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Aircraft Accident Investigation Bureau AAIB

Final Report No. 2025 by the Aircraft Accident Investigation Bureau

concerning the serious incident (AIRPROX)
between DWT 011, Saab 2000, registration HB-IZG
operated by Darwin Airline SA
and PA-28R-200, registration HB-OKL
operated by Aero Locarno SA
on 8 November 2006
in the circuit of Lugano Airport

Aéropôle 1, Route de Morens, CH-1530 Payerne

General remarks concerning this report

This report contains the AAIB's conclusions on the circumstances and causes of the accident/serious incident which is the subject of the investigation.

In accordance with Annex 13 of the Convention on International Civil Aviation of 7 December 1944 and article 24 of the Federal Air Navigation Law, the sole purpose of the investigation of an aircraft accident or serious incident is to prevent accidents or serious incidents. It is therefore not the purpose of this investigation to determine blame or clarify questions of liability. The legal assessment of accident/incident causes and circumstances is no concern of the incident investigation (art. 24 of the Air Navigation Law).

If this report is used for purposes other than accident prevention, due consideration shall be given to this circumstance.

The definitive version of this report is the original in the French language

All times in this report, unless otherwise indicated, follow the coordinated universal time (UTC) format. The local time (LT) in force in Switzerland at the time of the accident was Central European Winter Time (CEWT). The relation between LT, CEWT and UTC is: $LT = CEWT = UTC + 1 \text{ h}$.

For reasons of protection of privacy, the masculine form is used in this report for all natural persons, regardless of their gender.

Final Report

Aircraft

DWT 011, Saab 2000, registration HB-IZG
Operated by Darwin Airline SA
Geneva (LSGG) – Lugano (LSZA)

IFR commercial flight

PA-28R-200, registration HB-OKL
operated by Aero Locarno SA

Locarno (LSZL) – Pula (LDPL)

VFR private flight

Crews

DWT 011

Commander: Swiss nationality, born 1957

Co-pilot: Swiss nationality, born 1979

HB-OKL

Pilot: Swiss nationality, born 1970

Location

Lugano Airport, aerodrome circuit

Date and time

8 November 2006, 08:18 UTC

ATS unit

Lugano, aerodrome control (ADC)

Aerodrome controller

Swiss nationality, born 1955

Airspace

D

1 Factual information

1.1 History of the incident

On Wednesday 8 November 2006, aircraft DWT 011, a Saab 2000-type aircraft registration HB-IZG which was en route from Geneva to Lugano, called Lugano control tower at 08:11:18 UTC on the 120.250 MHz frequency. It was descending to an altitude of 7000 ft in the direction of waypoint CALDO and requested a LOC LIMA instrument approach followed by a visual approach on runway 01.

The pilot at the controls of the aircraft (pilot flying – PF) was the co-pilot.

The aerodrome controller cleared aircraft DWT 011 to descend to an altitude of 6000 ft for a LOC LIMA approach with preference for a circuit on runway 19 because of a VFR training traffic which was in the circuit. He requested the pilot to call back when over waypoint PINIK.

The pilot accepted this procedure and, at 08:14:23 UTC, confirmed that he was requesting a visual approach for runway 19. The aerodrome controller asked him to call back at the start of the left-hand downwind section of the runway 19 circuit (Annex 2).

At 08:14:35 UTC, the pilot of aircraft HB-OKL, type PA-28R, a VFR aircraft in transit in the Lugano CTR control area, en route from Locarno destination Pula, called the Lugano control tower. The pilot, who had set his transponder to code A7000 in mode C on his departure from Locarno, reported that he was over waypoint MEZZO at an altitude of 3500 ft. He requested clearance to cross the airspace in the direction of waypoint ECHO then direction waypoint CAPOLAGO (Annex 1).

Contrary to the altitude reported by the pilot, the aerodrome controller, for unexplained reasons, recorded an altitude of 3000 ft on his flight progress strip and requested the pilot of the VFR aircraft to call back over waypoint ECHO, informing him of the presence of a helicopter over Sigirino and of two aircraft in the runway 19 circuit; he added that another helicopter was flying over the San Salvatore.

At 08:16:11 UTC, the pilot of aircraft DWT 011 reported that he was commencing the downwind section of the runway 19 circuit. The controller informed him that he was number one in the approach sequence and that he could continue the approach. He then requested the pilot of the VFR aircraft training on runway 19 to make a circuit to the left in order to position himself behind the Saab 2000.

According to his statements, the pilot of aircraft DWT 011 received a traffic advisory (TA) of a possible threat at the same altitude and, at 08:17:38 UTC asked the aerodrome controller for the position of the traffic. The controller gave him the following answer: "*Darwin zero one one the wind is calm runway one nine cleared for take-off single engine crossing from MEZZO to ECHO at three thousand feet.*"

The aerodrome controller stated that he sent this erroneous message because of the stress he experienced at the time when he became aware of the conflict situation between the two aircraft.

During this transmission, aircraft DWT 011, which was on a north-easterly heading, was at the same altitude as aircraft HB-OKL, which was flying on a converging south-south-easterly heading. The separation between the two aircraft was approximately 2 NM.

According to his statements, the crew received a Traffic alert and Collision Avoidance System (TCAS) resolution advisory (RA) "Descend, Descend", followed by a resolution advisory ordering him to increase the rate of descent "Increase Descent".

According to the statements of the crew of aircraft DWT 011, the latter obeyed the TCAS instructions for a very short time because of the surrounding topography and established visual contact with the conflicting aircraft as they crossed. The pilot said that he intuitively turned slightly to the right.

According to the statements of the pilot of aircraft HB-OKL, the latter had visual contact with the Saab 2000 from waypoint MEZZO and maintained this contact throughout the critical phase without thinking that he was so close to the conflicting aircraft. He made a turn to his right just before crossing the conflicting aircraft.

According to the Milan Control radar traces, the minimum distance on the converging routes of the two aircraft was recorded at 08:18:03 as a lateral separation of 0.219 NM and an altitude difference of 100 ft. From this time onward, the routes of the two aircraft were diverging.

At 08:18:52 UTC, the pilot of aircraft HB-OKL reported that he was flying over waypoint ECHO at an altitude of 3500 ft and at 08:19:20 UTC the pilot of aircraft DWT 011 called back on final on runway 19 and was cleared to land.

1.2 Meteorological conditions

ATIS Lugano, 8.11.06, 07:50 UTC

"Lugano information SIERRA, runway in use one niner, met report Lugano zero seven five zero

wind calm, visibility one zero kilometers or more, cloud few three thousand feet broken five thousand feet,

temperature seven, dew point five, QNH one zero two niner, nosig, transition level eight five,

Lugano information SIERRA"

METAR LSZA 08/11/06

*0750 0000KT 9999 FEW 030 BKN 050 07/05 Q1029 NOSIG
0820 0000KT 9999 BKN 050 08/05 Q1029 NOSIG*

1.3 Additional information

1.3.1 Control resources

Lugano aerodrome control has a radar monitor (bright display). Use of this resource is limited exclusively to observation of the position and flight level of aircraft on the approach axes (distance from touchdown indicator – DFTI). The vertical situation information is presented only as flight levels. There is no altitude conversion based on the Lugano QNH. These radar indications generally disappear below flight level FL 035 for runway 19.

With the exception of emergency situations, this radar monitor must not be used for radar control tasks, i.e. for separations, vectoring or avoiding manoeuvres. The Lugano air traffic controllers are not trained as radar controllers.

1.3.2 Visual field at the workstation

It has been found that, from the aerodrome control (ADC) position, it is not possible to see aircraft because of the visual obstruction constituted by the hilly environment between the control tower and the left-hand downwind section of the runway 19 circuit.

1.3.3 Organisation of work in the control tower

The aerodrome controller stated that he was working alone in the control tower and that he forgot to issue essential traffic information to the pilot of aircraft HB-OKL concerning aircraft DWT 011 because he was busy producing a new METAR.

Since the closure of the local Air Traffic Services Reporting Office (ARO) and in accordance with his job specification, the Lugano aerodrome controller must perform non-ATC tasks in addition to his control tasks. The former are performed within the control tower but not at the ADC position.

1.4 Specification of the auxiliary tasks performed by Lugano TWR/APP control

Source: Skyguide Lugano

Non-ATC jobs performed by TWR/APP Lugano

Administration TWR ↔ AIS LASA

The goal is to provide the relevant data to the airport administration; in order to issue bills and statistics. TWR/APP Lugano "feeds" the data exchange system (MORRIS) with the following items:

- *insert VFR arrival traffics and diverts with all the relevant data (complete)*
- *insert ATD/ATA, type of IFR approach (only missing data)*

as support we

- *check if the departing traffic has paid*

AIM **TWR ⇔ AIS Zürich**

Due to a lack of knowledge by the local AIS team we

- *activate and close (if necessary) VFR FPL*
- *we close diverts flights*
- *we check if VFR arrival FPL and local flights are overdue (job not defined)*

Various

- *we produce and send the local weather observation*
- *we act as local FMP position (ready message, LMI, CHG, DLY...)*
- *outside office time, we act as technical trouble shooters (mostly reboots)*
- *we advise the ground staff about arriving helicopters (parking organisation)*
- *we forward PIC requests (like length of stay, need of fuel...) to the airport and vice versa (like limitations, kind of qualification/certification...)*

The above description has been valid since March 2006 (ARO Lugano closure)

1.5 Regulations

References: extracts from the ATM MANUAL SWITZERLAND SECTION 4, 8 and 9; PANS-ATM 4444)

CLASS D

In airspace class D:

IFR and VFR flights are permitted;

all flights are provided with air traffic control service;

IFR flights are separated from other IFR flights and receive traffic information in respect of all other flights;

VFR flights receive traffic information in respect of all other flights; and all flights may request avoidance advice regarding other flights.

Do not prescribe a particular routing or cruising level to VFR flights in airspace class D, unless prescribed VFR routes are specified by FOCA. If necessary, apply "segregation" from a busy portion of airspace, where frequency congestion may occur:

- *in the form of altitude restrictions (maximum/minimum altitude);*
- *with reference to a line between two positions (e.g. instruct a pilot to remain north or south of that line); or*
- *in terms of time (e.g. instruct a pilot to cross a point before or after a specified time).*

You may delay the delivery of an entry clearance into airspace class D to a VFR flight, if circumstances warrant (e.g. when, due to airspace congestion, the entry of the VFR flight would seriously compromise traffic safety). However, you may not refuse the delivery of the entry clearance indefinitely.

CLEARANCES AND INFORMATION

Issue information and clearances to aircraft under your control to achieve a safe, orderly and expeditious flow of air traffic on the aerodrome and in the vicinity of the aerodrome, with the objective of preventing collision(s) between:

- *aircraft flying in the aerodrome traffic circuits around an aerodrome;*
- *aircraft operating on the manoeuvring area;*
- *aircraft landing and taking off;*
- *aircraft and vehicles operating on the manoeuvring area;*
- *aircraft on the manoeuvring area and obstructions on that area.*

Maintain a continuous watch on all visible flight operations on the aerodrome and in the vicinity of the aerodrome, including aircraft, vehicles and personnel on the manoeuvring area, and control such traffic in accordance with the procedures described herein and in local instructions.

ESSENTIAL LOCAL TRAFFIC INFORMATION

Due to the restrictive space on and around manoeuvring areas and restricted view from the flight deck it is essential that traffic information be issued to aircraft to assist with collision avoidance.

Transmit, without delay, information on known essential local traffic to departing and arriving aircraft.

Describe essential local traffic in a clear, concise and complete manner so as to facilitate recognition.

PROCEDURES FOR THE USE OF RADAR AS A DFTI

The purpose of a DFTI is to assist the controller in determining the position of an arriving aircraft in relation to the landing runway threshold.

When radar equipment is not approved for the provision of authorized radar services, or the ATS operator has not yet received the appropriate radar training, the radar equipment shall only be used as a DFTI.

In case of an emergency, the controller shall use all information provided by radar to assist the flight crew as far as possible.

VISUAL APPROACH

You may clear an IFR flight, at the pilot's request or on your own initiative, to execute a visual approach provided that the pilot can maintain visual reference to the terrain and:

- the reported ceiling is at or above the approved initial approach level for the aircraft so cleared; or*
- the pilot reports at the initial approach level or at any time during the instrument approach procedure that he is able to carry out a visual approach; or*
- when being vectored for visual approach, clearance shall be issued only after the flight crew has reported the aerodrome or the preceding aircraft in sight.*
- When initiated by ATC, visual approach may be executed only with the concurrence of the flight crew.*

Provide separation and traffic information between aircraft cleared to execute a visual approach and other aircraft, as required by the airspace classification.

Compliance with noise abatement procedures published by aerodrome authorities is required. If applicable, such restrictions are described in local procedures.

Subject to such compliance, be aware that the pilot of an aircraft cleared to execute a visual approach is free to choose the flight path of the aircraft until reaching final approach.

If it is determined that additional spacing is required, the flight crew shall inform the ATC unit accordingly, stating their requirements.

CIRCLING PROCEDURE RWY 19 (Ref. AIP SWITZERLAND AD LSZA 2 – 11 / LSZA AD 2.24.9 - 3)

The Circling Foxtrot procedure is the preferential manoeuvre for noise abatement purposes when landing on RWY 19.

Follow the published instrument approach to RWY 01; if visual contact is established at 01.5 ILL then continue to 01.0 ILL then turn right on track 035°, and if ceiling and visibility permit, maintain 3500 ft for noise abatement purposes (3100 ft procedure MNM) until 3.2 NM from the ARP. At 3.2 NM from the ARP, turn left towards base, leave 3500 ft not before turning towards the final of RWY 19.

1.6 TCAS operation close to the ground

For a resolution advisory "Descend Descend" the systematic ROD is 1500 ft/min.

When the aircraft is at 1000 ft ± 100 ft from the ground (height provided by the radio altimeter), the TCAS's level of sensitivity switches automatically to SL2, meaning that resolution advisories can no longer be generated. Since the accuracy of this mode change is 100 ft, it is possible that a descent RA is still issued when the aircraft is as low as 900 ft minimum from the ground. The pilot is then instructed to ignore this instruction, which, moreover, will disappear if the aircraft descends another 1 foot.

The TCAS is designed so that the resolution advisory (RA):

- "Increase Descent, Increase Descent" is not issued below 1450 ft AGL,*
- any resolution advisory RA is not issued below 1000 +/-100 ft AGL.*
- A "Ground Proximity Warning", for example "Terrain Terrain pull up" has priority over a resolution advisory (RA).*

1.7 Summary table of the altitudes of the two aircraft and their separation

For the investigation, in order to reproduce the situation in the vertical plane, the reference levels of the radar traces provided by MILAN CONTROL were converted into altitude on the basis of the Lugano QNH, 1029 hPa. The refresh rate of the radar image is 6 seconds.

Time UTC	Indication HB-OKL altitude	Indication DWT 011 altitude	Separation between the aircraft	Routes
08:17:09	3326 ft	3626 ft	3.739 NM	Convergent routes Angle 80°
08:17:15	3326 ft	3526 ft	3.337 NM	- idem -
08:17:21	3426 ft	3426 ft	2.874 NM	- idem -
08:17:27	3426 ft	3526 ft	2.452 NM	- idem -
08:17:33	3526 ft	3526 ft	2.149 NM	- idem -
08:17:39	3526 ft	3526 ft	1.671 NM	- idem -
08:17:45	3526 ft	3526 ft	1.324 NM	- idem -
08:17:51	3526 ft	3526 ft	0.951 NM	- idem -
08:17:57	3526 ft	3526 ft	0.573 NM	- idem -
08:18:03	3526 ft	3426 ft	0.219 NM	Maximum convergence (documented)
08:18:09	3526 ft	3326 ft	0.191 NM	Divergent routes
08:18:15	3526 ft	3226 ft	0.729 NM	- idem -
08:18:27	3526 ft	3226 ft	1.573 NM	- idem -
08:18:33	3526 ft	3226 ft	1.991 NM	DWT 011 turning left
08:18:46	3426 ft	2826 ft	2.774 NM	DWT 011 heading stabilised
08:18:52		2826 ft		

08:19:04	3426 ft			
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2 Analysis

2.1 Flight management aspects

The circling approach as well as overflying the Lugano CTR control zone are normal and usual procedures. The crews of the two aircraft had communicated their intentions to control and then proceeded accordingly. The convergent tracks of the two aircraft were foreseeable.

Unlike the crew of aircraft DWT 011, the pilot of aircraft HB-OKL established visual contact with the conflicting aircraft at a very early stage. He estimated that the distance and convergence were not dangerous. It is true that it is difficult to assess accurately the relative distances and flying directions of another aircraft from the cockpit of an aircraft. To come into visual contact with an aircraft appearing on the TCAS display is difficult to achieve and even impossible more particularly due to topography and meteorological conditions.

2.2 ATC aspects

When aircraft DWT 011 called Lugano control tower, the volume of traffic was light. The aerodrome controller was alone.

Shortly after he had cleared the crew of aircraft DWT 011 to make a visual approach on runway 19 he was called by aircraft HB-OKL which was approaching from reporting point MEZZO. The pilot reported his altitude of 3500 ft/QNH and requested transit clearance for the control area direction waypoint ECHO at this altitude.

At this time, a succession of errors occurred at the aerodrome control level. The transit clearance in the CTR control area given to the pilot of HB-OKL did not include the altitude. On the flight progress strip for aircraft HB-OKL, the controller noted an altitude of 3000 ft instead of 3500 ft. He then issued the pilot with general information on the traffic situation within the CTR without mentioning arriving aircraft DWT 011.

Aircraft DWT 011, which was also at an altitude of 3500 ft on the downwind section of the runway 19 circuit and which would cross the route of aircraft HB-OKL did not receive essential traffic information. When the crew received a TCAS traffic advisory indicating opposing traffic at the same altitude, they requested traffic information from aerodrome control. In response, the latter issued a take-off clearance. This series of errors shows that he had lost control of the situation.

The fact that he had to perform tasks other than aerodrome control within the control tower and at locations other than the ADC workstation required him to establish priority for the tasks to be performed.

2.3 TCAS aspects

The fact that the pilot of aircraft HB-OKL decided to switch on his transponder and set code A7000 mode C, with the altitude, enabled the TCAS on the Saab 2000 HB-IZG first to detect the aircraft and then to give a traffic advisory followed by a resolution advisory to the crew of DWT 011.

After receiving a traffic advisory (TA), the crew of aircraft DWT 011 tried to identify the conflicting aircraft visually by requesting traffic information. When they finally received a resolution advisory (RA), the crew reacted correctly by obeying this resolution advisory.

3 Conclusions

3.1 Findings

- The runway in service was runway 19.
- The aerodrome controller was in possession of a valid licence.
- The aerodrome controller was working alone in the control tower.
- The pilot of aircraft HB-OKL was in possession of a valid licence.
- The pilots of aircraft DWT 011 were in possession of a valid licence.
- All radio communications on the TWR frequency between the crew of flight DWT 011 and the aerodrome controller took place in English.
- At 08:14:35, the pilot of aircraft HB-OKL called the control tower, advising that he was over reporting point MEZZO at an altitude of 3500 ft. He requested clearance to cross the airspace in the direction of waypoint ECHO then direction waypoint CAPOLAGO.
- On the flight progress strip for the VFR aircraft HB-OKL, the aerodrome controller entered an altitude of 3000 ft instead of the altitude reported by the pilot.
- The pilot of aircraft HB-OKL set his transponder to code A7000 in mode C.
- At 08:17:38 UTC, the crew of aircraft DWT 011, following receipt of a traffic advisory (TA), requested "position of the traffic Darwin zero one one".
- At 08:17:43 UTC, the aerodrome controller sent them the following message: "Darwin zero one one the wind is calm runway one nine cleared for take-off single engine crossing from MEZZO to ECHO at three thousand feet."
- No essential traffic information about aircraft HB-OKL was transmitted to the pilot of the flight DWT 011 by the aerodrome controller.

- At 08:18:03 UTC, on the Milan Control radar traces, the minimum distance between the two aircraft on converging routes occurred. The lateral separation was 0.219 NM and the altitude difference was 100 ft.
- At the time of the incident, the meteorological conditions permitted visual flying.

3.2 Cause

The serious incident is due to dangerous convergence of an aircraft with a VFR flight plan, in transit, and an aircraft with an IFR flight plan making a visual approach in the aerodrome circuit, following the ATC lack of essential local traffic information to the concerned aircraft.

Payerne, 25 May 2009

Aircraft Accident Investigation Bureau

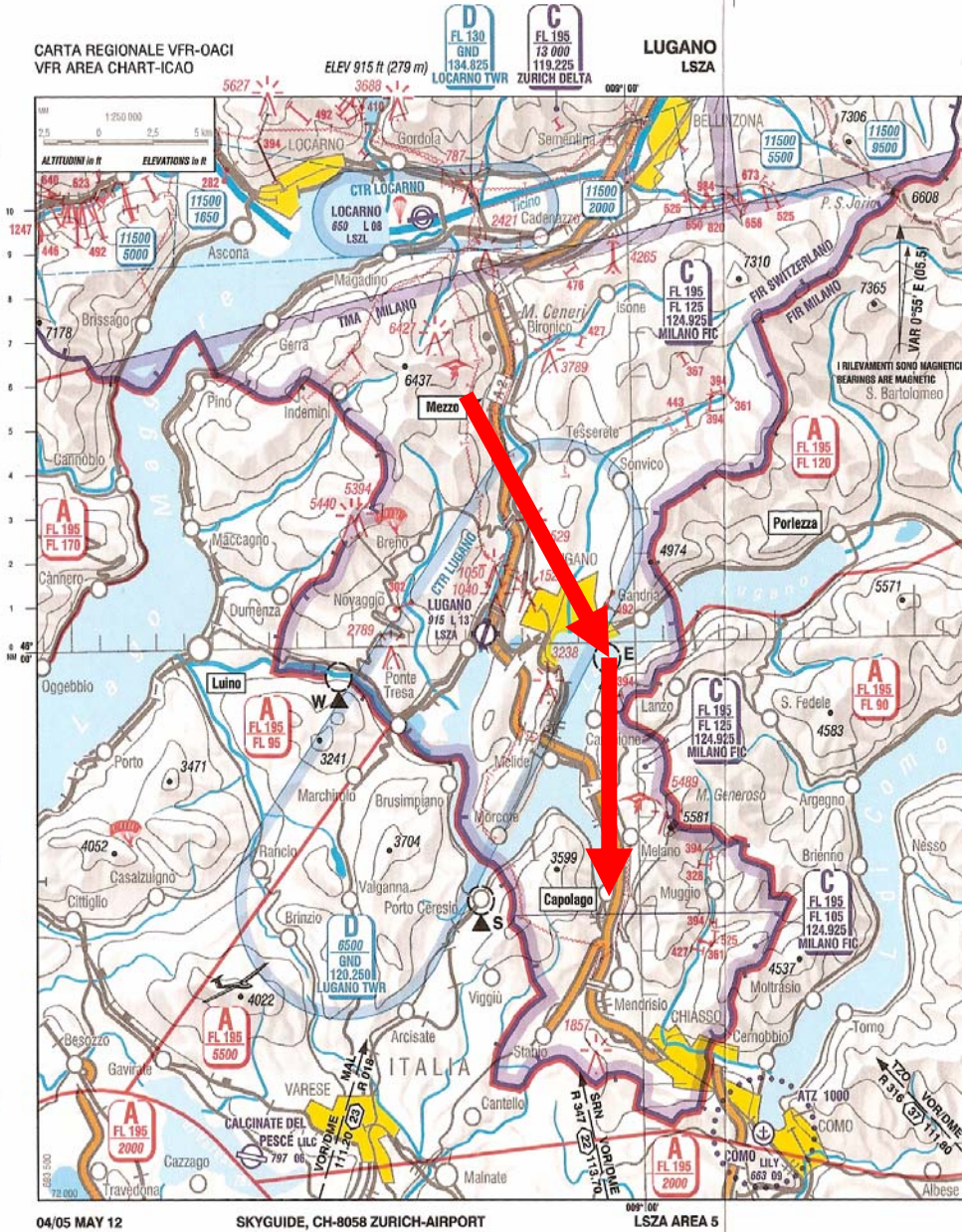
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VFR route of the aircraft HB-OKL
08.11.2006

Locarno – MEZZO – ECHO – CAPOLAGO / 3500ft QNH 1029



ATIS	121.175			
TWR VDF	120.250	122.550	119.700	121.500
GND	121.775			
FIC ZURICH	124.700			
FIC MILANO	124.925			

Primo contatto radio / First RDO contact

Luino Mezzo Porlezza Capolago

o 5 MIN prima dell' entrata nella CTR
or 5 MIN prior entering CTR

- REP obbligatorio
- MAX IAS 180 kt all'interno di questi punti
- Compulsory REP
- MAX IAS 180 KT within these points

- W 45° 59' 16" N / 008° 49' 25" E
- E 45° 59' 30" N / 008° 58' 56" E
- S 45° 54' 09" N / 008° 54' 17" E

PROCEDURE ANTI RUMORE:

La discesa deve essere eseguita con assetto di minor resistenza il più a lungo possibile e in considerazione delle esigenze dell'ATC.

NOISE ABATEMENT PROCEDURE:

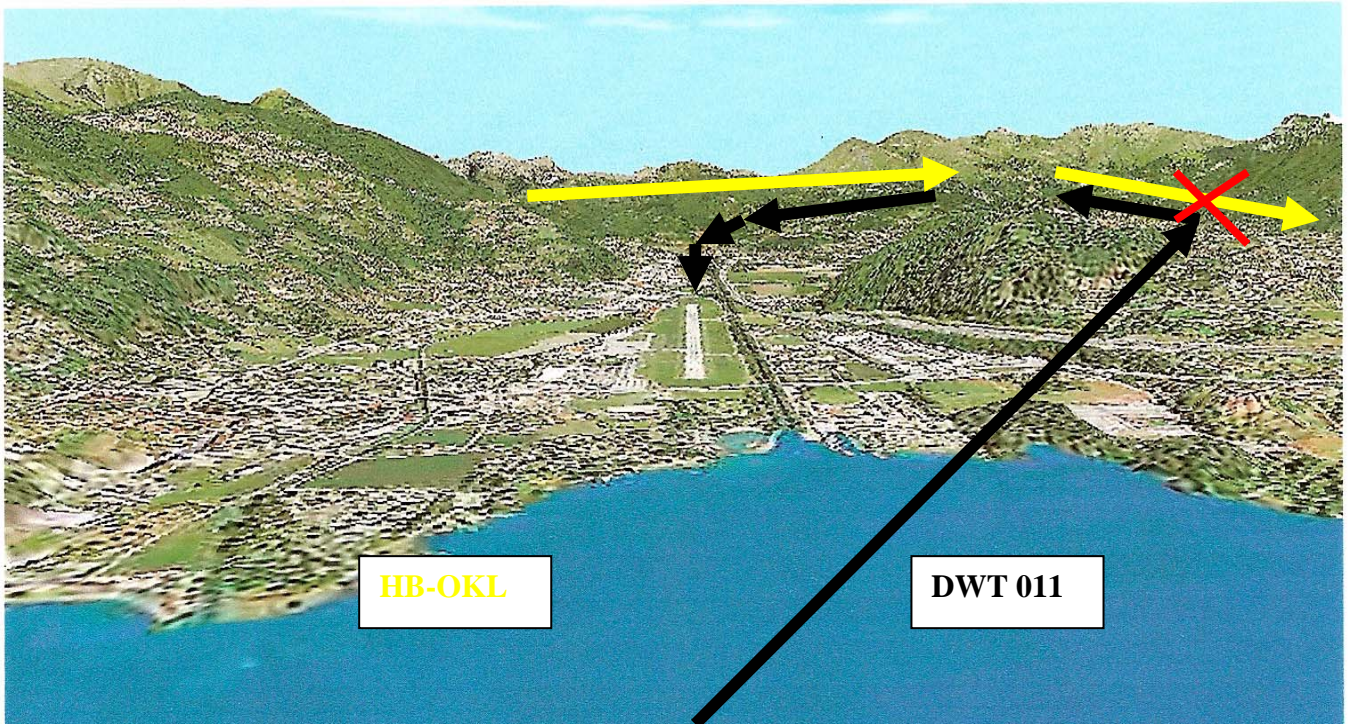
Descent is to be arranged so as to maintain clean configuration as long as possible, ATC requirements considered.

ALT di transizione:	N of Lugano	8500 ft
Transition ALT:	S of Lugano	6000 ft

11500 5500 TMA MIL TEMPO: ACT → NOTAM

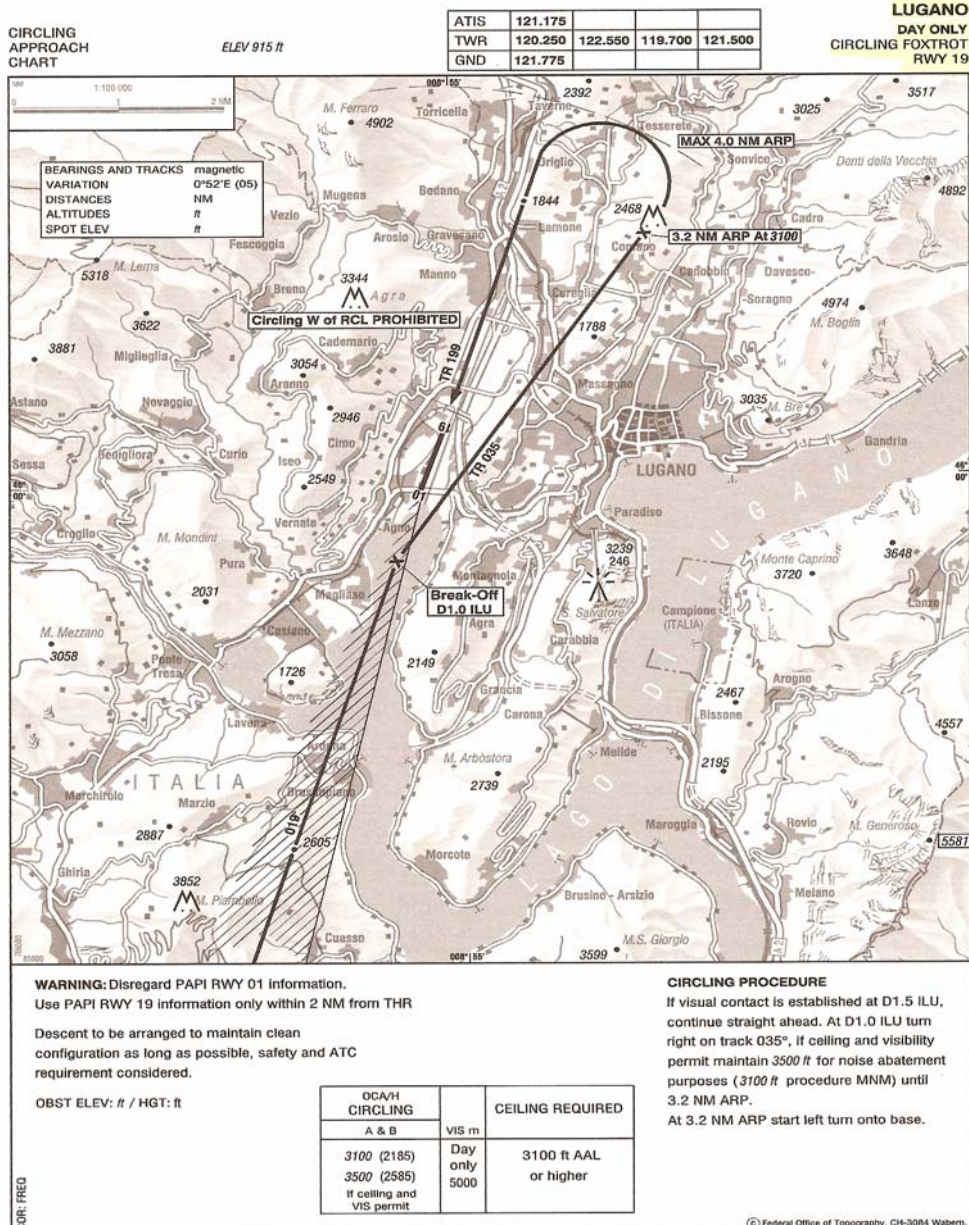
Altitudes in ft ; Heights in ft

COR: CTR, RPT N deleted



AIP SWITZERLAND

LSZA AD 2.24.10 - 7
31 DEC 2004



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

Investigation into the **incident** that occurred on **8.11.2006**

- Subject of transcript: **DWT011 / HB-OKL**
- Centre concerned: Swiss Radar Area East
- Designation of unit: Lugano TWR
- Frequency / Channel: 120.250 MHz
- Date and period (UTC) covered by attached extract: 8.11.2006
08:11 - 08:22 UTC
- Date of transcript: 5th December 2006
- Name of official in charge of transcription:

- 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, 5th December 2006

Abbreviations

Sector Designation of sector
 TWR - Lugano Tower

<u>Aircraft</u>	-	<u>Call sign</u>	<u>Type of aircraft</u>	<u>Flight rules</u>	<u>ADEP</u>	-	<u>ADES</u>
011	-	DWT011	SB20	IFR	LSGG	-	LSZA
<i>H-KL</i>	-	<i>HB-OKL</i>	<i>P28R</i>	<i>VFR</i>	<i>???</i>	-	<i>???</i>

/ 5th December 2006

TRANSCRIPT SHEET

Occurrence: DWT011 / HB-OKL of 8.11.2006



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>
TWR	011	08:11:18	Lugano "ciao" Darwin zero one one descending seven thousand feet inbound to CALDO request Loc Lima then visual zero one	
011	TWR	:30	Darwin zero one one äh... roger "ciao" descend six thousand feet QNH one zero two niner cleared for the approach localiser Lima appreciated circuit for runway one niner to your convenience we've already traffic on circuit one niner report PINIK inbound	
TWR	011	:47	Okay if you have traffic loc Lima circling äh... for one niner Darwin zero one one	
2 transmissions in between				
TWR		08:14:08	And Darwin zero one one approaching PINIK äh... any chance for visual zero one or otherwise XXXXX one niner	unintelligible
011	TWR	:17	I have traffic doing circuit äh... to let it orbit XXXXX if you request zero one	unintelligible
TWR	011	:23	Okay request visual one niner in this case Darwin zero one one	
011	TWR	:27	Thank you report when turning left-hand downwind one niner	
TWR	011	:30	Next entering left-hand downwind one niner Darwin zero o...	
TWR	H-KL	:35	Lugano Tower "buon giorno" Hotel Bravo Oscar Kilo Lima approaching MEZZO three thousand five hundred feet request to cross your field direction Echo and then Capolago	
H-KL	TWR	:47	Hotel Bravo Oscar Kilo Lima report Echo QNH one zero two niner look out for helicopter over Sigirino and two traffic in circuit one niner and another helicopter over San Salvatore	
TWR	H-KL	08:15:01	We'll look out for traffic QNH one zero two niner next report Echo, Hotel Kilo Lima	

TRANSCRIPT SHEET

Occurrence: DWT011 / HB-OKL of 8.11.2006



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>
TWR	011	08:16:11	Darwin zero one one äh... joining left-hand downwind one niner	
011	TWR	:17	Darwin zero one one is number one continue approach	
TWR	011	:20	Continue Darwin zero one one	
2 transmissions in between				
TWR	011	08:17:38	Position of the traffic Darwin zero one one?	
011	TWR	:43	Darwin zero one one the wind is calm runway one niner cleared for take-off single engine crossing from MEZZO to Echo at three thousand feet	
2 transmissions in between				
TWR	H-KL	:52	Hotel Kilo Lima abeam Echo three thousand five hundred feet	
H-KL	TWR	:58	Hotel Kilo Lima next report Capolago	
TWR	H-KL	08:19:00	Next äh... Capolago Hotel Kilo Lima	
TWR	011	:20	XXXXX final äh... one niner Darwin zero one one	unintelligible
011	TWR	:25	Zero one one the wind is calm runway one niner cleared to land	
TWR	011	:29	Cleared to land Darwin zero one one	
011	TWR	08:20:36	And zero one one, one-eighty backtrack via Mike to the marshaller	
TWR	011	:39	Backtrack via Mike with the marshaller Darwin zero äh... zero one one	
TWR	H-KL	08:21:16	Hotel Kilo Lima Capolago three thousand five hundred feet we beginning to descend to two thousand	

TRANSCRIPT SHEET

Occurrence: DWT011 / HB-OKL of 8.11.2006



<u>To</u>	<u>From</u>	<u>Time</u>	<u>Communications</u>	<u>Observations</u>
<u>Col.1</u>	<u>Col.2</u>	<u>Col.3</u>	<u>Col.4</u>	<u>Col.5</u>

<i>H-KL</i>	<i>TWR</i>	<i>:23</i>	<i>Hotel Kilo Lima you may leave good bye</i>	
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<i>TWR</i>	<i>H-KL</i>	<i>:25</i>	<i>Leaving your frequency thank you good bye Hotel Kilo Lima</i>	
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