



# **Final Report No. 2034**

## **by the**

# **Federal Aircraft Accident Board**

concerning the serious incident (AIRPROX)  
between LTE 7544, Airbus 320, registration EC-JTA  
operated by LTE International Airways S.A. Palma de Mallorca  
and  
private aircraft registration F-GAVC, DR400  
on 16 September 2007  
in the Geneva TMA 2  
approximately 4 NM south-east of the Saint-Prex SPR VOR

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 25 May 2009.

## General information on this report

In accordance with art 3.1 of the 9<sup>th</sup> edition, applicable from 1 November 2001, of Annex 13 to the Convention on International Civil Aviation (ICAO) of 7 December 1944 and article 2001 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. The legal assessment of accident/incident causes and circumstances is no concern of the incident investigation. It is therefore not the purpose of this investigation to determine blame or clarify questions of liability.

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. At the time of the accident, Central European Time (CET) applied as local time (LT) in Switzerland. The relation between LT, CET and UTC is:  $LT = CET = UTC + 2 \text{ hours}$ .

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

## Investigation report

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<b>Aircraft</b>	Operator:	LTE 7544, A320, registration EC-JTA LTE International Airways S.A.
	Owner:	Palma de Mallorca LEPA - Geneva LSGG
		IFR commercial flight
	Operator:	Registration F-GAVC, DR 400 Private
	Owner:	Private
		Circular flight Vesoul - Vesoul LFQW
		VFR private flight

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<b>Crews</b>	LTE 7544
	CMDR: not communicated
	FO: not communicated
	F-GAVC
	Pilot: French nationality, born 1932

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<b>Location</b> VOR	Approximately 4 NM south-east of the Saint-Prex SPR
<b>Date and time</b>	16 September 2007 at 13:33 UTC

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<b>ATS unit</b>	Geneva Terminal Control TCG; Approach Control APP; Flight Information Centre FIC
<b>Controllers</b>	Approach controllers:  Arrival controller coach ARR: Swiss nationality, born 1976 Arrival controller trainee ARR: Swiss nationality, born 1981 Coordinator controller APC: Swiss nationality, born 1976 FIC operator: Swiss nationality, born 1969

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<b>Airspace</b>	C
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## 1 Factual information

### 1.1 History of the flight

On Sunday 16 September at about 12:40 UTC, the DR400 aircraft, registration F-GAVC, took off from Vesoul – Frotey aerodrome (LFQW) on a circular pleasure flight in the region of the Mont-Blanc massif.

It made contact with the Geneva flight information centre FIC, radio callsign Geneva Information, on the 126.350 MHz frequency, at 13:17 UTC when it was over Pontarlier, heading south. It displayed transponder code A7000 with mode C indicating its altitude. The pilot requested a route over Saint-Prex SPR VOR at flight level FL 065.

Geneva Information informed the pilot that he should remain outside Geneva Terminal Control Area TMA airspace C and asked him if he wanted to follow a direct route from his position towards Mont-Blanc. The pilot responded in the affirmative. The FIC asked him to call back over Lausanne.

The direct route between Pontarlier and the Mont-Blanc massif perpendicularly crosses the Geneva approach sector and the runway 23 approach centreline, which was the runway in use at that time.

The scheduled route passes between the towns of Morges and Lausanne and crosses the Geneva TMA. The latter is delimited by the TMA 2, the class E airspace ceiling of which is at 5500 ft and which is located between the SPR VOR and the city of Lausanne, over a distance of approximately 5 NM. Then the TMA 5 extends for a distance of approximately 10 NM in an easterly direction; its class E airspace ceiling is at 7500 ft (Annex 1).

The pilot of aircraft F-GAVC followed the planned route but did not comply with the class E airspace ceiling which he was to take. Although Geneva Information requested the pilot, without further details, to avoid the Geneva TMA, aircraft F-GAVC intruded into the class C airspace of Geneva TMA 2 at 13:28:08 UTC, without clearance. Within this airspace, Approach Control has to ensure separation between IFR and VFR traffic.

During these events, an A320 type aircraft, flight LTE 7544, which was on a commercial flight from Palma de Mallorca to Geneva, was in contact with Geneva Approach Control (APC) on the Arrival control position-PRE frequency 136.250 MHz. According to the controllers' statements, the volume of traffic was average, without any major complexity. The sector was being managed by a radar controller – coach – and his trainee under supervision.

Approach Control cleared this aircraft to proceed directly to waypoint GG512 at flight level FL 140. It informed the crew to expect an ILS approach on runway 23, indicating that the remaining distance was of the order of 55 NM.

At 13:27:59 UTC, aircraft LTE7544 reported to Approach Control that it was levelling flight level FL 140 and that it had established visual contact with the ground. It was then approximately 3 NM to the south of waypoint GOLEB and was passing flight level FL 155 in descent. Its groundspeed was 365 kt. Approach Control asked the crew if they wanted to make a visual approach. The crew agreed and received clearance to continue with a visual approach under the express condition that they pass waypoint PETAL at 4000 ft QNH minimum.

At 13:29:16 UTC, Approach Control, after noticing the intrusion of aircraft F-GAVC into class C airspace at an altitude of 6500 ft, telephoned Geneva FIC and make them aware of the problem.

The FIC operator informed the pilot of aircraft F-GAVC that the maximum altitude prescribed at his location was 5500 ft and suggested he turn towards the city of Lausanne to regain class E airspace below sector 5 of the TMA. The pilot replied that he would descend.

However, the pilot of aircraft F-GAVC continued on his heading and began to descend at a low rate of descent. Throughout the following three minutes, according to his statements, the FIC operator did not observe the progress of the aircraft. The volume of traffic in the FIC sector was judged to be heavy by those involved.

Flight LTE 7544 continued on its heading towards waypoint GG512, which it passed before initiating a base turn in the direction of the SPR VOR. When passing abeam east of waypoint TINAM, at 13:32:06 UTC, the crew of flight LTE 7544 received traffic information concerning traffic in the opposite direction. This was the DR400, registration F-GAVC, which was opposite, 8 NM away and at an altitude of 6000 ft. The pilot of flight LTE 7544 acknowledged receipt of the information and Approach Control suggested he make a base turn. Since the A320 pilot did not reply to this last suggestion and since the aircraft continued on its heading, the controller instructed him to turn onto heading 260° without giving the reason. (Annex 2).

The pilot read back this clearance and, a few seconds later, received new traffic information indicating the position of aircraft F-GAVC, at his 12 o'clock and at a distance of 3 NM, in the opposite direction. The pilot of aircraft LTE 7544 confirmed that he was turning left.

At 13:32:57 UTC, the short-term conflict alert STCA was triggered.

Following a telephone exchange with the Approach controller, who realised the imminence of a dangerous convergence between aircraft F-GAVC and LTE 7544, the FIC operator at 13:32:57 UTC informed the pilot of the DR400 that he had not followed the route in the direction of Lausanne. He issued him with essential traffic information concerning the conflicting IFR traffic LTE 7544, at his 12 o'clock, at the same altitude and at a distance of 2 NM.

The FIC operator relayed this essential traffic information originating from the radar coordinator who had moved to his workstation. The pilot of aircraft F-GAVC replied that he had established visual contact with the traffic and that he was avoiding it to the left. The radar plots would in fact confirm a change of direction to the left.

At 13:33:05 UTC, and according to the radar plots, the minimum measured distance between the two aircraft were a lateral separation of 1.4 NM and an altitude difference of 200 ft, on divergent trajectories.

According to the statements of the crew of LTE 7544, a TCAS traffic advisory (TA) was issued when the aircraft made the base turn. A few seconds later, the crew established visual contact with the conflicting aircraft. Suddenly and for one second, a resolution advisory (RA) appeared; this did not give them time to react. Whilst their aircraft was descending, the crew established visual contact with the VFR traffic which was crossing above them, moving away to the right. They did not deem it necessary to take any avoiding action.

At 13:33:23 UTC, Approach Control informed the crew of LTE 7544 that the danger had passed and asked them if they could continue their visual approach. The crew confirmed continuation of their approach before being transferred to the Geneva Control Tower frequency.

## 1.2 Meteorological information

INFONET DATA according to skyguide

*ATIS GENEVA*

*INFO NOVEMBER RWY IN USE 23 D 0438 N 1812*

*GRASS RWY IS IN OPERATION FOR VFR TRAFFIC*

*QAM LSGG 1320z 16.09.2007*

*220 DEG 10 KT. VARYING BTN 160 AND 260 DEG*

*CAVOK*

*+26 / +10*

*QNH 1019 ONE NINE*

*QFE THR 23 970*

*QFE THR 05 968*

*NOSIG*

### 1.3 Additional information

#### FLIGHT INFORMATION CENTRE (FIC)

Extracts from the ATMM TCG –FIC section.

##### 1.3.1 Area of competency of the FIC and operator job specification

*The FIC is competent, in class "E" and "G" airspace, regarding known VFR civil traffic, flying within the limits of the Geneva CTA and in the foreign airspace delegated to Geneva.*

*The FIC operator is responsible for monitoring the FIC frequency, updates the screen and monitors traffic, uses the information derived from the radar in accordance with the principles laid down in the ATMM CH.*

*The FIC operator may derive from the radar information useful to the services included in his job specification.*

*The radar identification carried out by FIC operators is based exclusively on the information derived from the secondary radar (SSR). If SSR identification is not possible but is necessary, the FIC operator must obtain the collaboration of a CCA to make an identification from the primary radar (fallback).*

*FIC operators use the radar exclusively as a source of information in the absence of a position report originating from a pilot (radar watching) and to provide accurate traffic information.*

*The FIC operator is never authorised to use the radar to:*

- *perform radar vectoring*
- *perform radar monitoring*
- *perform radar separation.*

##### 1.3.2 Traffic information issued by the FIC

*Information concerning the potentially dangerous proximity of two or more aircraft is sometimes established from data that is not guaranteed to be accurate and complete (especially without radar identification).*

*Additionally, FIC is not always able to guarantee transmission, or exactness, of traffic information.*

Extracts from the manual ATMM TCG ATC CVFR H5.1 and H5.2.1

#### *Rules for VFR in the Geneva TMA*

*In the Geneva TMA, in airspace class C, only traffic with an ATC clearance delivered by the competent air traffic control service is allowed to enter.*

*As there is no control position dedicated to VFR flights, transit aircraft are instructed to avoid the airspace C of the TMA.*

### 1.3.3 Procedures

*Entry of a VFR flight into the TMA must be prepared by FIC or DELTA. A pilot requesting entry into airspace C will therefore start by calling the FIC (airspace E/G), or DELTA (airspace C/D outside TMA), where he will be referred.*

*A flight already in airspace C of the TMA at the time of the first call will be handled by an INT controller; if the first call occurs on the Delta or FIC frequency, APC shall be informed immediately. Such a violation shall systematically be the subject of an OIR.*

*FIC/DELTA shall coordinate the approach with the sector concerned, which will accept or reject the traffic depending on the current and foreseeable volume of traffic.*

*In case of acceptance, the flight shall be correlated and the aircraft transferred to the indicated frequency.*

*If all risk of conflict with the IFR traffic can be excluded, this aircraft may be left on the FIC or DELTA frequency. The Approach controller, however, remains fully responsible for monitoring of this flight inside the TMA.*

### 1.3.4 Passing in proximity to the TMA

*VFR transits in contact with the FIC which pass in proximity to the TMA but do not penetrate it are not correlated unless there is an important reason to do so.*

*Exception: by way of traffic information, FIC requests display of the A/C 7000 code for flights below sector TMA 5 (region VADAR – SPR), from an altitude of 6500 ft.*

## 2 Analysis

### 2.1 Crew of LTE 7544

Flight LTE 7544 was on the Geneva Arrival frequency (136.250 MHz) when the crew reported that they were acquiring flight level FL 140 and had visual contact with the ground. In view of the latter information, the APP controller asked them if they wanted a visual approach. The pilot replied in the affirmative and the controller cleared him for a visual approach, indicating to him that he had to be established on PETAL at 4000 ft minimum.



The approach trajectory of aircraft LTE 7544, once cleared for visual approach, did not differ from the route it had received previously. The aircraft in fact pass waypoint GG512 and made for the SPR VOR before the serious incident occurred. The option chosen by the pilot very definitely surprised the controller, who would have been expecting a shortened and more expeditious approach, especially given the fact that the distance of the aircraft from the airport, its altitude and speed at the time of the clearance delivery allowed such an approach to be carried out.

By its nature, a visual approach allows the crew a degree of freedom as to how they perceive it. Indeed, it does not necessarily correspond to the idea which the air traffic controller may have of it; generally, he expects an approach which is shortened compared with the STAR. The crew must pay attention to the feasibility of a visual approach, the objective of which is usually to shorten distance and flight time.

## **2.2 The pilot of F-GAVC**

The pilot of F-GAVC has a great experience and is accustomed to this type of flight in the Mont-Blanc region.

Contact was made on the Geneva Information FIC frequency in good time and the information which the pilot provided about his flight intentions were clear and accurate.

The equipment on F-GAVC as well as the available documents – according to the statement made by the pilot - permitted the flight to be made according to the navigation plan. The aircraft was equipped, again according to the statement of the pilot, with two VOR receivers, used on this occasion. As far as flying conditions are concerned, the pilot reported a total absence of cloud over Lake Geneva as well as very good visibility.

The pilot's envisaged route, transmitted to Geneva Information, proposed crossing various sectors of the Geneva TMA, the lower limits of which are all different.

On initial radio contact, the Geneva Information operator did in fact specify that the Geneva TMA class C airspace had to be avoided. The pilot did not read back this restriction. The operator requested that the next position report be made abeam Lausanne and that any change in altitude should be communicated to him.

VFR navigation within Geneva TMA require whole attention from the pilot. Moreover, the reference points relating to a locality demand from the pilot very good geographical knowledge of the region. The lack of precision in navigation, as well as in the information given by the ATS units, plus non-compliance with instructions, may lead to a route different from the envisaged one, and consequently to intrusion into regulated airspace.

## **2.3 Air traffic services ATS**

### **2.3.1 Flight information centre FIC**

The pilot of aircraft F-GAVC did not request the flight information centre FIC for ATC clearance to enter class C controlled airspace. The FIC operator therefore

correctly carried out his task which consisted of informing him that he should avoid airspace C, without assigning him an SSR code.

The suggestion to fly towards Lausanne to avoid airspace C was appropriate. However, the FIC operator, although he has a radar screen at his disposal, does not have the means to intervene at the level of monitoring the navigation of the aircraft to impose a route or an altitude.

According to his statements, the FIC operator was expecting the APP service to ask him to transfer the aircraft to its control frequency. This would have been the appropriate action, according to the established procedure for this kind of situation.

The essential traffic information which the ATC had to issue was transmitted by the FIC operator even though it was not his task.

### 2.3.2 APP Approach Control

Following the coordination carried out by the APC coordinating controller at the FIC working station, the intrusion of the VFR flight into class C airspace was known to Approach Control.

Even if the conflicting VFR aircraft remained on the frequency of the flight information centre FIC, the Approach Control unit remained fully responsible for separation of this aircraft from other traffic in its sector.

In all cases, separation between IFR and VFR aircraft had to be ensured within class C controlled airspace. At the location where the serious incident occurred, the minimum separation between the two aircraft should have been a lateral separation of 5 NM and/or an altitude difference of 1000 ft.

Given that the route of the VFR aircraft in relation to that of the arriving IFR traffic was foreseeable, followed by mean of radar and identified as conflicting before the convergence became progressively more dangerous, Approach Control had the means to intervene earlier to avoid any risk of loss of separation. Although the volume of traffic was average and of no great complexity, Approach Control did not take the conflicting traffic in hand.

The suggested base turn given by Approach Control to the pilot of aircraft LTE 7544 followed by the divergent heading of 260° in the direction of the ILS axis were appropriate avoiding manoeuvres. However, they would have been more effective if they had been transmitted earlier and imperatively, for example if Approach Control had used the emergency phraseology "*immediately*".

### 2.3.3 FIC – Approach interface

It must be stated that a known deficit exists in the interface between the flight information centre (FIC ) and Approach Control (APP).

Since the discontinuance of the TMA control position, recurrent conflicting situations have not been handled appropriately by Approach Control. This state of affairs has already been reported by the Aircraft Accident Investigation Bureau in four airprox serious incident investigation reports and one accident investigation report (see section 4.3).

## 3 Conclusions

### 3.1 Findings

- Runway 23 was in operation in Geneva.
- The air traffic controllers each held an appropriate and valid licence.
- The FIC operator held a valid assistant air traffic controller's licence.
- The pilot of F-GAVC had submitted a VFR flight plan.
- Aircraft F-GAVC made contact with Geneva Information (FIC) on the 126.350 MHz frequency at 13:17 UTC. It appeared on the radar screen with the A7000 mode C code, with altitude report.
- The radar label was not correlated. It appeared on the Approach radar screens under code A7000 mode C with altitude transmission.
- The APP controllers all observed the route followed by aircraft F-GAVC before it entered class C controlled airspace.
- At 13:28:08 UTC, aircraft F-GAVC, without prior clearance, intruded into the Geneva TMA2 within class C airspace at flight level FL 065.
- Aircraft A320, flight LTE 7544, made contact with Geneva Approach Control on the Arrival – PRE - frequency 136.250 MHz at 13:26:18 UTC.
- At 13:32:06 UTC, PRE issued traffic information to aircraft LTE 7544 *"...additional traffic at your...twelve o'clock, eight miles, at six thousand feet descending, opposite."*
- At 13:32:19 UTC, PRE suggested LTE 7544 make a base turn.
- At 13:32:27 UTC, PRE ordered the aircraft LTE 7544 to turn onto heading 260°
- At 13:32:41 UTC, PRE issued essential traffic information to aircraft LTE 7544 *"...traffic is now at your twelve o'clock, three miles."*
- At 13:32:48 UTC, the pilot of aircraft LTE 7544 replied: *"Okay, turning left, seven five four four, thank you."*
- The short-term conflict alert STCA was triggered at 13:32:57 UTC.

- At 13:32:57 UTC, the FIC operator issued essential traffic information to aircraft F-GAVC: "*... IFR traffic at your twelve o'clock, two nautical miles turning direction Geneva, identical altitude.*"
- The pilot of aircraft F-GAVC answered at 13:33:07 UTC: "*Yes, I know, I saw it, I'm avoiding it to the left.*"
- The crew of flight LTE 7544 did not deem it necessary to take any avoiding action.
- The minimum distances shown on the radar plots between the two aircraft were a lateral separation of 1.4 NM and an altitude difference of 200 ft.

### 3.2 Cause

The serious incident is due to the intrusion of aircraft F-GAVC into the class C controlled airspace of sector 2 of the Geneva TMA.

Factor affecting the incident sequence:

- The Approach Control not taking this VFR traffic in hand.
- Systemic deficit of the interface between the flight information centre (FIC) and Approach Control APP.

**4 Summary of serious incidents, AIRPROX between VFR and IFR aircraft, and one accident with similar causes**

<b>Report No.</b>	<b>Registration</b>	<b>Date</b>	<b>Cause or contributing factor</b>	<b>Safety recommendation</b>
Airprox report No. A043	KLM1929/F-BVCF	11.12.2001	Intrusion into the TMA class C. Closure of the TMA control position	
Airprox report No. A047	SAS615/F-BPKI	01.10.2002	Intrusion into the TMA class C. Closure of the TMA control position	
Airprox report No. 1814	F-PDDL/HB-ZBY	15.02.2003	Intrusion into the TMA class C. Closure of the TMA control position	
Airprox report No. 1897	BVR101/F-GSIX	25.05.2004	Intrusion into the TMA class C. High volume of traffic in the Geneva Approach sectors.	
Accident report No. 1919	HB-CJB	19.09.2004	... Major defects in the teamwork of the ATS units concerned.	Safety recommendation No. 381: The FOCA must demand the opening of a permanent Geneva TMA position for VFR traffic.

Berne, 26 October 2011

**Federal Aircraft Accident Board**

André Piller, President

Tiziano Ponti, Vicepresident

Ines Villalaz-Frick, Member