

1998-08-31

L-29/98

Swedish Civil Aviation  
Administration

601 79 NORRKÖPING

**Report C 1998:26e**

---

The Swedish Board of Accident Investigation (Statens haverikommission, SHK) has investigated a serious incident which occurred on 17 April, 1998, in the airspace west of the reporting point KOLJA, Malmö FIR, involving the aircraft with registry F-GBYC and G-BNLK.

In accordance with section 14 of the Ordinance on the Investigation of Accidents (1990:717) the Board submits herewith a final report of the investigation.

Ann-Louise Eksborg

Rune Lundin

---

This report is translated from Swedish. If there are differences caused by translation, the Swedish version will be valid

---

<i>Aircraft; registration and type</i>	<b>A. F-GBYC</b> , Boeing 737-200 <b>B. G-BNLK</b> , Boeing 747-400
<i>Owner/Operator</i>	<b>A.</b> Air France <b>B.</b> British Airways
<i>Time of incident</i>	17 April 1998, 16:15 hrs, in daylight <i>Note:</i> All times in the report are given in Swedish Daylight Savings Time (SDST) = UTC + 2 hours
<i>Place</i>	The airspace west of KOLJA intersection, (pos 5600N 01649E; approximately 33,000 ft./10 050 m. above sea level)
<i>Type of flight</i>	<b>A.</b> Scheduled traffic service <b>B.</b> Scheduled traffic service
<i>Weather</i>	Scattered altocumulus and cirrus up to 25,000 feet.
<i>Numbers on board: crew</i>	<b>A.</b> 6 <b>B.</b> 19
<i>passengers</i>	<b>A.</b> 72 <b>B.</b> 208
<i>Personal injury</i>	None
<i>Damage to aircraft</i>	None
<i>Other damage</i>	None
<i>Pilots' age, certificate</i>	<b>A.</b> Captain 35 years, Airline Transport Pilot's License (French), Copilot (age unknown), Commercial Pilot's License with Instrument Rating (French). <b>B.</b> Captain (age unknown), Airline Transport Pilot's License (British), Copilot (age unknown), Commercial Pilot's License with Instrument Rating (British).
<i>Pilots' total flying hours</i>	<b>A.</b> Captain 5500 hours, of which 1570 on the type; copilot 1300 hours, of which 1010 on the type. <b>B.</b> Captain (unknown); copilot (unknown)

---

The incident has been investigated by the Board of Accident Investigation (SHK) represented by Ann-Louise Eksborg, chairman, and Rune Lundin, Chief investigator. The Board has been assisted by Auvo Hagvret as Air Traffic Control expert.

The investigation was followed by the Swedish Civil Aviation Administration represented by Arne Elmqvist.

The Board investigates accidents and incidents with regard to safety. The sole objective of the investigations is the prevention of similar occurrences in the future. It is not the purpose of this activity to apportion blame or liability.

## History of the flight, etc

Aircraft **A** (F-GBYC, a Boeing 737-200 with flight number AF 2659, on a flight from St. Petersburg to Paris) had passed Riga FIR at flight level (FL) 350 (10 650 meters) and was in Malmö FIR, supervised by Malmö Control position R 7. Behind and overtaking **A**, was an MD 11 from Japan Airlines with flight number JAL 403, also at FL 350.

The Air Traffic Controller at position R 7, who at the time had a student to instruct, assessed that JAL 403 would overtake **A** and contacted via inter-phone position R 8, the subsequent control area into which the aircraft would proceed. After consultation, R 7 decided to descend **A** to FL 310 prior to its entry into R 8's sector. With that, the faster JAL 403 would be able to transit at FL 350 without delays.

While simultaneously instructing her student, R 7 called **A** with the instruction to descend to FL 310, which **A** correctly acknowledged. During **A**'s descent, R 7 discovered that aircraft **B** (G-BNLK, a Boeing 747-400 with flight number BAW 005 on a flight from London to Tokyo), which R 7 had earlier cleared for passage, was on an oncoming course at FL 330. R 7 now called **A** immediately to stop the aircraft's descent, but due to other simultaneous radio transmissions, the message was not received. At the second call **A** responded that they had had visual contact with an oncoming Boeing 747 at the same height and that they had taken evasive action to the right and had passed **B** at a lateral distance of less than 1NM (1852 m) and a vertical distance of approximately 300 feet (100 m). Even **B** acquired visual contact with **A** and took evasive action to the right. Later **B** also received a TCAS-warning (Traffic Alert and Collision Avoidance System). According to the rules of separation the lateral distance should have been a minimum of 5NM (10 km) or the vertical difference a minimum of 2000 feet (600 m).

## Conclusion

Within Malmö FIR as a whole there has been noticed an increase of transit flights en route between Western Europe and above all Far East Asia. Furthermore, the traffic to the former East European States has increased. Traffic concentrations can usually be determined by flight plan data that indicates the expected traffic load, sector-for-sector in the ensuing few hours, but in this case delays had caused unexpected concentration of traffic in sector R 7.

The Air Traffic Controller in position R 7 has served since the year 1983 and has had radar competency since 1986. In the roll of Chief Instructor she also had the responsibility of training new controllers in radar service. On the day in question the traffic controller at R 7 began work at 14:30hrs. and had sat at position R 7 since 15:15hrs. The traffic load had at first been average, but just prior to the occurrence, 8-10 traffic strips had been received by R 7, which constituted a high traffic load, especially taking into consideration that the student was to be instructed at the same time. These traffic strips were received by the traffic controller at a relatively late point, which can be due to the fact that there was only one Air Traffic Control Assistant serving three air control sectors at the time.

Normally a high load should result in the opening of a so-called D-position - a position that administratively assists the operational traffic controller. A service regulation that rules when a D-position should be opened does however, not exist

at Malmö Central Control. Formally the responsibility for the establishment lies with the Duty Chief, but in practice the opening is usually at the request of the affected controller.

The controller has stated to the Board that during the conflict search prior to the descent of **A**, she did not realize that **B** was oncoming at FL 330. To the student, she uttered the rhetorical question: “I don’t have any oncoming now?”. In the area in question there occurs at times a so-called radar mosaic effect - a phenomenon that may appear at the intersection between two radar stations that present the same echo. The effect may result in the absence of a radar symbol during a number of radar sweeps. According to the traffic controller the radar mosaic may have caused **B**’s echo not to be visible when the conflict search was done prior to **A**’s altitude change.

The Board ascertains that the occurrence very likely took place as a consequence of the Air Traffic Controller’s heavy work load. If more time had been available for the planning of **A**’s altitude change, the conflict with **B** would likely have been discovered. The occurrence should have been avoidable if one, in the presence of increased traffic in sector R 7, had established the aforementioned D-position.

Seen from a future perspective; within a few years, an automatic conflict warning system will be introduced in the Control Centers. If this system had been in use, it could not have prevented an incident, but it would have warned the traffic controller about the traffic conflict earlier.

## **Recommendations**

The Swedish Civil Aviation Administration should ensure that in each Central Control’s rules of procedure, it is stipulated when a D-position shall be opened.