



# **Final Report** **by the Aircraft Accident** **Investigation Bureau**

**on the collision on the ground between**

Crossair AG AVRO RJ100, HB-IYX

and

TAM, Brazilian Airlines Airbus A330-200, PT-MVB

on 27 December 2001, 19:39 UTC

Zurich Airport

## Ursachen

Der Zusammenstoss erfolgte, weil die Besatzung des rollenden TAM8071 nicht erkannte, dass die auf der rechten Seite ihres Rollweges stillstehende CRX874 noch nicht vollständig in die *standby for deicing*-Position gerollt war und der zur Verfügung stehende Platz nicht für ein Passieren mit einem Flugzeug von der Grösse eines A330-200 ausreichte.

Zum Zwischenfall kann beigetragen haben:

- Mögliche Ablenkung des für die Hindernisfreiheit auf der rechten Seite zuständigen Copiloten des TAM8071 durch den Frequenzwechsel auf die TWR-Frequenz.

Federal Department of Environment, Transport, Energy and Communications  
Aircraft Accident Investigation Bureau

## Final Report

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)

### Collision on the ground between the aircraft

Owner:	Kevin Ltd., P.O. Box 5211, 1211 Geneva 11
Operator:	Crossair AG, 4030 Basle Airport
Aircraft type:	AVRO RJ100
Nationality:	Swiss
Registration:	HB-IYX
Location:	Zurich Airport
Date and time:	27 December 2001, 19:39 UTC

### and the aircraft

Owner:	TAM, Brazilian Airlines/Linhas Aéreas
Operator:	TAM, Brazilian Airlines/Linhas Aéreas
Aircraft type:	Airbus A330-200
Nationality:	Brazilian
Registration:	PT-MVB
Location:	Zurich Airport
Date and time:	27 December 2001, 19:39 UTC

### General

On the evening of 27 December 2001, the Airbus A330-200 PT-MVB of the Brazilian airline TAM with the ATC callsign TAM8071 was taxiing to runway 28 for a flight to Frankfurt. As it was doing so, a glancing collision occurred with the Crossair AVRO RJ100 HB-IYX, which was waiting to enter the remote de-icing position east RWY28 'RIO'.

### The investigation

The Aircraft Accident Investigation Bureau was informed of the collision on 27 December 2001 at 20:05 UTC by the duty officer at Zurich Unique airport. The investigator arrived at the location of the incident at about 20:50 UTC and opened the investigation. At this time both of the aircraft involved had moved from at the original location at which the collision occurred.

## 1 Facts

### 1.1 Pre-flight history and history

#### 1.1.1 Pre-flight history

In order to prevent excessively restricted capacity at Zurich Airport during snowfall or under other conditions which necessitate de-icing of departing aircraft, the winter of 2001/2002 saw the introduction of the remote de-icing position east (RIO) in addition to the existing remote de-icing position west. In topographical terms this remote de-icing position east was located in the area of by-pass RWY28. The concept behind this was to be able to de-ice departing aircraft with their engines running as shortly before take-off as possible. This introduction was planned by the airport operator, Zurich Unique airport, together with the aircraft de-icing provider SR Technics. During the first winter season, as a trial, the remote de-icing position east was to be made available only to specific aircraft types in the Swissair Group, primarily because space on bypass RWY28 is limited. The remote de-icing position east RWY28 was authorised only for specific aircraft types up to the maximum size of an Airbus A321 or Boeing B757 respectively. Whilst they were in these remote de-icing areas, crews were in contact with the de-icing coordinator on a separate frequency. The remote de-icing position east RWY28 was provided with two eye lines on the tarmac which were each applied on the left-hand side at right angles to the yellow centre line of the taxiway. The purpose of these lines is to enable the pilot to bring the aircraft to a halt when he is precisely on the marker. The first position was marked 'STANDBY FOR DE-ICING' and the second position 'STOP FOR DE-ICING'. De-icing was carried out only at the second position. The line for the 'STOP FOR DE-ICING' was aligned so that an aircraft undergoing de-icing does not blast snow or slush onto the aircraft which is in the 'STANDBY FOR DE-ICING' position. In order to alleviate this blast problem, the preparations for the de-icing season included prohibiting all wide-bodied aircraft from taking off from runway 28 when RIO is active, because such aircraft might direct jet-blast onto the RIO area when turning in from taxiway A onto runway 28.

#### 1.1.2 History

On the evening of Thursday 27 December 2001, flight TAM8071 was scheduled to fly from Zurich via Frankfurt to São Paulo. At about the same time, CRX874 was scheduled to fly from Zurich to London City Airport. The Crossair AVRO RJ100 taxied from stand I 96 via the inner taxiway and taxiway A to the remote de-icing position east (RIO), where it was to be de-iced. Since the remote de-icing area east RWY28 was still occupied by two aircraft, the crew of CRX874 could only taxi part of the way into by-pass area RWY28, which was being used as the remote de-icing position east. The TAM Airbus A330 was de-iced at gate B33 and then taxied via taxiway A to the holding point for runway 28. In the area of the turn-off from taxiway A to the remote de-icing position east, the right winglet of the Airbus A330 collided with the rudder assembly of the waiting Crossair AVRO RJ100. In the AVRO RJ100, which had been waiting to enter the standby for de-icing position with parking brake applied, the crew felt the aircraft vibrate, at which point the commander noticed the Airbus 330-200 taxiing past on the left-hand side. In view of the fact that the wing of the TAM aircraft had grazed the Crossair aircraft, the crew of CRX874 immediately informed Zurich Tower on the appropriate frequency.

The crew of the TAM A330-200 did not notice the glancing collision and were informed by a call on the TWR frequency that they might possibly have been in a collision with another aircraft. The TAM crew then taxied their aircraft back to gate B33.

The crew of the Crossair aircraft also taxied back to the stand.

## 1.2 Injuries to persons

None.

## 1.3 Damage to the aircraft involved

Substantial damaged was found on the Crossair AVRO RJ100 at the transition from the horizontal to the vertical stabiliser; because of this, the aircraft was no longer in an airworthy condition.

On the TAM Airbus A330-200 only scratches were found on the outside of the right winglet. This aircraft was able to begin its scheduled flight after examination by experts from the maintenance company.

## 1.4 Damage to third parties

None.

## 1.5 Persons involved

### 1.5.1 Pilot of TAM Airbus A330-200 PT-MVB

Brasilian citizen, male, born 1960

Licence: Airline Transport Pilot Licence, issued by Departamento de Aviação Civil do Brasil, valid until 1.2.2002

Ratings: A330 PIC / IFR

Flying experience

Total: 7255 h, of which 3076 h on A330

Last 90 days: 240 h, of which 240 h on A330

### 1.5.2 Co-pilot TAM Airbus A330-200 PT-MVB

Brasilian citizen, male, born 1959

Licence: Airline Transport Pilot Licence, issued by Departamento de Aviação Civil do Brasil, valid until 6.3.2002

Ratings: A330 COPI/IFR

Flying experience

Total: 4470 h, of which 1805 h on A330

Last 90 days: 260 h, of which 260 h on A330

1.5.3 Pilot Crossair AG AVRO RJ100  
Swiss citizen, female, born 1957  
Licence: Airline Transport Pilot Licence CH  
Ratings: AVRORJ/BAe146 PiC  
  
Flying experience  
Total: 9536.6 h, of which 2275.8 h on AVRORJ/BAe146  
Last 90 days: 84.5 h, of which 84.5 h on AVRORJ/BAe146

1.5.4 IFR Crossair AG AVRO RJ100  
Swiss citizen, male, born 1977  
Licence: Commercial Pilot Licence CH  
Ratings: AVRORJ/BAe146 COPI  
  
Flying experience  
Total: 562.5 h, of which 460 h on AVRORJ/BAe146  
Last 90 days: 113.4 h, of which 113.4 h on AVRORJ/BAe146

## 1.6 The TAM aircraft

Type: Airbus A330-200  
Characteristics: Two-engined medium- and long-range aircraft, low-wing construction, winglets

### The Crossair aircraft

Type: British Aerospace AVRO 100  
Characteristics: Four-engined short-range aircraft, high-wing construction

## 1.7 Weather

### 1.7.1 General weather situation

It snowed several times during 27 December 2001 and runways and taxiways had to be cleared. According to crew statements, the taxi markings were partially covered by snow or slush. At the time of the glancing collision it was snowing lightly.

### 1.7.2 Weather at the time and place of the accident

#### METAR LSZH 27.12.2002

LSZH 1920z 21008KT 1800 –SN FEW004 BKN010 BKN015 M01/M02 Q1014 WS  
ALL RWY 88290099 TEMPO 0800 SN=

LSZH 1950z 23011KT 2200 –SN FEW005 BKN015 BKN020 M01/M03 Q1014 WS  
ALL RWY 88290099 TEMPO 0800 SN=

**1.8 Navigation ground equipment**

Not involved.

**1.9 Radiocommunications**

According to Appendix No. 2.

**1.10 Airport equipment**

According to the Zurich Unique airport responsible duty officer and both crews, all lighting was operational, the yellow centre lines of the taxiways were partially covered with snow and difficult to see.

**1.11 Flight recorders**

Not analysed.

**1.12 Information on the location of the accident****1.12.1 Accident location**

Turn-off from taxiway A to the by-pass area RWY28.

**1.13 Medical facts**

All crew members involved possessed valid medicals and indicated no restrictions on their capabilities.

**1.14 Fire**

No fire broke out.

**1.15 Possibilities of survival**

No-one was injured.

**1.16 Special investigations**

During the investigation it was found that there was a certain lack of clarity in the agreements between the airport operator and the operator of 'Zurich apron control', 'Zurich unique airport', the aircraft de-icing provider 'SR-Technics', the 'De-icing coordination centre' of the airline Swissair and 'skyguide' air traffic control relating to the operation of the remote de-icing position RWY28 (RIO). Thus, at the time of the incident, because of the trial status of this de-icing position, the only aircraft allowed to be de-iced should have been specific aircraft types from the Swissair operator. Furthermore, no wide-bodied aircraft should have taken off from runway 28, because when they were lining up they could have directed jet-blast onto the RIO position.

At the date of the incident the procedures and limitations agreed between the service providers for the use of RIO 28 were only laid down in form of some verbal agreements and meeting protocols.

## **1.17 Information on organisation and procedures**

### **Taxiing on the apron and taxiways**

During normal operation, aircraft crews are responsible for separation of aircraft on the ground when they are taxiing under their own power. It's a common procedure that ATC keeps taxiing aircraft informed about other aircraft in their area by giving traffic information.

Only in cases of greatly reduced visibility (RVR 600 m or less in the touch-down zones of the instrument approach runways) do the low visibility procedures enter into force; air traffic control is then responsible for separation on the ground. Such conditions did not apply at the time of the collision.

## **1.18 Additional information**

In order to inform its crews about the RIO procedure, among other things, Crossair published a brochure entitled 'Flight Crew Information Bulletin Winter Operation 2001-2002 AVRO RJ'. This bulletin went to all pilots. From this bulletin it is difficult to ascertain the fact that there are two different eye lines at the RIO position, the first position marked HOLD FOR DE-ICING and the second marked STOP FOR DE-ICING. The CMD of CRX874 had no knowledge of these details of the RIO position.

## **2 Analysis**

### **2.1 Technical**

No technical factors were critical in relation to this incident.

### **2.2 Operational**

Under difficult conditions such as snowfall, darkness, wet and partially snow-covered taxiways and runways, pilots must possess particularly good knowledge of taxiing procedures and taxiways and must recall this knowledge before starting to taxi. In the case of taxiing with large aircraft, particular attention must be paid to the wingtips; this is why there must be a clear demarcation of tasks (task sharing) in the cockpit.



### 3 Conclusions

#### 3.1 Findings

- The crews of both aircraft involved possessed airline transport pilots' licences and valid medicals issued by the appropriate authorities.
- Limits concerning crew time, flying time and rest time were complied with.
- At the time of the collision, TAM8071 was in contact with Zurich apron control and was about to switch over to the Zurich TWR frequency.
- Zurich apron control has not given any traffic information to the crew of TAM8074 about the actual position of CRX874
- Due to the weather and lighting situation and the buildings between the control tower and the bypass area RWY28 the Zurich apron air traffic controller had only limited view into the remote de-icing position RWY28.
- CRX874 was in contact with the de-icing coordinator for the remote de-icing position east.
- The CRX874's crew did not have read the actual 'Flight Crew Information Bulletin Winter Operation 2001-2002 AVRO RJ', in which the detailed procedure and the situation with limited space at the remote de-icing position RIO have been described.
- According to the crew statement, TAM8071 was taxiing on the yellow taxiway centre line towards holding point 28.
- The commander (CMD) of CRX874 did not want to taxi any closer to the aircraft which was still waiting between the two positions because of the possibility of it blasting them with slush.
- CRX874 had been at a standstill with its parking brake engaged for more than one minute and was waiting to be able to taxi completely into the standby for de-icing position.
- Fairly major material damage was caused to the AVRO RJ100 HB-IYX; the aircraft was no longer in an airworthy condition after the collision.
- The crew of TAM8071 did not notice the collision.
- There was only paint damage and a few deep scratches in the plastic surface of the right winglet of the Airbus A330-200. After an assessment by the maintenance company which was responsible, it was possible to declare the aircraft airworthy and the scheduled flight was continued after a delay of some two hours.
- The visibility conditions at the location of the collision were difficult because of the wet, partially snow- and slush-covered ground, the light snowfall and the lighting.

- At the time of the collision, no low visibility procedures were in operation.
- The Airbus A330-200, with a wingspan of 60.3 metres, is one of the largest aircraft using Zurich airport.

### 3.2 Causes

The collision occurred because the crew of the taxiing TAM8071 did not realise that CRX874 was stationary on the right of their taxiway and had not yet taxied completely into the standby for de-icing position and that the space available was not sufficient for an aircraft of the size of an A330-200 to pass.

The following factors may have contributed to the accident:

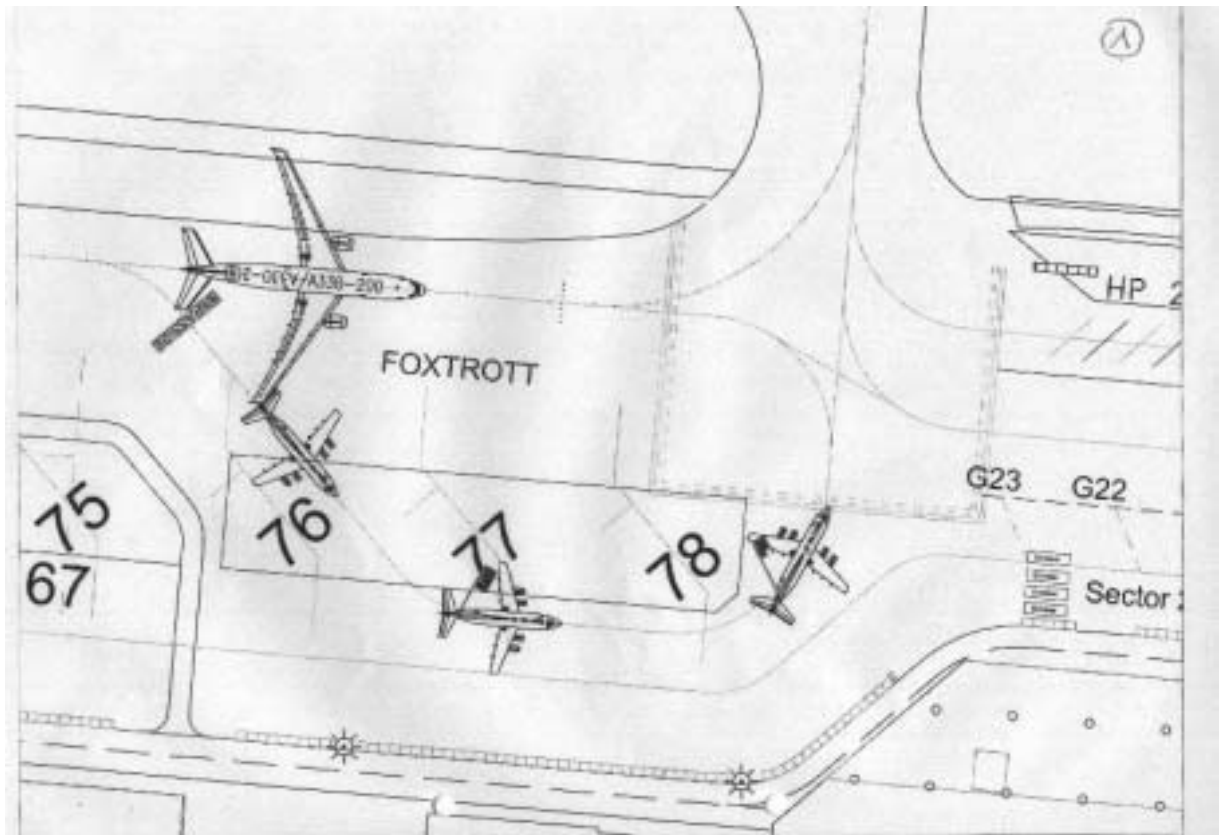
- possible distraction of the TAM8071 co-pilot responsible for ensuring obstacle clearance on the right-hand side, because of the frequency change to the TWR frequency.

Berne, 10 May 2004

Aircraft Accident Investigation Bureau

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Appendix 1



Sketch simulation collision A330-200 vs AVRO RJ100

## Appendix 2

**Protocol ZRH apron 121,75MHz, Thursday 27.12.2001**

UTC	ATC	ACFT
18:27:30		äh, the Crossair 874 is ready for taxi
	<b>Crossair 874 turn left taxi via taxiway inner to the remote de-icing on the holding point 28</b>	
18:27:40		<b>left via inner to the remote de-icing for runway 28, Crossair 874</b>
18:27:50	Lufthansa5495 when clear of the Crossair Saab2000 coming from the left continue to the remote de-icing on the holding point 28	
18:28:00		äh, we follow the Saab then and proceed to the remote de-icing runway28, Lufthansa5495
18:28:10		ground airfrance75 lima good evening fox after the runway 28
	sky..airfrance105 lima apron good aft.. good evening, turn right, taxi via taxiway .... mike to stand charly 03	
18:28:20		turn right mike to charly 03, airfrance105 lima
	Crossair 488 apron guete nabig confirm you are fully deiced?	
18:28:30		Crossair488, correct grüezi

start-up is approved for  
Crossair488

start-up approved  
Crossair488

**TAM8071 apron good evening  
confirm you are fully de-iced?**

18:28:40 **fully de-iced, Sir, TAM8071,  
we are ready**

**thank you, push back and start  
up is approved**

**approved, thank you**

18:28:50 and äh, apron Crossair 3506  
back on your frequency we  
are now ready to taxi again

Crossair3506, taxi to the holding  
point runway 28 and tower 118,1  
byebye

18:29:00 we taxi ahead holding point  
28 118,1 schöne abig ade  
Crossair3506

glichenfalls, merci

18:29:10 Swissair412 is ready for taxi

Swissair412 stand-by short  
call you back

standing-by

apron guete nabig Crossair  
3408 on echo 7

18:29:20 Crossair3408 apron turn left, taxi  
via taxiway.. correction turn left  
stand-by short, airfrance 105 lima  
hold present position

18:29:30 we hold present position  
airfrance 105 lima

Crossair3408 continue left turn  
via echo and alfa to stand  
india91

18:29:40 left via echo and alfa to stand  
india91, Crossair3408

18:29:50 Crossair586 you're in sequence  
behind äh, äh RJ85 coming out  
of the de-icing, contact tower  
118,1 byebye

18:30:00 sequence behind the RJ,  
11341?, Crossair586 byebye

Crossair3408 the new stand for  
you hotel89, continue echo and  
alfa

18:30:10 echo and alfa, actually we  
don't need a stand we've  
been advised to taxi to  
holding position 28

18:30:20 ah, thank you

Lufthansa5495, next right to the  
remote de-icing and coordinator  
136,85

next right de-icing report  
36,85 for the coordinator  
thankyou, Lufthansa5495

18:30:30 apron helios547 we are  
ready for taxi runway16

**Crossair874 hold present  
position**

18:30:40 **Crossair874 hold present  
position**

**hold present position, 874**

18:30:50 apron 547 helios, we are ready for taxi runway16

Helios547 turn right taxi via taxiway echo hold short runway28

right on echo and hold short of 28 Helios547

18:31:00 Airfrance 105lima, Helios Boeing737 is doing a oneeighty to taxiway echo, when clear continue straiht ahead via inner and mike to stand charly03

18:31:10 ähh rrrr we proceed ähh inner charly03, Airfrance105lima

Swissair412 turn left taxi via taxiway inner to the remote de-icing holding point 28

18:31:20 left and inner remote to holding de-icing 28 Swissair412

18:31:30  
18:31:40 CRX 3516, apron guete nabig confirm you are fully deiced?

18:31:50 CRX3516, we are on stand India 94, we are not deiced yet

18:32:00 but confirm you are going to the remote deicing position?

Affirmative, CRX3516

thank you

CRX3598, guete n'abig, confirm you are fully deiced?

18:32:10 we need two minutes, CRX3598  
confirm you are going to the remote position?  
Negative, äh, we are in the de-icing procedure, and there, äh, I think it last's about 3 minutes

18:32:20 ah, no problem, give a call when ready  
roger

18:32:30

18:32:40 CRX3408 you'r number one  
roger  
apron guete n'abig SWR668 we are ready alpha 02 start and push remote deicing

18:32:50 SWR668, confirm you'r going to remote-deicing  
charly charly

18:33:00 thank you, stand-by, call you back  
SWR668  
**Zürich, TAM8071, now we are ready for taxi**  
**TAM8071, taxi via taxiway inner to holding point runway 28**

18:33:10 **via inner taxiway to holding point 28, TAM8071**

18:33:20 Helios547 hold present position  
will hold position, Helios547



Helios574, contact ground 121,9

121,9, good-bye, 547

18:33:30 CRX488 for taxi

CRX488, behind Embraer  
company coming from the left  
taxi to holding point  
runway 28 behind

18:33:40 behind traffic ahead runway  
28 Crossair 488

CRX3408 contact tower 118,1  
bye bye

118,1, bye bye, CRX3408

18:33:50

18:34:00

18:34:10 apron, SWR210, do you have  
a new estimate for us?

SWR210, negative, standby

18:34:20 **TAM8071, you are recleared  
now straight ahead via link and  
alpha to holding point runway 28**

18:34:30 **linki and äh then alpha to  
holding point runway 28,  
TAM8071**

18:34:40 **correct**

18:34:40 **CRX874, continue to the remote  
deicing on the holding point  
runway 28**

**we continue to the remote  
deicing holding point 28,  
CRX874**

18:34:50 SWR412 for you hold present  
position again

holding position, SWR412

18:35:00 apron grüezi again,  
CRX3784 on RIO

CRX3784, contact now  
tower 118,1, bye bye

18:35:10 adieu tschüss, 784

apron, Swissair sächs-null-  
sächs?

Swissair sächs-null-sächs?

18:35:20 ja, wie gsehts bi eus us?

You are now about number three  
push in about 3 minutes

18:35:30 okay, danke

18:35:40 Crossair488 confirm you are now  
on the holding point 28

right, CRX488

merci, contact tower 118,1

118,1, ade

18:35:50 SWR606 push back and start-up  
approved

push and start approved,  
SWR606, danke

18:36:00 CRX3558 apron guete n'abig,  
confirm you're fully deiced?



18:37:40  
18:37:50  
18:38:00  
18:38:10  
18:38:20

18:38:30 SWR412 behind the TAM  
airbus 330 continue to the  
remote deicing

18:38:40 roger, behind the TAM to  
remote de-icing, SWR412

18:38:50  
18:39:00  
18:39:10  
18:39:20 **TAM8071 contact tower 118,1  
byebye**

**118,1, TAM8071,  
dankeschön**

18:39:30 apron guetenaaben SWR26  
we are on alfa five .. äh

SWR26 apron guetenaabig  
stand-by

18:39:40 äh any idea about the delay

expect a half an hour

ou, SWR26

18:39:50 Crossair3558 we request taxi

Crossair3558 behind Swissair  
airbus coming from the left taxi  
to the holding point runway  
28 behind

18:40:00 behind the Swissair airbus  
taxi holding point runway 28,  
Crossair3558

SWR606 ready for taxi

SWR606 taxi via taxiway inner  
to the remote de-icing on the  
holding point 28

18:40:10 inner remote 28, SWR606  
CRX3622 do you have an idea about our delay?

18:40:20 CRX3622 stand-by short

18:40:30 CRX3622 you are about number 13  
copied, is there a possibility to de-ice on our stand and to be earlier, CRX3622?

18:40:40

18:40:50 CRX3622, for this question please äh, call your handling agent  
wilco, thank-you  
SWR418 apron guetenaabig are you fully de-iced?

18:41:00 affirmative  
SWR418 start-up is approved  
thank-you, SWR418 start-up is approved  
ground CRX3890 ready taxi

18:41:10 CRX3890 turn left via taxiway Alpha Juliett and Inner to the remote de-icing on the holding point runway 28

18:41:20 left alpa juliett inner to the remote de-icing ähh on the holding point runway 28, CRX3890

18:41:30 SWR412 contact de-icing coordinator 136,85

wilco, 13685 bis spöoter,  
SWR412

18:41:40 bis nachher

..pron guete nabig SWR306  
alpha 10 what about our  
delay?

SWR30. 306 expect minimum  
half an hour you are number 14

18:41:50 äh is it for remote de-icing or  
at the gate?

äh for a remote de-icing

ok merci

18:42:00 Zürich apron DLH5495 out of  
de-icing short of 24.. 24, 28

18:42:10 DLH5495 taxi to the holding  
point 28 contact tower 118,1  
bye bye

taxi holding point RWY28  
and 1181 byebye DLH5495

18:42:20

18:42:30 apron SWR668 what's our  
number?

SWR668 stand-by

18:42:40 SWR668 for you number  
sequence seven

thank-you

18:42:50 CRX3598 fully de-iced  
request start-up

CRX3598 start-up is approved

start-up approved, CRX3598

18:43:00 SRW606 we have to wait here?

SWR606 affirm

roger

18:43:10

18:43:20

18:43:30 ..pron gutentag CRX557 on Foxtrott

18:43:40 CRX557 taxi straight ahead second left via taxiway inner to stand India 96

straight ahead second left India 9.. India96, CRX557

18:43:50 CRX3558 confirm you are on the holding point 28?

affirm, ähh, behind the Airbus from the Swissair, CRX3558

thank-you, contact tower 118,1 byebye

18:44:00 eighteen one, byebye CRX3558

18:44:10

18:44:20

18:44:30 SWR418 is ready for taxi

SWR418 stand-by

18:44:40

18:44:50

18:45:00

18:45:10

18:45:20 SWR418 turn right taxi via taxiways Echo and Alpha to the holding point RWY28

right turn Echo Alpha holding point 28, SWR418

18:45:30

18:45:40

18:45:50

18:46:00

18:46:10 SWR210 start-up is approved

start-up approved, SWR210

18:46:20 confirm its for RWY28,  
SWR210?  
that's correct

18:46:30  
18:46:40  
18:46:50  
18:47:00 Springbok275 apron  
go ahead please  
good evening äh, expect take-off time  
at time15  
thank-you, expecting take-off  
time 15 Springbok275

18:47:10 yes and I call you back around äh  
on the hour  
thank-you

18:47:20  
18:47:30 CRX3598 request taxi  
CRX3598 turn left twice again via Inner  
Juliatt and Alpha to the holding point  
RWY28  
left and left via Inner Juliatt  
and Alpha to holding28,  
CRX3598

18:47:50  
18:48:00  
18:48:10

18:48:20 apron 3890  
...CRX3890 go ahead  
roger, to confirm it's äh  
going to be aftern nine for  
our take-off, still 28?

18:48:30 that's correct.  
schön für was es alles  
uusnahme git, hä  
gseeth so us.

18:48:40 CRX3598 at the stopbar hold position  
due to sequencing  
at the stopbar will hold  
position CRX3598



18:48:50  
18:49:00  
18:49:10  
18:49:20  
18:49:30 CRX3598 when clear of the next SWR  
airbus coming from the left follow it to  
the holding point 28

18:49:40 when clear of the next SWR  
airbus from the left we 20:49:50  
following...(unverständlich)  
CRX3598

SWR418 you are number one

thank-you , SWR418

18:50:00  
18:50:10  
18:50:20  
18:50:30  
18:50:40 apron SWR658R wie lange  
geht es noch?

18:50:50 SWR658R you're the next in the row  
but expect five minutes

okay, SWR658R

apron good evening  
cobena720

18:51:00 LBC720 apron good evening on tarmac  
turn right taxi via taxiways Echo and  
Mike to stand Tango 58, look out for a  
marshaller for final parking position

18:51:10 after RWY28 to turn now  
right via Echo then Mike to  
Tango 58 Albanian 720

18:51:20 apron SWR26 sorry to bother  
you do you have more  
information concerning our  
delay?

18:51:30 SWR26 sorry about expect äh half  
an hour

once more half an hour, my  
god

18:51:40 SWR210 ready for taxi

SWR210 turn right taxi via taxiways  
Echo and Inner to the holding point  
RWY28 initially hold short intersection  
E8

18:51:50 right on Echo holding point  
28 will hold short E8, SWR4.  
correction äh 210

äh SWR26 sorry but 20  
minutes ago we were number  
five and you already told us  
half an hour delay 20 minutes  
ago

18:52:10 SWR26 yeah that's correct but we had  
a collision between two aircraft at the  
holding point 28

a, I see

18:52:20 SWR606 follow the BAe146 in front to  
the remote de-icing

18:52:30 roger, follow the BAe, SWR1.  
äh 606 to the remote

18:52:40 CRX3890 for you also follow the SWR  
in front to the ,remote de-icing

following, SWR .mm de-icing  
our aircraft, mm.. 3890

18:52:50 LBC720 you are all the way number 1,  
opposite aircraft is giving way

thank you, copied, 720

18:53:00  
18:53:10 just to confirm SWR418 still  
with apron

18:53:20 SWR418 yes äh, remain on my  
frequency

Ja

18:53:30 SWR418 and äh report when approaching holding point 28

affirm, copied, 418

apron good evening  
Alitalia570 on 28 vacated

18:53:40 Alitalia570 apron buona sera turn right taxi via taxiways Echo and Mike to stand Charly 05

right via Echo Mike Charly 05  
Alitalia570

18:53:50 SWR210 when clear of the opposite BAe146 continue on the inner taxiway

When clear of opposite 146 continue on the inner,  
SWR210

18:54:00 Alitalia570, at the stop bar short of intersection E7 hold position due to opposite traffic

18:54:10 äh, copied, stop on E7  
Alitalia570

apron SWR418

18:54:20 SWR418 go ahead

Do you have any idea how long it takes to the holding point 28?

Sorry, I don't know, 3 aircraft before they had a collision

18:54:30 yeeah, ok, so I see one aircraft is moving now

correct, and the second is following

ground Springbok275

18:54:40 Springbok275 go ahead

request start for slow taxi  
to RWY16

18:54:50 roger, start-up is approved an äh I call  
you back for the push

start approved and standing  
by for push, Springbok 275

18:55:00 apron Albania720

Albenar720 go ahead

18:55:10 please can you send us  
some help because we have  
not any line in sight

ok, I send you a marshaller

thank you very much

you are welcome

18:55:20

18:55:30 Alitalia570 opposite SWR airbus is  
joining taxiway Inner when clear  
continue via Echo and Mike

..tinue Echo and Mike,  
Alitalia570

18:55:40

18:55:50

18:56:00

18:56:10

18:56:20

18:56:30 apron CRX868

CRX868 go ahead

18:56:40 äh, just to confirm äh is äh,  
remote de-icing area west in  
use or do we have to äh de-  
icing at äh at the stand?

18:56:50	Crossair 868 you have to de-icing At the stand, your departure RWY is 16	ok, merci
18:57:00	SWR418 contact tower 118,1 byebye	1181 good bye SWR418
18:57:10		
18:57:20	CRX3598 contact tower 118,1 byebye	1181 adie, CRX3598
18:57:30		<b>apron TAM8071</b>
	<b>TAM8071 taxi straiht ahead straight ahead second to the right via taxiway Inner to stand Bravo33</b>	
18:57:40		<b>straight ahead and Inner to Bravo33, TAM8071</b>
18:57:50	SWR658R start-up is approved and I call you back for the push in about two minutes	start approved, SWR658R thank you
18:58:00	SWR668 start-up is approved and I call you back for the push	start-up approved and standing by for the push, SWR668
18:58:10		
18:58:20		
18:58:30		<b>apron schöne nabig CRX874 äh taking Juliett, stopbar</b>
18:58:40	<b>CRX874 guete naabig again turn left taxi via Alpha and Yankee to stand Foxtrott71</b>	

**Left Alpha Yankee to  
Foxtrott71, 874 schöne  
naabig, wiederhöre**

18:58:50      **ja ich hoffe ihne ä no en schöne  
abig**

**hoff ich au**

....(unverständlich) taxi  
behind the follow-me car

18:59:00      Albanian720 follow the follow-me car

end of transcript

M.Gautschi, 20.5.2003  
überarbeitet 9.10.2003, Martin Gautschi