** Telephone enquiries and ATC recorded data

The aircraft departed Gander in Newfoundland at 0033 hrs UTC with a flight planned destination of Shannon and a nominated diversion of Glasgow. The stated endurance was 17 hours and the commander expected to cross the Atlantic Ocean in 10 hours 40 minutes at FL130 and 140 kts TAS. The commander first contacted the West Scottish area controller at 1055, having already decided to divert to Glasgow. His transmission was relayed by another aircraft and he was instructed to continue as cleared at FL 150. At 1119 the commander contacted the controller direct stating "OSCAR ECHO WHISKEY WOULD LIKE TO DESCEND DOWN INTO VFR CONDITIONS IF POSSIBLE, I JUST LOST MY VACUUM SYSTEM". Clearance to descend to FL 130 was given immediately and followed one minute later by clearance to FL 110. The commander was then instructed to contact the Belfast sector controller on a different frequency for further descent clearance.

At that time there was an occlusion in the Irish Sea moving slowly eastwards with strong to gale force southerly winds over the area. There was layered cloud from 800 feet to over 20,000 feet and outbreaks of moderate to heavy rain. Cloud covered the Scottish hills and areas of severe turbulence accompanied moderate or severe icing between 3000 and 5000 feet. A SIGMET valid from 0715 to 1115 warning of moderate or occasional severe turbulence below 7000 feet had been issued for the Scottish FIR. A similar SIGMET valid from 1210 to 1610 was issued at 1201 hours.

RTF contact with the Belfast sector controller was established at 1124 as the aircraft descended through FL 130 and the commander was cleared to route direct to the Glasgow VOR and to descend to FL 80. At 1131 the controller advised the commander that the required track to Glasgow was 055° but he was tracking 360°. The commander replied "I'M TRYING TO CORRECT THAT BUT ITS A LITTLE BIT HARD. ITS BUMPY AND I'M USING MY COMPASS". The commander altered heading onto the correct track and asked for clearance to descend further; he was re-cleared to 5000 ft on the Belfast regional QNH. At 1137 hrs the controller again advised the commander that he was off track and that he should turn left about 50 or 60 degrees. He replied "WILCO THANK YOU VERY MUCH FOR YOUR HELP". At 1139 the controller advised the commander that he was no longer showing on radar but, despite several calls and relays, there was no reply.

Numerical recorded radar data from three area radars was obtained. All three data sets showed the aircraft descending at an increasing rate and speed from 1137 hrs onwards. Shortly after the controller's prompt (at 1137 hrs) to turn left 50 or 60 deg, the aircraft commenced a left turn which became progressively tighter. In the turn the airspeed exceeded 200 kts and the rate of descent increased to over 2000 feet/minute; Vne for the aircraft in its ferry configuration was 148 kts. At 1138 hrs the Mode A SSR response disappeared from all three radars within 15 seconds. The final Mode C response was FL 60 in an area where coverage has been demonstrated well below this level. Primary radar returns from two radars, which were recorded on film, also disappeared around the time of the last recorded secondary radar responses. These recordings were consistent with the in-flight disintegration of the aircraft.

The aircraft had a Danish Flight Permit which prohibited flight in IMC although the FAA had granted an export C of A which included IFR flight. The commander had practiced partial panel IF for 15 minutes in September 90. Despite an extensive search, no trace of the aircraft or its commander has yet been found.