



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Eidgenössische Flugunfallkommission
Commission fédérale sur les accidents d'aviation
Commissione federale sugli infortuni aeronautici
Federal Aircraft Accident Board

Final report No 1811 Of the Federal Aircraft Accident Board

Concerning the incident (Airprox)

between AFR1855 and SWR1168

on 23 November 2002

at Zurich Airport

This final report has been prepared of the Federal Aircraft Accident Board according to art. 22 – 24 of the Ordinance relating to the Investigation of Aircraft Accidents and Serious Incidents (VFU/SR 748.126.3), based on the Investigation Report by the Aircraft Accident Investigation Bureau on 22 June 2004.

This report has been prepared for the purpose of accident prevention. The legal assessment of accident causes and circumstances is no concern of the accident investigation (art. 24 of the air navigation law, dated December 21, 1948, LFG, SR 748.0).

FINAL REPORT

AIR TRAFFIC INCIDENT REPORT (ATIR)

AIRPROX (NEAR-MISS)

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. (ARTICLE 24 OF THE AIR NAVIGATION LAW)

The use of the masculine shall be deemed to include both the masculine and feminine.

PLACE/DATE/TIME On the ground, Zurich Airport
23 November 2002 12:23 UTC

AIRCRAFT

1. AFR1855 Boeing 737-528 (B735)
F-GJND Air France
Zurich (LSZH) – Paris-Charles de Gaulle (LFPG)
2. SWR1168 Saab2000 (SB20)
HB-IZW Swiss
Zurich (LSZH) – Stuttgart (EDDS)

ATC UNITS

Control Tower	ADC = Aerodrome Control GND = Ground Control
Apron Control	Apron South = Controller Apron South Coordinator = Coordinator Apron South

AIR TRAFFIC CONTROLLERS

ADC ATCO
GND ATCO

APRON CONTROLLERS

Apron South Coordinator

AIRSPACE On the ground

HISTORY

SWR1168

On Saturday 23 November 2002 at 12:02:21, the First officer (FO) of SWR1168 contacted Clearance Delivery (CLD) on frequency 121.800 MHz. He informed the air traffic control officer (ATCO) that he was in possession of weather information TANGO, his aircraft was at stand H81 and they were ready to start the engines.

CLD gave SWR1168 the following instruction: "SWR1168, runway 28, cleared to Stuttgart, BODAN 4 YANKEE, squawk 3033". Then SWR1168 was handed over to the Apron South frequency 121.750 MHz for taxiing. The aircraft only had to taxi a short distance from stand HOTEL 81 to the holding point of runway 28. Apron South gave the taxi clearance and a little later handed over SWR1168 to the Aerodrome Control (ADC1) frequency, 118.100 MHz.

Once radio contact had been established with ADC1, the ATCO informed the flight crew that they could expect to take off in about 9 minutes.

At that time, several aircraft were taxiing to the holding point of runway 28.

At 12:21:36 SWR1168 was instructed to taxi onto runway 28 with the information that take-off clearance would follow in 2 minutes.

Finally at 12:23:03 ADC1 cleared SWR1168 for take-off: "SWR1168, the wind is 350 degrees, 5 knots, runway 28, cleared for take-off".

The Saab2000 took off immediately afterwards.

The flight crew of SWR1168 received the following information from ADC1 at 12:23:43: "1168, as you might have seen, we had just a runway incursion by an Air France, crossing ahead of you".

The FO answered that they had not seen anything and then switched over to the Departure Control frequency.

AFR1855

On that day, AFR1855 was in Zurich at stand G02. The pilots intended to fly back to Paris-Charles de Gaulle. After the FO had received Standard Instrument Departure Route (SID) LASUN 3 YANKEE for departure from runway 28 and transponder code A3040 assigned by CLD on frequency 121.800 MHz, he switched to the Apron South frequency, 121.750 MHz. On that frequency he was cleared to start the engines and allow the aircraft to be pushed back. At 12:19:48 the FO stated that they were ready to taxi.

At 12:19:52 Apron South issued the following taxiing instruction: "AFR1855 taxi via TWY's MIKE, ECHO und ALPHA holding point RWY28". The FO read back the taxiing instruction correctly.

At 12:23:57 the FO again contacted Apron South and informed it that they had made a mistake and would cross the runway. After the unauthorised crossing of runway 28 the apron controller (APC) instructed AFR1855 to stop briefly. The FO then consulted as to how they were to proceed.

Apron South made telephone contact with Ground Control (GND) and then gave AFR1855 the instruction: "AFR1855 make now a right turn onto TWY FOXTROT but hold short RWY28". Then the apron controller handed AFR1855 over to the Zurich Tower frequency (ADC2) 120.225 MHz. The FO again apologised for the error.

He then contacted ADC2 with the words: "Tower good afternoon, AFR1855, holding position FOXTROT".

The ATCO informed the flight crew that they had just crossed a runway without authorisation, a runway on which a departure had taken place at the same time. ADC allowed AFR1855 to cross runway 28 again using taxiway FOXTROT, so that the pilots could then taxi their aircraft to the holding point of runway 28 under the control of Apron South, as originally authorised.

FINDINGS

- The incident occurred on the ground, at the intersection of taxiway ECHO and runway 28.
- SWR1168 had received clearance to follow departure route BODAN 4 YANKEE (B4Y).
- AFR1855 was instructed to follow departure route LASUN 3 YANKEE (L3Y) after take-off.
- At Zurich Airport, Apron South, frequency 121.750 MHz, is responsible for controlling aircraft and vehicles on the ground in the apron area and on the taxiways south of runway 28 (AIP LSZH AD 2.24.3-1).
- SWR1168 was at stand H81. The crew informed Apron South at 12:15:15 that they were ready to taxi. Shortly afterwards, the apron controller (APC) cleared them to taxi to the holding point of runway 28.
- At 12:16:02 AFR1855, which was at stand G02, informed the Apron South controller that they were ready to be pushed back. The latter gave them the following clearance: "AFR1855, Apron, start up and push back is approved".
- At 12:21:36 SWR1168 was instructed by the ATCO in the control tower (ADC1) on frequency 118.100 MHz to taxi to the take-off position of runway 28. Take-off clearance was given at 12:23:03.
- At the time of the runway incursion, SWR1168 had just taken off from runway 28.
- The FO of AFR1855 was in radio contact with Apron South on frequency 121.750 MHz and had received the instruction from Apron Control to taxi via taxiways MIKE, ECHO, ALPHA to the holding point of runway 28.
- On both SWR1168 and AFR1855 the Commander (CMD) was pilot flying (PF) and the FO pilot non flying (PNF).
- AFR1855 taxied in a straight line on taxiway ECHO and without authorisation crossed runway 28, instead of turning right before the runway as instructed and following taxiway ALPHA to the holding point of runway 28.
- According to the statement by the CMD of AFR1855, he has failed to see the ground markings on TWY ECHO (RWY AHEAD / stop bar / runway guard lights) and therefore his perception would have been clearly adversely affected by the sunlight.
- During the take-off-roll, the CMD of SWR1168 noticed an Air France aircraft which in his opinion was approaching runway 28 at a relatively high taxiing speed on taxiway ECHO. At V1/VR this aircraft would still have been about 20 metres from the shoulder of the runway.

- It seemed to the controllers in the control tower (ADC1 and GND), who had noticed AFR1855 for the first time in the vicinity of the branch from taxiway ECHO to taxiway ALPHA, or just in front of it, that the aircraft was proceeding at a high taxiing speed in view of the impending right turn.
- To cover the distance from the turning point of taxiway ECHO onto taxiway ALPHA to the shoulder of runway 28, the Air France aircraft has needed according calculations about 16 seconds at a taxiing speed of 20 kt and about 10 seconds at a speed of 30 kt.
- The ADC1 ATCO had coupled radio control of frequencies ADC1 118.100 MHz and ADC2 120.220 MHz using a coupling function.
- According to statements by the ATCOs in the control tower (ADC1 and GND), who observed the incident, SWR1168, as it was taking off, flew over AFR1855, which was taxiing below it, at a height of approx. 40-50 m.
- The weather conditions were good and the sun was shining at the time of the incident.
- ATIS ZURICH
INFO UNIFORM
QAM LSZH 12:20 UTC
330 DEG 5 kt
VIS 12 km
FEW 15000 FT, SCT 18000 FT, BKN 25000 FT
+08 / +04
QNH 1009
QFE THR 14 959
QFE THR 16 959
QFE THR 28 958
NOSIG
- According to the statement by the apron controller, at the time of the incident there was average traffic on the Apron South frequency.
- During the 90 seconds prior to the runway incursion, 15 radio conversations were conducted on the Apron South frequency 121.750 MHz; these lasted approx. 60 seconds.
- According to UNIQUE records, the taxiway ECHO stop bars south of runway 28 were switched on between 12:18:36 and 12:35:02. The beam angle of the lamps is -7 degrees to 18 degrees horizontally and 5 to 13 degrees vertically.
- In its operating manual, "Manuel d'Exploitation, B73S, Partie Utilisation, Volume 1", Air France warns pilots that with this aircraft type there is a tendency to taxi in the higher speed range. In this context, an instruction is given not to exceed 30 kt when taxiing in a straight line and 10 kt on bends.
- According to the "Manuel d'Exploitation, B73S, Partie Utilisation, Volume 1", the take-off briefing is part of the taxiing phase.

- The licences of the pilots, air traffic controllers and apron controllers were valid.
- The distribution of the duties and the responsibilities between Apron Controller and Coordinator Apron Control was not regulated in the existing job description for Apron Controllers.

ANALYSIS

AFR1855

After the CMD of AFR1855 had welcomed the passengers, the doors of the aircraft were closed. The FMS entries (FMS=Flight Management System) were concluded and the aircraft was pushed back. The CMD was in control of the aircraft himself. He did not have to comply with a departure time slot and therefore had no reason to hurry. The weather was good (sunshine) and according to the statements of the CMD, as far as he was able to observe from his stand, there were no aircraft on his route to runway 28 on the ECHO and ALPHA taxiways.

As a matter of fact taxiway ALPHA is not visible from the stand G02. After the FO had obtained taxiing clearance, the CMD set the aircraft in motion and left the pushback-position of stand G02. On taxiway MIKE, both the CMD and FO jointly checked whether there were any obstacles in the way.

After the B735 had turned onto taxiway ECHO, it was possible to taxi in a straight line for a fairly long distance. When the chief steward had informed the CMD that the cabin was ready for take-off, the CMD began the take-off briefing when approximately level with Terminal B. According to the Air France operating regulations, the take-off briefing is carried out during the taxiing phase.

For his part, the FO checked the minimum altitudes after take-off; these were shown on the departure charts. These documents were accommodated on his right.

The take-off briefing was completed when approximately level with Terminal A. The CMD then consulted the speed booklet, which was located in the centre of the equipment between the two FMS, in order to verify the necessary details concerning the procedure after any engine failure.

Afterwards, the CMD estimated that this verification took longer than usual (about 30 seconds). When he again looked up and glanced outside, he was looking for TWY ALPHA at a distance of 200-300 metres; in the process, he obviously confused Terminal A with the Dock Midfield. In addition he was trying to orientate himself with reference to parked aircraft on the INDIA stands. Passing these was always a signal for him that the branch onto taxiway ALPHA was just in front of him. However, on that day, according to his statements, there were no aircraft there.

The recordings of Unique showed, that during the taxiing of AFR1855 there were five aircraft parked on the INDIA-stands. On stand I98, which is located nearest to the turning point of taxiway ECHO to taxiway ALPHA, a Saab2000 was parked.

The CMD stated that he was looking into the distance, therefore he has also overlooked the "RWY AHEAD" warning on the taxiway. He also has assumed that this marking was 200-300 metres further in front of him.

In addition, he also failed to see the red lamps of the stop bars and the amber flashing lamps of the runway guard lights to the left and right of the taxiway. The sun, which was behind him, may have substantially reduced the apparent intensity of the runway guard lights and the stop bars and thereby made it very difficult to perceive them.

According to Unique flight operations, there electrical systems like runway guard lights and stopbars were functioning properly and the markings on the runway were existing. The mounted Runway Identification Signs and Taxiway Direction Signs had been positioned correctly and were not damaged.

The warning "RWY AHEAD" on taxiway ECHO south of runway 28 is marked in large white letters (approx. 2 metres high) on a red background and is directly in front of the stop bars, which were switched on.

To cover the distance between the turning point of taxiway ECHO onto taxiway ALPHA and the shoulder of runway 28, AFR1855 would take approx. 16 seconds travelling at a taxiing speed of 20 kt and approx. 10 seconds at a taxiing speed of 30 kt, during which the pilots could have realised their mistake.

The CMD further explained that he had often flown to Zurich over the last 4 years (2-3 times per month), but that since his last flight there had been a break of 6 months. This last flight to Zurich had also been at night.

He had never before taxied to runway 28 under the conditions which applied (daylight, sunshine, no aircraft on the INDIA stands, etc.).The FO also pointed out in passing that a taxiing manoeuvre under the prevailing circumstances in Zurich is very difficult during the day.

When the two pilots realised almost simultaneously that they had passed the right branch onto taxiway ALPHA, they ascertained that their aircraft was already just before runway 28 and that it was no longer possible to brake and stop before the runway. The CMD had noticed that an aircraft had just taken off from this runway. However, at that moment, no-one was on the runway.

The CMD realised that a turn was out of the question and therefore decided to continue taxiing in order to clear runway 28 as soon as possible on the north side, whilst the FO contacted Apron South and requested further taxiing instructions.

The apron controller authorised the pilot to turn the aircraft right onto taxiway FOXTROT for returning to the south side of runway 28. He then handed over the aircraft to ADC for the second runway crossing.

Once this taxiing manoeuvre had been completed without further problems, AFR1855 returned to the Apron South frequency and taxied, as originally planned, to the holding point of runway 28.

There, the FO took his leave of Apron South, but not without apologising for the mistakes they had made.

SWR1168

For the pilots of SWR1168, the departure from Zurich that day was proceeding normally. Their stand H81 was close to runway 28. After obtaining taxiing clearance to the holding point of runway 28, the handover to ADC took place. Shortly after the aircraft had taxied onto the runway and positioned itself for take-off, it was cleared for take-off.

The Saab2000 accelerated and according to eye witnesses lifted off from the runway when approximately level with taxiways JULIETT/ALPHA 4, or about 800 m before the TWY ECHO / runway 28 intersection. The aircraft flew over this intersection at an approximate height of 40-50 metres.

The CMD of SWR1168 later made the following statement: "After obtaining take-off clearance on runway 28, during the take-off roll, I noticed an Air France aircraft which in my opinion was

approaching runway 28 at a relatively high taxiing speed on taxiway ECHO. At V1/VR this aircraft was still some 20 metres away from the runway."

The CMD of SWR1168 was not able to monitor further on the Air France B735, as his own aircraft had taken off in the meantime.

As soon as the CMD started the take-off roll, the FO concentrated on the instruments. According to his statements, during a take-off procedure he looks outside now and again to assure himself that everything is proceeding normally.

On this day, during the SWR1168's take-off, he briefly observed an increase in the tank indication, but this rapidly returned to normal. However, because of this irregularity, he was concentrating on the instruments for almost the entire time.

The FO therefore at no time noticed that an Air France aircraft was approaching from the left. He became aware of the incident only when he received the following information from ADC after take-off: *"1168, as you might have seen, we had just a runway incursion by an Air France, crossing ahead of you"*.

The FO could only answer that he had not seen anything.

Apron South

According to the estimate of the apron controller, at the time of the incident there was average traffic on the Apron South frequency. The apron controller monitored the AFR1855's taxiing manoeuvre as part of his normal traffic monitoring activity.

The taxiing clearance to the holding point of runway 28 was a simple taxiing procedure, since no runways were to be crossed. The apron controller therefore had no occasion to subject the taxiing behaviour of AFR1855 to increased surveillance.

The taxiing instructions to the pilots were given correctly and read back correctly by them.

Shortly before the branch from taxiway ECHO to taxiway ALPHA the apron controller turned his attention again to AFR1855. He noticed no irregularities and nothing indicated that the flight crew would deviate from the taxiing clearance to the holding point of runway 28 which they had received.

Subsequently, the apron controller was busy with other traffic.

When he was again able to return to AFR1855, the aircraft was already on the northern half of runway 28. The apron controller's initial reaction was to look right to check whether an aircraft was in the take-off phase. He ascertained that a Saab2000 had taken off shortly before, but it had already lifted off.

The interval in which the apron controller was concentrating on the other traffic before he consciously returned to AFR1855 was in the region of approximately 10-15 seconds. This behaviour may be described as normal in view of the fact that he had to handle an average traffic density.

Within the period 12:22:00 – 12:23:30, 15 radio conversations were conducted on the Apron South frequency with a duration of approximately 60 seconds.

When AFR1855 had cleared the northern side of runway 28, the apron controller requested it to stop, since he first had to discuss the subsequent procedure with Ground Control (GND). They agreed to bring the aircraft back to the southern side of the runway by means of a right turn using TWY FOXTROT. There it could follow TWY ALPHA and taxi to the holding point of runway 28 as planned.

Although an apron controller is in principle obliged to monitor the taxiing and other movements he has ordered, it must be pointed out that for capacity reasons it is not possible for him to carry out permanent, uninterrupted monitoring of taxiing aircraft. An apron controller must essentially assume that pilots will carry out the taxiing instructions they have received correctly.

At the time of the incident, another apron controller was present in the function of Apron South Coordinator. The main tasks of the Coordinator Apron South are according informations of Unique to give clearances to the drivers of tractors to pushback aircraft which are ready to depart, to coordinate the aircraft towing with the rest of the taxiing traffic, to order the employment of marshals and to keep them under surveillance, to answer the telephone at the position Apron South and additionally to give support to the apron controller.

However, the coordinator was not obliged to monitor uninterruptedly the taxiing instructions issued by his colleague on Apron South.

According to the statements of the Apron South Coordinator, he was unable to monitor the evolution of the runway incursion since at that time he was busy booting up a computer which had crashed. The general area of responsibility of this apron coordinator included ensuring trouble-free operation of the technical equipment in the area.

It must therefore remain open whether the Apron South coordinator would have noticed the incorrect behaviour of the AFR1855 flight crew in good time and prevented it if he had been exercising his primary function at his usual workstation.

Control tower

The two ATCOs in the control tower at the Aerodrome Control (ADC) and Ground Control (GND) positions had monitored the runway incursion by AFR1855, but were unable to prevent it.

The GND ATCO noticed AFR1855 on TWY ECHO when it was approximately level with taxiway ECHO 7. When the aircraft was level with taxiway ECHO 6 and was still taxiing at a high speed, the ATCO at GND became suspicious and ascertained which runway was envisaged for the take-off of the B735. He also checked briefly whether the stop bar on runway 28 was also actually switched on.

He saw how AFR1855 taxied onto runway 28 and how SWR1168, which was taking off, was on the point of lifting off. In his estimation, the latter flew over the Air France aircraft at a height of about 50 metres.

When AFR1855 had crossed runway 28, GND received a telephone call from the apron controller which was intended to make him aware of what had happened. The ATCO at GND answered that he had observed the incident. The two of them coordinated the subsequent taxiing of the aircraft after consulting ADC.

For his part, the ADC ATCO was aware, from the electronic representation of the flight plan, that an Air France B735 was expected to take off shortly. When he cleared SWR1168 for take-off, however, he had no visual contact with AFR1855.

According to the statement of ADC, he first made visual contact with this aircraft when it was located just before the branch from TWY ECHO onto TWY ALPHA.

Both GND and ADC ATCOs had the impression that AFR1855 was travelling relatively rapidly in view of the fact that in a few moments it had to turn onto TWY ALPHA.

ADC was therefore inwardly alarmed and immediately checked the take-off procedure for SWR1168. He ascertained that it was approximately level with taxiways JULIETT/ALPHA 4 and was already lifting its nose.

Immediately after this, the ADC ATCO observed that AFR1855 had not turned onto taxiway ALPHA but was taxiing straight ahead and without authorisation onto runway 28. According to the personal estimate of the ADC ATCO, SWR1168 flew over AFR1855, which was taxiing below it, at approximately the height of the control tower.

When the two ATCOs in the control tower realised that the fast-taxiing AFR1855 was not turning onto TWY ALPHA but was taxiing straight ahead, because of the time remaining before AFR1855 reached the shoulder of the runway (10-15 seconds) they had no possibility of intervening actively in what was happening. In addition they knew that the aircraft was on the Apron Control frequency and was being controlled by Apron South.

Taxiway designations and markings

The taxiways are equipped on the ground with the customary centre line lightings and guidelines for taxiing as well as a switchable red stop bar aligned transversely in front of the runways. On the apron, at the intersection of taxiway ECHO and runway 28 two flashing runway guard lights (WigWag), Runway Identification Signs and Taxiway Direction Signs respectively are installed. In addition, on taxiway ECHO immediately in front of the stop bar to the south of runway 28, the warning "RWY AHEAD" is painted in large white letters on a red background.

Despite such precautions, various runway incursions have occurred over the last 2-3 years due to the complexity of the taxiing procedures at Zurich airport. Misinterpretations of the apron controller's taxiing instructions by pilots have often also played a role in these.

Taxiway ALPHA south of runway 28 may in principle be assigned to the apron area. At an earlier time, this taxiway had been designated OUTER. A taxiing clearance via taxiway OUTER had suggested to users, given the name, that their taxiing manoeuvre would take place in the immediate vicinity of the apron and that consequently the risk of an unauthorised incursion onto a runway was substantially smaller. This association with the apron was eliminated with the re-designation of the taxiway as ALPHA.

According written statements, in practise the renaming of taxiway OUTER as taxiway ECHO and ALPHA has turned out as inexpedient and also sometimes provide opportunities for misunderstandings.

SAMAX

Due to the traffic density and the complexity of the airport's layout, an Advanced Surface Movement Guidance System (A-SMGCS) was urgent in Zurich, in order to guarantee the greatest possible safety, even under bad weather conditions.

An essential element of such an A-SMGCS is the possibility of integrating a runway incursion warning.

In the year 2000 skyguide, together with the two airport partners Aéroport International de Genève (AIG) and Zurich Airport AG (UNIQUE), launched a joint project designated **Swiss Airport Movement Area Control System (SAMAX)**.

In parallel with the planning work, the Airport Surface Detection Equipment (ASDE) in Zurich had to be replaced. Because of the newly constructed Dock Midfield, the installation of a new Surface Movement Radar (SMR) was urgent in order to continue to guarantee full radar coverage of ground movements.

So-called cooperative sensors are the heart of SAMAX. These record the Mode S data transmitted by vehicles and aircraft on the apron or runway and allow calculation of a position to within plus/minus 5 metres by means of triangulation. The merged data from the three sources (cooperative sensors / Surface Movement Radar / Approach Radar) provide the basis for the key SAMAX functions:

- Identification of aircraft and vehicles
- Detection and positioning
- Safe runway crossings
- Conflict warning

The technical installations are currently being built and approved. The next expansion phase involves integrating the data provided into the operational processing systems.

Due to the larger volume and greater accuracy of data on aircraft and vehicles on the apron and runways, it is hoped to achieve more efficient management of ground movements and increased safety in the corresponding work sequences.

The future **R**unway **I**ncursion **M**onitoring and **C**onflict **A**lert **S**ub-System (RIMCAS) will constitute an essential step towards preventing runway incursions. This is a SAMAX subsystem which will be able to display stop bar violations to the ATCO on his workstation, in the form of a visual and acoustic alert.

Design work is already under way and skyguide hopes to commission the system in Zurich in the course of 2004. As a complementary measure, UNIQUE, for its part, is planning a new Aerodrome Ground Lighting System (AGL). However, the certification and procedures for this system still have to be worked out.

The present runway incursion would very probably have been prevented by the RIMCAS system.

The RIMCAS system is already connected up in Geneva and is currently in a test and demonstration phase. However, the procedures for everyday use still have to be worked out.

CAUSE

The incident is attributable to a lack of concentration during a taxiing procedure by the flight crew of AFR1855; they failed to monitor their taxiing route continuously and in addition the CMD fell victim to an incorrect estimation of the surrounding terrain.

SAFETY RECOMMENDATIONS

266. The Federal Office for Civil Aviation should recommend to companies that in future their flight crews should carry out the take-off briefing before leaving the stand, where possible. This would put pilots in a position to direct their full attention to the subsequent taxiing procedure.
267. The Federal Office for Civil Aviation should arrange for the implementation of the RIMCAS project to be promoted with the highest priority.
268. The Federal Office for Civil Aviation should arrange for the implementation of written main tasks of the function of Coordinator Apron Control on terms of a duty list.

269. The Federal Office for Civil Aviation should arrange that the workstation organisation in Apron Control will be configured so that lengthy absences of an apron controller from his workstation as "Coordinator Apron Control" should occur only after appropriate replacement by another apron controller.
270. The Federal Office for Civil Aviation should check the appropriateness of taxiway designations on Zurich Airport, especially those in the apron area. (e.g. taxiways ALPHA and ECHO). Taxiways which cross a runway should not bear the same designation throughout.

Berne, 9 February 2007

Federal Aircraft Accident Board

André Piller, President
Tiziano Ponti, Vicepresident
Ines Villalaz-Frick, Member

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. (ARTICLE 24 OF THE AIR NAVIGATION LAW)

Transcript of Original Tape Recording

Subject AIRPROX / RWY Incursion SWR1168/AFR1855 of November 23, 2002

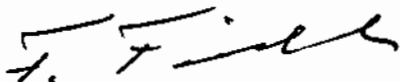
Call Signs	1168	→	SWR1168	→	Swiss (Swiss Air Lines)
	1855	→	AFR1855	→	Air France
	ADC	→	Zurich Tower		
	CLD	→	Clearance Delivery		
	T GR	→	Telephone Ground		
	APR	→	Apron		

Frequency	Zurich Tower	118.10 MHz / 120.225 MHz
	Clearance Delivery	121.80 MHz

The signer certifies the completeness of the present transcript

skyguide
Flugsicherungsbetrieb Zürich

ZZY / ZZDA



sig. Franz Fischbach / sig. Bettina Comte

Tower frequency 118.100MHz

ADC 1168 12:19:15 Zurich Tower, SWR1168 "grüezi", in sequence for runway 28, ready for departure

1168 ADC :20 "Hallo" SWR1168, äh, departure around, äh, niner minutes

ADC 1168 :25 SWR1168, roger

6 Stations in between

1168 ADC :21:36 SWR1168, line up runway 28

ADC 1168 :43 Line up runway 28, SWR1168

1168 ADC :22:06 1168, departure in two minutes

ADC 1168 :09 SWR1168, roger

3 Stations in between

1168 ADC :23:03 SWR1168, the wind is 350 degrees, 5 knots, runway 28, cleared for take-off

ADC 1168 :07 Cleared for take-off, SWR1168

1 Station in between

1168 ADC :23:43 1168, as you might have seen, we had just have a runway incursion by an AIR FRANCE, crossing ahead of you

ADC 1168 :56 SWR1168, no, we didn't see it

1168 ADC :24:00 Okay, so äh contact Departure please

ADC 1168 :03 Departure, SWR1168, good-bye

Clearance Delivery frequency 121.800MH

CLD 1168 12:02:21 Zurich Delivery, SWR1168 "grüezi", information TANGO, stand HOTEL 81, Saab 2000, ready for start-up

1168 CLD :31 SWR1168 roger, stand by, short delay due traffic

CLD 1168 :34 SWR1168, roger

3 Stations in between

CLD 1855 :04:25 Delivery, good afternoon, AFR1855, with information SIERRA, stand BRAVO 32, ready to clearance, for clearance

1855 CLD :25 AFR1855, stand by short

CLD 1855 :28 Standing by, 1855

To From Time UTC Communication Observation/various

1168 CLD 12:05:16 SWR1168, runway 28, clearance to Stuttgart, BODAN
4 YANKEE, squawk 3033

CLD 1168 :26 Runway 28, to Stuttgart, BODAN 3 YANKEE and
squawk 3033, SWR1168

1168 CLD :33 SWR1168, correct, stand by 12175, for Apron, ade

CLD 1168 :39 Ade, SWR1168

2 Stations in between

1855 CLD :07:55 AFR1855, runway 28, clearance Paris, LASUN 3
YANKEE departure, squawk 3040

CLD 1855 :08:06 We are cleared runway 28, Paris Charles de Gaulles,
LASUN 3 YANKEE, squawk 3040, AFR1855

1855 CLD :14 AFR1855, correct, stand by 12175, for apron, good
bye

CLD 1855 :20 Standing by, 12175, AFR1855, bye bye

Tower frequency 120.225MHz

ADC 1855 12:26:24 Tower good afternoon, AFR1855, holding position
FOXTROT

1855 ADC :29 AFR1855, roger

1 station in between

1855 ADC :44 AFR1855, ah...as you might have realized ah... you
passed an active runway with a departure just ah...in
the ah...go, so we will file a report on you, because of
this event; cross now runway ah..28, please, and on
the other side Apron 121 75

ADC 1855 :27:02 so we cross runway 28 now, and on the other side 121
75, and ah...sorry again I ah... we understand,
AFR1855

1855 ADC :10 yes, as you might have seen it was quite close

Coordination via telephone between Ground and Apron

APR T GR 12:24:15 ja?

T GR APR :15 du, häsch d'AIR FRANCE gseh döt im, im ECHO?

APR T GR :17 ja.... ja mir sind au ziemlich verschrocke

T GR APR :19 die tumme

APR T-GR :19 zum Glück isch's en Saab gsii

T GR APR :22 ja-a

APR T GR :22 was mached mer mit dem AIR FRANCE jetz, deete?

T GR APR :24 ja-a, ich nimm en jetz, ich gib en jetz em äh... em Ground ab, oder wo wotsch en haa, won er isch jetz, zum wieder cheere?

APR T GR :29 ja du chasch en em, nimmsch en äh... rechts in FOXTROT und schicksch en em äh..Tower 120 22

T GR APR :35 aso, mached mer's e so, he

APR T GR :36 okay

T GR APR :36 guet, en schöne

APR T GR :37 ja

- end -

Auswertung crossing RWY 28 durch AFR1855

Datum: 23.11.02 13.24 lt

Abschrift Apron Frequenz 121,75 MHz (Apron Süd)

Zeit (lt)	Station	Voice
13:15:15	SWR1168	SWR1168 is ready to taxi.
13:15:18	APRON	SWR1168 stand by.
13:15:38	APRON	SWR1168 a left turn via Alpha holding point RWY 28.
13:15:40	SWR1168	Left turn, Alpha to holding point 28, SWR1168.
13:15:52	APRON	SWR ZN are you ready to taxi?
13:15:55	SWR ZN	Yes ZN ready for taxi.
13:15:57	APRON	Ok, behind the follow-me.
13:15:59	SWR ZN	Behind the marshaller IZN.
13:16:02	AFR1588	Apron good evening AFR1855 ääh ..52 ready to push.
13:16:05	APRON	AFR1855 apron start and push back is approved.
13:16:08	AFR1855	Starting up and pushing back AFR1855.
13:16:20	IBE3477	Ground good afternoon IBE3477 we are fully ready.
13:16:25	APRON	IBE3477 expect your start up and push back in around five minutes, I call you back.
13:16:30	IBE3477	Thank you.
13:16:33	SWR242	SWR242 is ready for taxi.
13:16:35	APRON	SWR242 when clear of tractor, right turn via Echo, hold short RWY 28.
13:16:40	SWR242	Right holding short of 28, SWR242.
13:16:55	APRON	SWR1168 contact TWR 118,1 adie mitenand.
13:16:58	SWR1168	118,1 SWR1168, ade.
13:17:20	SWR022L	SWR022L is ready for taxi.
13:17:24	APRON	SWR022L right turn via TWY Echo and Alpha holding point RWY 28, behind the Saab 2000 from the left.
13:17:30	SWR022L	Behind Saab 2000 from the left, right turn Echo Alpha to holding point 28, SWR022L.
13:17:40	APRON	SWR242 ground control 121,9, ade.
13:17:44	SWR242	21,9 adie SWR242.
13:18:50	APRON	IBE3477 start up and push back approved.
13:18:54	IBE3477	Start up and push back approved, IBE3477.
13:19:27	SWR2240	Zurich Apron, good day, SWR2240, Saab 2000 I93 standing by for start up.
13:19:33	APRON	SWR2240 start up is approved.
13:19:36	SWR2240	Start up approved, thank you, SWR2240.
13:19:38	APRON	BAW731Q Apron expect your start up and push back in about three minutes.
13:19:43	BAW713Q	That's copied, BAW713Q.
13:19:48	AFR1855	Ready for taxi, AFR1855.
13:19:52	APRON	AFR1855 taxi via TWY's Mike, Echo and Alpha holding point RWY 28.

13:19:57	AFR1855	Mike, Echo, Alpha holding point 28, AFR1855.
13:20:03	APRON	SWR1300 Apron start up is approved.
13:20:06	SWR1300	Start approved, grüezi, thirteen-hundred.
13:20:27	APRON	And SWR ZN Apron.
13:20:31	SWR ZN	ZN go.
13:20:33	APRON	How long will your run up take, please?
13:20:36	SWR ZN	It takes over twenty to thirty minutes approximately.
13:20:38	APRON	Ok merci.
13:21:14	HBTCD	Zurich Apron, HBTCD, GA sector 4, request taxi.
13:21:18	APRON	HBTCD Apron, grüezi, QNH 1009 stand by for the marshaller.
13:21:26	HBTCD	QNH 1009, waiting for the marshaller, HBTCD.
13:21:37	SWR1104	SWR1104 standing by for start up.
13:21:41	APRON	Station ready for start up say again?
13:21:44	SWR1104	SWR1104 request start up.
13:21:47	APRON	1104 expect your start up in around three to four minutes due to traffic situation.
13:21:57	IBE4377	Ground IBE3477 ready for taxi.
13:22:00	APRON	IBE3477 taxi via TWY's Echo and Alpha holding point RWY 28.
13:22:05	IBE3477	Echo and Alpha, holding point 28, IBE3477.
13:22:25	SWR2240	SWR2240, I93, request taxi.
13:22:28	APRON	SWR2240, taxi via Alpha holding point RWY 28.
13:22:34	SWR2240	Left turn out, Alpha holding point 28, SWR2240.
13:22:37	APRON	H-CD taxi now behind the follow-me to holding point 28.
13:22:40	HBTCD	Taxi to holding point 28, H-CD.
13:22:44	APRON	BAW713Q start and push back is approved now.
13:22:47	BAW713Q	Start and push back approved on B38, BAW713Q.
13:22:52	HBCWD	Apron, HBCWD Echo seven, request taxi to GAC sector one.
13:22:56	APRON	HBCWD Apron, grüezi, behind the Iberia crossing right left, a left turn via Inner and Yankee to GAC sector one.
13:23:04	HBCWD	Behind Iberia left turn via Inner and Yankee to GAC sector one.
13:23:13	SWR022L	Holding short 28, SWR022L.
13:23:16	APRON	SWR022L, TWR118,1, adie.
13:23:20	SWR022L	Adie.
13:23:30	APRON	SWR1104 Apron, start up is approved now.
13:23:35	SWR1104	Start up approved SWR1104.
13:23:47	SWR125K	Apron SWR125K.
13:23:49	APRON	SWR125K Apron grüezi, ja your start up is approved now.
13:23:52	SWR125K	Start up approved, merci.
13:23:57	AFR1855	Ääh...scohh....Apron AFR1855 we mistook we cross RWY.
13:24:02	APRON	AFR1855 affirm you cross RWY 16, hold now position.
13:24:13	AFR1855	Holding position AFR1855.
13:24:20	SWR1300	SWR1300 for taxi.
13:24:28	SWR1300	Apron grüezi SWR1300 for taxi.
13:24:38	AFR1855	Ääh, can you tell us what we have to do now, AFR1855?
13:24:42	APRON	AFR1855 make now a right turn onto TWY Foxtrot but hold short RWY28.
13:24:48	AFR1855	So... make a right turn holding short via TWY Foxtrot RWY28, AFR1855, we're sorry.
13:24:55	APRON	H-WD then join TWY Yankee behind Iberia crossing left right.
13:25:00	HBCWD	Behind Iberia crossing left right ääh to Yankee H-WD.
13:25:04	APRON	SWR2240 contact TWR 118,1 adie.
13:25:07	SWR2240	Adie, SWR2240.
13:25:09	SWR1300	SWR1300 for taxi, F73.
13:25:17	APRON	IBE3477 contact TWR 118,1 adios.
13:25:21	IBE3477	118,1 adios.

13:25:27	SWR1300	SWR1300 for taxi.
13:25:30	APRON	Station ready to taxi, say again?
13:25:32	SWR1300	SWR1300, how do you read?
13:25:35	APRON	1300 read you now about four, stand by, call you back in sequence.
13:25:38	SWR1300	Danke, we tried to call about five times ääh..
13:25:43	APRON	AFR1855 contact now TWR 120,22.
13:25:47	AFR1855	120,22 AFR1855 ääh and sorry again.
13:26:00	APRON	AFL266 Apron start up is approved.
13:26:06	SWR1104	SWR1104 request taxi.
13:26:08	APRON	SWR1104 stand by, call you back in sequence.
13:26:13	APRON	H-CD when ready contact TWR 118,1 adie.
13:26:16	HBTC	118,1 when ready, adie, H-CD.
13:26:19	APRON	SWR88 Apron, grüezi, start and push back approved.
13:26:23	SWR88	Start and push back approved, SWR88.
13:26:25	BAW713Q	Apron, BAW713Q, taxi please.
13:26:28	APRON	BAW713Q, taxi via TWY's Echo and Alpha holding point RWY28.
13:26:33	BAW713Q	Via Echo and Alpha to 28, BAW713Q.
13:26:37	APRON	SWR1300 behind Iberia right turn holding point RWY28.
13:26:42	SWR1300	Behind the Iberia holding point 28 SWR1300, how do you read now?
13:26:46	APRON	I read you now four to five.
13:26:48	SWR1300	Thank you.
13:26:49	APRON	SWR1104 taxi now via Alpha holding point RWY28.
13:26:52	SWR1104	Holding point 28, SWR1104.
13:26:54	APRON	AFR3473 Apron, start up is approved.
13:26:57	AFR3473	Start up is approved, 3473.
13:26:59	SWR125K	SWR125K request taxi.
13:27:03	APRON	SWR125K right turn via Echo and Alpha holding point RWY28.
13:27:07	SWR125K	Right turn all the long way, SWR125K.
13:27:14	THA971	Ep.. äh.. Zurich Apron THA971, good afternoon, bay ääh three three... Bravo three three request push back and start up.
13:27:25	APRON	THA971 Apron start up and push back is approved.
13:27:28	THA971	Start up and push back is approved, THA971
13:27:38	APRON	SWR1300 contact TWR 118,1 adie.
13:27:40	SWR1300	18,1 bye bye, 1300.
13:27:47	APRON	JKK2276 Apron, start up is approved.
13:27:50	JKK2276	Start up approved, 2276.
13:27:53	AFR1855	Apron äh guten Tag again AFR1855.
13:27:57	APRON	AFR1855 taxi straight ahead on TWY Alpha to holding point RWY28.
13:28:02	AFR1855	Straight ahead holding point RWY28, AFR1855.
13:28:10	APRON	SWR1104 contact TWR 118,1 adie.
13:28:14	SWR1104	18,1 good bye, SWR1104.
13:28:34	HBPEX	Zurich Tower HBPEX ääh GA sector one, request taxi.
13:28:41	APRON	Station sector one, say again your call sign?
13:28:45	HBPEX	HBPEX.
13:28:47	APRON	HBPEX confirm VFR flight?
13:28:51	HBPEX	Affirm VFR flight, P-EX.
13:28:54	APRON	Ok I have no flight announcement stand by, call you back.
13:29:09	APRON	SWR168 Apron grüezi start and push back approved.
13:29:13	SWR168	Start and push approved SWR168, guete Tag.
13:29:20	APRON	AFR1855 Apron.
13:29:24	AFR1855	Yes sir.
13:29:26	APRON	Ja, please be aware we have to file out a report because you have

		crossed RWY28 without permission
13:29:28	AFR1855	Yes, we will ääh file a report AFR1855, I'm sorry about this ääh will do it.
13:29:35	APRON	Ok and contact TWR 118,1 good bye.
13:29:38	AFR1855	118,1 AFR ääh 12 ... 1855, ääh sorry about this mistake and ääh bye.

Flughafen Zürich, 25.11.2002

Für die Richtigkeit:

Jürg Suter, Leiter Flight Operations

