AAIB Bulletin: 6/2018	9H-BBJ an	d G-CISK	EW/G2018/01/02	
SERIOUS INCIDENT				
Aircraft Type and Registration:	1) 2)	Boeing 737, 9H-BBJ Embraer 145LR, G-CISK		
No & Type of Engines:	1) 2)	2 CFM 56-7 turbofan engines 2 Rolls-Royce AE3007A1 turbofan engines		
Year of Manufacture:	1) 2)	2000 (Serial no: 2002 (Serial no: 2002)	30791) 145570)	
Date & Time (UTC):	10 .	January 2018 at 1	238 hrs	
Location:	Bris	Bristol Airport		
Type of Flight:	1) 2)	Private N/A		
Persons on Board:	1) 2)	Crew - 6 Crew - None	Passengers - None Passengers - N/A	
Injuries:	1) 2)	Crew - None Crew - N/A	Passengers - None Passengers - N/A	
Nature of Damage:	1) 2)	Minor damage to left winglet Damage to tail section		
Commander's Licence:	1) 2)	Airline Transport Pilot Licence N/A		
Commander's Age:	1) 2)	54 years N/A		
Commander's Flying Experience	: 1)	11,700 hours (of Last 90 days - 11 Last 28 days - 5	which 5,200 were on type) 1 hours 55 hours	
	2)	N/A		
Information Source:	Airc pilo and	Aircraft Accident Report Form submitted by the pilot and investigation reports from the operator and airport authority		

Synopsis

Whilst taxiing under guidance from a marshaller and wingman, the winglet of a Boeing 737 struck the tail of a parked Embraer 145. The airport authority and operator conducted separate investigations which identified several contributory factors that had combined to cause the accident.

History of the flight

A Boeing 737, registration 9H-BBJ, took off from Luton Airport at 1211 hrs for a positioning flight with six crew on board and no passengers; it landed at Bristol Airport approximately 30 minutes later. The aircraft commander was the handling pilot and the co-pilot was monitoring during the sector. After landing, the aircraft taxied towards the Southern parking area. The operator had subcontracted ground handling to an external company

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9H-BBJ and G-CISK

who provided a marshalling service. The commander reported that after crossing the Juliet X-Ray holding point (Figure 1), the aircraft was met by a wingman who stood on the left of the aircraft behind the tail of a parked Embraer 145 and a marshaller located just in front of the grass verge where the aircraft was to be parked (Figure 2). The marshaller then signalled to the flight crew to continue to move forward.



Figure 1

Layout of the airport showing the JX hold point and the Southern parking area

The wingman suddenly signalled for the aircraft to stop; however, braking the aircraft to a standstill took a few seconds, by which time the left winglet of the aircraft had made contact with the rear strobe housing of the Embraer 145, registration G-CISK, which was parked nose-in to the hangers on the left of the taxiway. Following the impact, the marshaller in front signalled to the flight crew to resume taxiing until the aircraft was parked at the Southern parking area.

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Accident location



Figure 2

Image showing the taxiway and a parked aircraft in the same position as the accident aircraft in front of the hangar

Recorded data

The accident was recorded by one of the airport's CCTV cameras located on the southern corner of the large silver building shown in Figure 2, looking north towards the taxiway.

Human factors

The operator's internal investigation identified the following issues:

- It was highly possible that the line of sight between the marshaller in front and to the right side of the taxiing aircraft and the wingman on the left side, was not clear at all times;
- A lack of situational awareness by the wingman;
- Calculations regarding clearance between the taxiing Boeing 737 and the parked Embraer 145 carried out by the ground handling organisation were not correct;
- It was not confirmed whether the Embraer 145 aircraft was correctly parked in position;

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- Based on the CCTV footage it was observed that there was no aviation orange cone placed at the rear tip of the parked Embraer 145 to indicate caution to the marshaller;
- It was not confirmed whether the marshaller and the wingman were current in their training.

The airport authority identified the following factors in their investigation:

- The marshaller initially continued to signal the aircraft forward despite the wingman's signal to stop;
- The wingman's position under the tail of the parked aircraft did not allow him to identify the lack of clearance until it was too late to avoid a collision;
- The aircraft was being taxied too fast given the pilot's unfamiliarity with the airport;
- The Embraer 145 was parked short of the designated stop, placing it closer to the taxiway;
- The marshaller was located too far away from the aircraft under his control on a different taxiway to the one the aircraft was moving down.

Analysis

The independent investigations conducted by the operator and the airport authority highlighted a number of contributory factors which led to the collision. It is likely that these factors combined to reduce the normal margin for error, such that the taxiing aircraft ended up on a collision course with the parked aircraft and the lack of clearance was not identified in sufficient time to prevent a collision.

Conclusion

A number of factors, which individually may not have been significant, combined to position the taxiing Boeing 737 on a collision course with a parked Embraer 145 and prevented the lack of clearance between the aircraft from being identified early enough to avoid an accident. The organisations involved have identified where the process can be improved to help prevent reoccurrence.

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