

ACCIDENT

Aircraft Type and Registration:	Boeing 737-800, EI-DYM
No & Type of Engines:	2 CFM 56-7B26 turbofan engines
Year of Manufacture:	2008
Date & Time (UTC):	12 May 2011 at 0815 hrs
Location:	Liverpool John Lennon Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 6 Passengers - 169
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damage to aircraft's nosewheel tyre and left main undercarriage assembly, and substantial damage to ground towing equipment
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	48 years
Commander's Flying Experience:	14,266 hours (of which 11,283 were on type) Last 90 days - 180 hours Last 28 days - 64 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot, and reports from the airport authority, ground handling company and Air Traffic Control

Synopsis

The towbar used to connect the aircraft to the pushback tug remained in the aircraft's path after the pushback ground crew had signalled to the flight crew that their taxi route was clear. The aircraft subsequently taxied forward and struck the towbar, which became lodged against the aircraft's left main landing gear.

Description of events

The aircraft was operating a 0800 hrs scheduled service to Alicante, with 169 passengers and a crew of six on board. It was daylight and the weather was fine. Pushback from Stand 8 commenced at 0812 hrs, using

a tug and towbar arrangement. It was conducted by two ground crew personnel, comprising the tug driver and a headset operative who was also the dispatch officer.

The pushback was completed normally, with normal exchanges taking place between the headset operative and the aircraft commander. After receiving confirmation that the steering bypass pin¹ had been removed and the towbar disconnected, the commander cleared the headset

Footnote

¹ The bypass pin is used to isolate the hydraulic nosewheel steering while the tow bar is connected to the aircraft nose gear leg for pushback.

operative to disconnect his headset and wait on the left of the aircraft. He subsequently received a 'thumbs up' from the headset operative, who also showed the commander the bypass pin, as was standard practice.

The flight crew requested taxi clearance and subsequently taxied for Runway 27. After travelling some 400 m, the crew received a call from Air Traffic Control, stating that their aircraft may have struck a towbar and to hold position to await an inspection. This revealed that the towbar had become lodged against the aircraft's left main landing gear and that the aircraft had sustained damage. The flight crew reported that they had felt or heard nothing untoward.

Passengers were disembarked and the aircraft was towed to stand. A sweep was carried out of the taxiways concerned, which were then returned to service.

Local investigations

The accident was investigated by the airport authority and the ground handling company concerned; the findings of these investigations were made available to the AAIB upon request.

Ground crew

The headset operative reported that he disconnected the towbar from the aircraft as usual and removed the steering bypass pin. He walked to the left side of the aircraft and saw the tug driver connect the towbar to the rear of the tug. As the tug started to move away, he showed the pin to the commander, who then waved him off. He boarded the tug and rode in it back to the parking area.

The tug driver reported that he connected the towbar to the back of the tug and, after receiving clearance from the headset operator to do so, drove back to the parking area. At this point, he looked back and saw the towbar

still on the apron, in front of the aircraft. He alerted the headset operator who attempted to attract the crew's attention but was unable to do so. The ground crewmen then rushed to their office to alert ATC to the situation.

Equipment

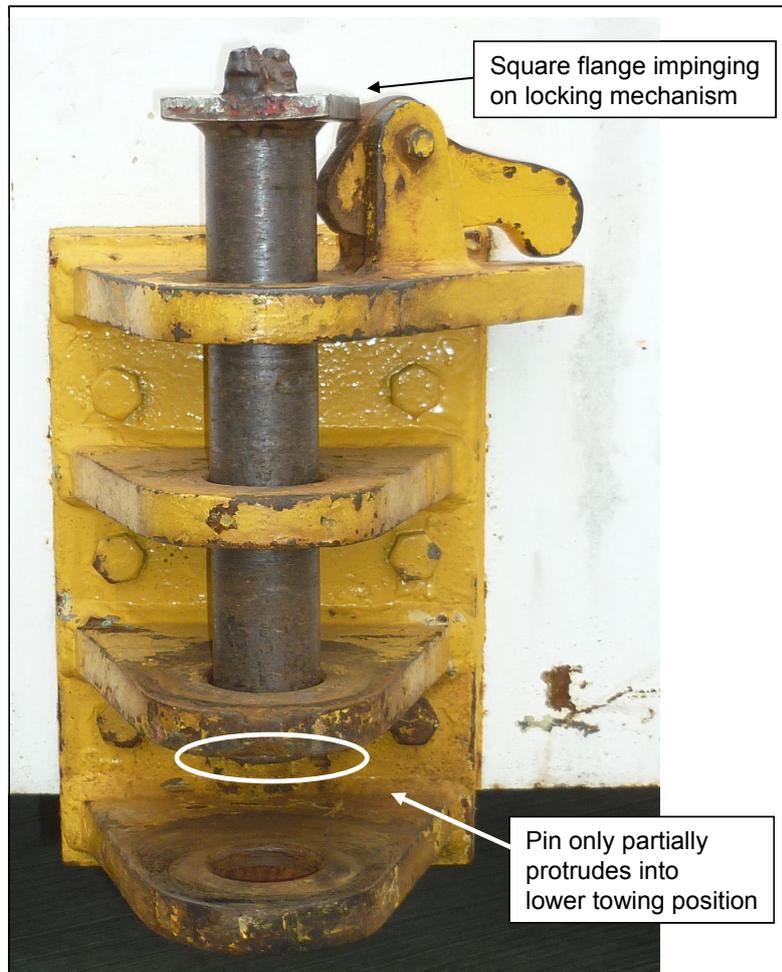
The pushback tug was not fitted with a radio but the tug driver was in possession of a hand-held radio. There had been a failure of the airport's radio communications system shortly before the aircraft was pushed back but this, reportedly, would not have affected calls from vehicle radios or hand-held sets. However, the tug driver reported that his handset was showing a very low signal strength at the time and he did not attempt to use it.

The pushback tug was found to have a towbar locking pin that was not fitted to the vehicle and was apparently not the original pin supplied with the vehicle. The history of the pin was not established but it was confirmed that the tug driver had used it before on two occasions.

From photographs supplied to the AAIB, the locking pin was seen to be fitted with a square flange at one end to which was attached the remnants of a handle, which had broken off a considerable time beforehand. The pin was photographed with the square flange resting on top of a locking mechanism, which was intended to prevent a correctly fitted pin from jumping out of the towing bracket whilst the tug was in motion (Figure 1). In the photographed position, the pin would only partially engage the towbar eye-end fitting if the fitting was inserted into the lower of the three available positions, and would not be mechanically prevented from lifting the small amount required to release the towbar.

Procedures

The ground handling company's investigation established that procedures intended to prevent such



Photograph courtesy of Liverpool John Lennon Airport

Figure 1

Tug vehicle's rear towing bracket with locking pin

an occurrence had not been fully complied with. Once pushback was complete and the towbar attached to the tug, the driver was required to position the vehicle forward of the aircraft, in view of the flight crew but blocking its taxi path, so preventing premature movement of the aircraft. Then, upon clearance from the headset operator, the tug should have been positioned to a point beyond the aircraft's wing tip from where the driver should make a visual check that no obstacles, such as chocks or a towbar, had been left on the taxiway.

The headset operator was required to show the bypass pin and give the 'thumbs up' once he had established that the tug, towbar and all people were clear of the

aircraft's taxi route. This should have been done from a position level with the wing tip in view of the flight crew. The procedures stressed that this action by the headset operator confirmed to the flight crew that the immediate taxi route was clear of people and equipment.

Safety actions

Disciplinary actions were taken against the two ground crewmen. The tug concerned was removed from service pending the installation of a radio and all tugs were inspected to ensure that correct towbar locking pins were fitted. Additionally, a programme of daily ramp inspections was initiated to ensure correct pushback procedures were being followed.