

Final Report of the Aircraft Accident Investigation Bureau

concerning the incident (Airprox)

between CRX667 and HB-FLK

on 27th May 2001

over Grenchen Airport

FINAL REPORT

AIR TRAFFIC INCIDENT REPORT (ATIR)

AIRPROX (NEAR COLLISION)

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)

PLACE/DATE/TIME Over Grenchen Airport
27 May 2001 17:08 UTC

AIRCRAFT

1. CRX667 Saab2000 (SB20) HB-IZC Crossair
Bilbao-Basle
2. HB-FLK Pilatus Porter (RC-6T) Skydive-Grenchen
Grenchen - Grenchen

ATC UNIT Zurich Area Control

AIR TRAFFIC
CONTROLLERS RE-W Radar Executive West
RP-W Radar Planner West

AIRSPACE C

HISTORY

On Sunday, 27 May 2001, CRX667 was on a scheduled flight from Bilbao to Basle. The First Officer, who was the pilot not flying (PNF), made contact with the Zurich West Sector on the frequency 135.675 MHz at 17:00:38 UTC and was allocated the route KONOL–BALIR–LUMEL by the latter. CRX667 was cleared to descend to FL 180 and, a little later, to FL 160. Shortly before KONOL, it was cleared direct to BALIR and to descend to FL 150. CRX667 reached FL 150 at 17:07:00 and, one minute later, was informed by the Radar Executive West that a parachute drop aircraft was on a convergent heading at the same altitude. The Radar Executive simultaneously instructed CRX667 to turn immediately to the left onto heading 270°. The pilot confirmed this instruction and informed the Radar Executive that he had visual contact with this aircraft. Questioned by the Radar Executive West about the altitude of this aircraft, the pilot of CRX667 replied that he had already passed it but had had to descend 300 ft to ensure safety. The pilot later reported that the other aircraft had an altitude of approximately FL 152 when crossing and that he himself had received a Traffic Advisory (TA) on his Traffic Conflict Alert System (TCAS). The CMD also added that the weather had been good and that there had, in his estimation, been no immediate danger of collision.

HB-FLK, a Pilatus Porter owned by the Grenchen parachute club, was deployed for the whole day over Grenchen on Sunday, 27 May 2001, as the parachute drop aircraft. After parachuting had taken place from an altitude of FL 140 during the whole of the day, the parachute control planned a drop height of FL 160 for this last flight of the day. The pilot had ten parachutists on board and, at 16:51:46 UTC when he was passing 3000 ft, he made contact with Berne Arrival after many earlier contacts on this day and requested, on this occasion, FL 160 as the dropping height. Berne instructed the pilot to climb to FL 100 in the climbing zone as usual. For the further climb, Berne had to obtain the clearance from the Zurich Radar Sector West Planner. A few minutes later, HB-FLK received the instruction to continue climbing to FL 160. The pilot was to report when he was ready to drop the parachutists. The climb took place completely without problems under the best visual flight conditions. Shortly before reaching the final altitude, several parachutists noticed an aircraft that was approaching from the right. They shouted this observation to their pilot. At that moment, however, the latter was busy with radio conversations because, in order to drop parachutists, he had to obtain permission from three different units. The pilot had not seen the approaching aircraft. It was only when he looked back to the left that he saw the aircraft which had crossed below him. Because the Air Traffic Controller in Berne could also follow the incipient conflict situation between CRX667 at FL 150 and HB-FLK climbing to FL 160 on his radar screen, but did not have CRX667 on his frequency, the only measure which remained open to him was to briefly delay the jump clearance for the parachutists. He informed the pilot that there was another aircraft beneath him. It was only when the pilot of HB-FLK had reported that the conflict situation had been obviated that Berne Arrival provided him with the drop and descent clearance with the requirement to report when he again passed FL 100 in descent. As the aircraft passed FL 100, the pilot reported this as requested and signed off with thanks for the good service which had been provided by Berne during the whole of the day.

FINDINGS

- At the time of the incident, CRX667 was in radio contact with Zurich Radar Sector West on the frequency 135.675 MHz.
- HB-FLK was in radio contact with Berne Arrival on the frequency 127.325 MHz.
- CRX667 was flying under instrument flight rules and was at FL 150.
- HB-FLK was flying under visual flight rules and was climbing to FL 160.
- Berne Arrival had to obtain clearance from the Zurich Radar Sector West Planner in order to permit HB-FLK to climb to FL 160.
- Both aircraft were in Class C controlled airspace.
- CRX667 was equipped with a TCAS-TA.
- The pilot of CRX667 had visual contact with HB-FLK.
- Before the crossing incident, the pilot of HB-FLK had no visual contact with CRX667. He only saw CRX667 when the latter had already crossed under him.
- CRX667 obtained traffic information from the Radar Executive West with respect to HB-FLK.
- The Radar Executive West attempted to have CRX667 carry out an avoiding manoeuvre by turning onto heading 270°. The pilot did not execute this turn to the left because he feared he might lose visual contact with HB-FLK during the turn.
- The pilot of CRX667 caused his aircraft to descend by 300 ft shortly before the crossing with HB-FLK in order to ensure a safe crossing manoeuvre.
- The CMD of CRX667 estimated the danger of collision as not being very high.
- The pilot of HB-FLK had to obtain three different drop clearances. (One from Berne Arrival, a second from the Grenchen control tower and a third from parachute control).
- The passengers on board HB-FLK observed the incipient conflict situation and drew the pilot's attention to it.
- The pilot of HB-FLK obtained traffic information from Berne Arrival about the aircraft crossing below him.
- The Radar Executive West position was occupied by an Air Traffic Controller under training (Trainee) who was supervised by a licensed Air Traffic Controller (Coach).

ASSESSMENT

Regulations

Clearance from air navigation services is necessary for parachute jumps from class C and D airspace. For jumps with the Grenchen aerodrome as the landing site, the following regulations must be observed:

1. As a rule, the flight controller of the Grenchen parachute club informs the director of Zurich Area Control and the Air Traffic Controller in the Berne control tower during the morning of the planned parachute jumping.
2. In each case, a certain transponder code is allocated for the whole day to the parachute drop aircraft by Berne Arrival (HB-FLK was allocated A6377).
3. Immediately after taking off from Grenchen, the parachute drop aircraft makes contact with Berne Arrival on the frequency 127.325 MHz and makes its parachute drop programme known.
4. In the case of jumps from altitudes above FL 100, Berne Arrival must, in turn, obtain clearance from the Zurich Radar Planner West. (Upper limit for clearance in the Berne area of responsibility is FL 105).

Parachute drop aircraft are regularly instructed to carry out their climbing flight in the climbing zone and to leave this zone in such a way that the intended parachute drop altitude is reached above the jump location. The climbing zone is a reserved climbing space for Biel/Grenchen Para in the north-western part of the Berne area of responsibility.

These regulations were correctly observed on Sunday 27 May by the Grenchen parachute club and by the pilot of the HB-FLK parachute drop aircraft.

Procedure

Before despatching the parachutists, the pilot of HB-FLK had to obtain three clearances:

- One from the Grenchen control tower, because the latter is responsible for the Grenchen control zone up to 5000 ft.
- A second from Berne Arrival for the airspace above 5000 ft.
- A third from parachute control of the Grenchen parachute club.

These three clearances were correctly obtained by the HB-FLK pilot.

Co-ordination

For his last drop flight of the day, the HB-FLK pilot intended to climb to FL 160. For this reason, the Berne Arrival Air Traffic Controller had to obtain corresponding clearance by telephone from the Radar Planner West. He did this at 16:58:26, quoting FL 160, transponder code A6377 and gave information about a climb in the climbing zone. Instead of a reply, the Radar Planner enquired back about the aircraft in the Grenchen region with the transponder code A6371, whose altitude information was

not shown on his radar monitor. The Berne Air Traffic Controller answered that it was a hot-air balloon, which would not climb higher than FL 100. The Radar Planner expressed his thanks with the words "OK, ja, merci [OK, Yes, Thank you]" and the Berne Air Traffic Controller terminated the call.

The Berne Arrival Air Traffic Controller subsequently interpreted the co-ordination discussed with the Radar Planner in such a way that the latter had given clearance to FL 160. He then instructed the pilot of HB-FLK to climb to FL 160. A short time later, the Air Traffic Controller in Berne was relieved by a colleague, with whom he carried out a correct traffic hand-over procedure, with reference also made to the climbing HB-FLK parachute flight.

Even while the Zurich Radar Planner West was co-ordinating by telephone with the Air Traffic Controller in Berne, a colleague was already standing behind him in order to relieve him as Radar Planner. This colleague obtained from him the oral information that the transponder code A6377 referred to the parachute drop aircraft from Grenchen and that this aircraft was cleared to FL 140. The relieving Radar Planner West ascertained, and also heard it as such, that his predecessor had provided the same information to his Radar Executive (Trainee). The latter then placed a control strip in her control board with the notice "Para-Grenchen FL 140". This procedure was confirmed in this form by the supervising Air Traffic Controller who was monitoring the trainee as coach. The Radar Planner West then left his workplace and his successor undertook his job as usual.

Traffic procedure

The new Radar Planner West suddenly became aware of a Short Term Conflict Alert (STCA). He noticed on his radar monitor that CRX667 was still at FL 150 but that the parachute drop aircraft HB-FLK was also in the vicinity of FL 150, climbing. The Radar Planner then immediately made his Radar Executive aware of the incipient conflict. Because the Air Traffic Controller, who was under training, had excessive demands placed on her by this unexpected situation, she made the Radar Planner aware of the problem for a second time, together with a request to do something. The coach then took over the further traffic arrangements. Unfortunately, however, approximately 30 seconds were lost in the meantime before this change was completed. The coach immediately provided CRX667 with traffic information and attempted to separate it from HB-FLK with the instruction to execute an immediate left-hand turn onto heading 270°. The CRX667 pilot had in the meantime, however, established visual contact with HB-FLK and avoided this aircraft by descending 300 ft. The two aircraft finally crossed with a lateral separation of 0.8 NM and an altitude difference of between 500 and 700 ft.

The incipient conflict situation should have been recognisable earlier by the Radar Executive West. HB-FLK, which was climbing at approximately 500 ft/min, passed FL 143 at 17:05:49. Despite possible radar tolerances, it should have been recognisable from this time that HB-FLK would not remain at FL 140 but was climbing further. The two aircraft did not cross until approximately two minutes later. The position in Radar Executive West was occupied by an Air Traffic Controller under training (Trainee). She was being monitored by a licensed Air Traffic Controller (Coach) sitting beside her. During such on the job training, it is usual and necessary for other possible traffic constellations and problems to be discussed with trainee Air Traffic Controllers, in addition to the usual traffic evolution. Because, at the time of the inci-

dent, there was little traffic and it was clear to the Radar Executive that HB-FLK would only climb to FL 140, the coach was provided with the possibility of discussing a different traffic problem with the trainee. This involved an aircraft which had been requested to descend to FL 90 in the Basle airspace EKRIT. This teaching discussion was obviously the reason why neither the Trainee nor the Coach observed the fact that HB-FLK, passing FL 140, continued to climb. It was only when the Radar Planner gave his warning that the two Radar West Executives again concentrated on this aircraft.

The relieved Radar Planner West could not subsequently remember which drop height he had agreed for HB-FLK with the Air Traffic Controller in Berne and which he had subsequently communicated to his Radar Executive. According to his statement, he was still only directing his attention to the unknown aircraft A6371 and he was not really aware that the request from Berne was for FL 160. It is possible that in his subconscious mind, he was still fixed on FL 140 as this was how he had experienced the drop operations during the previous two hours.

Technical

Berne Tower (TWR) has no direct access interface for changing data on the Bright Display. Any desired changes must currently be input via the communications system (SYCO) in Zurich. If Berne Arrival had had an access interface, the label for the parachute drop aircraft HB-FLK would have been additionally supplemented with the cleared altitude, in this case FL 160. This change to the label would, in all probability, have been apparent to the Radar Executive West in Zurich on his radar monitor and might possibly have clarified the misunderstanding in good time.

CAUSE

The incident occurred due to a misunderstanding of coordination between the Berne Arrival Air Traffic Controllers and the Zurich Radar Planner West, as a result of not applying standard phraseology.

RECOMMENDATIONS

1. For all coordinations within the national territory, standard phraseology shall be applied in english,
2. A direct access interface for entering label datas should be created for Berne TWR.

Bern, 5. February 2003

Aircraft Accident Investigation Bureau

Transcript of Original Tape Recording

Subject **ATIR CRX667 of May 27, 2001**

Call Signs	667	→	CRX667	→	Crossair
	58TG	→	CRX58TG	→	Crossair
	479	→	CRX479	→	Crossair
	708	→	SWR708	→	Swissair
	5773	→	SWR5773	→	Swissair
	ILUBI	→	I – LUBI		
	OEFBI	→	OE – FBI		
	3467	→	IBE3467	→	Iberia
	451	→	CFE451	→	Flyer
	W	→	West Sector Radar		
	W-RP	→	Telephon West Sector		Radar-Planner
	BE	→	Telephon Berne Tower		

Frequency Zurich ACC West Sector Radar / W 135,675 MHz

The signer certifies the completeness of the present transcript

skyguide
Flugsicherungsbetrieb Zürich



ZZD

sig. Nicky Scherrer

From	To	Time UTC	Communication	Observation/various
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667	W	17:00:38	„Züri, grüezi“, the CRX667 is passing flight level 208 for flight level 180 on course KONOL	
W	667	:44	CRX667, „Züri“, identified, KONOL, BALIR, LUMEL, flight level 180	
667	W	:49	KONOL, BALIR, LUMEL, flight level 180, CRX667	
W	708	:01:01	SWR708, contact Reims Radar on 134 decimal 4, „a-dieu“	
708	W	:04	134 decimal 4, good bye, SWR708	
W	ILUBI	:08	India Bravo India, descend to flight level 150	
ILUBI	W	:13	descending 150, India Bravo India	
W	667	:56	CRX667, descend to flight level 160	
667	W	:59	flight level 160, CRX667	
W	OEFBI	:02:17	Oscar Bravo India, due to traffic, you have to fly standard routing	
OEFBI	W	:22	Oscar Bravo India	
5773	W	:03:06	Zurich, good evening, SWR5773, descending to flight level two zero zero, direct Bravo Lima Mike	
W	5773	:12	SWR5773, Zurich, identified	
5773	W	:17*	* clicks on mike
W	3467	:22	IBE3467, contact Geneva on 128 decimal 9, good bye	
3467	W	:30	128 decimal 9, IBE3467, bye	
W	667	:04:02	CRX667, direct to BALIR, descend to flight level 150	
667	W	:06	flight level 150 to BALIR, CRX667	
W	ILUBI	:12	India Bravo India, descend to flight level 120	
ILUBI	W	:15	descending 120 to LUMEL, India Bravo India	
W	ILUBI	:17	India Bravo India, contact Basle Arrival on 119 decimal 35	
ILUBI	W	:26	11935, India Bravo India	

From	To	Time UTC	Communication	Observation/various
W	5773	:29	SWR5773, for sequencing, keep high speed	
5773	W	:31	maintain high speed, SWR5773, thank you, Sir*	*says Sir instead of madam
451	W	17:04:41	Radar, good evening, CFE451, climbing to 110	
W	451	:45	CFE451, Zurich, identified, climb to flight level 240	
451	W	:50	climb to flight level 240, CFE451	
W	5773	:05:45	SWR5773, descend to flight level 130, rate two thousand feet a minute	
5773	W	:52	okay, we are cleared flight level 130, two thousand feet or more, SWR5773	
58TG	W	:07:16	„Züri, gueten'Obe“, CRX58TG, flight level 180	
W	all	:22	station calling?	
58TG	W	:27	„Züri, gueten'Obe“, Crossair Tango Golf, flight level, -58TG, flight level 180	
W	58TG	:32	CRX58TG, Zurich, you are identified	
479	W	:43	Zurich Radar, good evening, CRX479, flight level 210	
W	667	:46	CRX667, look out for a para“draw“, -- paraairport at 150 opposite, turn left heading 270 immediate*	*survey controller
667	W	:55	for CRX667, confirm?	
667	W	:59	affirm, we have the traffic insight, we turn left, 270	
W	667	:08:01	at which altitude is he?	
667	W	:15	we have crossed traffic and we had to descend three hundred feet, CRX667	
W	667	:21	667, roger, at which altitude was the traffic, at 15?	
667	W	:26	sorry Sir, I couldn't read you, you want us to continue to heading 270, or?	
W	667	:30	negative, continue inbound to LUMEL, descend to flight level 120	
667	W	:35	to LUMEL, we descend level 120, CRX667	
W	5773	:56	SWR37, correction, SWR5773, continue with the rate, call Arrival on 1180,good day	
5773	W	:09:05	118 decimal 0, SWR5573,bye-bye	
W	451	:07	CFE451, call Reims 1334, good bye	

From	To	Time UTC	Communication	Observation/various
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451	W	:10	roger, Reims, 134 decimal 4, CFE451	
W	667	:16	CRX667?	
667	W	:17	go ahead, 667	
W	667	:20	this para aircraft, at what, at which altitude was it, 150, confirm?	
667	W	:24	it was two hundred feet ---, it was at level 152, when we crossed it, so we descended by two to three hundred feet to avoid and we both had it on TCAS, and we had a traffic alert as well on the TCAS	
W	667	:40	roger, do you file a report?	
667	W	:42	oh, it's okay	
W	667	:46	okay, thank you, call Basle Arrival 11935, good day	
667	W	:48	good bye	

- end -

W-RP	BE	16:58:26	„ich lose“	
BE	W-RP	:28	„dr Para Gränche zum letschte Mal am hütige Tag uf „ flight level 160	
W-RP	BE	:36	„welle Code hät dää?“	
BE	W-RP	:37	6377 „im“ climbsector	
W-RP	BE	:39	und dr 6371, isch dä bi Dir?	
BE	W-RP	:41	das isch e Heissluftballon, ja, bis hundert	
W-RP	BE	:42	okay, ja, merci	
BE	W-RP	:44	tschau	
BE	W-RP	17:07:47	Bärm?	
W-RP	BE	:48	Was macht dr 6377 auf 155?	
BE	W-RP	:51	Eigentlich Para auf 160. Er ist anscheinend bewilligt worden von Deinem Sektor	
W-RP	BE	:57	140 hat's geheissen	
BE	W-RP	:58	ah, bei mir steht 160, und das sei koordiniert	

From	To	Time UTC	Communication	Observation/various
W-RP	BE	:08:01	aha	
BE	W-RP	:01	ich „seh“ den Crossair, ich sag ihm Bescheid	
W-RP	BE	:03	okay, er muss nicht droppen im Moment	
BE	W-RP	:06	nein, er droppt noch nicht, er steigt	
W-RP	BE	:08	okay	
BE	W-RP	:09	okay	

-end-

Belp, 15. Juni 2001

ZBHC

Transcript of Tape-Recordings of May 27, 2001 (No. of pages 2)

Subject ATIR HBFLK

Abbreviations FLK = HBFLK
and Callsigns APP = Berne Approach

Frequency 127.325 MHz = Berne Approach

Time UTC in Hours, Minutes and Seconds

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

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Flugsicherung Bern-Belp



Peter Sommer, Chief TWR/APP Berne

To	From	Time	Communications	Observation
APP	FLK	16:51:46	Berne Approach HBFLK for the last time this day, passing 3000ft and requesting FL 160 if possible	
FLK	APP		LK Arrival identified, to the climb sector initially 100	
APP	FLK		initially 100 climb sector HLK	
FLK	APP	16:58:50	HLK climb to FL 160 report ready	
APP	FLK		cleared to climb to FL 160 report when ready HLK merci vielmau	
FLK	APP		ok.	
APP	FLK	17:08:03	LK ready to drop	
FLK	APP	17:08:10	HLK Berne?	
APP	FLK		ready to drop	
FLK	APP	17:08:14	negativ äh, stand by for dropping clearance, traffic below	
APP	FLK	17:08:20	now we are clear of traffic	
FLK	APP	17:08:22	roger HLK, dropping and descend are approved, report passing 100	
APP	FLK		drop approved and next when passing 100 LK	
APP	FLK	17:11:40	HLK below 100 merci vielmau für dä tolli service hütt und mir mache fürabe, merci	
FLK	APP		HLK gärn gscheh und ä schöne Abe	
APP	FLK		merci	

-end-

Src
ACC

CRX667
146
255

148
17:08:48

150
17:08:36

148
17:08:24

6377
153

Absetzflugzeug
HB - FLK

155
17:08:48

157
17:08:24

GRANICHEN

154
17:08:00

155
17:08:12

147 148
17:06:48

150
17:07:12

152
17:07:36

156
17:08:11

Falsche
Radarinformation

146
17:06:54

149
17:07:00

151
17:07:24

153
17:07:48

LUTIX

150
17:07:59

143
17:06:13

140
17:05:01

145
17:05:25

142
17:05:13

150
17:07:48

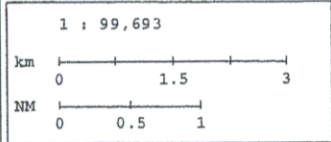
150
17:07:36

150
17:07:24

Heissluftballon
max FL100

6371

*** 150
17:07:12



Src
ACC

Falsche
Radarinformation

Absetzflugzeug
HB-FLK

Heissluftballon
max FL100

