

DATA SUMMARY

LOCATION

Date and time	Saturday, 13 April 2012; 20:17 UTC
Site	Seville Airport (LEZL) (Spain)

AIRCRAFT

Registration	EI-EBA	EI-EVC
Type and model	BOEING 737-8AS	BOEING 737-8AS
Operator	Ryanair	Ryanair

Engines

Type and model	CFM 56 7B26	CFM 56 7B26
Number	2	2

CREW

	Captain	First officer	Captain	First officer
Age	34 years old	26 years old	42 years old	29 years old
Licence	ATPL(A)	CPL(A)	ATPL(A)	CPL(A)
Total flight hours	3,914 h	1,493 h	10,000 h	4,200 h
Flight hours on the type	3,598 h	1,283 h	7,000 h	1,300 h

INJURIES

	Fatal	Serious	Minor/None	Fatal	Serious	Minor/None
Crew			6			6
Passengers			150			143
Third persons						

DAMAGE

Aircraft	Minor	Minor
Third parties	None	None

FLIGHT DATA

Operation	Commercial air transport – Scheduled – Domestic – Passenger	Commercial air transport – Scheduled – Domestic – Passenger
Phase of flight	Taxi – Taxi to runway	Parked – Engines stopped

REPORT

Date of approval	29 April 2013
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1. FACTUAL INFORMATION

1.1. History of the flight

On 13 April 2012, two Boeing 737-800 aircraft, registrations EI-EBA and EI-EVC, operated by Ryanair, were stopped at parking stands R10 and R11, respectively, at the Seville Airport.

The first of them (EI-EBA), with callsign RYR7724, had 150 passengers onboard and was flying to the Gran Canaria Airport. The second (EI-EVC), with callsign RYR1966, had boarded 143 passengers and was flying to the Tenerife-South Airport.

At 20:16¹, the flight crew of aircraft EI-EBA completed the before taxi checklist and was then cleared to taxi to the threshold of runway 27 by the control tower (TWR). With

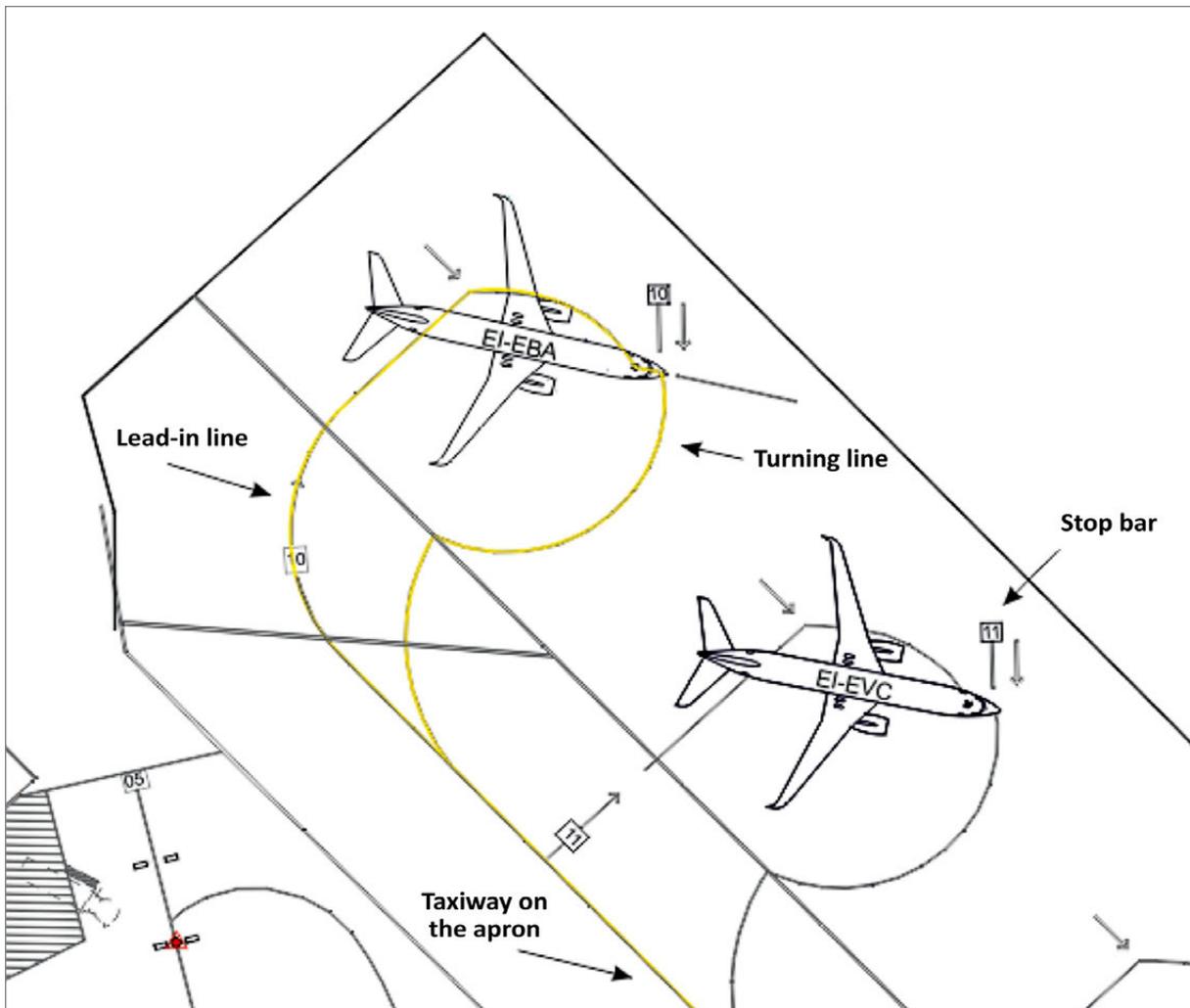


Figure 1. Parking stands R10 and R11

¹ All times in this report are in Coordinated Universal Time (UTC). To obtain local time, add two hours to UTC.

the aid of the ramp coordinator on the ground, the pilot in command started to taxi from position R10 along the turning line to proceed to taxiway G-8. Aircraft EI-EVC, on stand R11, had completed boarding its passengers and its doors were still open.

As aircraft EI-EBA was moving over the turning line, it departed said line before fully traveling over its length and proceeded directly toward the taxiway on the apron. Before reaching the taxiway, its left winglet struck the left horizontal stabilizer and elevator on aircraft EI-EVC. The damage caused by the impact, see Figure 2, prevented either aircraft from continuing with its scheduled flight.

No occupants on either aircraft were injured and the passengers were disembarked normally to the airport terminal.

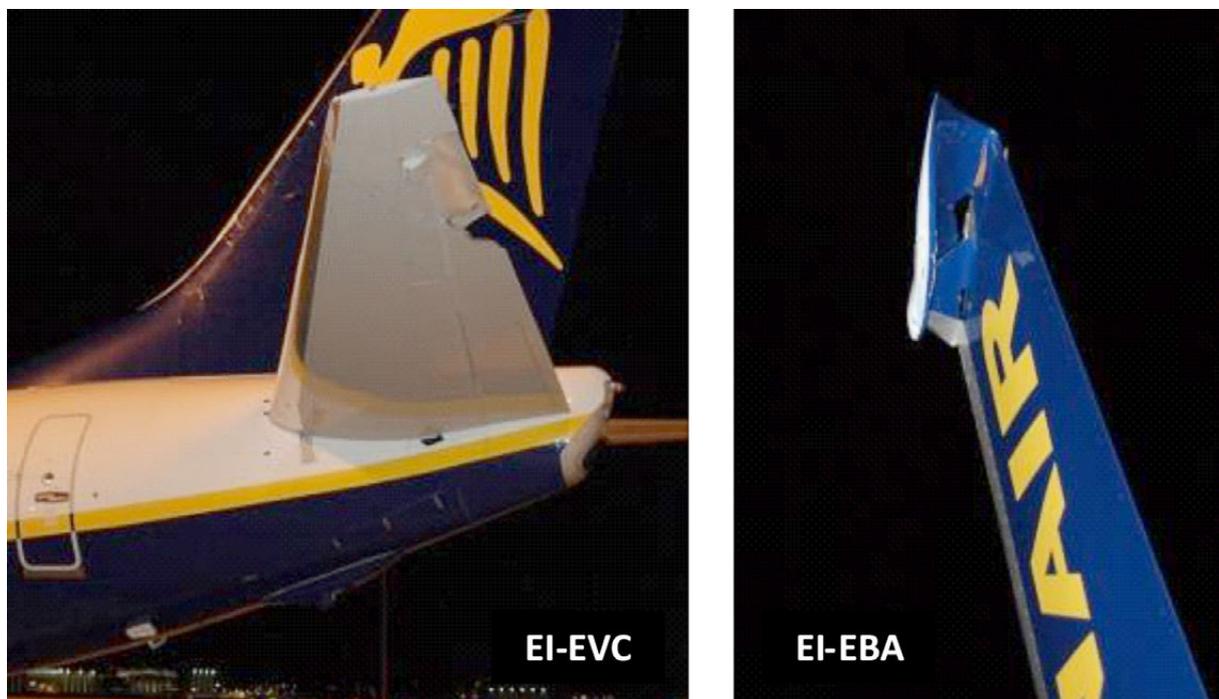


Figure 2. Damages

1.2. Personnel information

The crews on both aircraft had the corresponding licenses and ratings for the flight. The captain of aircraft EI-EBA had flown out of the Seville Airport on eight previous occasions.

The operator has a handling agent, authorized by Spain's Aviation Safety Agency (AESA) and subject to a contract with the Seville Airport, to manage the necessary ground assistance operations involving its aircraft and crews.

At the time of the event, there was a ramp coordinator assisting each aircraft. The coordinator assisting aircraft EI-EBA had been assigned by the handling agent to this activity after having received the relevant theory and practical training specified in its training plan and in the airport's operating requirements.

This coordinator had a total experience of 30 days.

1.3. Aircraft information

Both aircraft are Boeing 737-8AS models, with a maximum takeoff weight of 66,990 kg. They are outfitted with two CFM 56-7B26 engines each one. Both aircraft had valid and in force registration and airworthiness certificates, as well as the corresponding return to service certificates following the last maintenance task performed as per the approved maintenance program.

1.4. Aerodrome information

Parking stands R10 and R11 and surrounding stands at the Seville Airport have been in service for some 20 years. Both have been used by Ryanair since 2005. The dimensions of both stands comply with the necessary margins for the type of aircraft used by the operator.

The electrical lighting conditions on the apron and the pavement markings were adequate. Visibility on the apron at the time of the incident was in excess of 10 km.

1.5. Flight recorders

Aircraft EI-EBA and EI-EVC were equipped with flight data and cockpit voice recorders. Figure 3 shows the various parameters recorded by the DFDR² on aircraft EI-EBA as it taxied on the apron.

The table below shows the heading followed by the aircraft versus time (in seconds), shown along the x-axis in Figure 3:

² DFDR: Digital Flight Data Recorder.

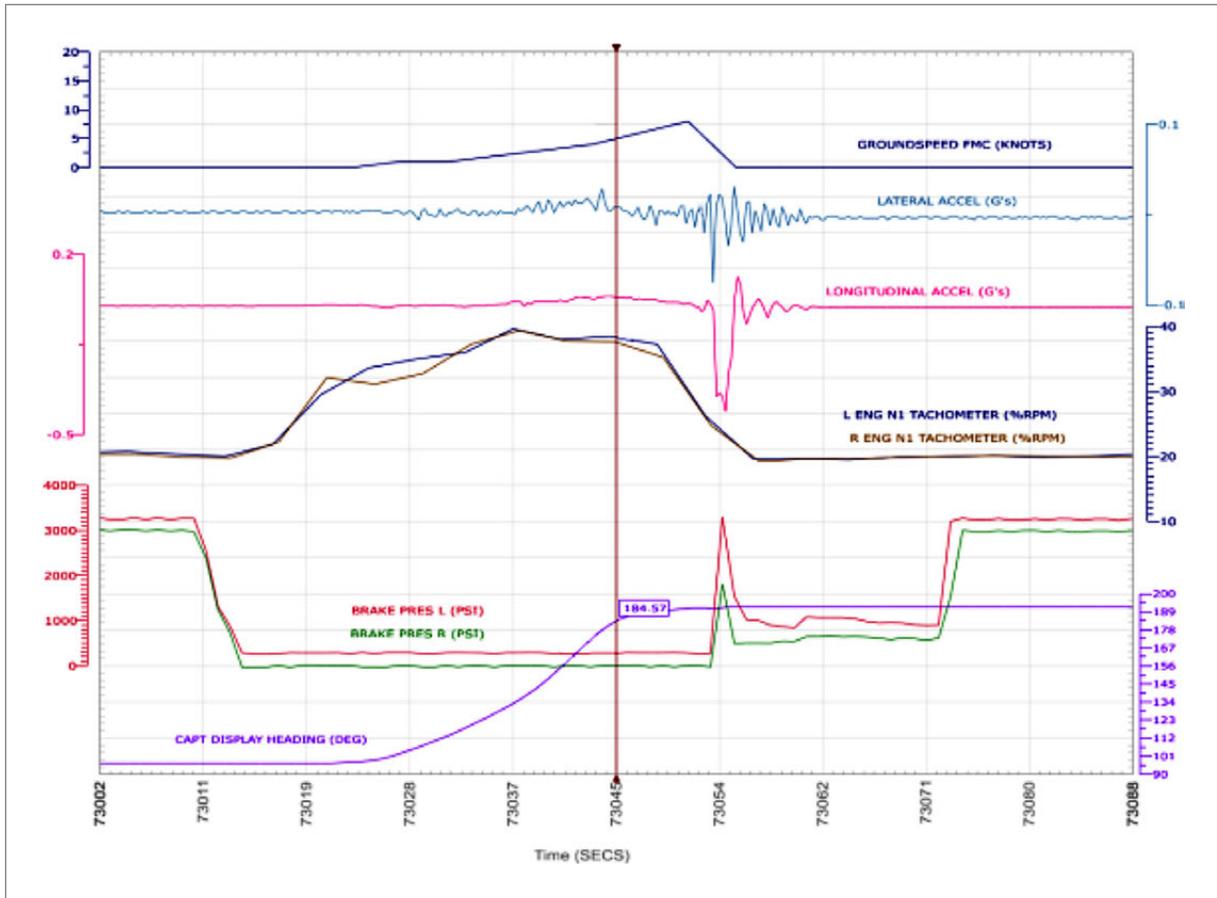


Figure 3. DFDR parameters from aircraft EI-EBA

Time	73019	73020	73021	73022	73023	73024	73025	73026	73027	73028	73029	73030	73031	73032
Heading	96.68	96.68	96.68	97.03	97.38	98.09	99.14	100.90	103.36	105.82	108.63	111.45	114.26	117.77

Time	73033	73034	73035	73036	73037	73038	73039	73040	73041	73042	73043	73044	73045	73046
Heading	121.29	124.81	128.67	132.54	137.11	142.03	148.01	154.69	161.72	168.75	175.08	180.35	184.57	186.68

Time	73047	73048	73049	73050	73051	73052	73053	73054	73055	73056
Heading	187.73	188.79	189.84	190.55	191.25	191.25	190.90	191.95	191.95	191.95

The cockpit voice recorder (CVR) also recorded the sequential performance of the following checklists and items:

- a) Execution of the before taxi checklist
- b) Clearance to taxi from TWR

- c) Sound of engines powering up
- d) The copilot reads out, "Clear right check"
- e) The captain replies, "Yes, clear right"

The pilot flying during the maneuver was the captain of the aircraft.

1.6. Tests and research

1.6.1. Path of aircraft EI-EBA

The recorded flight data provided information on the path taken by the aircraft from the start of the taxi phase to the turning line. These data show a change rate in the heading of around 7° per second up to a value of approximately 185° , at which point the turn rate decreased to approximately 1° per second.

The position of the main landing gear was indicated on the apron surface by the braking mark, which established the aircraft's final position after making contact with the aircraft parked at correctly stand R11.

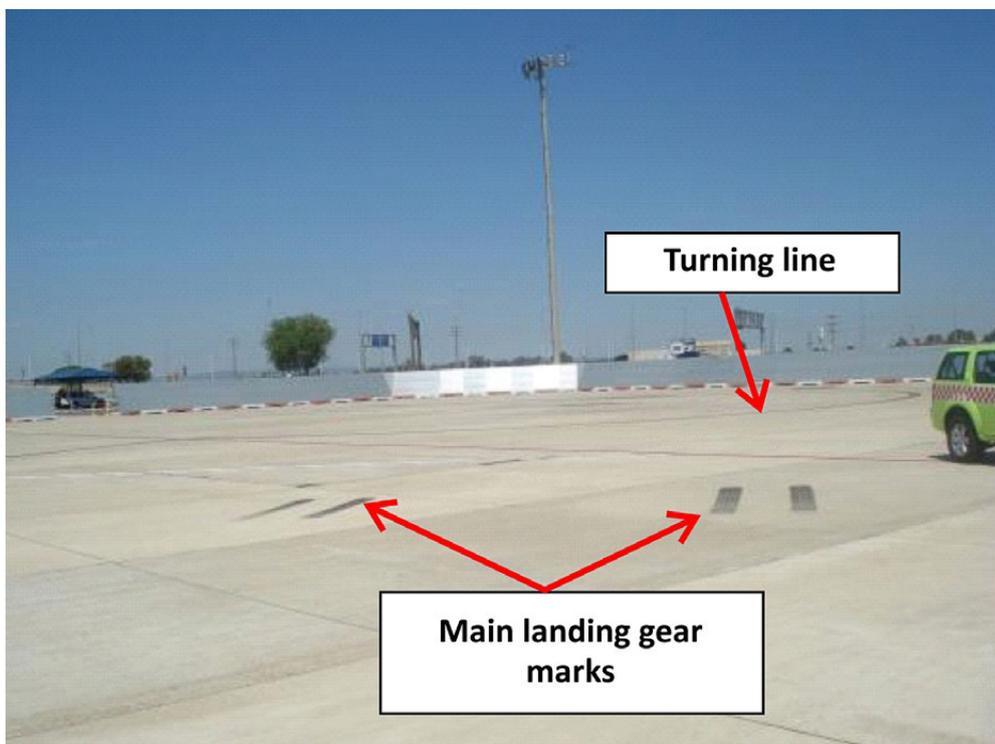


Figure 4. Marks

Figure 5 shows the position (A) occupied by the aircraft when it was on a heading of 185° and the position (B) where it stopped.

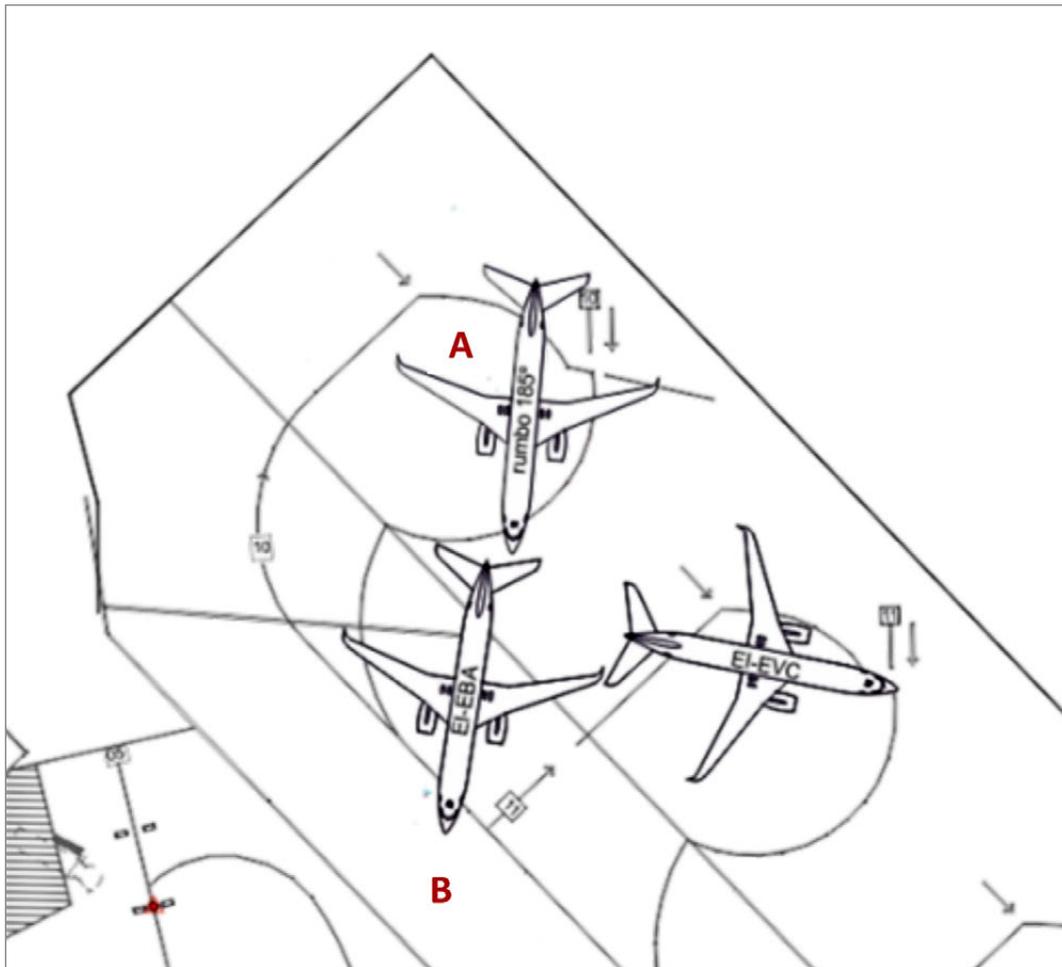


Figure 5. Positions of the aircraft

1.6.2. *Statement from ramp coordinator*

The coordinator who assisted the aircraft as it taxied stated that his main task at stand R10 was to ensure that the aircraft maintained maneuvering clearance with respect to the fence that surrounds the stand, as well as the distance to the tail of the aircraft parked at stand R11.

He also indicated that prior to taxiing, when he was standing in front of the aircraft, the wheel of aircraft EI-EBA was properly positioned atop the nose wheel bar. When it started to taxi, he walked around the aircraft until he was next to the tail of aircraft EI-EVC to watch the wingtip. As it was taxiing over the turning line it departed suddenly said line and, despite the signals he made the aircraft did not stop and the left wingtip struck the horizontal stabilizer of aircraft EI-EVC.

The coordinator also stated that the flight was departing at the scheduled time.

1.6.3. *Statement from the captain of aircraft EI-EBA*

In his description of the event, the captain stated that after starting the engines, completing the before taxi checklist and receiving clearance from TWR to taxi, he confirmed the left and right sides clear, applied 30-35% of N1 for taxiing. He received a thumbs-up signal from the coordinator and started moving around from the parking stand. At one point the captain saw that the coordinator with the thumbs pointed up and what looked like a wave. Since the coordinator did not move forward with the aircraft, he interpreted the signal to mean they were clear of aircraft EI-EVC, parked at stand R11. After the collision, the coordinator moved forward and made a stop signal.

1.7. **Information on the taxi maneuver**

The Flight Crew Operations Manual (FCOM) and the airline's Operations Manual contain instructions on taxi procedures. The former specifies to follow the turning line with the nose wheel when the taxi line is shifted and not to cut corners. The latter states, among other instructions, that a proper margin must be maintained with other aircraft, whether they are stopped or moving.

1.8. **Information on airport handling services**

Since 2008, airport handling services have been provided pursuant to the authorization given to the requesting handling agent by Spain's Aviation Safety Agency (AESA). This authorization requires that at airports of the network run by Aeropuertos Españoles y Navegación Aérea (AENA), and prior to the start of operations, a contract is to be entered into with the airport (Seville in this case) that specifies the conditions of use for the public-domain airport and the rules of conduct. Once that is done, it is the airport that, through an operational safety monitoring plan, ensures compliance with the safety, usage and operational conditions in place at the airport.

Following the publication of Royal Decree 862/2009 of 14 May, which approved the technical design and operating guidelines for public-use airports and regulates the certification of State-run airports, and the subsequent publication of Royal Decree 1189/2011 of 19 August, which regulates the procedure for awarding, modifying, renewing, limiting, suspending or revoking an airport certificate, AESA went on to issue a Technical Instruction detailing operational safety requirements for the ground handling activities that take place at airports.

This Technical Instruction specifies the way in which the airport manager, which is responsible for enforcing operational safety on airport aprons, supervises and ensures compliance with the requirements that directly affect airport operations. In particular, the instruction concerns the following activities:

- Guiding arriving and departing aircraft;
- Helping aircraft during parking maneuvers and providing them with the necessary resources;
- Communications between the aircraft and the handling agent;
- Loading and unloading of aircraft, including the supply and use of the necessary resources, as well as transporting the crew and passengers between the aircraft and the terminal, as well as transporting the baggage between the aircraft and the terminal;
- Assistance to start the aircraft and supply the necessary resources;
- Moving the aircraft both on arrival and departure, and supplying and managing the necessary resources;
- Transporting, loading and offloading food and beverages from aircraft.

The handling agent(s) that provide operational services on the runway, as part of the services offered by the airport manager or as part of the airline's operations or as separate companies contracted for that purpose, must have a manual that certifies their compliance with the requirements of the Technical Instruction and those specified by the Airport Manual.

Finally, the agent must have an Operational Safety Management System specific to each airport where it provides services that details the organizational structure, responsibilities, procedures, processes and aviation safety stipulations used by the agent so as to allow it to carry out its activity at the airport in a safe manner.

1.9. Information on ground operations of aircraft

In order to carry out ground operations of aircraft, the operator and its handling agent each have their own Ground Operations Manual. These include the signals that the flight crew and handling personnel are to use during aircraft departure procedures.

A review of these signals showed them to be similar in both manuals in terms of the symbols and indications used.

2. ANALYSIS

The 737-8AS aircraft, registration EI-EBA, started to taxi from parking stand R10 along the turning line so as to enter taxiway G-8. As it was doing so, its left winglet struck the left horizontal stabilizer and elevator of the aircraft parked in the adjacent stand, resulting in neither aircraft being able to continue with its flight.

Taxiing out of a parking stand requires the pilot to devote his attention to the turning line and to the support personnel on the ground. Any deviation from the indicated line,

either due to distraction or to cutting a corner, can result in an impact between aircraft parked in adjacent stands.

The data collected during the investigation revealed that visual conditions on the apron were good and that the design of the parking stands allowed for the proper motion of the aircraft without any interference. Moreover, the captain had flown out of the same airport on previous occasions.

As regards the taxi maneuver of the aircraft, a simulation of the path it took over the turning line, as reconstructed from recorded data, showed that it left the turning line before completing it, as shown by position A in Figure 5. Position B in this same figure shows the location of the aircraft as indicated by the braking mark left by the main landing gear wheels.

Additionally, according to the statements collected, the unforeseen deviation of the aircraft from its turning line surprised the coordinator and he did not manage, possibly due to his lack of experience, to make a right stop signal to the captain of the aircraft.

3. CONCLUSION

3.1. Findings

- Both aircraft had valid and in force airworthiness certificates.
- Both flight crews had valid licenses and were properly qualified for the flight.
- The ramp coordinator who aided aircraft EI-EBA was licensed for the activity he was performing.
- Visual conditions on the apron were adequate for the movement of aircraft.
- The dimensions of parking stand R10 were proper for the aircraft in question.
- Aircraft EI-EVC was stopped at parking stand R11.
- Aircraft EI-EBA was cleared by ATC to taxi.
- Aircraft EI-EBA did not follow the turning line all the way out of parking stand R10.
- The coordinator response to the sudden way-out of turning line of the aircraft could be improved.

3.2. Causes

The incident was caused by aircraft EI-EBA not following the turning line all the way-out of parking stand R10.