



COPY Nr:

**MINISTÉRIO DAS OBRAS PÚBLICAS, TRANSPORTES E COMUNICAÇÕES
GABINETE DE PREVENÇÃO E INVESTIGAÇÃO DE ACIDENTES COM AERONAVES**

FINAL INCIDENT REPORT

**TRANSAVIA
BOEING B-737/800**

PH-HZX

**Lajes Airport
Terceira - Azores**

12th March 2009

GPIAA

**Homologo nos termos do n.^o
3 do art.^o 26.^o do D.L. 318/99,
de 11/03/1999**

2009-12-29

O Director,

Fernando Ferreira dos Reis

FINAL INCIDENT REPORT Nr. 07/INCID/2009

NOTE

This report states the technical findings regarding the circumstances and probable causes which led to this incident.

In accordance with Annex 13 to the International Civil Aviation Organisation Convention, Chicago 1944, Council Directive 94/56/EC, 21st NOV 1994, and article 11th n^o 3 of Decree-Law n^o 318/99, 11th AUG 1999, the sole purpose of this investigation is to prevent aviation accidents. It is not the purpose of any such incident investigation and the associated investigation report to apportion blame or liability.

The only aim of this technical report is to collect lessons which may help to prevent future accidents.

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SYNOPSIS

Transavia flight TRA-2323, from Amsterdam (EHAM) to Ponta Delgada (LPPD), on the 12th of March 2009, was operated by a Boeing B-737/800 aircraft with registration marks PH-HZX, carrying on board 7 crew and 185 passengers. Arrival at destination was estimated at 15:05 UTC¹.

Around fifteen minutes before arrival, still in contact with Sta Maria Control Centre, after receiving last weather information, the captain informed that landing in Ponta Delgada was not possible due fog and he had to proceed to alternate. As the shortest alternate (Sta Maria) was deteriorating, the best decision was to go to the second one, which was expected to remain fine for all the period, requesting to divert to Lajes (LPLA).

Sta Maria controller sent him direct to Lajes, while contacting military control to pass the traffic.

Since Lajes, as a military airport, is subject to some restrictions, the pilot was informed, later on, that he could proceed to Lajes only if he declared emergency, what the captain did.

TRA-2323 landed safely in Lajes, at 15:59.

***This report has been released in Portuguese and English Languages.
In case of conflict, Portuguese version will take precedence.***

¹ - All times referred in this report, unless other specified, are UTC (Universal Time Coordinated) times. By that date, local time in Azores was one hour less than UTC.

1. FACTUAL INFORMATION

1.1 History of the Flight

Flight TRA-2323 should leave Amsterdam (EHAM) at 10:00, heading to Ponta Delgada (LPPD) in Azores island of S. Miguel. For that an ATC Flight Plan was submitted at 09:17, indicating the requested routing and alternate aerodromes to be considered (*picture nr. 1*).

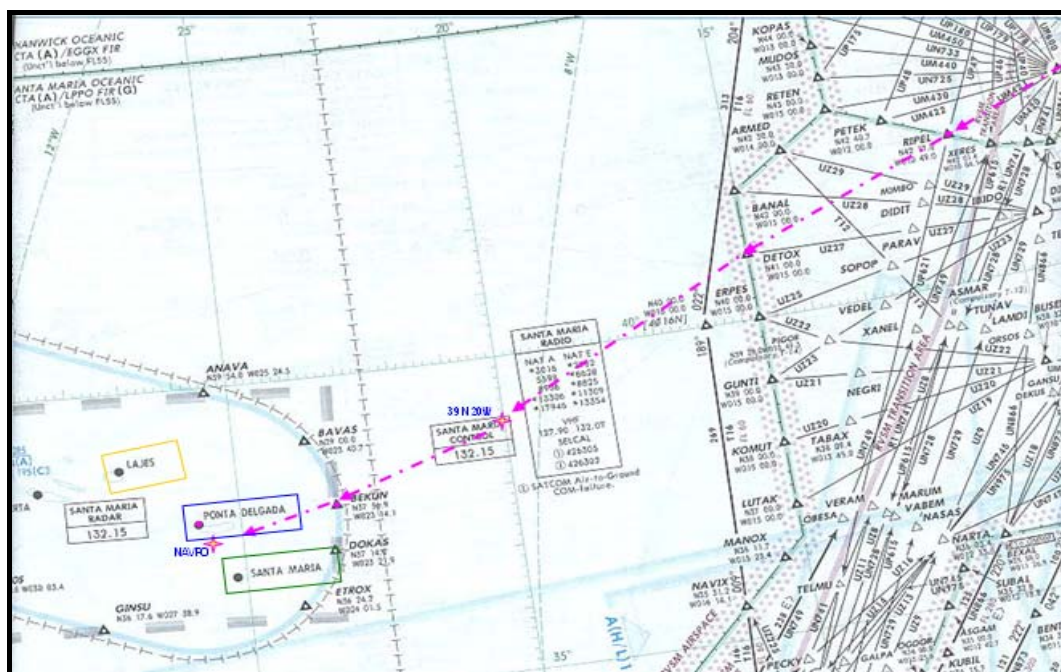
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FF EBBZMFP LFPYZMFP EUCHZMFP EUCBZMFP
120917 EHAMTRAK
(FPL-TRA2323-IN
-B738/M-SDFHPRXWY/S
-EHAM1000
-N0445F350 LEKKO N872 LARAS UN872 GASNO UN741 LOTEE/N0443F370 UN741
STG UM421 RIPEL/N0445F360 DCT DETOX/M078F360 DCT 39N020W DCT BEKUN
BEKUN4B
-LPPD0351 LPLA LPAZ
-EET/EBUR0012 LFFF0020 LECM0131 LPPC0207 LPP00235 39N020W0312
BEKUN0336 REG/PHHZX SEL/LSGP OPR/TRA DOF/090312 RVR/200 RMK/TCAS)
    
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Picture Nr. 1

Actual and forecasted weather for LPPD was drizzle (DZ) and fog (FG) showing no improvement tendency. In such circumstances the Captain decided for an extra fuel of 900kg added to Operational Flight Plan (OFF) requirement, leaving the gate with 14900kg of fuel on board.

Before entering Sta Maria Oceanic Control Area (OCA), still flying in Lisbon CTA, the pilot got the oceanic clearance (13:21) "to fly to destination LPPD, via DETOX – 39°N 020°W – BEKUN – BEKUN4B arrival (*picture nr. 2*). After DETOX to maintain FL 370, Mach .78".



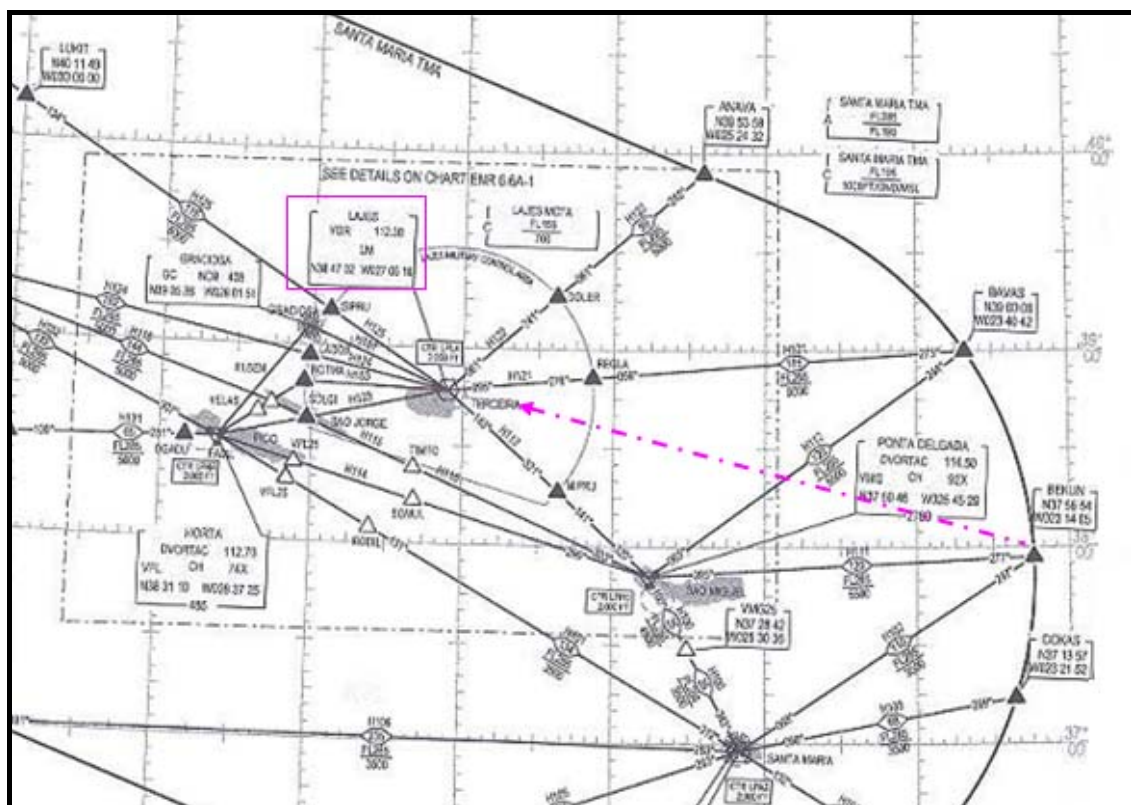
Picture Nr. 2

At 13:48 TRA-2323 reported passing DETOX, maintaining FL370, Mach .78, estimating 39N 20W at 14:25 and BEKUN at 14:49.

After passing 39N 20W, in VHF contact with Sta Maria ACC, the pilot copied last weather reports for LPPD, LPAZ and LPLA. LPPD airport remained closed for landing and weather at LPAZ was marginal which took the captain to a decision of divert to LPLA, where the weather was fine and should remain fine for the all period, with good conditions for landing, even with strong cross winds.

Based on such decision, at 14:48, when reporting BEKUN, the PNF requested to divert to LPLA.

Sta Maria ACC copied the request, sent TRA-2323 direct to "LM" (*picture nr. 3*) and informed Lajes controller of flight diversion.



Picture Nr. 3

By 15:04, descending to FL160, TRA-2323 was informed that Lajes couldn't accept its diversion unless an emergency was declared, to which the Captain answered that **"TRA-2323 was declaring emergency due weather"**.

The flight was accepted by Lajes and TRA-2323 instructed to change frequency and contact Lajes APP.

TRA-2323 landed safely, in Lajes airport, at 15:59.

1.2 Injuries

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor	0	0	0
None	7	185	

1.3 Aircraft Damage

There was no damage to the aircraft.

1.4 Other Damage

There was no third party damage reported.

1.5 Flight Crew

Flight crew was composed by two pilots (Captain and F/O), duly qualified to operate the aircraft and the route.

1.6 Aircraft

The aircraft was a Boeing B-737/800, equipped for the route and certified to perform All Weather Operations (AWO).

1.7 Meteorology

1.7.1 Ponta Delgada (LPPD)

That day started cloudy, with rain, low visibility and southerly wind. When the flight departed EHAM (10.00) the present weather in LPPD was marginal:

“METAR LPPD 121000Z 17010KT 140V200 0300 –DZ FG VV001 16/14 Q1015”.

Along the day the wind turned clockwise and the rain stopped giving place to fog, as per following reports:

“METAR LPPD 121400Z 18011KT 0200 –DZ FG VV000 16/15 Q1015”;

“METAR LPPD 121430Z 19012KT 0500 FG VV000 16/15 Q1015”;

“METAR LPPD 121500 19013KT 0400 –DZ FG VV000 16/15 Q1015”;

remaining foggy until late afternoon.

“METAR LPPD 122030Z 28003KT 1000 BR SCT001 BKN004 16/15 Q1016”.

1.7.2 Santa Maria (LPAZ)

Being too close one island from the other, weather was not much different:

“METAR LPAZ 121000Z 16013KT 4000 BR OVC004 16/15 Q1016”;

“METAR LPAZ 121400Z 16014KT 0800 R18/0800V1100N FG – DZ OVC003 16/15 Q1016”;

“METAR LPAZ 121430Z 17014KT 1100 R18/1000D – DZ BR BKN003 16/15 Q1016”;

“METAR LPAZ 121500Z 17013KT 1100 R18/1000U – DZ BR BKN003 16/15 Q1016”

1.7.3 Lajes (LPLA)

Being a bit further away and out of meteo circulation main core, the weather in Lajes was less cloudy and maintained a good visibility along all period, with stronger winds blowing there:

“METAR LPLA 121000Z 22007G17KT 180V270 9999 FEW015 SCT035 17/14 Q1012 RMK CNTR RWY WND 21010G22KT 190V280 XWND21KT PK WND 22022G49 CLD5 SCT080 SCT200”;

“METAR LPLA 121400Z 20017KT 9999 SCT018 19/14 Q1013 RMK CNTR RWY WND 23013G24KT 180V260 XWND23KT PK WND 22026G48 CLD5 SCT080 SCT200”;

“METAR LPLA 12 1500Z 23015KT 190V270 9999 SCT018 19/15 Q1013 RMK CNTR RWY WND 23013G29KT XWND29KT PK WND 23029/44 CLD5 FEW080 SCT200 MOD TURB”.

1.8 Navigation Aids

Excepting “MLG” NDB, in Ponta Delgada (NOTAM A0659/09), all NAV aids were operating normally.

A0659/09 - PONTA DELGADA NDB MGL FREQ 371 KHZ OUT OF SERVICE.
FROM: 19 FEB 2009 16:36 **TO:** 30 JUL 2009 18:00

1.9 Communications

Area control, within Sta Maria OCA and TMA, is provided by Sta Maria ACC. Approach and aerodrome control is provided by respective aerodrome APP & TWR. Lajes airport, being a military aerodrome has control within its own Military Control Area (MCTA).

TRA-2323 flight was under Sta Maria ACC all the time, since entered Sta Maria OCA, until it was released to Lajes control.

Traffic coordination was done by Sta Maria, being Lajes informed of such traffic only when, requested diversion to LPLA, the aircraft was flying direct to LM.

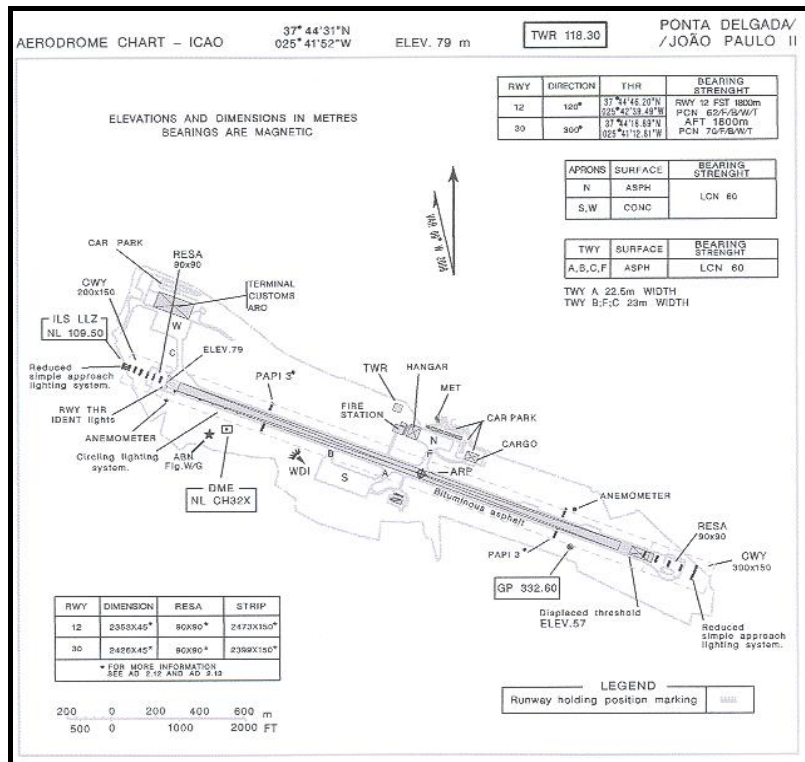
1.10 Aerodromes

Portuguese aerodromes, its facilities and operating conditions are referred in AIP Portugal, section AD-2 Aerodromes. In Azores we may find an aerodrome on every island, which permits straight links between islanders community and becomes a very important development tool. Not all of them are administered by the same authority, being some under responsibility of Airports National Authority (ANA), others administered by SATA Aerodromes and one by Portuguese Air Force (FAP).

1.10.1 Ponta Delgada (LPPD)

João Paulo II airport, in Ponta Delgada (S. Miguel island) is registered in Portuguese Airport's Network and it is prepared to receive civil and military, scheduled and unscheduled, national and international traffic, from 06:00L to 24:00L.

LPPD was served by a 2426mX45m bituminous asphalt runway, aligned on 120°/300° (magnetic) with a displaced threshold for RW 30.

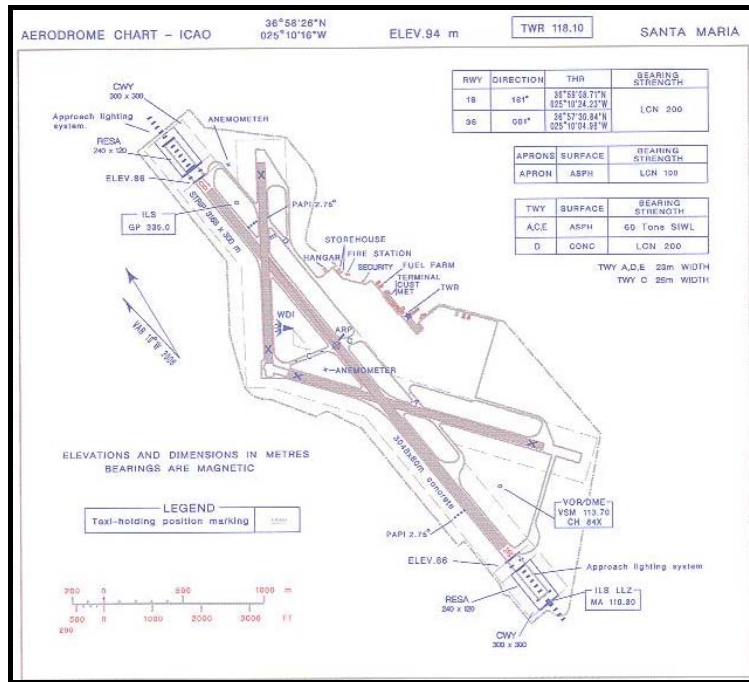


Picture Nr. 4

Both runways are equipped with a reduced simple approach lighting system, runway & taxiway lights, runway end and threshold identification lights, PAPI 3° on both sides (picture nr. 4).

Runway 30 is considered main instrument runway and is equipped with an ILS CAT I. Other navigation & approach facilities (NDB, VOR) are available and all of them were working properly at that day and time, except for "MGL" NDB (see NOTAM at 1.8).

1.10.2 Santa Maria (LPAZ)



Picture Nr. 5

Santa Maria is another civil airport, in Azores region (Sta. Maria island), open to domestic and international traffic.

Main strip is a concrete surface of 3048mX60m, oriented on a 180°/360° direction, equipped with a standard lighting system and PAPIs 2.75° on the left of each runway (picture nr. 5).

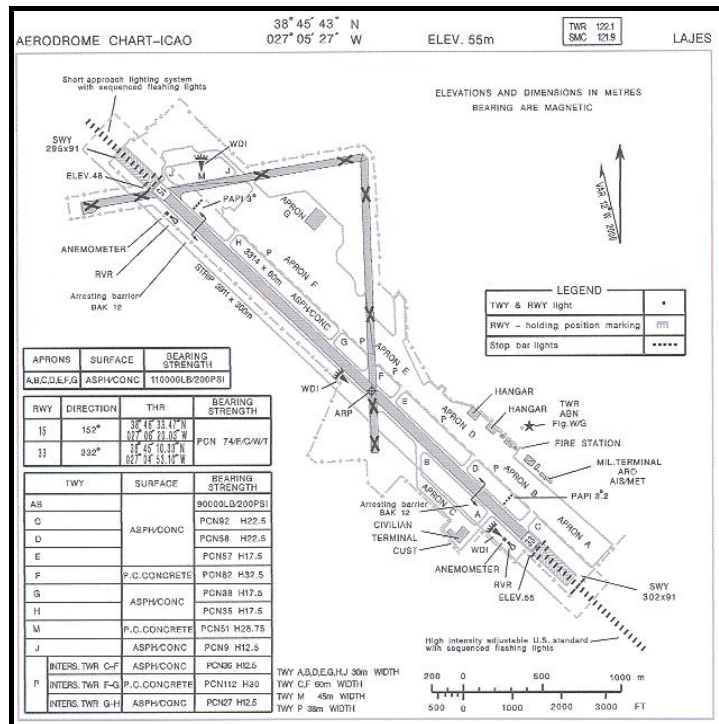
Navigation and approach aids are comprised of NDB, VOR and ILS CAT I (runway 18).

Airport is available for H24 but handling operation hours are restricted (06:00/24:00L).

1.10.3 Lajes (LPLA)

Situated in Terceira island, Lajes airport is considered as a military aerodrome and its civil use is restricted to authorized carriers or on a 3 days prior permission request (PPR) basis.

The main runway is an asphalt/concrete 3314mX60m strip equipped with a high intensity adjustable U.S. standard approach lighting system, with sequenced flashing lights, runway and taxiway lights, PAPIs (3°/3.2°), RVR and aircraft arresting barriers (picture nr.6).



Picture Nr. 6

Both runways (15/33) are equipped with an ILS CAT I, besides other navigation & approach aids. Airport is open 24 hours a day but civilian terminal works only from 06:00 to 22:00 (local time).

Unlike previous referred airports, Lajes is considered a military airport and its operation is restricted, as per information available in AIP Portugal, regarding LPLA airport (*pictures nr. 7 & 8*).

LPLA AD 2.20 LOCAL TRAFFIC REGULATIONS

2.20.1 LIMITATIONS ON USE OF AERODROME

MIL AD to be used in emergency or on PPR under very exceptional circumstances.

2.20.2 SPECIAL TRANSIT REQUIREMENTS

2.20.2.1 Operating on a prior permission (PPR) required basis only.

2.20.2.2 Requests for approval:

Portuguese Military Aerodromes are normally restricted to military aircraft only. Providing that a civil airport is not available in the proximity and that intentions are clearly stated, the use of Military Aerodromes by civilian aircraft requires a 03 days prior permission request (PPR), sent by the owner or the operator, to the following addresses:

Picture Nr. 7

Even if there is a Civilian Terminal, physically isolated from military facilities, with its own management and all civil traffic is handled by civil services, military imposed local operating restrictions still apply (*picture nr. 8*):

2.20.3 LOCAL FLYING RESTRICTIONS

2.20.3.1 Civilian Terminal operating hours 0600/2200 LMT daily, other times on request within 45 MIN prior through LAJES ARO using the AFTN address: LPLAZPZX.

2.20.3.2 All civilian aircraft authorized to land at this aerodrome will be parked on civilian apron by the Civil OPS Service and handled by SATA Air Açores.

Civilian Terminal facilities:

2.20.3.3 Airport Operations Service, Customs, Emigration Control Services, Security Police, X-Ray equipment (Baggage, Cargo and Mail), Fitossanitary Services, Flight Information Services, Weather Information (upon request), Aviation Fuel, Restaurant and Snack Bar.;

2.20.3.4 All military and civilian aircraft operating at Lajes Airport shall obtain prior permission from Control Tower to start engines and taxi.

2.20.3.5 Diplomatic clearance number (State Aircraft) or PPR Number (Civilian Aircraft) shall be included on flight plan Item 18 (eighteen).

Picture Nr. 8

1.11 Flight Recorders

No record reading was taken because, VCR has not been stopped nor retrieved after first landing, being all conversations related to the event overlapped by other recordings and the other data recordings were considered not relevant for the investigation, once all aircraft systems were operating normally.

1.12 Wreckage & Impact

Not applicable.

1.13 Medical or Pathological

Not applicable.

1.14 Fire

There was no fire.

1.15 Survival Aspects

Not applicable.

1.16 Tests & Research

Not applicable.

1.17 Organizational & Management

The operator is a Belgian Company with a valid AOC, operating in accordance with EU regulations, as expressed in its' Operations Manual, approved by Belgian Civil Aviation Authority. Company Operations Manual specifies airport's minima and diversion policy.

The crew acted according Company Standard Operating Procedures respecting all applicable national and international rules and procedures, but seemed to be not aware of La-jes special requirements.

1.18 Additional Information

There's no other relevant information to refer.

2. ANALYSIS

2.1 Flight Progress

2.1.1 General

Flight TRA-2323 departed EHAM and proceeded to destination, following requested routing, according respective ATC clearances.

Everything was running smoothly until it approached destination, being the weather a disturbing factor for the completion of the flight.

Forecasting some weather restrictions, the captain added some extra fuel and a third alternate, Porto Santo (LPST) in Madeira archipelago, just in case landing was not possible in Azores islands, where two alternates had been selected (LPLA & LPAZ).

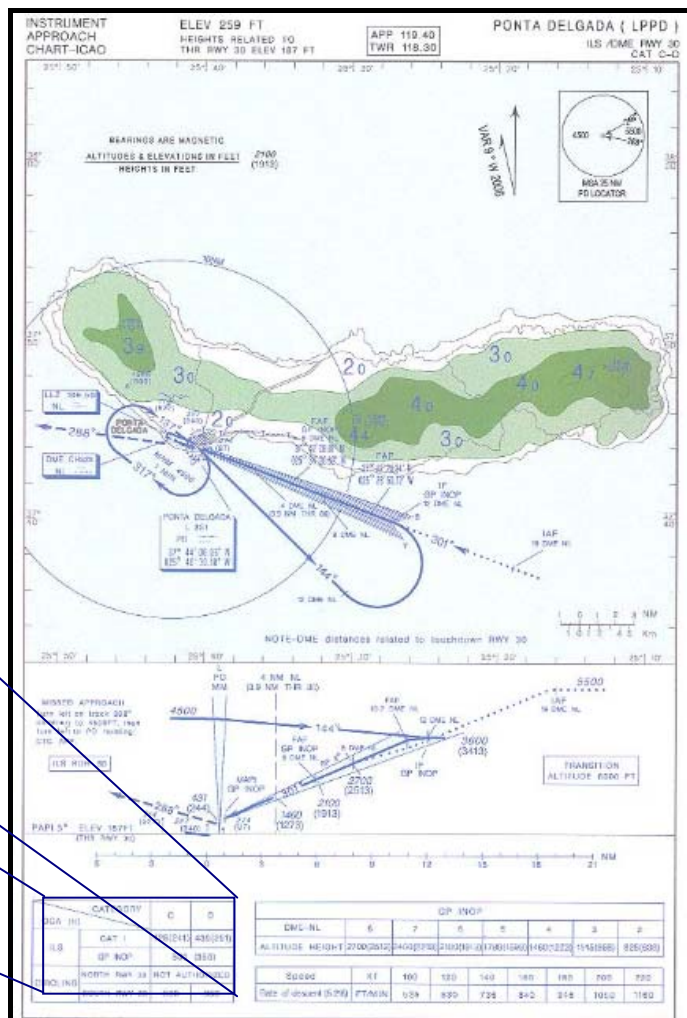
2.1.2 Ponta Delgada Landing Conditions

All the reports covering arrival time at LPPD and subsequent hours showed a poor visibility and a zero vertical visibility.

As shown in 1.7.1 the weather was foggy and landing was not possible, even if aircraft and crew were qualified for CAT III, the ILS installed was only rated CAT I, not enough to allow a CAT III approach.

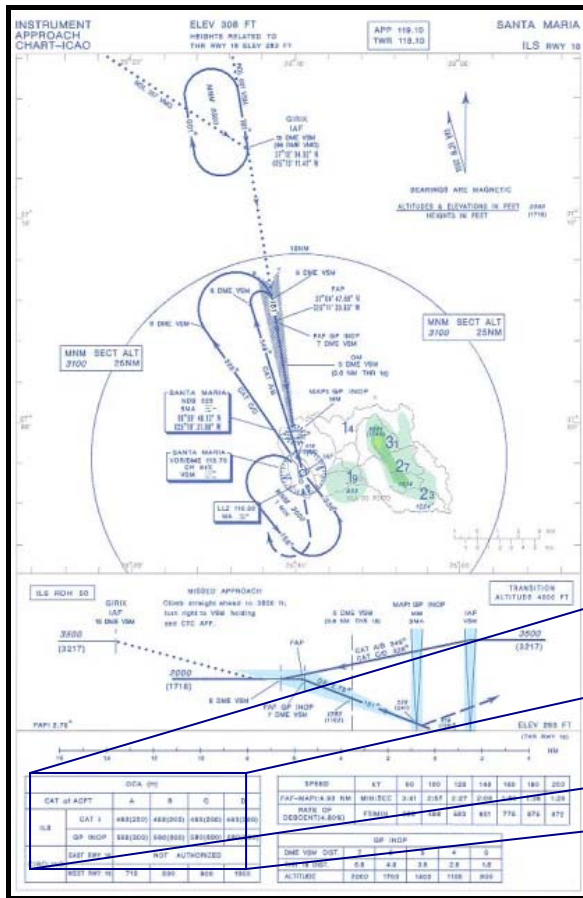
OCA (ft)	CATEGORY	
	C	D
ILS	CAT I	428(241) 438(251)
	GP INOP	530 (350)
CIRCLING	NORTH RWY 30	NOT AUTHORIZED
	SOUTH RWY 30	850 950

No weather improvement was expected so the flight had to be diverted to another airport where a safe landing could be made.



Picture Nr. 9

2.1.3 Santa Maria Landing Conditions



Picture Nr. 10

Being 60NM apart and situated on the main stream of weather flow, conditions at Sta Maria were only a little better than LPPD. By the time the captain had to take his decision the visibility was reducing, regarding previous reports, becoming close to minimum for ILS CAT I approach. The pilot couldn't be sure if the weather would improve or deteriorate until he could reach LPAZ. Most probably would deteriorate.

OCA (H)					
CAT of ACFT	A	B	C	D	
ILS	CAT I	483(200)	483(200)	483(200)	483(200)
	GP INOP	580(300)	580(300)	680(300)	680(300)
CIRCLING	EAST RWY 18	NOT AUTHORIZED			
	WEST RWY 13	710	800	900	1000

In such conditions, landing at LPAZ was not granted and the captain opted for the second closest alternate.

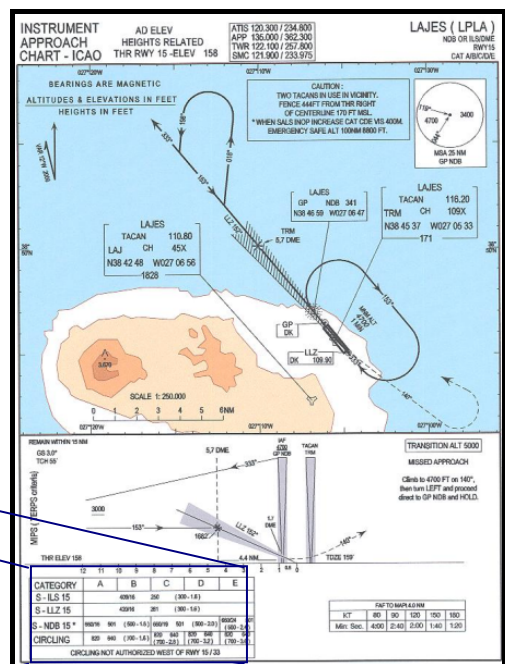
2.1.4 Lajes Option

Lajes weather report referred more than 10km visibility and scattered sky (or few clouds) for the entire period.

LPLA was a little bit far than LPAZ but much closer than LPPS, it was referred on ATC and on Operational Flight Plan and served by several approach and landing aids, like NDB, VOR or ILS (picture 11).

CATEGORY	A	B	C	D	E
S - ILS 15		408/16	250	(300-1.6)	
S - LLZ 15		420/18	261	(300-1.6)	
S - NDB 15 *	660/16	501	660/19	501	880/24 501 (500-2.4)
CIRCLING	820	640	820	640	820 640 (700-2.6) (700-3.2) (700-3.6)

CIRCLING NOT AUTHORIZED WEST OF RWY 15 / 33



Picture Nr. 11

The captain was not aware of operational restrictions, though it was the best choice for the moment. When confronted with the situation of declaring an emergency or proceeding to LPPS, the captain declared ***emergency due weather conditions at destination***.

2.2 Use of Military Airports

2.2.1 General

Use of military facilities by civilian aircrafts is regulated in Portugal Military AIP and transcript to Civil AIP Portugal. Following rules were in force at that time:

a) AIP Portugal – Aerodromes - 1.2 Conditions of Availability

“Civil aircraft are not permitted to land at any aerodrome not listed in this AIP except in cases of real emergency or where special permission has been granted”.

b) REGULATIONS CONCERNING CIVIL USE OF MILITARY AIR BASES

“Military aerodromes are under the responsibility of the respective commander”.

“Portuguese Military Aerodromes are normally restricted to military aircraft only. Providing that a civil airport is not available in the proximity and that intentions are clearly stated, the use of Military Aerodromes by civilian aircraft requires a 03 days prior permission request (PPR), sent by the owner or the operator, to the following addresses”:

Foreigner civilian aircraft:

Post:

INAC - Instituto Nacional da Aviação Civil

Rua B - Edifícios 4, 5 e 6

Aeroporto de Lisboa

1749-034 LISBOA

Tel:+.351.21.8423500

Fax:+.351.21.8473585

2.2.2 Lajes Airport

Despite those general conditions, operation in Lajes aerodrome was subjected to some local restrictions as referred bellow:

2.20.3 LOCAL FLYING RESTRICTIONS

2.20.3.1 Civilian Terminal operating hours 0600/2200 LMT daily, other times on request within 45 MIN prior through LAJES ARO using the AFTN address: LPLAZPZX.

2.20.3.2 All civilian aircraft authorized to land at this aerodrome will be parked on civilian apron by the Civil OPS Service and handled by SATA Air Açores.

Civilian Terminal facilities:

2.20.3.3 Airport Operations Service, Customs, Emigration Control Services, Security Police, X-Ray equipment (Baggage, Cargo and Mail), Phyto-sanitary Services, Flight Information Services, Weather Information (upon request), Aviation Fuel, Restaurant and Snack Bar.;

2.20.3.4 All military and civilian aircraft operating at Lajes Airport shall obtain prior permission from Control Tower to start engines and taxi.

2.20.3.5 Diplomatic clearance number (State Aircraft) or PPR Number (Civilian Aircraft) shall be included on flight plan Item 18 (eighteen).

2.20.3.6 Due to high terrain to the west, all turns and traffic circuit are made to the east.

2.20.3.7 Caution - RWY may not be visible during portions of downwind leg on circling approach.

2.20.3.8 Due to terrain visual traffic circuit should not be flown less than three miles from island.

2.2.3 TRA-2323 Standing

Portuguese Civil Aviation Authority (INAC) granted permission for TRA-2323 to be operated from Amsterdam to Ponta Delgada, but a request for using Lajes airport as alternate was never presented, nor ATC Flight Plan made reference to that permit on item 18. In such circumstances TRA-2323 couldn't be accepted by Lajes controller, unless in emergency situation.

When filing ATC Flight Plan, Transavia FOO should check the availability of Lajes, before including it as an alternate airport. Alternatively he should include the PPR for Lajes on its previous request for approval of those flights to Ponta Delgada.

Even if captain decision to declare emergency is understandable it's not possible to include diversion, due to weather conditions, as a serious incident subject to investigation, or even an incident, according ICAO definitions.

3. CONCLUSIONS

3.1 Findings

Based on what has been exposed, we may conclude that:

- 1st The flight has been cleared and operated as per FLTPLN;
- 2nd The crew was duly qualified to operate the aircraft and the route flown;
- 3rd Aircraft Certificate was valid, maintenance programme has been followed and there were no limitations for its operation;
- 4th The weather at destination was below minimum for landing, regarding approach & landing aids available;
- 5th Closest alternate weather was minimal and there were no guarantees of it to remain open at arrival;
- 6th LPLA weather was fine and landing conditions were assured during all the period;
- 7th LPLA was a military aerodrome and some special restrictions existed for it to be used by civilian aircraft;
- 8th TRA-2323 didn't comply with such restrictions and the only way to be cleared to land at LPLA was to declare an emergency;
- 9th Landing at LPLA was uneventful.

3.2 Causal Factors for the Incident

The occurrence was classified as an Incident because the Captain declared emergency due to weather at destination airport and that was the only expedite way to obtain permission for landing at a military aerodrome.

That could be avoided if:

- 1st The Operator had requested previous permission for use of that aerodrome;
- 2nd There was an easiest way to obtain such permission.

4. SAFETY RECOMMENDATIONS

- Notwithstanding the right of military authorities to establish the rules governing the operation of their facilities;
- Considering that Lajes airport is the only aerodrome in Terceira island;
- There are a separate area for handling of civilian traffic, well isolated from military facilities;
- All necessary support services for passengers & cargo handling are established;
- The aerodrome control service is managed 24 hours a day and is considered as an ETOPS alternate for the majority of traffic flying Sta Maria OCA;
- It doesn't make sense for an aircraft to declare an emergency anytime the weather forced it to divert to that aerodrome or have to proceed for an alternate faraway in another archipelago or in mainland.

So, it's recommended to

Civil Aviation National Institute (INAC)

“To try to establish procedures to facilitate the operation of civilian aircrafts in Lajes aerodrome, especially when flying to another Azorean island and taking this as an alternate aerodrome, avoiding the need to declare an emergency when operating technical conditions don't justify such declaration .”

(SR Nr. 11/2009)

ACRONYMS

ACC	Area Control Centre
AIP	Aeronautical Information Publication
ALT	Altitude
AOC	Air Operator Certificate
APP	Approach Control
ATC	Air Traffic Control
CTA	Control Traffic Area
CVR	Cockpit Voice Recorder
ETOPS	Extended Twin Over Water Operations
EU	European Union
FL	Flight Level
FLTPLN	Flight Plan
FOO	Flight Operations Officer
ILS	Instrument Landing System
NDB	Non Directional Beacon
OCA	Oceanic Control Area
PAPIS	Precision Approach Position Indicator System
PF	Pilot Flying
PNF	Pilot Not Flying
RVR	Runway Visual Range
SOP	Standard Operating Procedures
TMA	Terminal Control Area
TWR	Tower Control
VHF	Very High Frequency
V/L	VOR/Localizer
VOR	VHF Omni directional Range
VORTAC	Visual Omni-Range Tactical Air Navigation