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Aircraft accident investigation bureau AAIB

# **Final Report No. 1931 by the Aircraft Accident Investigation Bureau**

**concerning the serious incident (airprox)**

between EZY 5262, Airbus A319, G-EZEC  
and Black 7, Boeing (MDD) F/A-18, Swiss Air Force

on 9 February 2005

7 NM NW RONAK, UACC Area East

Bundeshaus Nord, CH-3003 Berne

# Final Report

This report has been prepared solely 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). The masculine form is used in this report regardless of gender for reasons of data protection.

All times in this report follow the coordinated universal time (UTC) format

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**Place/date/time** 7 NM NW RONAK, UACC Area East, 9 February 2005, 10:04 UTC

**Aircraft** EZY 5262, Airbus A319, G-EZEC, Easyjet  
Venice (LIPZ) – London Gatwick (EGKK)  
Black 7, Boeing (MDD) F/A-18, Swiss Air Force,  
Dübendorf - Dübendorf

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<b>Crews</b>	EZY 5262	CMDR
		FO
	Black 7	CMDR

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**ATC unit** UACC Area East Zurich

**Air traffic controllers** M4 RE

M4 RP

MIL Ground Controlled Interceptor coach/trainee (GCI)

**Airspace** C

## 1. History

### 1.1 History of the flight

On the morning of 9 February 2005 an Easyjet A319, flight number EZY 5262, was making a scheduled flight from Venice to London Gatwick. Shortly before 10:00 UTC, the crew made contact with UACC Area East Section M4. The aircraft was flying at flight level FL 360 and was approaching waypoint SUXAN. The Radar Executive (RE) identified the aircraft and cleared it to waypoint INTEX.

In the meantime, the Radar Planner (RP) for the sector asked military air traffic control whether a shortcut direction VOR Hochwald (HOC) would be possible for EZY 5262 as well as for a British Airways B747, BAW 154, flying about 8 miles behind and 2000 ft higher. This route passes through military training airspace. Military air traffic control complied with the request. The RE was subsequently able to clear both civil aircraft on a direct route to Hochwald. The two aircraft then changed their headings by approximately 40 degrees to the west.

At the same time, three Swiss Air Force fighters, type F/A-18, with callsigns Black 5, Black 6 and Black 7 were taking part in aerial combat exercises in training areas in the Graubünden Alps. Before the commencement of the exercises, they were allocated Davos, Beverin and Engadin airspace. This airspace has defined lateral and vertical boundaries; its upper limit is at flight level FL 280. Originally, a test flight was scheduled in the military airspace above with an upper limit of flight level FL660. This test flight was then cancelled at short notice, so the military air traffic controller responsible for the three fighters, Ground Controlled Interceptor (GCI), was able to allocate "*Davos, Beverin, Engadin and above*" to the aircraft at the beginning of the exercise. On that morning, the GCI was a trainee controller; he was being monitored in his work by a trained coach.

Whilst the pilots of the three F/A18s were carrying out their aerial combat exercises, shortly before 10:00 UTC a foreign state aircraft, arriving from the south at FL 300, approached Swiss airspace. There was now an opportunity to perform identification – a live ident – of this aircraft. Identifications are carried out by the Swiss Air Force as part of the air police service and for exercise purposes; in the process the aircraft to be identified is intercepted by two fighters. The objective of such identification is to monitor flight plan data.

The GCI aborted the aerial combat and guided two F/A18s needed for this mission to the state aircraft. At the same time he instructed the remaining Black 7 to fly under its own navigation in the Davos, Beverin and Engadin airspace.

The pilot first flew on an easterly heading and then turned south-east. At the same time, he started to climb, sometimes at a high rate of climb. Black 7 climbed to FL 367. As a result, he came onto an opposing heading, slightly to the south of flight EZY 5263 and converged on the civil aircraft at high speed. The Easyjet crew then received a TCAS resolution advisory (RA). The commander initiated a climb to FL 368 and informed air traffic control. He added that he had visual contact with a fighter.

At the same time a short term conflict alert (STCA) was generated on the radar screen of civil sector M4. The RE issued traffic information to the crew of EZY 5262 and informed them that they had coordinated this route to Hochwald with the military. The two aircraft crossed at 10:04:31 with a lateral separation of 3.6 NM and an altitude difference of 100 feet. Shortly afterwards, the pilot of Black 7 initiated a steep descent and turned away to the south. At the same time he informed the GCI that a B747 was

in military airspace. The GCI replied that the B747 was at FL 380 and then informed him that he was not allowed to fly above FL 280.

After the incident, EZY 5262 descended to the originally cleared flight level FL 360 and the pilot informed ATC that he would report this incident. The RE confirmed this and informed the crew of EZY 5262 that he too would write a report.

Later the military air traffic controllers learned that Black 7 had triggered a TCAS RA on a civil aircraft at FL 360.

## 1.2 Weather information: source: Meteoschweiz

General weather situation: Switzerland was in a flat ridge of high pressure, which extended from the Atlantic to eastern Europe.

Wind: radio probes

The Payern probe indicated the following values at 12 UTC:

FL240 360/16 knots -41°C

FL300 010/22 knots -53°C

FL340 350/22 knots -59°C

Atmospheric pressure: QNH LSZH 1032 hPa, QNH LSZA 1033 hPa.

Cloud: 1-3/8, base approximately 13,000 FT AMSL, in the upper Rhine valley area, cloudless in the rest of Graubünden canton (synoptic observations 09:00 and 12:00 UTC)

Visibility: over 70 km

Hazards: None detectable

## 1.3 Airspace

The airspaces reserved for the air force for training and exercise purposes have clearly defined lateral and vertical dimensions, so-called temporary segregated areas (TSA). These are published in the Swiss AIP. The upper limit of the Beverin, Davos and Engadin training areas is FL 280 (Annex 1). They are in class C airspace. Above them is the High East training area (Annex 2); its vertical limits extend from FL 300 to FL 660, though its geographical limits do not entirely correspond to the Beverin, Davos and Engadin areas. High East is also in class C airspace.

Within a TSA, a vertical separation of 2000 ft must be guaranteed from civil air traffic.

Vertical separation of 2000 ft is guaranteed between the upper limit of a TSA and the first useable flight level for civil air traffic.

ATS route UL613 reaches the Swiss frontier at the south of the Münster valley and leads in a north-westerly direction over the lower Engadine. On UZ613 Austrian airspace is reached via waypoint INTEX. From INTEX the route turns west, over the principality of Liechtenstein and back into Swiss airspace. On the section above the Engadine, its lower limit is at FL 300 and therefore does not interfere with the Engadin training airspace. The High East airspace above only begins some 10 NM to the west of this ATS route.

## 2. Analysis

### 2.1 Military operations

On the morning of 9 February 2005, an aerial combat exercise was scheduled in the military training areas of Davos, Beverin and Engadin. These areas have an upper limit of FL 280. Three type F/A 18 aircraft were taking part, callsigns Black 5, Black 6 and Black 7.

A test flight was originally scheduled to take place in the airspace above the training areas mentioned (upper limit FL 660), but this was cancelled at short notice. The air traffic controller responsible for allocating airspace then offered the upper airspace too to his GCI colleague responsible for the aerial combat. The CGI subsequently gave his formation clearance for the area "Davos, Beverin, Engadin and above".

This aerial combat exercise was conducted according to "broadcast control". At this level of control the pilots are provided by the GCI with information which allows them to carry out their mission optimally. The aircraft fly under their own navigation and each pilot is responsible for airspace monitoring and separation.

At about 10:00 UTC, an opportunity arose for the formation to carry out a live ident mission. A foreign state aircraft was approaching Swiss airspace from the south. Foreign state aircraft must have diplomatic clearance to fly into Swiss airspace; it is issued by the Federal Office for Civil Aviation. Among other things, the air force has the task of verifying flight plan data of foreign state aircraft as part of an air police service. The pilots confirmed that they were ready for this mission after an enquiry by the CGI. He decided to abort the aerial combat and to guide two aircraft, Black 5 and 6, into the vicinity of the aircraft to be identified.

After civil air traffic control in Zurich had been informed of the impending interception by military air traffic control, the GCI began to guide two of his three aircraft into the vicinity of the state aircraft.

Control of the fighters was now in accordance with "fighter control". The GCI was now busy guiding his aircraft into a position in relation to the state aircraft which would allow Black 5 and 6 to carry out the final phase of the mission under their own navigation. This procedure is termed close control and includes heading instructions, altitude clearances and speeds to be complied with which were issued by the GCI to the pilots.

Since the current mission was being carried out in civil airspace, the GCI was additionally responsible for separation of the formation from civil aircraft. The workload was accordingly greater.

Black 7, which was not required for this mission, was instructed by the GCI to fly under its own navigation within the three training areas of Davos, Beverin and Engadin. The pilot responded to this instruction correctly: "Black 7". As the above-mentioned areas are precisely defined both laterally and in terms of altitude, the GCI, according to his statement, did not see any reason to inform the pilot of Black 7 of the new altitude limit, now located at FL 280. This procedure was in accordance with the relevant regulations.

The airspace originally assigned to the formation was: "*Davos, Beverin, Engadin and above*", i.e. without any operational restriction on altitude. The pilot of Black 7 had obviously not realised the limitation of the clearance he had just received. For him too, however, there was no reason to enquire about a new altitude limit from the GCI.

No indication could be given concerning the altitude of Black 7 at this time. According to the statements of the GCI's coach, however, the F/A-18 was below FL 280.

If, along with the clearance for the new applicable training areas, the GCI had informed the pilot of Black 7 of their altitude limits, in conjunction with information that civil aircraft were about to enter the upper military airspace, it is highly likely that the incident would not have occurred.

Black 7 was flying on an east-north-east heading and was climbing. According to the radar recordings, it passed FL 282 at 10:02:07 and the average rate of climb to FL 333 was about 3500 ft/min. The pilot of the F/A-18 now turned south-east and accelerated his climb. During the next 24 seconds, the aircraft climbed a further 3700 ft, corresponding to an average rate of climb of 9250 ft/min. The F/A-18 then reduced its rate of climb considerably. At this time, Black 7 was on an opposite course, slightly offset to the south, to EZY 5262. When the crew of the A319 received their TCAS RA, Black 7 was practically at the same altitude. The crew of the A319 obeyed the TCAS instructions and climbed to FL 368. At the same time, Black 7 climbed to FL 367. The flight paths of the two aircraft crossed at 10:04:31 with a lateral separation of 3.6 NM and an altitude difference of 100 ft.

On the basis of the radio traffic between the pilot of Black 7 and the GCI in connection with the British Airways B747 flying above Black 7, it can be assumed that the pilot of Black 7 had noticed the two civil aircraft on his airborne radar. Due to of his almost vertical flight profile he may possibly not have become aware of the rapid convergency and the crossing with the A319 of Easyjet (situational awareness).. This assumption is supported by the fact that the pilot of Black 7 initiated an immediate descent after making visual contact with the B747 and reported the presence of the B747 in military airspace to the GCI.

In the meantime, Black 5 and 6 were in the final phase of the identification of the state aircraft and were flying under their own navigation. The GCI then turned his attention back to Black 7. As he did so, he ascertained on the radar screen that Black 7 was above the permitted FL 280. At 10:04:53 the GCI informed the pilot of Black 7 that he was not allowed to climb above FL 280: *"Black 7 just to confirm, max level two eight zero"*, and this was confirmed by the pilot. According to the GCI, Black 7 was at FL 288, on a south-easterly heading. The coach, according to his own statement, had seen Black 7's altitude violation at about the same time and made a comment to this effect to his trainee. On the basis of the available documentation, it can be assumed that the two air traffic controllers became aware of Black 7's altitude violation only in the phase when the F/A-18 was already descending again.

The pilot of Black 7 stated that he had seen the Airbus A319 on his airborne radar, at a distance of about 30 miles. Assuming that this aircraft did not operate in his airspace (High East), he did not give importance to it. To the question at what time the pilot of Black 7 was aware that other aircraft were operating in his vicinity, he replied: "when my position was below the second aircraft and I realized that it was flying in our airspace. And the closest point of approach was some 10 NM." According to radar recordings, the closest convergence between Black 7 and BAW 154 was 7 NM and 1300 ft. No conflict warning was triggered between Black 7 and BAW 154. The pilot of Black 7 classified the incident as not dangerous. However, he was of the opinion that the GCI should have clearly reported any new upper or lower airspace limit.

## 2.2 Civil operations

The workload in sector M4 was light to average on that morning, according to the statements of both air traffic controllers. The A319 with the callsign EZY 5262, flying from Italy, made contact with Swiss air traffic control shortly before 10:00 UTC. The RE instructed the crew to set a new transponder code. After identification had been completed, EZY 5262 received an initial clearance to waypoint INTEX.

In accordance with customary practice, in the interim the RP enquired of military air traffic control if a short-cut through military airspace to VOR Hochwald would be possible for EZY 5262 at FL 360 and for the following B747 BAW 154. After corresponding authorisation, the RE gave the two civil aircraft a new clearance to fly direct to VOR HOC. Subsequently, the Easyjet A319 and the British Airways B747 turned approximately 40° to the west and entered the High East military training airspace.

Suddenly, the crew of EQY 5262 reported that they were in a climb following a TCAS RA. The pilot of the A319 added that he had visual contact with a fighter: "*It's a fighter, fast mover.*" At the same time, the STCA alert triggered and the military aircraft was visible on the air traffic controller's radar screen.

Black 7 had set transponder code A1607. Transponder codes in group A16xx are allocated to the air force. Aircraft having set any code of this code group are displayed non-correlated on the civil screens; an air traffic controller only sees a label without a call sign. If a pilot has, in addition to Mode A, also set Mode C, i.e. the automatic altitude transmission, the label of his aircraft is displayed on a civil radar screen, provided the aircraft operates within the altitude layer of a control sector. If Black 7 had operated within the altitude layer of sector M4 (FL 360 and above) prior to the incident, its label would have been visible; the air traffic controllers would have been able to contact their military colleagues or to transmit a traffic information to the crew of flight EZY 5262. Yet the very high rate of climb of the F/A-18 rendered any early recognition of the conflict and action impossible.

The RE issued essential traffic information to the crew of EZY 5262 and explained that their direct route to VOR HOC had been coordinated with military air traffic control.

On a further enquiry from the civil air traffic controllers to their military colleagues, they learned that the F/A-18 involved in the incident should not have climbed above FL 280.

## 3. Conclusions

### 3.1 Findings

- The incident took place 7 NM north-west of waypoint RONAK in class C airspace.
- At the time of the incident, the crew of flight EZY 5262 was in contact with UACC Area East, Sector M4 on frequency 133.405 MHz.
- At the time of the incident, the pilot of the F/A-18 with the callsign Black 7 was in contact with the Air Defense and Direction Center (ADDC) on channel U42.
- EZY 5262 was flying according to instrument flight rules (IFR).
- Black 7 was flying according to visual flight rules (VFR).
- At the time of the incident, the air force had priority of use in the airspace to the east of airway corridor A9 (East A9).

- According to statements from the military air traffic controllers involved, an aerial combat exercise was taking place in the training areas of Beverin, Davos and Engadin.
- Originally, only the lower training areas with an upper limit of FL 280 were envisaged for the aerial combat exercise. The airspace above this was intended to be used for a test flight. However, this was cancelled at short notice, so the airspace was available to the three F/A-18s at the beginning of the aerial combat.
- On the morning of the incident, the Ground Controlled Interceptor was a trainee air traffic controller. He was being monitored by a coach.
- The GCI's coach stated that he had not continuously followed Black 7 on the radar; he had concentrated on his trainee and the live ident which was in progress.
- According to its flight plan, EZY 5262 was flying on ATS route UL613, past waypoints SUXAN – RONAK, then UZ613, via NEGRA, the Trasadingen TRA and Hochwald HOC beacons and into French airspace.
- According to the Flight Data Monitoring System the RA lasted for three seconds. According to the radar recordings, EZY 5262 climbed for a total of 24 seconds.
- As a result of its RA, the Easyjet A319 climbed to 36,780 ft following its RA, according to the Flight Data Monitoring System. The radar recording indicated FL 368.
- The radar's STCA triggered an alarm at 10:04:07. According to their statements, the two Sector M4 air traffic controllers became aware of the F/A-18's radar symbol at the same time.
- The crew of flight EZY 5262 as well as the two civil air traffic controllers involved classified the incident as dangerous.
- The GCI coach stated that he always considered an airspace violation as serious, but in his opinion there had not been any risk of a collision.
- Military air traffic control submitted an operational internal report (OIR) and subsequently produced an investigation report.
- All the air traffic controllers involved were in possession of appropriate licences.

### 3.2 Cause

The infringement of minimum separation with a civil aircraft is due the following factors:

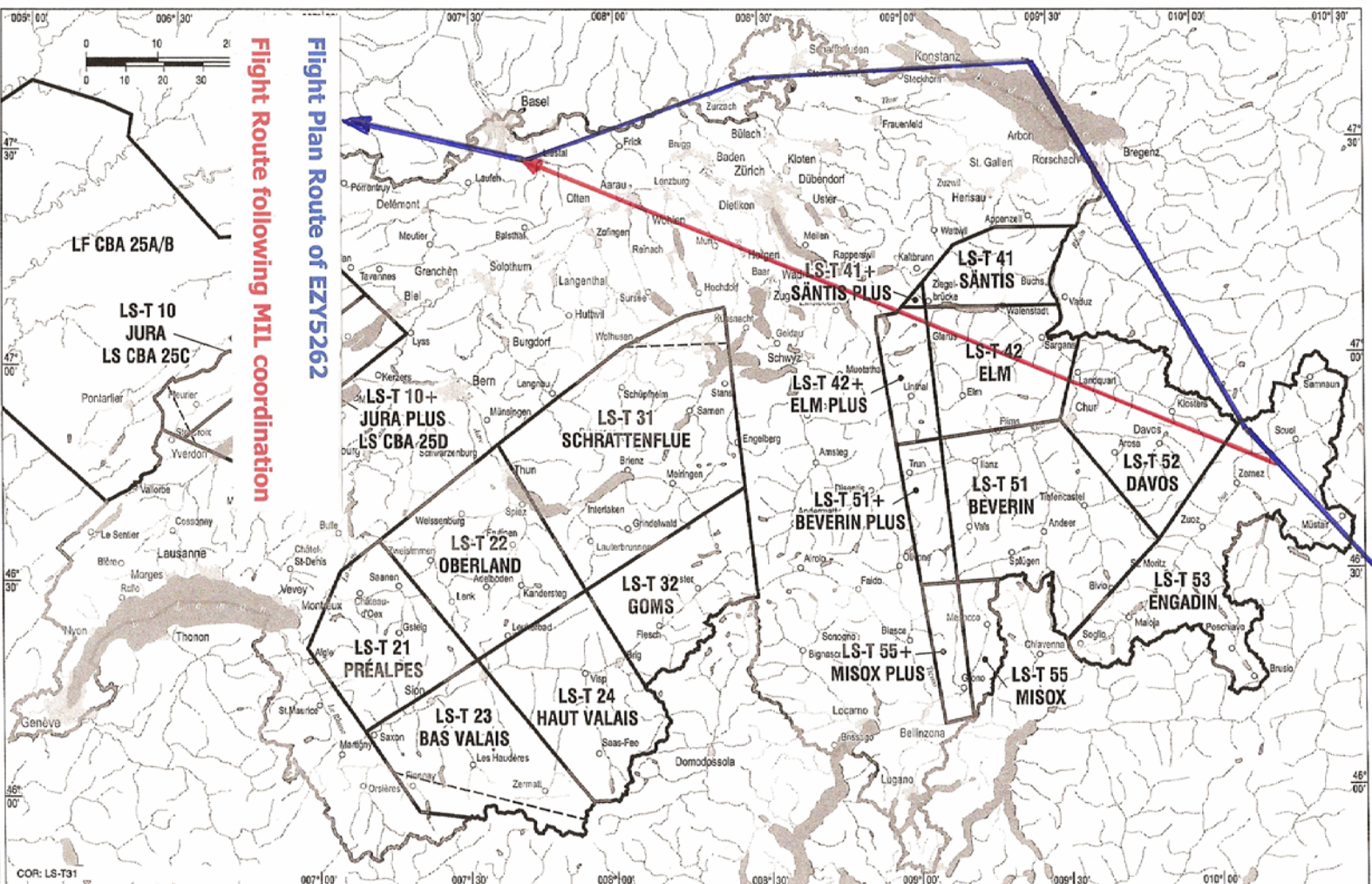
- the pilot of the fighter did not realize the altitude restriction of the new airspace assigned to him
- the Ground Controlled Interceptor did not inform the pilot of the fighter about the modified altitude restriction.

Berne, 24 March 2006

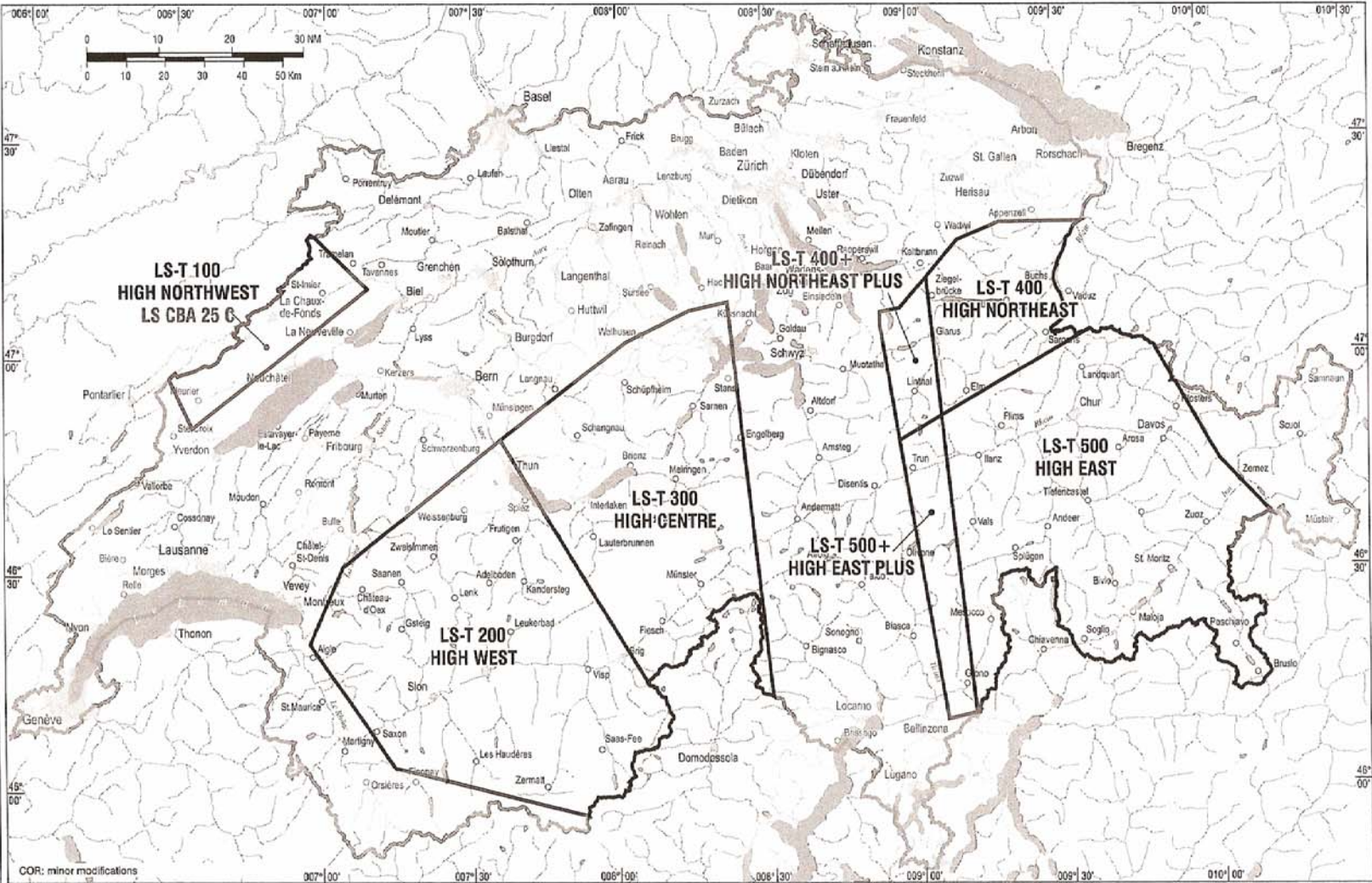
Aircraft Accident Investigation Bureau

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**Flight Plan Route of EZY5262**  
**Flight Route following MIL coordination**



COR: minor modifications

**TRANSCRIPT OF TELEPHONY  
OR RADIOTELEPHONY COMMUNICATION TAPE-RECORDINGS**

Investigation into the **incident** that occurred on **09.02.2005**

- Subject of transcript: **A1607 / EZY5262**

- Centre concerned: Swiss Radar Area East

- Designation of unit: Radar Upper Sector M4

- Frequency / Channel: 133.405 MHz

- Date and period (UTC) covered by attached extract: 09.02.2005  
09:59 - 10:17 UTC

- Date of transcript: 14th February 2005

- Name of official in charge of transcription: Claudio DI PALMA

- Certificate by official in charge of transcription:

I hereby certify:

- That the accompanying transcript of the telephony or radiotelephony communication tape-recordings, retained at the present time in the premises of the Analysis Department, has been made, examined and checked by me.
- That no changes have been made to the entries in columns 2, 3 and 4, which contain only clearly understood indications in their original form.

Zürich, 14th February 2005

Claudio DI PALMA



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Abbreviations

Sector                      Designation of sector

M4 RE    -    Radar Upper Sector M4

<u>Aircraft</u>	-	<u>Callsign</u>		<u>Type of acft</u>	<u>Flight rules</u>	<u>ADEP</u>	-	<u>ADES</u>
5262	-	EZY5262	Easy	A319	IFR	LIPZ	-	EGKK
154	-	BAW154	Speedbird	B744	IFR	HECA	-	EGLL

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DMO / 14th February 2005



TRANSCRIPT SHEET

Occurrence: A1607 / EZY5262 of 09.02.2005



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
M4 RE	5262	09:59:33	Swiss Radar good morning Easy five two six two maintaining flight level three six zero towards SUXAN	
5262	M4 RE	:39	Easy five two six two "grüessech" squawk two seven four three	
M4 RE	5262	:45	Squawk two seven four three requesting flight level three eight zero when identified please Easy five two six two	
5262	M4 RE	:52	Äh... Boeing seven four seven, ten miles behind äh... destination Heathrow	
M4 RE	5262	:59	Okay	
5262	M4 RE	10:00:32	Easy five two six two identified cleared to INTEX initially maintain three six zero	
M4 RE	5262	:44	Direct INTEX at flight level three six zero Easy five two six...	
5262	M4 RE	10:01:50	Easy five two six two now recleared direct Hochwald then Luxeuil	
M4 RE	5262	:56	Direct Hochwald Luxeuil Easy five two six two	
M4 RE	154	10:02:11	Radar Speedbird one five four flight level three eight zero	
154	M4 RE	:15	Speedbird one five four "grüessech" squawk two seven five two	
M4 RE	154	:21	Two seven five two Speedbird one five four	
154	M4 RE	:23	Affirm and äh... route clearance now direct Hochwald then Luxeuil	
M4 RE	154	:29	Hochwald Luxeuil Speedbird one five four	
M4 RE	5262	10:03:59	Radar Easy five two six two?	ACAS aural warning audible in the background
???	???	10:04:01	(.....)	PTT-button pressed
5262	M4 RE	:02	Five two six two go ahead	
M4 RE	5262	:05	TCAS climb TCAS climb	

Signature of person  
in charge of transcription :

TRANSCRIPT SHEET

Occurrence: A1607 / EZY5262 of 09.02.2005



To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
M4 RE	5262	10:04:09	It's a fighter, fast mover	Master caution aural warning audible in the background
5262	M4 RE	:18	Easy five two six two sorry for that you have an aircraft äh... I think it's a military fighter at flight level three seven zero now on your left hand side?	
M4 RE	5262	:26	Affirm we had any just passed through our level about five hundred feet äh... Easy five two six two descending now back to flight level three six zero	
5262	M4 RE	:35	Five two six two sorry for that you... you have been coordinated to proceed to Hochwald with Swiss military at three six zero, we will check with them	
M4 RE	5262	:44	Okay thank you that was about five miles and five hundred feet separation	
5262	M4 RE	:49	"Ja" we will check that with Swiss military	
M4 RE	5262	:52	Okay we'll have to file an airmiss when we get back to London	
5262	M4 RE	:55	Yes we will do the same	
1 station in between				
5262	M4 RE	10:05:56	Easy five two six two have you visual contact with the traffic?	
M4 RE	5262	10:06:00	Äh... no we did have a... it was climbing through our level probably going up to flight level three seven zero then he obviously saw us and äh... did a rapid descent vertically downwards	
5262	M4 RE	:11	"Ja" okay	
3 stations in between				

TRANSCRIPT SHEET

Occurrence: A1607 / EZY5262 of 09.02.2005

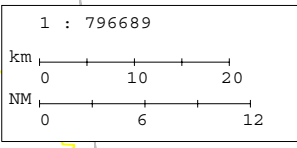
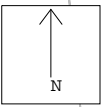
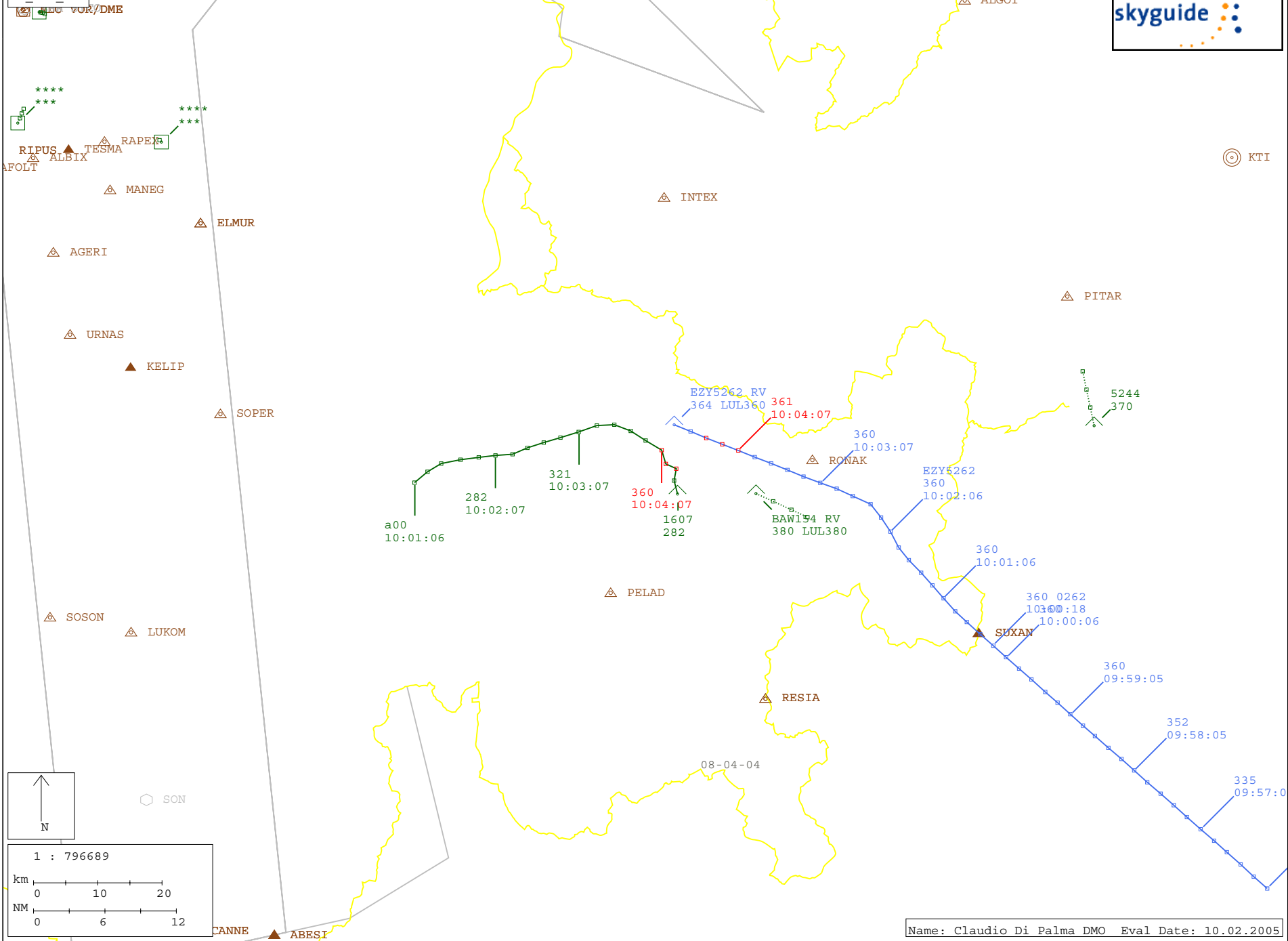


To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
5262	M4 RE	10:10:59	Easy five two six two?	
M4 RE	5262	10:11:02	Go ahead	
5262	M4 RE	:03	The military fighter pilot has been instructed to climb to flight level two eight zero, he probably understood three eight zero	
M4 RE	5262	:13	Okay thanks very much for the information	
M4 RE	5262	:18	Just as a matter of interest what type was it?	
5262	M4 RE	:21	I don't know, stand by	
5262	M4 RE	:50	Easy five two six two it was a F A eighteen Hornet	
M4 RE	5262	:54	Thanks very much	
2 stations in between				
5262	M4 RE	10:16:15	Easy five two six two we will also äh... file a report and sorry for that contact Reims on one three three eight three zero good day	
M4 RE	5262	:25	One three three eight three zero Easy äh... five two six two no problem thanks for your help	

- end -

Src  
MV\_MRT\_ACC

Analysis: EZY5262 A1607 Time: 09.02.2005 10:04:56



Name: Claudio Di Palma DMO Eval Date: 10.02.2005



