

# Interim Report

## Identification

Type of Occurrence:	Serious Incident
Date:	20 January 2016
Location:	Munich
Aircraft:	Airplane
Manufacturer / Model:	Airbus Industries / A320-216
Injuries to Persons:	None
Damage:	Minor damage to aircraft
Other Damage:	Damage to two de-icing vehicles
Source of Information:	Investigation by BFU
State File Number:	BFU 16-0055-EX
Date of Publication:	March 2016

## Factual Information

The aircraft collided with two de-icing vehicles as it began taxiing from the De-icing Area (DA) 14 in front of runway 26L of Munich Airport. Persons were not injured. The aircraft was slightly damaged. Material damage on the two de-icing vehicles occurred.

## History of the Flight

The airplane was ready for a flight from Munich to Madrid and had 110 passengers and six crew members on board. At 0741 hrs<sup>1</sup> the flight crew established radio contact with the air traffic control unit Munich Ground and received the instruction to taxi via taxiway S to DA14.

At 0747:39 hrs the ground controller requested the flight crew to change to the de-icing frequency. The flight crew acknowledged the change of frequencies.

According to the Cockpit Voice Recorder (CVR) the pilots established radio contact with the de-icing vehicles at 0748:08 hrs. The team leader of the de-icing vehicles answered: “[...] please stop on the deicing hold and confirm parking brake set and aircraft ready for de-icing.” The flight crew acknowledged the information. The two de-icing vehicles were standing at the edge of their respective taxiway markings facing each other.

At 0748:30 hrs the pilots began to complete the Before De-icing Checklist. First the CAB PRESS Mode selector was selected to Auto, then the ENG BLEED 1+2, and the APU BLEED were selected to Off. At 0748:49 hrs the Pilot in Command (PIC) requested the co-pilot to select the DITCHING button to On and added: “Confirma, ditching?”. Three seconds later the pilots began a conversation about the fact that they had just actuated the fire extinguishing system for the cargo compartment instead of the DITCHING button.

At 0749:09 hrs the team leader of the de-icing vehicles asked: “[...] are you ready for de-icing?” The flight crew answered: “Ah, hold on [...].” The team leader said: “Okay, de-icing commences and ah we make a two-step and ah anti-icing with type one fluid a hundred percent, I call you back.”

At 0749:43 hrs the flight crew radioed the team leader: “So control, [...], we need to go back to the parking.” After the team leader had answered: “Please [...] please say it again” The flight crew added at 0749:53 hrs: “We need to go back to the stand please. We have one problem.” At 0749:55 hrs the team leader said: “You have technical problems, we will wait.”

At 0750:25 hrs the flight crew used the ground frequency again with the words: “Yeah we have a technical problem. We need to go back to the parking area.” The ground controller acknowledged and said about two minutes later: “So we have to take you

---

<sup>1</sup> All times local, unless otherwise stated.

later then via the runway. So initially hold position here and monitor tower one two zero five. He will call you.”

At 0753:51 hrs, the aerodrome controller established contact with the flight crew. He explained his plan that the aircraft should taxi to the runway after two approaching airplanes had landed and then leave it right away again at taxiway B13. After the flight crew had agreed the controller said at 0754:16 hrs: “Ok, prepare for that and I will give you a call as I said behind the second landing traffic.”

At 0756:54 hrs the controller said: “[...] as we talked about line up runway two six left, make a one eighty and vacate the runway via bravo one three.” The flight crew acknowledged it.

The recording of the Flight Data Recorder (FDR) showed that at 0756:57 hrs the parking brake was released and the thrust levers of both engines were pushed forward. The engine thrust N1 started to increase at 0757:00 hrs and the airplane began to move. The speed increased to approximately 3 kt. At 0757:10 hrs the FDR recorded a change in longitudinal acceleration from 0.02 g to -0.15 g. Two seconds later the wheel brakes were actuated and at 0757:16 hrs the parking brake was set again.

The aircraft’s wing tips collided with the de-icing vehicles.

The PIC stated that during completion of the Before De-icing Checklist the Cargo Smoke FWD DISCH button on the cargo smoke panel for the fire extinguishing system of the forward cargo compartment had been actuated instead of the DITCHING button on the cabin pressure panel to close the outflow valve. Therefore the flight crew decided to return to the stand. The PIC stated that after the controller had issued the taxi clearance the flight crew had looked right and left and seen no obstacles. Then the PIC began taxiing. He had had the impression that the parking brake had still been set. Therefore he actuated the wheel brakes.

The operators of the two de-icing vehicles stated that the pilots had established radio contact, and the team leader issued the clearance to taxi to DA14. Once the airplane had reached the holding position, the team leader had contacted the pilots. The flight crew had acknowledged: “parking brake set, aircraft ready for de-icing.” The de-icing vehicles had been positioned left and right of the airplane in a distance of 4 - 5 m in front of the wings. Immediately before the de-icing would have started, the cockpit reported a technical problem. The team leader had answered: “we will wait.” No de-icing fluid had been applied at that time.

## Personnel Information

### Pilot in Command (PIC)

Since 1999, the 42-year-old PIC had been holding an Airline Transport Pilot's Licence (ATPL) issued by the Spanish civil aviation authority (AESA). Ratings for the Airbus A320 and instrument flights (IR(A)) valid until 30 June 2016 were listed in the licence.

The pilot had a Class 1 Medical Certificate valid until 19 October 2016.

He had a total flying experience of more than 15,000 hours; more than 1,000 hours of which were on the type in question. Since 2014 he had been flying as PIC.

### Co-pilot

The 35-year-old co-pilot held an European Union Airline Transport Pilot's Licence (ATPL) issued by the Spanish civil aviation authority (AESA) on 9 September 2009. Ratings for the Airbus A320 and instrument flights (IR(A)) valid until 31 December 2016 were listed in the licence.

He had a Class 1 Medical Certificate valid until 31 August 2016.

He had a total flying experience of about 7,680 hours; more than 3,000 hours of which were on the type.

## Aircraft Information

The Airbus A320 is a twin-engine aircraft in midwing configuration and mixed construction.

The aircraft had a Spanish certificate of registration and was operated by a Spanish operator.

Manufacturer:	Airbus Industries
Type:	A320-216
Manufacturer's Serial Number (MSN):	5570
Year of manufacture:	2013
Engines:	CFM International, CFM56-5B6/3

Total operating hours of the aircraft were approximately 6,835 hours at 4,682 cycles.

## Meteorological Information

The aviation routine weather report (METAR) of 0750 hrs (06:50 UTC) gave the following weather conditions:

Wind: 220° / 3kt  
Clouds: 1/8 – 2/8 in 300 ft above ground  
Ground visibility: General 2,500 m, south-east of the airport 550 m  
Runway Visibility Range (RVR) Runway 26L 500 m to 2,000 m  
Weather phenomena: individual wafts of mist  
Temperature: -13°C  
Dewpoint: -14°C  
Barometric air pressure (QNH): 1,016 hPa  
Sunrise was at 0755 hrs.

## Radio Communications

Radio communications between the crew and Munich Ground, as well as with Munich Tower were recorded, and the recordings were made available to the BFU for evaluation.

## Aerodrome Information

Munich Airport had two parallel runways, which were 4,000 m long and 60 m wide and oriented 083°/263°. Airport elevation is 1,487 ft AMSL. At the time of the occurrence runway 26 was in use.

The taxiways had a width of 30 m.

## Flight Recorders

The airplane was equipped with a Flight Data Recorder (FDR) Honeywell SSFDR and a Cockpit Voice Recorder (CVR) Honeywell SSCVR. Both recorders were read out at the BFU flight data recorder laboratory.

The FDR had recorded 845 parameters over a recording duration of 26:34 hours. The CVR recorded a total of five channels; two of which with 120 minutes and three of 30 minutes duration.

## Wreckage and Impact Information

The serious incident occurred at DA14 approximately 160 m north of runway 26L. The aircraft's nose landing gear stood on the centre line of the taxiway. The fuselage nose was immediately north of the CAT II/III hold bar, about 7.5 m behind the de-icing hold marking.



Position of the airplane and the de-icing vehicles after the collision

Source: Police/BFU

The airplane's wings' transition zones with the sharklets had collided with the booms of the de-icing vehicles.

The drivers' cabs of the de-icing vehicles stood abeam of the corresponding edge marking of the taxiway. The vehicles had tipped by about 20° and therefore they stood on their left or right wheels, respectively.



Position of the Aircraft after the collision

Photo: BFU

## Fire

There was no fire.

## Survival Aspects

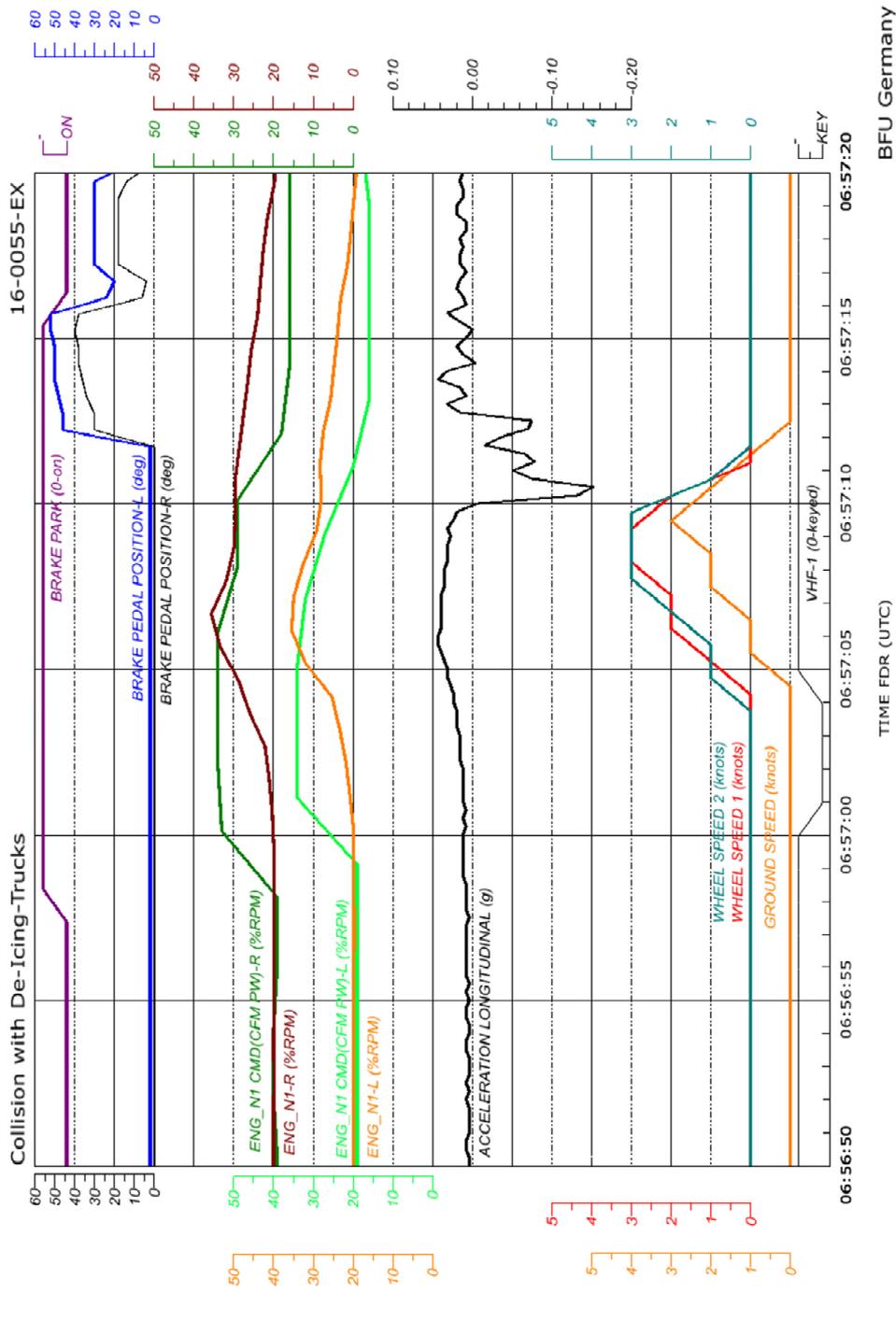
At the time of the occurrence the operators of the two de-icing vehicles had been in their respective cubicles at the end of the vehicles' booms. The cubicles had been in approximately 6 m above ground. Initially the fire brigade secured the de-icing vehicles with steel cables. Then the two operators were rescued.

Investigator in charge      Jens Friedemann

# Appendices

Excerpt FDR recording

FDR data



This investigation is conducted in accordance with the regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and the Federal German Law relating to the investigation of accidents and incidents associated with the operation of civil aircraft (*Flugunfall-Untersuchungs-Gesetz - FIUUG*) of 26 August 1998.

The sole objective of the investigation is to prevent future accidents and incidents. The investigation does not seek to ascertain blame or apportion legal liability for any claims that may arise.

This document is a translation of the German Investigation Report. Although every effort was made for the translation to be accurate, in the event of any discrepancies the original German document is the authentic version.

## Published by:

Bundesstelle für  
Flugunfalluntersuchung

Hermann-Blenk-Str. 16  
38108 Braunschweig

Phone +49 531 35 48 - 0  
Fax +49 531 35 48 - 246

Mail [box@bfu-web.de](mailto:box@bfu-web.de)  
Internet [www.bfu-web.de](http://www.bfu-web.de)