



# AIR TRAFFIC INCIDENT

(Ref. Law on Aircraft Accident Investigation, No. 59/1996)

Lockheed C-130. Royal Danish Air Force, DAF-678  
and  
De Havilland of Canada DHC-7. Greenlandair Ltd, GRL-721.

At 65°21'N 034°20'W.  
On 24<sup>th</sup> August 2000, at 15:40 hrs UTC.

---

The aim of aircraft accident investigation is solely to identify mistakes and/or deficiencies capable of undermining flight safety, whether contributing factors or not to the accident in question, and to prevent further occurrences of similar cause(s). It is not up to the investigation authority to determine or divide blame or responsibility. This report shall not be used for purposes other than preventive ones.  
(Law on Aircraft Accident Investigation, No 59/1996, para 1 and para 14.)

---

# REPORT ON AN AIR TRAFFIC INCIDENT

**Date and time:** 24<sup>th</sup> August 2000, at 15:40 hrs \*).

**Location of the Incident:** Inside the West Sector of the Reykjavik Control Area (CTA), at position 65°21' N 034°20' W.

**Aircraft involved:** a) DHC-7. Greenlandair Ltd. Flight number: GRL-721.  
b) C-130, Royal Danish Air Force. Flight number: DAF-678.

**Phase of flight:** a) En-route cruise at assigned flight level, FI-160.  
b) Descending from FI-190 to FI-150.

**ATS-unit involved:** Reykjavik Oceanic Area Control Centre (OACC), West Sector.  
The western border of the Reykjavik Control Area (CTA) is just west of the incident site. See Appendix I to this Report.

**Procedures:** Reykjavik OACC provides Air Traffic Control within Greenland airspace at FI-195 and above. This control is handled by the "West Sector" of the Reykjavik OACC, which is procedural non-radar controlled. The air/ground communication is through Iceland Radio (a Communication Station) located near Reykjavik.  
The Greenland FIR (Flight Information Region) is an uncontrolled airspace below FL-195. Söndreström FIC (Flight Information Centre) provides information within the Greenland FIR.

**Required separation:** Longitudinal: - 30 minutes,  
Vertical: - 1000 feet.

**Actual separation:** As observed by DAF-678: Opposite track, vertical separation 500 feet, lateral separation within 1 NM.

**Notification:** "Tactical Air Command Denmark" reported the incident to the Icelandic CAA, by a letter dated 7<sup>th</sup> September 2000.  
The matter was diverted to the AAIB Iceland and the investigation commenced immediately.

**Definition:** "An Air Traffic incident is an incident mainly related to regulations concerning Air Traffic Control Services and where aircraft pass each other at such a proximity that it causes a critical situation, or other difficulties caused by incomplete procedures, or non-compliance with procedures, or faults in ground equipment, are causing critical situation".

\*) Note: - All times in this report are UTC.

---

## 1. CIRCUMSTANCES.

1.1 The Incident occurred within the control area (CTA) of the Reykjavik OACC. Neither flight had been radar identified by Reykjavik OACC. Both aircraft involved were operating on IFR flight plans. At the time of the incident GRL-721 was in contact with "Iceland radio" on a VHF frequency and DAF-678 was in contact with Iceland Radio on a HF frequency. The communication between the two flights and the Reykjavik OACC was relayed by Iceland Radio. The Reykjavik OACC and Iceland Radio communicated by written messages appearing on computer scopes at the Air Traffic Controller's position.

- 1.2 a) Greenlandair Ltd, DHC-7, Flight number GRL-721, was en-route from Keflavik Iceland (BIKF), via Gimli, 65°00'N 030°00'W, 65°23'N 035°00'W, DA to Kulusuk, Greenland (BGKK).  
At 15:06 hrs the flight reported at position 65°00'N 030°00'W, then in level flight at FI-160.  
At 15:14 hrs GRL-721 was en-route between positions 65°N 030°W and 65°23'N 035°W, FI-160.  
At 15:44 hrs GRL-721 reported at position 65°23'N 035°00'W, FI-160. Estimating DA at 16:00 hrs. Leaving the Reykjavik OACC Controlled airspace and changing over to Sondrestrom FIC (Flight Information Centre).
- 1.3 b) Royal Danish Air Force, C-130, Flight number DAF-678 departed Sondrestrom, Greenland, at 13:30 hrs. The flight operated below FI-190 and within Greenland Airspace and **was** communicating with Sondrestrom FIC (Flight Information Centre).  
The first contact with Reykjavik OACC was at about 15:14 hrs, when a flight plan for DAF-678 was received. The flight plan or the "diversional clearance request" was from Kulusuk, Greenland to Keflavik, Iceland.

## 2. FACTUAL INFORMATION.

- 2.1 At 12:23 hrs DAF-678 filed a flight plan from Kulusuk (BGKK) to Keflavik (BIKF). The estimated departure time from Kulusuk was given at 17:55 hrs and the flight was planned Kulusuk direct 65°N 030°W, direct Gimli, Keflavik. Planned flight level FI-250.  
This flight plan was cancelled at 14:00 hrs.  
At 14:01 hrs another flight plan was filed for DAF-678. Now the estimated departure time from Kulusuk was given at 15:45 hrs and the flight was planned Kulusuk DA, direct 65°N 030°W, direct Gimli, Keflavik. Planned flight level FI-250.
- 2.2 At about 15:14 hrs DAF-678 called Iceland Radio on HF (8,891 MHz) and sent the following message:  
"Danish Air Force six seven eight. We are diverting from Kulusuk to Keflavik and request clearance from present position, via six five north three zero west, Gimli, Kilo Echo Foxtrot. Flight level two five zero".  
Iceland Radio read back the clearance:  
"Roger, Danish Air Force six seven eight. Iceland from Kulusuk to Keflavik. Request clearance from present position, via six five north three zero west, Gimli, Kilo Echo Foxtrot. Flight level two five zero. Stand by. I call you back".  
DAF-678 called back:  
"Danish Air Force six seven eight, we are maintaining below controlled airspace until clearance"  
Iceland Radio replied:  
"Roger, maintaining below controlled airspace until further clearance"  
DAF-678 called back:  
"Six seven eight"
- 2.3 At 15:14 hrs the following message appeared on the Reykjavik OACC West Sector Controller's scope:  
"DAF678. FROM BGKK TO BIKF. REQ CLR FROM PPSN VIA 65N30W GIMLI KEF F250 MNTN BLW CTA UNTIL FURTHER CLR."
- 2.4 At 15:17 hrs the following telephone conversation took place between Sondrestrom FIC (FIC) and Reykjavik OACC West Sector Controller (W):  
W: "Reykjavik!"  
FIC: "Yes. FIC. I do not know if you have seen a message from Danish Air Force 678, sent via Iceland Radio, that he is requesting clearance from Kulusuk to Keflavik?"  
W: "Yes. It is on my board. I am just getting to it".  
FIC: "OK. He never told me anything about... he was supposed to land at Kulusuk, but with reference to Greenlandair 721, he is your control if you want."  
W: "Is this FIC I am talking to?"  
FIC: "Yes".  
W: "Well, I will have to take a look at it after a while".  
FIC: "OK".  
W: "Thank you. Bye".

- 2.5 At 15:18 hrs Reykjavik OACC through Iceland Radio requested a present position report from DAF-678 which at 15:21 hrs gave his position 65°24'N 035°46'W. This information was relayed to the OACC. This position is west of the western limits of the Reykjavik OACC Controlled Airspace and outside Reykjavik CTA.
- 2.6 At 15:29 hrs the following conversation took place:  
FIC: "FIC!"  
W: "Yes, Reykjavik just wanted to let you know reference Danish Air Force 678".  
FIC: "Yes"  
W: "I will only be giving him one five zero because of the Greenlandair 721".  
FIC: "OK. Do you know..?"  
W: "The Danish Air Force is at 1521, he was at 65°24'N 035°46'W and I have no idea of what level".  
FIC: "OK. Could you have him report when passing the boundary?"  
W: "I will do that".
- 2.7 At 15:30 DAF-678 called Iceland Radio and reported that it was holding just outside the FIR (Flight Information Region) boundary, at FI-190 and still standing-by for clearance to Keflavik. This message was relayed to the OACC.
- 2.8 At 15:31 hrs Reykjavik OACC issued a clearance for DAF-678. It was transmitted by Iceland Radio as follows:  
"Danish Air Force six seven eight, Iceland Radio, from Reykjavik OACC. Cleared to Keflavik from present position, via six five north, three zero west, Gimli, Kilo Echo Fox. Flight level one five zero while in Reykjavik..... while in Controlled Airspace. Squawk three two zero three and say your estimate for three zero west and report passing the FIR boundary, Iceland".
- 2.9 At 15:34 hrs DAF-678 read back the clearance, and gave 16:02 hrs as an estimate for the position 030°W.
- 2.10 At 15:37 hrs DAF-678 reported to Iceland Radio:  
"Danish Air Force six seven eight, request Flight level two five zero. We are passing the FIR boundary this time"
- 2.11 At 15:37 hrs the message appeared on the OACC ATC Controller's scope:  
"RCL DAF678 - F250. PSG THE FIR BDRY AT 1536"
- 2.12 At 15:38 hrs the OACC requested via telephone to Iceland Radio, the Flight level of DAF-678 and DAF-678 replied the request by:  
"We are descending for Flight level one five zero, we are one seven zero this time"  
Iceland Radio read this back and DAF-678 replied: "Affirm and still requesting two five zero".
- 2.13 At 15:40 hrs DAF-678 and GRL-721 passed each other. During descent from FL-170 to FL-150, DAF-678 reported a collision warning (TCAS). According to the report, the lateral separation was less than 1 NM and the vertical difference was 500 feet.  
The incident occurred at 65°21' N 034°20' W.
- 2.14 At 15:45 hrs Reykjavik OACC cleared DAF-678 to maintain FI-190 in controlled airspace.

### 3. ANALYSIS.

Danish Air Force DAF-678 had filed a flight plan from Kulusuk to Keflavik. with estimated departure from Kulusuk at 17:55 hrs. This flight plan was later cancelled and another flight plan was filed with estimated departure from Kulusuk at 15:45 hrs. Planned flight level was FI-250.

At 15:14 hrs DAF-678 reported direct to Reykjavik OACC through Iceland Radio, that the flight was diverting from Kulusuk to Keflavik and a clearance was requested from "present position", via 65°N 30°W, Gimli, Kilo Echo Foxtrot. FI-250. The usual procedure is requesting clearances through Söndreström FIC.

This message was not read correctly back by Iceland Radio as the word “diverting” was missing from the read-back. Also when Iceland Radio transmitted the message to Reykjavik OACC, the word “diverting” was missing from the message that appeared on the Air Traffic Controllers scope. This was inaccurate and indicating that DAF-678 had departed Kulusuk. No departure message was however received on DAF-678.

Reykjavik OACC Controller did not request the Flight level of DAF-678 and assumed that the aircraft had just departed Kulusuk and was at low level when it requested the clearance. Therefore at 15:31 hrs Reykjavik OACC issued a Flight level below GRL-721, that was en-route at FI-160, as DAF-678 was cleared to Keflavik from “present position” at FI-150 while in Controlled Airspace and instructed to report when passing the FIR boundary.

DAF-678 had been operating in uncontrolled airspace within Greenland FIR and was in contact with Söndreström FIC. The usual procedure is that aircraft in uncontrolled airspace within Greenland FIR will be given traffic information from Söndreström FIC.

DAF-678 reported to Reykjavik OACC via Iceland Radio at 15:30, that it was holding just outside the FIR boundary, at FI-190 and still standing-by for clearance to Keflavik.

This message was relayed to the OACC, but the Controller did not see it until some time after he issued the clearance.

However the incident would very likely not have happened if the Controller had requested information from DAF-678, regarding it’s altitude as well as it’s position, prior to issuing the clearance.

The Aircraft Accident Investigation Board considers, that DAF-678 should have been cleared from the boundary of the Controlled Airspace to Keflavik instead of “from the present position”, as at the time of the clearance DAF-678 was inside the Uncontrolled Airspace. The correct clearance should have been valid only from the border:

*“Cleared to Keflavik Airport via 65°N 030°W, GIMLI, KEF. Flight Level 150 while in Controlled Airspace”.*

At 15:37 hrs DAF-678 reported passing the boundary at 15:36 hrs. At that time DAF-678 had not reached FI-150. This was clearly not in accordance with the clearance to enter controlled airspace level at FI-150.

At 15:43 hrs DAF-678 reported a TCAS collision warning with an opposite traffic.

The position of the incident was at 65°21’ N 034°20’ W.

According to the data provided by the Danish CAA, DAF-678 was not in radio contact with Söndreström FIC and therefore it had no information of GRL-721, that was on a reciprocal track at FI-160.

The Air Traffic Controller should when receiving this message immediately have notified his supervisor of the reported TCAS Collision warning from DAF-678. He however failed to do so.

#### **4. CONCLUSIONS. Causal factors are marked with \*)**

- 4.1 At the time of the incident GRL-721 was in contact with Reykjavik OACC on a VHF and DAF-678 was in contact with Iceland Radio on a HF. The communication between Reykjavik OACC and the two flights GRL-721 and DAF-678 was relayed via “Iceland Radio”. The OACC communicated by written messages appearing on computer scopes at the Air Traffic Controller’s position.
- 4.2 Greenlandair flight GRL-721 was en-route from Keflavik Iceland to Kulusuk Greenland, via flight planned route at FI-160. At 15:06 hrs the flight reported at 65°N 030°W, estimating leaving controlled airspace (65°23’N 035°00’W) at 15:45 hrs.  
The flight operated in every way according to received clearances.
- 4.3 A flight plan was filed at 12:23 hrs for Danish Air Force DAF-678, from Kulusuk to Keflavik with departure from Kulusuk at 17:55 hrs. This flight plan was cancelled at 14:00 hrs and at 14:01 hrs a new flight plan was filed for DAF-678.  
In the new flight plan, the estimated departure time from Kulusuk was given at 15:45 hrs. Planned flight level was FI-250.
- 4.4 \* Reykjavik OACC received a message from DAF-678 at about 15:14 hrs., where the flight requested a clearance from present position to Keflavik.  
DAF-678 did neither report the actual position nor the actual altitude of the flight.

- 4.5 \* The word "diverting" was missing from the message transmitted by DAF-678 via Iceland Radio and displayed on the Controller's scope. This was inaccurate by the operator at Iceland Radio.
- 4.6 \* The OACC did request "the present position" of DAF-678 at 15:18 hrs.
- 4.7 \* The Reykjavik OACC Controller assumed that the flight DAF-678 had just departed Kulusuk and it was therefore at low level climbing from Kulusuk. He as a result assigned DAF-678 a flight level below GRL-721.
- 4.8 The Reykjavik OACC Controller cleared DAF-678 to Keflavik "from present position" at FI-150 while in Controlled Airspace and report passing the FIR boundary. That implies that the aircraft was to enter CTA at FI-150. Not to enter CTA descending to FI-150.
- 4.9 \* At the time the Air Traffic Controller issued the clearance or at 15:31 hrs, the report from DAF-678 that is was holding at FI-190 had not been read by the Controller.
- 3.10 \* DAF-678 entered Controlled Airspace before arriving at the cleared flight level, descending through the flight level of GRL-721.

#### **4. SAFETY RECOMENDATIONS.**

None .

Reykjavík, 15 February 2001

**Aircraft Accident Investigation Board  
Iceland**