No: 10/84 **Ref: EW/G84/06/28**

Aircraft type and registration:	Piper PA28R-201 Arrow G-BHNS (light single engine fixed wing aircraft)
Year of Manufacture:	1977
Date and time (GMT):	21 June 1984 probably at 1141 hrs
Location:	80 km north east of Reykjavik, Iceland
Type of flight:	Private (pleasure)
Persons on board:	Crew — 1 Passengers — 1
Injuries:	Crew — 1 (serious) Passengers — 1 (serious)
Nature of damage:	Aircraft destroyed
Commander's Licence:	Private Pilot's Licence with IMC rating
Commander's Age:	39 years
Commander's total flying experience:	600 hours (of which 200 hours were on type)
Information Source:	Aircraft Accident Report Pro-forma submitted by the pilot, and Aircraft Accident Report Ref/46/AIG/11/1984 published by the Icelandic Directorate of Civil Aviation.

The history of flight, meteorological information, aids to navigation, and survival aspects, were extracted verbatim from the Icelandic Aircraft Accident Report.

"History of the flight

The aircraft had arrived at Keflavik Airport on the previous day at 1505 hrs, after a flight from Inverness, Scotland via Vaagar, Faroes. The aircraft made a brief stop in Keflavik and then flew to Reykjavik Airport where it landed at 1610 hrs.

The following morning the pilot and the passenger came to the Reykjavik Airport Briefing Office, where they expressed their intention to go to Grimsey Island. The despatch officer was aware of that flight when it arrived the previous day, but the pilot did not contact the office then and the despatcher had assumed, that the aircraft was continuing to Greenland. When the pilot came to the despatch office in the morning of the 21st, he was given a complete weather folder for a flight to Kulusuk, Greenland.

The Arctic Circle crosses Grimsey Island and the pilot and his passenger intended to watch the midnight sun the following evening. This was the main purpose of their visit to Iceland. The briefing officer briefed them on the weather conditions as they intended to fly VFR. He told them that the weather was not good for flying VFR along this route.

He called the Icelandic State Met Office and the G-BHNS pilot discussed the weather on the phone with a meteorologist, who told him that there were low clouds and bad VFR conditions en route, but relatively good weather at the destination. The pilot then filed a VFR flight plan from Reykjavik to Grimsey, via Reykholt (RH NDB) and Akureyri (AK VOR/NDB).

Planned flight time was 2 hrs. and the endurance was given 9 hrs. The pilot did not have charts aboard for VFR flying, only a Jeppesen Radio Navigation Chart, photocopies of an obsolete Radio Navigation Chart — Iceland and Approach Charts for several Icelandic airports.

These maps do not show any topography or the elevation of the mountains. However the radio navigation charts do show minimum sector altitudes for IFR flights. A video camera was aboard the aircraft, since the pilot and his passenger intended to take video pictures en route, according to the pilot.

The take-off was at 1102 hrs and G-BHNS was given a special VFR clearance out of the Reykjavik Airport Control Zone, as the weather was below the VFR minimum. The aircraft was equipped with a secondary radar transponder, therefore it was possible to plot the actual track flown by G-BHNS. The transponder did not have altitude reporting mode.

At 1115 hrs the aircraft called Reykjavik ACC reporting at FL 045, estimating RH NDB at 1125 hrs, "requesting further climb".

The controller requested the pilot to verify that he was flying VFR, (i.e. according to Visual Flight Rules), in VMC (Visual Meteorological Conditions). After the pilot had confirmed that he was doing so, he was told to remain in Visual Meteorological Conditions and his request for "further climb" was ignored, because such a clearance is not given to VFR flights.

The pilot reported passing RH NDB at 1126 hrs, and at 1128 hrs he reported en-route to Grimsey, via Akureyri NDB/VOR in VMC conditions.

The transponder signal disappeared from the radarscope at 1134 hrs, as G-BHNS was then too low in order to be received by the radar, taking the distance and the location of the aircraft into consideration.

As the aircraft did not arrive at destination at the estimated time of arrival and it did not either respond to repeated calls, a search was initiated. It lasted until 0143 hrs the following day, when a searching aircraft located the wreckage of G-BHNS on Mt. Eiriksjökull close to the top at the elevation of 5300 feet. The mountain had up to that time been engulfed in thick clouds.

The accident occurred at/or about 1141 hrs. The co-ordinates being latitude 64°46'18"N, longitude 20°24'15"W.

Meteorological information:

On the morning of 21st June, there was an extensive low pressure area between Iceland and Norway. A low pressure trough extended to the west to Iceland and there was a low pressure formation shown over the eastern part of the country. The prevailing winds were light from the west and the northwest on the intended route of G-BHNS.

The forecast for the western part of Iceland was as follows:

"Light winds from the west, cloudy and a little rain or drizzle in places".

The forecast for the northern part of Iceland was as follows:

"Light winds from the northeast, cloudy and intermittent drizzle."

The 0900 weather was reported as follows:—

Sidumuli (This station is close to Reykholt or the RH NDB)
"Winds calm, 8 oktas stratus at 0 height, drizzle, visibility 15 kilometers".

Hveravellir (This station is in the interior of the highlands east of the Eiriksjökull/Langjökull complex):
"Winds north at 10 kt, temperature plus 4, clouds 6 oktas stratus at 900 feet, visibility 15 kilometers".

Poroddstradir (North of the highlands, north of Eiriksjökull):
"Winds northwest at 5 kt, temperature plus 6, clouds 8 oktas stratus at 900 feet, visibility 25 kilometers". The report also included a special observation for VFR flights crossing the highlands: "Clouds on the hills, VFR crossing not possible".

Nautabu: (An en route station):
"Winds northwest at 5 kt, temperature plus 7, clouds 8 oktas stratus at 900 feet, visibility 10 kilometers".

Akureyri "Winds northwest at 10 kt, temperature plus 8, clouds 6 oktas, cumulus at 1600 feet, visibility 30 kilometers".

Grimsey "Winds east at 10 kt, temperature plus 4, clouds 6 oktas stratus at 1600 feet, visibility more than 30 kilometers".

Siglunes: (On the coast adjacent to Grimsey):
"Winds east at 15 kt, temperature plus 4, clouds 6 oktas stratus at 1600 feet drizzle, visibility 10 kilometers.

A pilot flying a PA-31, the scheduled Norlandair flight this day, from Reykjavik to Akureyri, taking off 2 minutes earlier than G-BHNS, climbing IFR to FL 090 via RH NDB on the Airway GIS, reported:

"I entered clouds after take-off, at about 1500 feet and there was a solid cloud layer to FL 080.

There was intermittent icing between 3000 feet and 7000 feet and I was on top of clouds all the way to Akureyri and it looked like it was a solid cloud layer. I heard the G—BHNS pilot report at 4500 feet and he must have been in clouds there. I heard him report passing RH NDB at FL 055. QNH was 1000 MB. The difference between QNH and the Standard at FL 055 was 400 feet. I found this out by my altimeters".

Aids to navigation:

The flight was planned as a visual flight according to the Visual Flight Rules.

However, the pilot did not carry any topographical charts. Only remains of obsolete radio-navigation maps were found in the wreckage. These maps did not show the high ground in the area where the aircraft crashed, only minimum sector altitudes for IFR flights.

The aircraft was however well equipped for IFR flights and the pilot had turned his ADF's to RH-NDB and GR-NDB. His R-NAV was in the VOR mode, set to AR-VOR/DME and KF VOR/DME".

Wreckage and impact information:

The aircraft had flown onto the rising top of the glacier on a heading of approximately 108°M at a height of 1,615 metres (5,300 feet) amsl. The top of the glacier is 1,675 metres (5,495 feet) amsl. Gear and flaps were retracted, and the condition of the wreckage and ground markings was consistent with the aircraft having impacted with wings level, at cruising speed, and under power. There was no fire, but the aircraft was destroyed.

"Survival aspects:

The aircraft was reported missing at 1332 hrs, when it had not arrived at its destination. An extensive search was immediately initiated and when the radar recording was played back, it was obvious that the Eiriksjökull glacier area was most suspected. The glacier had been engulfed in clouds and there were very low clouds, poor searching conditions and low visibility in the area surrounding it. No ELB transmission was ever heard.

The mountain has very steep slopes, with hard frozen snow, iced rocks and belts of crags so the searching parties were advancing very slowly.

At about 0100 hrs on June 22nd, a searching group in the mountain slopes reported that the clouds seemed to be breaking up and a small aeroplane, tried to approach the top. At 0143 hrs it spotted the wreckage on the western slope, close to the top.

A H-369 helicopter managed to carry rescuers up to the glacier at about 0500 hrs. They arrived at the wreckage at about 0520 hrs. They found both occupants alive, but seriously injured and suffering from exposure. They were subsequently taken aboard a USAF rescue helicopter and flown to Reykjavik, where they arrived at the City Hospital at 0800 hrs.

The Emergency Locator Beacon:

This was a marine type beacon, operating on 121.5/243 MHz. The pilot had purchased the beacon, "for the crossing", prior to his departure from Biggin Hill, UK and kept it with his dinghy".

After the accident the pilot managed to crawl out of the wreckage and place the beacon on the engine. He reported that he had activated it, but an investigation revealed, that it had not transmitted. The activating strap together with its metal strip and magnet were missing.