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Federal Aircraft Accident Board

Final Report Nr. 1789 of the Federal Aircraft Accident Board

concerning the incident (Airprox)

CRX 3443 / RMC 2032

on 18 February 2002

8 NM NE RILAX

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 Air Accident Investigation Bureau on 14 April 2003.

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-COLLISION)

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

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

PLACE/DATE/TIME 8 NM NE RILAX, 18 February 2002, 11:50 UTC

AIRCRAFT CRX 3443, Airbus A319, HB-IPZ, Crossair
Prague - Zurich

RMC 2032, Hawker H25B, G-XRMC,
RMC Group Services Ltd
Stuttgart - Zurich

ATC UNIT Approach Control Office Zurich

AIR TRAFFIC RE (Radar Executive North)

CONTROLLERS APE (Approach Controller East)

AIRSPACE C

History

The two aircraft involved in this incident were flying, almost simultaneously, from the north-north-east with Zurich as their destination airport, into the North sector of ACC Zurich controlled airspace. On its first contact, CRX 3443, an Airbus A319, indicated level flight at FL 160 at a speed of 300 KIAS and heading towards RILAX.

At this time, RMC 2032, a Hawker H25B, was approximately 5 NM north of CRX 3443 and shortly before this, flying in from Stuttgart, it had concluded its climb and was in level flight at FL 130. This aircraft was also flying towards RILAX; its speed was increasing in accordance with its flight status.

The air traffic controller (ATCO) responsible for the North sector, who was simultaneously performing the functions of a radar executive (RE) and a radar planner (RP), observed this development on his radar monitor. He originally assumed that the approach sequence indicated to him by the approach planning tool CALM (**C**omputer **A**ssisted **A**pproach and **L**anding **M**anagement), namely CRX 3443 – RMC 2032, would be able to be maintained. He therefore initially left CRX 3443 at its relatively high speed and allowed it to continue to descend to FL 150.

After the first call from RMC 2032 and the observed rapid increase in speed of this aircraft, which was accompanied by a clear reduction in speed of CRX 3443, RE noticed that his initial concept regarding the approach sequence was compromised and therefore decided to reverse the approach sequence. Accordingly, he allowed RMC to continue flying at its high speed and simultaneously instructed CRX 3443 to reduce speed to 240 KIAS. According to his assumption, these measures would lead to RMC 2032 overtaking CRX 3443 in the vicinity of RILAX and obtaining a more southerly position.

A little later, CRX 3443 received clearance from RE to descend to FL 140 and was transferred to approach control. Seconds later, RE also instructed RMC 2032 to contact approach control. This aircraft accordingly maintained its clearance for FL 130.

A few seconds later, CRX 3443 first reported to the East sector approach controller (APE) and immediately received clearance to descend to FL 110 and an instruction to fly direct to IF 14 (a waypoint on the final approach axis of runway 14). Once again, a few seconds later RMC 2032 also reported for the first time to APE that it was at FL 130.

APE immediately realised that the clearance to descend he had granted to CRX 3443 would soon no longer guarantee the regulatory radar separation. RMC 2032, now clearly flying faster, had in the meantime approached CRX 3443, now flying ahead of it at a distance of approximately 2 NM.

On the basis of this realisation, he instructed CRX 3443 to halt its descent. Since the Crossair aircraft did not respond to his first two calls, the ATCO turned to RMC 2032 and instructed this aircraft to turn left onto a heading of 120° and to reduce speed to 210 KIAS. After an initial delay, the Hawker H25B finally executed this instruction, after it had reported that it had the aircraft flying in front of it in sight.

CRX 3443 then also reported to APE and stated that it had noticed the English Hawker on its **A**irborne **C**ollision **A**voidance **S**ystem (ACAS). APE now instructed CRX 3443 to descent to FL 70. However, its crew rejected this clearance, referring to the **R**esolution **A**dvisory (RA) which had occurred in the meantime and stated that they were initiating a climb.

During this critical phase, the two aircraft approached each other to within a lateral separation of 0.6 NM and a simultaneous altitude difference of 200 FT.

Subsequently, the two aircraft continued their approach to Zurich under radar vectoring.

Both the ATC and the CMD of CRX 3443 reported this incident in an ATIR.

FINDINGS

- Both aircraft were flying in Class C controlled airspace.
- Both aircraft were flying according to instrument flight rules and were in uninterrupted radio contact with the competent ATC unit. Both aircraft were being managed by the radar executive (RE) North of ACC Zurich until just before the incident and at the actual time of the incident by the approach controller East.
- The two aircraft in question were flying on link routes to RILAX.
- At 11:44:32, CRX 3443 first called on the RE North frequency as follows: "Züri Radar Grüezi, CRX 3443, maintaining FL 160, speed is three hundred". The aircraft was immediately granted clearance to descent to FL 150.
- At 11:45:48, RMC 2032 first reported on the same frequency. It received no further instructions. The Hawker H25B was flying some 5 NM behind the CRX 3443.
- At 11:46:04, RE instructed CRX 3443 to reduce its speed to 240 KIAS.
- At 11:47:08, RE gave CRX 3443 clearance to descent further to FL 140 and then immediately instructed it to make contact with APE.
- At 11:47:19, RE also instructed RMC 2032 to make contact with APE. At this time, both aircraft were flying at a distance of about 2.7 NM one behind the other; according to the radar display, CRX 3443 indicated a ground speed of 300 KT, whilst RMC 2032 was flying at 360 KT. At this time, CRX 3443 was still approximately 8.8 NM away from RILAX and RMC 2032 indicated a distance of 11.5 NM to this waypoint.
- At 11:47:29, CRX 3443 reported as follows to APE: "Arrival, guete Tag, CRX 3443 is a A319 with GOLF down to 140" and received in response: "CRX 3443, Arrival grüezi, set course to IF14, expect vectors to the ILS14, descend to FL 110".
- At 11:47:49, after CRX 3443 had confirmed the clearance which had been issued, RMC 2032 also reported to APE for the first time.
- At 11:48:00, APE issued the following instruction to CRX 3443: "CRX 3443 stop descent at FL 140". Its pilots did not react. At the same time, on the ATC radar monitor, there appeared a visual alarm indication which signalled an impending danger of conflict (STCA – **Short Term Conflict Alert**).
- At 11:48:05, APE repeated the instruction: "CRX 3443 stop descent at FL 140". This call also remained unanswered, so 5 seconds later
- at 11:48:10, APE asked: "CRX 3443?". This time the Crossair aircraft responded with: "Go ahead, 3443!". However, an exchange of messages did not immediately result with this aircraft. Instead, the APE
- at 11:48:15 instructed the RMC Hawker as follows: "RMC 2032, turn left heading 120 and speed two ten". Then a brief dialogue started between the RMC 2032 and the ATCO, in the course of which the cockpit crew of RMC 2032 queried the heading instruction they had received, with reference to the Crossair Airbus flying just in front of them, which they had in sight and which would possibly soon to descend through their flight level. According to Mode C transponder, at this time CRX 3443 was indicating FL 139. Finally, RMC 2032 confirmed that it was executing the brief instruction received, now on heading 110°.
- At 11:48:56, CRX 3443 reported as follows: "CRX 3443, we have the traffic just below two hundred, behind". APE ATC now issued the following instruction: " Yes, CRX 3443, the traffic has you in sight, descend now to flight level 70, I told you, - I called you before, to stop at level 140, but you didn't give me any answer".

- In the subsequent dialogue between CRX 3443 and the ATCO the CMD of CRX 3443 reported that he had just received an ACAS RA with a request to climb, which he was obeying and could not therefore comply with the clearance to descend to FL 70 which he had just received. A little later, CRX 3443 reported that it had reached FL 140.
- This averted the risk of conflict. Both aircraft were then brought by APE with radar vectoring to the runway 14 instrument landing system (ILS) and continued their approach to Zurich.
- From the information in the CALM automatic logging system it was possible to ascertain that FL 130 was entered for RMC 2032 at 11:45:58 in the corresponding TACO/CALM field (**T**ower **A**pproach **C**ommunication **S**ystem). Two seconds later, at 11:46:00, FL 140 was entered for CRX 3443. It was further possible to ascertain from this log that the approach sequence relating to these two aircraft remained unchanged during the period in question, i.e. CRX 3443 – RMC 2032. On entering the Zurich control area, the aircraft were reported with a time gap of 1:40 minutes. The investigator was also able to determine that no entry of speed in the corresponding TACO/CALM field was made for either of these two aircraft during the critical phase.
- The North sector ATCO claimed at the time of his interrogation that the rapid increase in speed of RMC 2032 after it had reached cruising altitude of FL 130 urged him to reverse the approach sequence by allowing RMC 2032 to fly on at the high speed it had achieved and simultaneously instructing CRX 3443 to reduce speed to 240 KIAS. According to his assumption this aircraft would have overtaken CRX 3443 in the vicinity of RILAX or somewhat later. He did not enter the high speed of RMC 2032 in the CALM because this aircraft remained on his frequency for only a very short time and the process of querying its speed and then entering this in CALM would have taken too much time. Furthermore, shortly before he had had to handle another time-consuming route coordination for two Crossair aircraft ex Basle towards Frankfurt. This led to the fact that he was rather behind in dealing with his continuing tasks. He did not deliberately neglect to change the approach sequence in CALM. Rather, he presumably assumed that APE itself would notice this sequence change on the basis of the situation analysis which would take place after the transfer. It is unclear whether the chronological (RTO – **R**equested **T**ime **O**ver) or the actual geographical position of the aircraft is decisive for the entry in the CALM.
- At the time of the incident, there was moderate traffic of rather high complexity in the ACC North sector.
- The North sector of ACC Zurich was being operated according to the Single Manned Operation Procedure (SMOP), i.e. the ATCO on this sector had to perform the tasks of a radar planner in addition to those of a radar executive.
- Both aircraft were transferred from ACC North sector to approach East sector with proper vertical separation.
- At the time of his interrogation, the East sector approach controller claimed that he had routinely consulted the CALM at the time of the first call from CRX 3443. He had indeed realised that the two aircraft in question were planned to approach with a gap of one to two minutes in the sequence CRX 3443 – RMC 2032, but he had not perceived the entered flight levels (FL 140 for CRX 3443 and FL 130 for RMC 2032). At this time too, the RMC 2032 which was flying behind had not yet become visible on the radar range set and been stored by him. He realised the potential conflict only shortly afterwards, when RMC 2032 reported to him.

The approach controller also stated that after a second unsuccessful call to CRX 3443 (with the instruction to stop at FL 140 the previously arranged descent to FL 110) he had decided to instruct RMC 2032 to take avoiding action by ordering a left turn, in order to achieve lateral separation. The decision on the left turn (instead of a right turn) was

made *"rather spontaneously"*. In the retrospective a right turn would have been more appropriate.

However, in a later statement, the approach controller claimed, that the decision for a left turn was based on the circumstances in respect of time and in accordance with the prevailing wind conditions.

He also claimed in this later statement: *"it was not my duty to verify both aircraft before issuing descent clearance to the first one"*.

In the view of the approach controller, the following factors contributed to this incident: a higher FL of CRX 3443 flying in front, according to CALM (contradiction of the instructions), two unsuccessful calls and a request to CRX 3443 to stop the descent, excessive speed of RMC 2032, without this being indicated in the CALM (contradiction of the instructions).

- From the very beginning of the conflict until it reached its peak the approach controller had radio communications with only these two aircraft.
- At the time of his interrogation, the CMD of CRX 3443 stated for the record that since the terrorist attacks on civil aviation on 11 September 2001 Swissair regulations stated that the cockpit doors must be closed and locked throughout the flight. This was the case on this flight. This precautionary measure means that all communications between the pilot and the cabin crew had to be conducted by telephone.

The CMD of CRX 3443 also said that shortly after receiving clearance to descend to FL 110 they had received a telephone call from the cabin crew, which he had answered as pilot non flying (PNF). This call had been announced by the extremely loud buzzer. The conversation lasted only a few seconds, during which time the ATC had been switched off on his communication set. Normally in such cases he would ask the F/O as pilot flying (PF) to also monitor ATC closely. In this case this did not happen, because he probably assumed that his F/O would have understood that the cabin wished to speak to the cockpit and that the latter should therefore automatically monitor ATC more closely.

In any case, shortly after concluding that conversation with the cabin, he realised that an aircraft was flying just behind and about 1000 FT below them and that its flight level would soon intercept theirs if their descent continued. Shortly thereafter there was a call from ATC which he answered immediately; however, no further instructions were given.

The CMD further stated that they had received neither an ACAS Traffic Advisory (TA) nor an ACAS RA up to reception of the clearance to descent to FL 70.

According to the CMD's assessment, in the critical conflict phase – after reception of the clearance to descend to FL 70 – both a rapid descent and a rapid climb would have been possible in flight operation terms, with equal degree of difficulty. In accordance with the procedures in force they would have obeyed the ACAS RA, with the request to climb.

- The CMD of the Crossair arranged for the Cockpit Voice Recorder (CVR) of CRX 3443 to be removed and analysed after landing.
- According to the radio log, the pilots of RMC 2032 expressed concern because of possible wake turbulence after they had received the instruction from APE ATC to turn left onto a heading of 110°. Moreover, both pilots explained in their written comments that they had the aircraft flying in front continuously in sight during the conflict phase and that in their assessment the risk of collision was very low at the beginning.
- RMC 2032 (G-XRMC) was not equipped with ACAS.
- Upper wind at FL 140 approximately 8 NM north of RILAX at 11:50: 290-310°; 15-20 KT.

- According to the ICAO Doc 4444 ATM/501 § 8.7.3.1 the following has to be enforced when applying radar separation: "*Radar separation shall only be applied between identified aircraft when there is reasonable assurance that identification will be maintained*".

ANALYSIS

Air traffic control

Systems/procedures

Computer Assisted Approach and Landing Management - CALM: CALM is an approach planning tool which calculates the optimal approach sequence taking into account the current radar position, the arrival route (STAR) and the respective aircraft performance data.

Its objective is to avoid holdings by facilitating the early issue of speed instructions. Several instructions from different hierarchical levels of Skyguide govern the details. The system was introduced in ATC Zurich in two stages in the course of 2001 and has been fully operational since 3 December 2001.

Single Manned Operation Procedure – SMOP: as a result of the crisis in civil aviation since the terrorist attacks of 11 September 2001 and the resulting essential cost saving measures, Skyguide management had decided to introduce SMOP on en route sectors, i.e. control sectors operated in this way are no longer manned by one radar executive and one radar planner, as was previously customary; both these functions are performed by a single ATCO. To this end, Skyguide has issued instructions which among other things limit traffic volume, require that particular weather situations be taken into consideration and oblige the shift manager to monitor traffic loading continuously.

At the time of the incident, the North sector of ACC Zurich was being operated throughout the day according to SMOP.

On the occasion of his interrogation, the ATCO responsible, as RE North, stated for the record that he did not in fact see any connection between solo operation of his sector and the present case, but that with this type of operation delays may occur in handling the work if a short-term accumulation built up. This was the case at the time in question.

The operation of an en route control sector in ACC Zurich according to SMOP is associated with an increased risk, even if supporting measures are taken, as they were in this case. Dual manning of an en route sector has the invaluable advantage that all the benefits of team resource management (TRM) are available.

On 13 December 2001 an airprox occurred in the same control sector (North), in which SMOP played a considerable role (DLH 5436, CRX 508, CRX 304).

Procedures for the application of radar separation

As a rule, no clearances shall be issued which may lead to a separation infringement.

The approach controller in charge knew that he had to expect the two aircraft in question with a gap of one to two minutes. Based on this he should have been aware that when issuing descent clearance to the higher flying aircraft through the flight level of the lower flying aircraft the existing vertical separation would be infringed. In this situation the only alternative to the loss of vertical separation would be the application of radar separation. However, radar separation can only be applied between identified aircraft.

Air traffic controllers

RE ATCO: the North sector air traffic controller was actually in radio contact with CRX 3443 for just 2:36 minutes and with RMC 2032 for 1:31 minutes. Consequently his possible actions were very limited, above all with regard to issuing and monitoring the execution of speed instructions, especially as the preceding air traffic control unit was allowed to feed in approaching aircraft without any limitation on speed. He could readily assume that his colleague in approach control would carry out the situation analysis which must be performed under all circumstances before assuming radar vectoring of the two aircraft. However, his failure to take specific coordination measures, e.g. not entering a speed into CALM which deviated from the norm and non-compliance with flight level (FL) allocation with reference to the approach sequence, did indeed contradict the relevant Skyguide instructions. Nonetheless it must be stated, that on the one hand, because of a previous time-consuming coordination, the RE ATCO had hardly enough time available, and on the other hand he was attempting, in the short time during which he was in contact with the two aircraft, to make the best of the situation by initiating a sequence change to provide for an ideal traffic flow.

Calculations have shown that if the difference in speed between the two aircraft had remained the same, CRX 3443 would have been overtaken by RMC 2032 about 6 NM south of RILAX.

APE ATCO: the approach controller knew that he was to expect two aircraft in quick succession. Hereby he omitted to ensure identification of the aircraft to be controlled prior to providing radar service, in order, on this basis, to ensure the prescribed minimum radar separation. It would have been easy to select the necessary range setting, by a simple operation on the **I**ntegrated **C**ontroller **W**orkstation (ICWS – radar monitor), in order to be able to identify both aircraft concerned simultaneously. Or a glance at the auxiliary monitor, which is additionally provided at each working position, would likewise have allowed this identification of both aircraft.

Subsequently, the APE ATCO did in fact immediately detect the conflict, but the measures he took to minimise the risk of collision were inappropriate and even counter-productive. His two calls to CRX 3443 were made 5 seconds apart. On the successful third call, the clearance to descend should have been emphatically withdrawn, e.g. by:

“CRX 3443 STOP YOUR DESCENT IMMEDIATELY, TRAFFIC BELOW AT FL 130!”.

Two seconds after this third call, according to the Mode C transponder display, the Crossair aircraft was at FL 142 and its rate of descent was approximately 1500 FT/MIN. It is highly probable that this would have avoided any separation violation, or the violation would have been merely marginal.

Instead of this, after this third, successful call to CRX 3443, the APE ATCO turned to RMC 2032 and instructed it to make a left turn to heading 120°. This was done with the intention of achieving lateral separation. At this time the two aircraft had a lateral separation of about 1.7 NM. Unfortunately, this measure turned out to be inappropriate to defuse the conflict. At this time, RMC 2032 was on a slightly more westerly course than CRX 3443, so the headings of the two aircraft were diverging. By issuing an instruction to turn left, which the RMC Hawker executed after an initial delay, it was foreseeable that this aircraft would approach even closer the airbus flying in front and would eventually intersect its heading axis. This is what in fact happened.

Thus it is also explicable why it was only after the heading vectors of both aircraft were converging that the CRX 3443 ACAS calculated a conflict point and on this basis was able to trigger an ACAS alarm.

In any event, in this case a right curve would have been more promising than the left turn instruction which was issued.

Aircrew

CRX 3443: examination of the CVR by the investigator shows that the cabin crew of CRX 3443 had actually entered into telephone communication with the cockpit just before the first unsuccessful call by APE ATC. The CMD of CRX 3443, who had accepted this call as PNF, should, in the interest of optimal crew resource management (CRM), have explicitly transferred responsibility for communication with ATC to the F/O, even if this telephone conversation was expected to last for only a few seconds.

Whilst the cockpit is conducting telephone conversations with the cabin crew, the volume of the cockpit loudspeaker is automatically reduced markedly in order to prevent feedback. In the present case, the CMD also switched off the ATC frequency on his audio control panel (ACP) during the above-mentioned brief conversation, in order to be able to conduct that conversation with the cabin without interference.

The F/O as PF probably did not notice the first two calls from ATC because he was absorbed in handling the aircraft and observing the impending conflict. It is therefore understandable why the first two ATC calls were not noticed either by the CMD or by the F/O.

CAUSE

The incident is attributable to the fact that:

- The North sector air traffic controller failed to take important coordination measures, because of a short-term overload owing to the fact that he had to handle the sector without assistance of a second controller.
- The approach controller issued descent clearance to CRX 3443 without ensuring identification of both aircraft to be controlled in order to provide radar separation on this basis.

The following factors contributed to the incident:

- The approach air traffic controller's application of inappropriate measures to minimise the risk of collision.
- The lack in reaction of the pilots of CRX 3443 to the ATCO's first two calls.

SAFETY RECOMMENDATIONS Nr. 283 - 284

283. The Federal Office for Civil Aviation should arrange for en route control sectors **always** to be dual-operated, i.e. by one radar executive and one radar planner respectively. Thus en route control sectors should never again be operated with only one air traffic controller.
284. The Federal Office for Civil Aviation should arrange for all air traffic controllers to practise emergency scenarios, systematically and regularly, both in theory and in practice (in the simulator), with particular reference to the quickest possible re-establishment of the required separation once it has been violated. In this context, the greatest attention should be paid to the use of appropriate phraseology.

MEASURES TAKEN

The Federal Office for Civil Aviation has since banned SMOP until further notice (a precautionary measure after the mid-air collision over Ueberlingen on 1 July 2002).

By means of a service order, the management of skyguide has announced that in accordance with an amendment to the letter of agreement (LoA) with Stuttgart all Zurich arrivals from Stuttgart are released 10 NM before the line of responsibility (LoR) for a speed reduction to MIN 210 KT.

Berne, 21st December 2005

**FEDERAL AIRCRAFT
ACCIDENT BOARD**

André Piller, President

Tiziano Ponti, Vicepresident

Ines Villalaz-Frick, Member

Transcript of Original Tape Recording

Subject **Airprox CRX3443 of February 18, 2002**

Call Signs	3443	→	CRX3443	→	Crossair
	3653	→	CRX3653	→	Crossair
	3583	→	CRX3583	→	Crossair
	3215	→	CRX3215	→	Crossair
	2032	→	RMC2032	→	Readymax (by PIL) Romeo Mike Charlie (by ATC)
	1050	→	MGX1050	→	Montenegro
	APE	→	Zurich Arrival East Sector		

Frequency Zurich Arrival East Sector / APE 120.750 MHz

The signer certifies the completeness of the present transcript

skyguide
Flugsicherungsbetrieb Zürich

ZZD

sig. Nicky Scherrer

To	From	Time UTC	Communication	Observation/various 2
APE	3443	11:47:29	Arrival, „guete Tag“, CRX3443, is a A319 with GOLF down to 140	
3443	APE	:34	CRX3443, Arrival, „grüezi“, set course to IF14, expect vectors to the ILS14, descend to flight level 110	
APE	3443	:41	present direct to IF14, cleared down to level 110, expecting vectors, CRX3443	
APE	2032	:49	Zurich Arrival, this is RMC2032 with GOLF, and we're a H S twenty five and we are flight level 130 for RILAX	
3443	APE	:48:00	CRX3443, stop descent at flight level 140	
3443	APE	:05	CRX3443, stop descent at level 140	
3443	APE	:10	CRX3443?	
APE	3443	:12	go ahead, 3443	
2032	APE	:15	Romeo Mike Charlie 2032, turn left heading 120 and speed two ten	
APE	2032	:23	speed two ten and left heading ..., turn heading?	
2032	APE	:27	Romeo Mike Charlie 2032, turn left heading 120	
APE	2032	:32	ah, negative, we have traffic in our, sort of eleven o'clock, „descending through“ level	* unclear voice
2032	APE	:38	Romeo Mike Charlie 2032, turn now left heading 110 immediately please and keep the traffic in sight	
APE	2032	:44	roger, left 110, traffic in sight, maintaining 130	
APE	3443	:51	CRX3443, we have the traffic just below, two hundred behind	
3443	APE	:56	yes, CRX3443, the traffic has you in sight, descend now to flight level 70, I told you, - I called you before, to stop at level 140, but you didn't give me any answer	
APE	3443	:49:07	so, it didn't reach us, what to 70, you said?	
3443	APE	:12	CRX3443, affirm, descend to level 70	
APE	3443	:15	that's negative, it's a RA warning, - not -, we have to climb, climbing away, CRX3443	
3443	APE	:22	CRX3443, roger	
2032	APE	:24	RMC2032, do you have the traffic in sight?	
APE	2032	:27	affirm, 2032, and we are concerned about wake turbulence	
2032	APE	:32	roger	
APE	3443	:33	levelling off at 140, CRX3443	

To	From	Time UTC	Communication	Observation/various 3
3443	APE	11:49:38	roger	
3215	APE	:40	CRX3215, hold at SAFFA	
APE	3215	:42	SAFFA and hold, CRX3215	
3583	APE	:44	CRX3583, turn right heading 250	
APE	3583	:47	turning right 250, 3583	
1050	APE	:50	MGX1050, turn left heading 110	
APE	1050	:52	turning left heading 110, MGX1050	
3583	APE	:55	CRX3583, speed two ten, contact Final 125 32	
APE	3583	:59	two ten, 25 32, bye	
APE	3443	:50:05	okay, and the CRX3443 is presently..., clear of conflict	
3443	APE	:10	CRX3443, fly now heading 230 and descend to flight level 70	
APE	3443	:13	right heading 230, down to level 70, for 3443	
2032	APE	:17	RMC2032, turn now right heading 230	
APE	2032	:21	right heading 230, RMC2032	
APE	3443	:56	and CRX3443, confirm, descending to 70, - on level 70, on a heading 230	
3443	APE	:51:02	CRX3443, affirm, descend to flight level 70, heading 230	
APE	3443	:06	okay, wilco, CRX3443	
2032	APE	:07	RMC2032, turn right heading 260, descend to flight level 100	
APE	2032	:14	heading 260, descending to flight level 100, RMC2032	
3443	APE	:29	CRX3443, turn right heading 240, descend five thousand feet, QNH1020	
APE	3443	:36	right heading 240, cleared five thousand feet, QNH1020, CRX3443	
2032	APE	:42	RMC2032, descend to five thousand feet, QNH1020	
APE	2032	:46	five thousand, 1020, RMC2032	
APE	1050	:54	MGX1050, maintaining heading 110	
1050	APE	:56	MGX1050, cleared ILS14	
APE	1050	:59	cleared ILS14, MGX1050	

To	From	Time UTC	Communication	Observation/various 4
3443	APE	11:52:31	CRX3443, I will take you slightly through the localizer in order to give you two more miles, and expect around 22 miles now	
APE	3443	:38	that's perfect, CRX3443	
3443	APE	:41	and CRX3443, very sorry about that before, but I tried to call you to stop descend at flight level 140 twice and you didn't give me any answer, after you have called me already on Arrival	
APE	3443	:53	I didn't, - I didn't reach you, just one second, the callsign, and then I called you back, I didn't hear you again, and then , I don't know what happened	
3443	APE	:53:01	roger	
2032	APE	:02	RMC2032, turn right heading 280 and speed two ten as advised	
APE	2032	:07	further right 280 and speed two ten, RMC2032, and I was concerned, „at this mess of world“, that we were turning left immediately in the wake turbulence of the preceding Airbus	
3443	APE	:19	CRX3443, turn left heading 110, descend to four thousand feet, cleared ILS14	
APE	3443	:25	left heading 110, cleared four thousand and cleared ILS14, CRX3443	
2032	APE	:30	RMC2032, to confirm, speed now 210 knots	
APE	2032	:35	roger, we are reducing us two ten	
APE	3653	:41	Arrival, „grüezi“, CRX3653, 140 descending 120, speed two forty and we have information GOLF	
1050	APE	:49	MGX, - sorry, say again the callsign	
APE	3653	:53	it's CRX3653	
3653	APE	:56	call you back	
1050	APE	:57	MGX1050, contact Tower 120 22	
APE	1050	:54:02	120 22, MGX1050, bye	
3215	APE	:04	CRX3215, continue on the present heading, speed minimum clean	
APE	3215	:07	present heading, minimum clean, CRX3215	
3653	APE	:10	CRX3653, fly heading 280, vectors to the ILS14, speed 210 knots	
APE	3653	:16	280 heading, vectors 14, speed 210 knots, CRX3653	
2032	APE	:22	RMC2032, turn left heading 260	
APE	2032	:26	260, 2032	

To	From	Time UTC	Communication	Observation/various 5
?	APE	11:54:29	CRX....	
3215	APE	:53	CRX3215, descend to five thousand feet, QNH1020	
APE	3215	:58	down five thousand, - five thousand on 1020, CRX3215	
2032	APE	:55:02	RMC2032, turn left heading 170, cleared ILS approach runway 14, leave five thousand feet on the ILS	
APE	2032	:08	170, to the ILS14, RMC2032	
APE	3443	:56:26	CRX3443 is established at speed one eighty	
3443	APE	:29	CRX3443, and for my information, I guess you will file a report	
APE	3443	:38	okay, just, - just to learn about it, it's quite interesting and concerning our radio D F	
3443	APE	:43	roger, so, you will not file any report?	
APE	3443	:48	yes, we do	
3443	APE	:49	okay, thank you, contact Tower 120 22, no further speed restrictions, bye-bye	
APE	3443	:51	thanks anyway, bye-bye	

- end -

19d

Src
AFN

Analysis: atir crx3443 of february 18, 2002 Time [UTC]: 18.02.2002 11:43:35



△EBAGA

△HERRI

0123
180

⊙SUL

360
CRX3583
183 RIL
S

350
RMC2032
130 RIL
S

5.0 NM
+4400 ft
169°

380
CRX3443
174 RIL
M

△REUTL

300
DLH2026
159 FHA
UL

△LEBSO

△WATER

△EBNI

△EMYL

005

0021
035

△USETI

0021
041

△RSUT

△LORTA

△WINGA

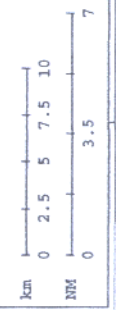
360
CRX3534
193 MIM200
11

△HEUSE

⊙MENGEN

⊙SAULA

1 : 398,771



⊙DONAUESCH.

RILAX

Name: nicky scherrer sg-zzd Eval Date: 06.03.2002

Analysis: atir cirx3443 of february 18, 2002 Time [UTC]: 18.02.2002 11:47:21

Src
APN



△MOFAN

△LEBSO

△MATOR

△FBIHI

△BMKIL

△DORTK

360 RMC2032
130 RIL
S
300 CRX3443
150 RIL
M

210 DLH362
230 M
11
320 CRX
226
11

△USETI

△HEUSE

*** 0021
a39

*** 0021
a41

330 CRX3583
110 RIL
DONAUSCH.
330 CRX514E
190 LOK220
11

340 CRX50C
231 LOK230
11

△RILAX

△TITIX

△SAFFA

△ROMIR

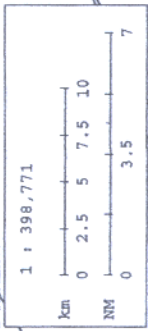
2.7 NM
+2000 ft
192°

65

45

260 MGL450
056 SAF
M

Name: nicky scherrer sq-zzd Eval Date: 06.03.2002



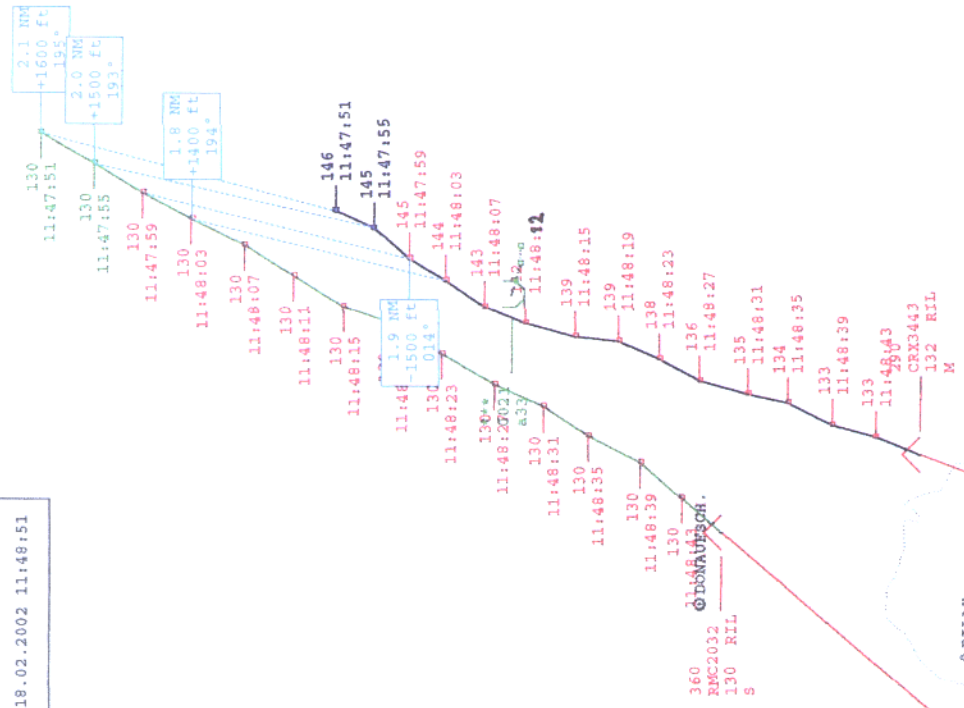
154



Analysis: ATIR CRX3443 18.2.2002 Time [UTC]: 18.02.2002 11:48:51

Src
APN

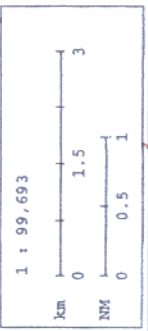
Name: Franz Fischbach ZZY Eval Date: 26.02.2002



0021
sd1

360
RRC2032
130 RIL
S

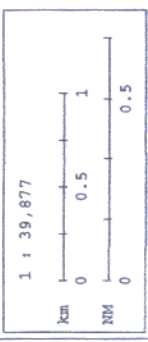
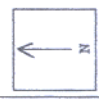
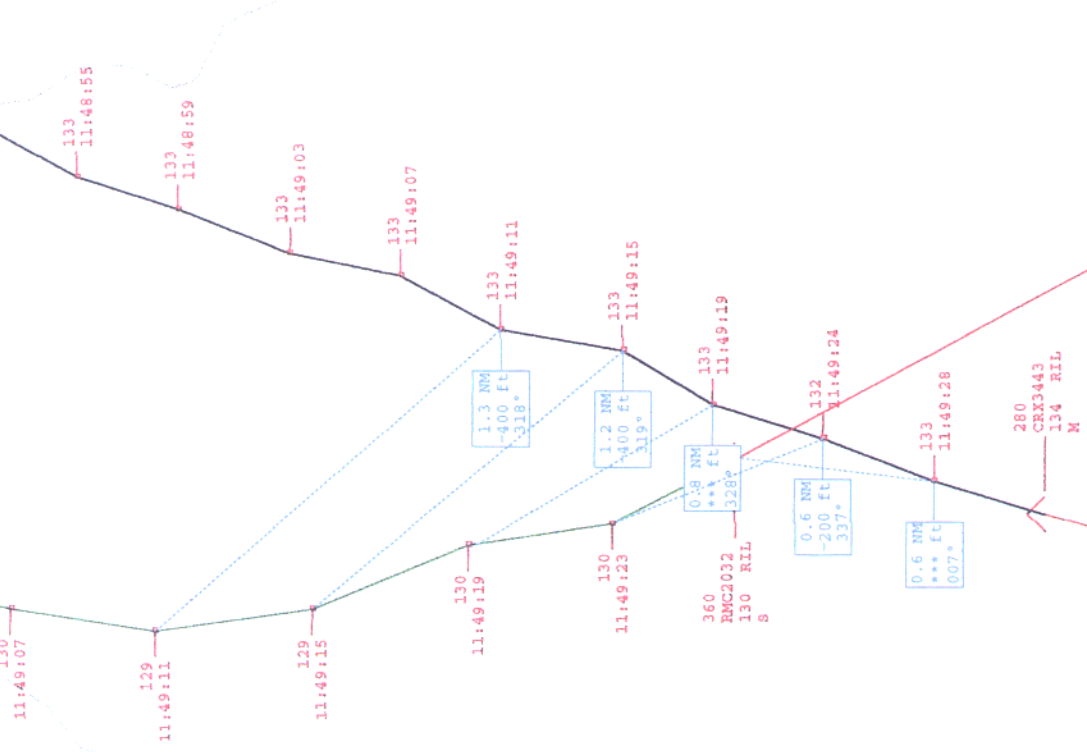
ARILAX



199

SIC
APN

Analysis: ATIR CRX3443/RMC2032 18.2.2002 Time [UTC]: 18.02.2002 11:49:32



Name: Franz Fischbach ZZY Eval Date: 21.02.2002