FINAL REPORT

HCL 06-510/255	**Accident**		
Aircraft	Beech Baron BE58	Aircraft Registration	G-BXNG
Engines:	2 – Continental IO-520	Type of Flight:	Private, IFR
Crew:	1 – no injuries	Passengers:	1 – no injuries
Place:	65 14 061N 043 14 397W	Date and Time:	10.7.2006 1438 UTC

All times in this report is UTC.

Air Traffic Management at Copenhagen Airport Kastrup (EKCH) notified the Danish Accident Investigation Board (AIB) on July 10, 2006, at 1850 hrs.

The UK Air Accidents Investigation Branch was notified on July 11, 2006, at 1258 hrs.

History of flight.

The flight, during which the accident occurred, was a private IFR flight from Kulusuk Airport (BGKK) to Nuuk Airport (BGGH).

At BGKK the aircraft was refuelled. According to the commander, the total amount of fuel on board at take off was 163 USG.

Before departure, BGKK AFIS relayed flight information service by Sondrestrom FIC to the commander. No traffic was reported during climb to and at FL 110 en route from BGKK to BGGH via W47. See appendix 1. Furthermore, Sondrestrom FIC calculated the minimum safe altitude between SOBVI (65 10 55N 043 49 44W) and GH (64 10 46.66N 051 44 58.58W) to be FL 120, which was also relayed to the commander.

The aircraft departed BGKK at 1339 hrs.

At first radio contact with Sondrestrom FIC, the commander reported that he was climbing to FL 100. For performance reasons, the commander initially planned to fly at FL 100 and then further on into the flight climb to FL 120.

At second radio contact, the commander reported that he estimated to be overhead the waypoint ASTAN (65 25 04N 039 59 44W) at 1410 hrs. Sondrestrom FIC requested the commander to confirm FL 100 as final level. The commander confirmed and informed that he was flying in VMC and would maintain own vertical separation to the ice cap. On request by Sondrestrom FIC, the commander reported that the aircraft was neither equipped with an HF transceiver nor satellite communication systems. Sondrestrom FIC informed the commander that they might loose radio contact over the ice cap at FL 100 but the commander could try to establish radio contact on the air to air frequency 123,450 MHz or on the high level frequency 127,850 MHz (Iceland Radio) and then at the waypoint ASVID (64 37 49N 048 22 44W) he should be able to re-establish radio contact with Sondrestrom FIC on 121,300 Mhz.

At 1410 hrs, the commander made a positioning report overhead ASTAN. The commander expected to be overhead SOBVI at 1442 hrs.

Approximately 55 minutes into the flight, the left engine began to surge. This condition became more severe and the commander decided to stop the left engine. An engine shutdown was attempted but the left propeller did not feather. In order to maintain a speed above stall speed, the commander started a descent. The commander did not declare an emergency to Sondrestrom FIC.

At approximately 1438 hrs and at about 8100 feet msl, the aircraft impacted the ice cap.

Damage to aircraft.
The aircraft was substantially damaged.

Personnel information.
The commander.
The commander, male, 66 years, was the holder of a Private Pilot License and had a valid Medical Certificate.

Flying experience.

	Last 24 hours	Last 90 days	Total
All types:	10	100	13 000
Accident type:	10	30	1000
Landings (Accident type):	5	15	-

The passenger.
The passenger was the holder of a pilot license.

Aircraft information.

Manufacturer:	Beech Aircraft Corporation
Type:	Beechcraft Baron Model 58
Year of manufacture:	1978
Serial number:	TH-874
Certificate of airworthiness:	Issued 18 December 2003. Valid until 17 December, 2006
Engines:	2 Continental IO-520
Service ceiling, one engine out:	7000 feet

Meteorological information.
The commander reported to Sondrestrom FIC that the weather conditions at the accident site were unlimited visibility and few clouds to the southwest.

Communications
Recordings of the RTF communications between G-BXNG, cross Atlantic high level aircraft, the rescue helicopter and Sondrestrom FIC were obtained.

Wreckage and impact information.
On a westerly course in a wings level attitude, the aircraft impacted the ice cap at 65 14 061N 043 14 397W (15 nm east of the waypoint SOBVI) and at an elevation of about 8100 feet msl. The impact pattern was consistent with a controlled shallow decent. The aircraft impacted with the landing gear and the flaps in the up position. The left propeller tips were bended backwards (low power/wind milling). The right propeller separated from the engine at impact (high power).

Towards the west, the ice cap was rising. Towards the east, the ice cap was falling.

Search and rescue.
With a mobile VHF transceiver, the commander succeeded in establishing radio contact with a cross Atlantic high level aircraft. The high level aircraft relayed the emergency call to Iceland Radio. At 1449 hrs, Sondrestrom FIC received a telegram from Iceland Radio concerning the accident. Immediately, a rescue mission was initiated.

A rescue helicopter departed BGKK and arrived at the accident site at approximately 1720 hrs.

Throughout the rescue mission, several cross Atlantic high level aircraft relayed information between G-BXNG and Sondrestrom FIC.

AIP Greenland (extract).

Gen 1.5 Aircraft instruments, equipment and flight documents.

"2. Special Equipment to be carried

2.1 All aircraft operating within Sondrestrom FIR, whereby Danish territory is overflown must adhere to the provisions detailed below in accordance with the type of flights as specified hereunder.

2.2 Types of flight

2.2.1 Transiting flights

a. Flights transiting Sondrestrom FIR, whereby Danish territory is overflown.

b. Flights to and from Greenland, whereby a maximum of 2 landings are made.

2.2.2 Internal flights

Flights conducted within Greenlandic area, except such flights to and from Greenland, whereby a maximum of 2 landings are made.

3. Equipment to be carried by All Types of Flight

3.1 Radio and navigation equipment

a. All aircraft shall be provided with radio communication equipment capable of conducting two-way communication at any time during the flight with at least one aeronautical station and with such other aeronautical stations and on such frequencies as may be prescribed in this AIP.

b. The radio communication equipment shall consist of at least one VHF and one HF transceiver.

Note 1: The mentioned requirements (items a. and b.) are considered fulfilled if the ability to conduct two-way communication is established during radio propagation conditions which are normal for the route.

Note 2: For transiting flights the HF equipment is not required if full VHF coverage is available for the leg(s) flown.

c. All aircraft shall be equipped with a radio compass (ADF).

3.2 Emergency radio equipment

One emergency locator transmitter (ELT) able to function on its own power continuously outside the aircraft at least 48 hours and to transmit simultaneously on the frequencies 121.500 MHZ and 243.000 MHZ shall be carried.

If the ELT is able to transmit on the frequencies 406.000 MHZ and 121.500 MHZ simultaneously, the requirement is considered fulfilled.

4. Equipment to be Carried on All Internal Flights and on Certain Transiting Flights

On all internal flights and on transiting flights with single-engine and those multi-engine aircraft not capable to maintain the prescribed minimum safe altitude in the event of engine failure the following emergency equipment shall be carried:

4.1 Signalling equipment
a. An emergency locator transmitter as mentioned in item 2.2.
b. Two signal flares of the day and night type.
c. Eight red signal cartridges and a means of firing them.
d. A signal sheet (minimum 1x1 M) in a reflecting colour.
e. A signal mirror.
f. An electric hand torch.

4.2 Survival equipment
a. A compass.
b. A knife.
c. A sleeping bag with weatherproof inner lining or a rescue blanket (Astron) per person.
d. Four boxes of matches in waterproof container.
e. A ball of string.
f. A cooking stove with fuel and the accompanying messtins.
During winter conditions and when flying over the icecap the following shall additionally be carried:
g. A snow saw or snow shovel.
h. Per person: Candles with a burning time of about 2 hours. The minimum shall be not less than giving a burning time of 40 hours.
i. Tent(s) for all on board. If dinghies are carried, the tent(s) need not be carried.
Note: It is recommended that a rifle and the necessary ammunition be carried in areas where polar bears can be expected. The personal clothing should be suitable for the climatic conditions along the route to be overflown.

4.3 Emergency provisions
Emergency rations equivalent to 2000 calories per person. The rations can consist of e.g.: Vacuum dried soup, coffee powder, sugar, chocolate, dried fruit, pemmican, or the like.

4.4 Maritime emergency equipment
It is recommended that life vests be carried for everyone on board and that roofed dinghies sufficient to accommodate everyone on board be carried."

Discussion.
The causal factor to the engine failure is unknown.

After the engine failure occurred, it is likely that the commander used all mental resources to keep the aircraft flying until impact. For that reason, the commander neither turned the aircraft onto an easterly heading towards falling terrain nor prepared an emergency landing. Under the actual circumstances, flying towards the east would probably not significantly have reduced the likelihood of this accident occurring.

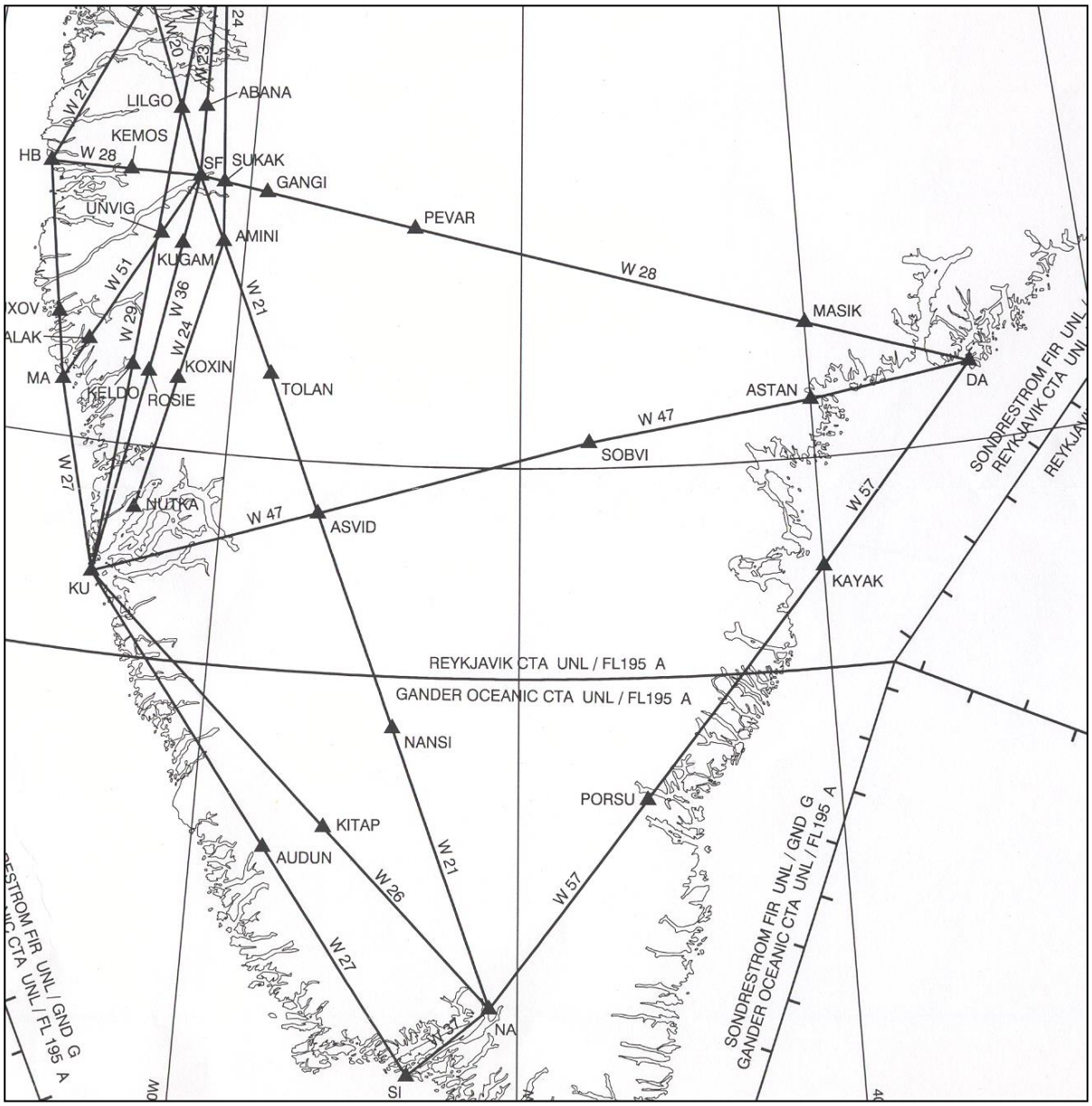
Most likely due to mental workload in the cockpit, neither the commander nor the pilot rated passenger declared an emergency to Sondrestrom FIC. By not declaring an emergency, the time of search, particularly in unfavourable conditions, could have been prolonged considerably.

The Danish AIB finds that the aircraft was capable of being controlled and was under control of the commander until impact. Consequently, this is considered to be a CFIT accident.

It is the opinion of the Danish AIB, that the lack of sufficient performance to maintain the prescribed minimum safe altitude in the event of an engine failure (the altitude of the ice cap at the accident site (about 8100 feet msl) versus the single engine service ceiling of 7000 feet) in combination with a propeller not feathered were the causal factors to this accident.

Operating in an arctic environment with single-engine and multi-engine aircraft not capable of maintaining the prescribed minimum safe altitude in the event of an engine failure is risky and requires careful pre-flight planning. The Danish AIB would like to emphasize the importance of fulfilling all requirements in the Greenlandic AIP (GEN 1.5) to aircraft instruments and equipment. Adverse weather conditions make a rescue mission difficult and more time consuming. For that reason, a lack of appropriate survival equipment might be fatal to survivors of an aircraft accident.

Appendix 1.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