



Summary Report

A summary investigation, in accordance with article 45 of the Ordinance on the Safety Investigation of Transport Incidents (OSITI), was carried out with regards to the following serious incident. This report was prepared to ensure that lessons can be learned from the incident in question.

Aircraft	BD700-1A10 (Global 6000)	M-ARGO		
Operator	Corsons Trade Ltd Craigmuir Chambers, P.C.71, Road Town British Virgin Islands			
Owner	Sunburst Invest & Finance Inc., Trident Chambers, Road Town, Tortola, British Virgin Islands			
Pilot	British citizen, born 1976			
Licence	Airline transport pilot licence aeroplane (ATPL(A)) according European Aviation Safety Agency (EASA), issued by the Civil Aviation Authority (CAA) of the United Kingdom			
Flying hours	Total	4185 h	During the last 90 days	49:20 h
	On the incident type	2263 h	During the last 90 days	49:20 h
Copilot	French citizen, born 1972			
Licence	ATPL(A) according EASA, issued by the CAA) of the United Kingdom			
Flying hours	Total	3650 h	During the last 90 days	90 h
	On the incident type	1400 h	During the last 90 days	90 h
Location	8 NM southwest of Zurich airport (LSZH)			
Coordinates	---	Altitude	Flight level 70	
Date and time	7 December 2016, 10:36 UTC (LT = UTC + 1 h)			
Type of operation	Commercial			
Flight rules	Instrument flight rules (IFR)			
Flight phase	Take-off and climb			
Type of serious incident	Loss of cabin pressure, use of oxygen masks			
Point of departure	Zurich (LSZH)			
Point of Destination	Basel (LFSB)			
Injuries to persons	Crew	Passengers	Third parties	
	Minor	0	0	0
	None	3	0	-
Damage to aircraft	Not damaged			
Third-party damage	None			

Course of events

It was a positioning flight from Zurich (LSZH) to Basel (LFSB) with the flight crew and one attendant on board.

After take-off on runway 28 at 10:33 UTC and while climbing to flight level (FL) 100 the flight crew noticed a strong noise coming from an air flow in the cabin. Whilst checking around for the source of the noise, PASSENGER OXY advisory alerted on the *engine indicating and crew alerting system* (EICAS). The equivalent switch was checked and it was selected to NORMAL. This was shortly followed by a CABIN ALT caution and quickly a CABIN ALT warning.

Subsequently, at 10:37:00 UTC, the flight crew of M-ARGO asked for descent to 6000 ft. The air traffic control officer (ATCO) informed that they could expect so once in contact with Basel approach. In return, the flight crew of M-ARGO declared an emergency at 10:37:16 UTC and requested to descend to 6000 ft. The ATCO immediately granted the requested descent and was confirmed a Pan-Pan call some two minutes later.

Before reaching FL 100, the flight crew put on their oxygen masks and initiated an emergency descent in accordance with the quick reference handbook (QRH). During the descent, the PASSENGER DOOR caution was alerted on EICAS.

The remainder of the descent and approach into Basel was flown without further events as stated by the flight crew later on. After landing, a ground engineer observed that the vent flap of the passenger door was partially open.

Short description of the vent flap

On door closure, pressurization of the aircraft is prevented by the installation of a vent flap in the door structure unless the door is correctly closed and locked (cf. Figure 1).

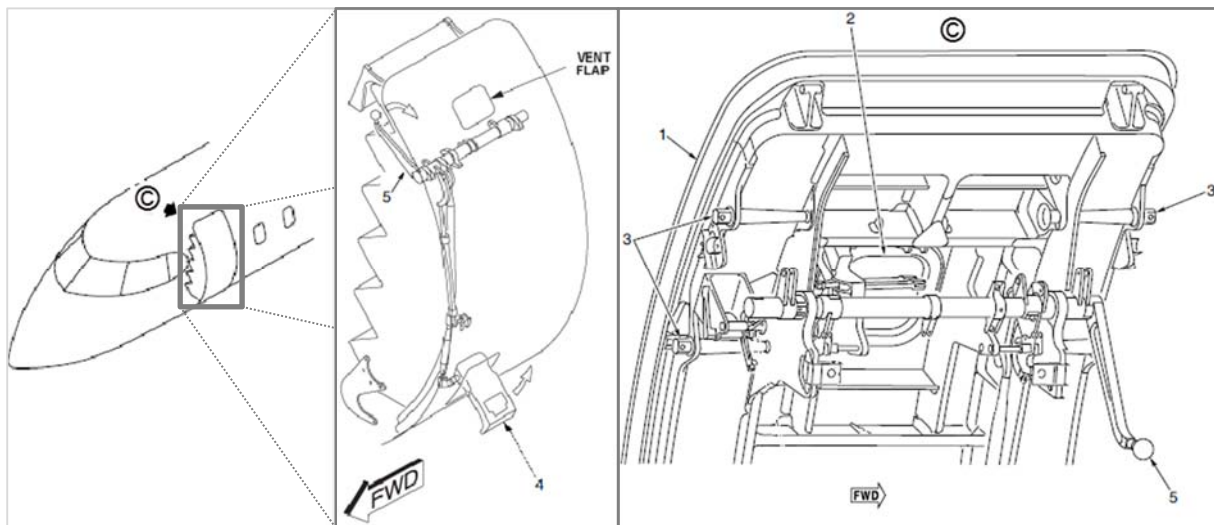


Figure 1: Technical drawing of the passenger door from outside (middle) and as seen from the cabin ©: door (1), vent flap (2), door abutments (3), internal (4) and external (5) door handle, drawing out of the aircraft maintenance manual adapted by the STSB.

Findings

The day after the serious incident, various operational tests of the passenger door as well as its mechanism was performed in accordance with the aircraft maintenance manual. Alike the passenger door latch and the mechanism of the vent flap (cf. Figure 1) were inspected and the rigging checked. The results complied with the specifications as given in the AMM.

As for the functional test of the passenger door external handle spring pot the value measured to unlatch the external door handle was 33 lb compared to the minimum value of 15 lb. In this regard, there is no maximum value stipulated in the AMM.

Analysis and conclusions

From a technical point of view, the various tests on the day after the serious incident did not reveal any clues as to why the cabin pressure did not build up properly. The observation of the partially open vent flap after landing in Basel leads to the conclusion that the passenger door was not correctly closed and locked before the commencement of the flight. This also explains the strong noise noticed by the flight crew after take-off.

When the flight crew realized based on the indications in the cockpit that there was a problem with the cabin pressure, they acted correctly by putting pressure on their request for an immediate descent by declaring an emergency. Equally the flight crew acted consistently by putting their oxygen masks on during the emergency descent.

Thanks to the immediate clearance given by the ATCO, the flight crew was able to initiate descent before establishing contact with Basel approach.

Having regard to Article 29.1 of the Ordinance on the Safety Investigation of Transport Incidents (OSITI), the STSB refrains from further investigation activities and concludes the investigation in accordance with Article 45 of the OSITI.

Bern, 13 June 2017

Swiss Transportation Safety Investigation Board