



Final Report of the Aircraft Accident Investigation Bureau

concerning the incident (Airprox)

between SWR807, HB-IOD and AXX035, Z3-ARB

on 10th October 1999

Zurich Airport Terminal Control Area

AIRCRAFT ACCIDENT INVESTIGATION BUREAU

FINAL REPORT

AIR TRAFFIC INCIDENT REPORT (ATIR)

AIRPROX (NEAR COLLISION)

THIS REPORT HAS BEEN PREPARED FOR THE PURPOSE OF ACCIDENT/INCIDENT PREVENTION. THE LEGAL ASSESSMENT OF ACCIDENT/INCIDENT CAUSES AND CIRCUMSTANCES IS NO CONCERN OF THE INCIDENT INVESTIGATION
(ART. 24 OF THE AIR NAVIGATION LAW)

PLACE/DATE/TIME TMA Zurich, 10 October 1999, 18:15 UTC

AIRCRAFT

1. SWR 807, Airbus A321, HB-IOD, Swissair, London Heathrow - Zurich
2. AXX 035, MD80, Z3-ARB, Avioimpex, Zurich - Stuttgart

ATS UNIT Approach control office Zurich

AIRSPACE C

HISTORY

SWR 807 (A231), arriving from London, in accordance with the clearance from ACC Sector EAST, was on a Standard Instrument Arrival STAR direction SAFFA. At the time of transfer to APE (Zurich Arrival East Sector) the aircraft was flying at high speed and at a high rate of descent.

On the first call on the APE frequency, SWR 807 reported the passing of FL 142, descending towards cleared FL 130. APE immediately instructed SWR 807 to descend further to FL 70, maintaining its current high speed. At the same time, APE ordered a slight right turn to heading 240°, to enable radar vectoring to ILS 14 (instrument landing system for runway 14).

Some 30 seconds after the first call from SWR 807 to APE, its crew signalled that because of a TCAS RA (Traffic Collision Avoidance System – Resolution Advisory) it had stabilised its descent at FL 130. APE realised the conflict potential with AXX 035, an Avioimpex MD80 departing Zurich for Stuttgart airport, which was maintaining on an almost reciprocal course FL 120. Shortly thereafter, the two aircraft crossed at a lateral distance of 1.2 NM and a minimum vertical distance of 800 ft.

FINDINGS

- Both aircraft were flying in controlled airspace class C.
- Both aircraft were flying according to IFR (instrument flight rules) and were in uninterrupted radio contact with the ATC units responsible; SWR 807 was being controlled by APE and AXX 035 by REE (Radar Executive East).
- On transfer from ACC Sector East to APE, SWR 807 was flying at an unusually high speed of ~310 KT IAS, without prior co-ordination between the two control sectors of this distinct deviation from the customary approach speed in this flight phase of max. 240 KT IAS.
- When SWR 807 indicated a TCAS RA, the two aircraft were 5.8 NM apart and were flying towards each other at high speed. Their vertical separation was 1300 ft, decreasing. SWR 807 for the time being stopped its descent at FL 130 because of the TCAS RA.
- Only then did the APE controller recognise the impending danger of a collision and inform the Swissair plane of AXX 035 approaching at FL 120. SWR 807 soon established visual contact with the Avioimpex MD80.
- Approximately 15 seconds later, the two aircraft encountered each other at 1.2 NM lateral distance and 800 ft vertical distance.
- Checking of the tape transcript showed that the modalities of the Transfer of Control from ACC Sector East to APE were clear. ACC Sector East authorised further descent of SWR 807 below FL 130 explicitly only with reference to AXX 035. AXX 035 was flying in the opposite direction at FL 120. The statements of the APE controller concerned also prove that at the time of the transfer this transfer condition was clear and comprehensible.
- Likewise, the tape transcript shows that a dispute between REE and APE preceded the actual transfer of control. In this exchange of words, REE wished to make himself popular with APE, favouring SWR 807 in the approach sequence because of its high speed. APE finally agreed to this proposal after consulting APW (Zurich Arrival West Sector) and changed the arrival sequence in favour of SWR 807 and to the detriment of two aircraft arriving from the west.

- There was low traffic at the time of the incident.
- Subsequent research has shown that the STCA warning system installed in the APP had been switched off for some considerable time, because it had an excessively high error rate. Nevertheless, it must be stated that the STCA system installed here was only on trial operation at the time in question and was often taken out of service for modification of the setting parameters and practical testing of these.

ANALYSIS

The situation in question constitutes a separation problem which has to be routinely resolved by air traffic controllers hundreds of times every day. On the other hand, the intensity of the exchange of words between the REE and APE controllers can be described as rather unusual. REE was clearly trying to impose on APE his idea of the arrival sequence to be adopted. This attempt may have stemmed from the fact that REE had failed to bring SWR 807 down to the prescribed maximum speed of 240 KT IAS in good time. Instead, on transfer to APE, SWR 807 presented itself at an unusually high speed. High speeds, however, clearly restrict the manoeuvrability of an aircraft.

On the other hand, with regard to AXX 035, the APE controller did not have available any support in the form of a virtual control strip in the TACO (Tower-Approach-Co-ordination, screen display), as is the case with transit flights.

These circumstances probably contributed to the fact that APE for a short time lost control of the impending crossing manoeuvre between SWR 807 and AXX 035.

The minimum separation values between the two aircraft were infringed; their approach was additionally uncontrolled. The TCAS alert and the establishing of visual contact with the approaching aircraft, however, still allowed the Swissair crew to defuse the conflict in good time.

CAUSE

The incident is attributable to the fact that the APE controller, at the time of authorising SWR 807 to descend to FL 70, was no longer aware that he himself was responsible for guaranteeing separation in relation to the approaching AXX 035.

The following factors may have contributed to the incident:

- an extensive co-ordination conversation with ACC Sector East preceding the incident.
- the absence of support in the form of a virtual control strip for the aircraft to be taken into account for separation purposes.

SAFETY RECOMMENDATION

The acquisition and installation of an STCA warning system which meets the requirements of APP, which is reliable, and which operates perfectly must be progressed as a high priority.

Bern, 6 June 2001

Swiss Aircraft Accident Investigation Bureau



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Page No. 1

Zürich-Flughafen, 4.11.1999
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Transcript of Original Tape Recording

No. of pages 2

Subject **ATIR SWR807 of October 10, 1999**

Abbreviations and Call Signs	807	→	SWR807	→	Swissair
	APE	→	Zurich Arrival East Radar		
	REE	→	Radar Executive ACC East Radar		

Frequencies Zurich Arrival East Sector Radar 120,750 MHz

The signer certifies the completeness and correctness of the present transcript.

swisscontrol
Flugsicherungsbetrieb Zürich

Nicky Scherrer

From	To	Time UTC	Communications	Observations
807	APE	18:14:32	Arrival, "Guete Abig", SWR807, we are 142 for 130, information November, Airbus 321	
APE	807	:40	SWR807, Arrival, right heading 240, vectoring ILS 14, descend to flight level 70, keep high speed	
807	APE	:44	Thank you for high speed, right heading 240 and down to flight level 70, vectoring for 14, SWR807	
1 station in between				
807	APE	:15:05	SWR807, we had TCAS level off	
APE	807	:10	"Ja", at flight level 130, that's okay, you have a traffic below at 120	
807	APE	:14	Okay, we have it insight, no problem, SWR807	
APE	807	:36	SWR807, descend now to flight level 70	
807	APE	:40	Yes, 128 for 70 now, and confirm, we were cleared to flight level 70 before?	
APE	807	:49	"Ja", that was my mistake, sorry	
807	APE	:51	Okay, then we have to make a report	
APE	807	:52	Okay	