AAIU Report No.2002/002
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Aircraft Type and Registration:	EI-CNZ Boeing 737- 200
No. and Type of Engines:	2 x Pratt & Whitney JT 8D
Year of Manufacture:	1983
Date and Time (UTC):	21st February, 1998 06.15 hrs
Location:	Near Stand 35, Dublin Airport.
Type of Flight:	Public Transport
Persons on Board:	80 Passengers
Injuries:	Injury to ground dispatch technician. R H wrist, bone fractured.
Commanders Licence:	ATPL
Commanders Age:	30 years
Commanders Flying Experience:	13,500 hours, of which 3200 were on type.
Information Source:	Former Operator employee (technician) to the AAIU on 5 April 2000

SYNOPSIS

The Aircraft was dispatched from Stand 25 and was pushed back and proceeded along the South apron taxiway. During routine checks the crew of the aircraft noted a light on in the cockpit to indicate that the aircraft cargo door was open. The aircraft was halted and a dispatch technician sought. As the technician was returning from adjusting the door he was caught by the No.2 engine jetblast and knocked to the ground. He later discovered, that in falling, he had fractured his wrist.

1. HISTORY OF THE INCIDENT

The aircraft was delayed by 10 minutes for ATC slot reasons. Finally, EI-CNZ was dispatched from Stand 25. The ground staff then left the stand on departure of the aircraft. The aircraft was proceeding along the South Apron Taxiway when, between Stand 35 and 36, the crew halted the aircraft.

Routine checks had indicated through a warning light in the cockpit, that the aircraft right cargo door was open. The crew manoeuvred the aircraft a little off the taxiway and called the Operator's Station Control for assistance.

Whilst waiting for his own aircraft to pushback, the dispatch technician was approached by a ground handling dispatcher and informed that aircraft EI-CNZ had a cargo door problem. He was told that EI-CNZ had left its stand. and that the technician detailed for EI-CNZ was not immediately available. As his own aircraft (EI-CKQ) was ready for takeoff with no problems he told the dispatcher that he would tend to the door snag on EI-CNZ. He drove up to the aircraft. He approached the aircraft and parked the van towards the nose of the aircraft. The pilot gestured to him in the direction of the right hand aft side of the aircraft. As the engines were running, and not having any direct contact with the crew in the cockpit, the technician was reluctant to approach the aircraft from anywhere near the forward/intake side of the engines. He therefore opted to approach the aircraft cargo door from behind. He went around the right hand wing and turning his back to the wing, put out his right hand whilst walking aft and inward, in order to feel for the jet blast with his outstretched right hand. He went back to between 40 and 50 feet. When the blast was sufficiently low to allow him to safely pass behind the engine, he crossed behind and proceeded to walk forward towards the aircraft. On approaching the door, which did not look open, he unseated the door and closed it. He did this twice.

His intention then was to contact the Captain and to find out if the light was out in the Cockpit. He walked aft from the aircraft and stretched out his left hand feeling for the jet blast. Unfortunately he was knocked over and to protect himself, fell on both outstretched hands.

After getting up he walked around to the nose of the aircraft where the Captain gave him the "thumbs up" sign to indicate that the cargo door light was out and the door was closed. He got back into his van and the aircraft departed. He was not wearing any form of ear protection.

1.2 Injuries

Following the incident the palm of his right hand felt sore and he reported the matter to his supervisor who had the incident noted in the Operators Accident Report Book under "Cause and Nature of Injury". The report stated that the rear cargo door was not closed. The technician approached the aircraft from the rear and the jet blast blew him off his feet severely fracturing the right hand, palm and wrist. The report also said that there was also pain in his right thumb.

The technician, who at the time was based in Luton, England, took the following 07.00 flight home. During the flight he noticed that his right hand was swollen and on arriving home decided to visit a hospital in the U.K.

1.2 Personnel Information

The technician indicated to the Investigation that he was eager to assist the flight crew of EI-CNZ in making sure that the aircraft departed on time. He had witnessed an accident earlier in his career where a technician was sucked into the intake of an engine and he was therefore very aware of this danger when proceeding around the right hand wing. However, he believes that he did not go back far enough behind the aircraft before crossing the jet path exit.

Since some time had elapsed since the accident and the reporting of same, it proved difficult for the operator initially to trace both the registration of the aircraft and the identities of the crew on board.

The exact identity of the Captain and First Officer was only verified on 15 May 2001. By that time the Captain was no longer an employee of the Operator. He confirmed the registration of the aircraft and flight details but had no recollection of the circumstances of the accident. He said that, under the circumstances described to him, he would have requested a return to the stand. After much effort in attempting to find details of the accident in his records, the First Officer confirmed the registration of the aircraft but could not remember any details of the accident.

1.3 Aircraft Information

The Operator's Maintenance Management Organisation Exposition (MMOE) para. 6.11.3 states:- *"All personnel who carry out pre-flight inspections must ensure that all doors/panels that have been opened to service or load aircraft are securely fastened before signing for the pre-flight inspection."*

The pre-flight check, form RA 300, carried in the technical log, is then signed by the mechanic conducting the inspection. Item 5 of RA 300 reads:- *"Ensure all service doors and cargo doors are closed and secure."*

The Boeing 737-200 "Before Start" crew checklist requires the crew to confirm that the cargo door is checked and locked before engine start.

No record of a cargo door malfunction was found before engine start or aircraft push-back. The activation of the cargo door warning light was not recorded in the Technical Log at any time.

1.4 Organisational and Management Information

This accident was first reported to the Air Accident Investigation Unit on 5 April 2000, through a letter from a former employee of the Operator. However, he had not witnessed the accident. Another employee, who also did not witness the accident, made the entry in the above Report Book. He was, however, a witness to the circumstances of the accident. In accordance with the Operator's standing directive an Accident Report Form was completed. Some of the details contained therein differed in a minor way with the injured employee's statement to the Investigation.

The Operator's Safety Officer and the technician's supervisor debriefed the technician following the accident. At the time of the accident, the Operators Health and Safety Officer dealt with this accident as an occupational health and safety matter and he discussed the matter with an I.A.A. Inspector. The Operator confirmed that a door fault had not been reported in the Technical Log.

The accident was not reported by the Operator to the Airport Authority in accordance with the Airport Directive No.2 (Para I.5.1. and 1.5.2.) (See Appendix A).

The accident was not reported by the Operator to the A.A.I.U. in accordance with SI 205, Air Navigation (Notification and Investigation of Accidents and Incidents) Regulations, 1997 Part I, Para 3.(1)(a)(iii) and Part 2 Para 11.

1.5 Aircraft Hazard Areas

Under idle power from both engines the "Heat and Exhaust Velocity Area" extends from the engine exhaust rearwards from each wing-tip to a point a distance from the tail equal roughly to the fuselage length.(i.e. approx 100 ft.). Under idle power ear protection is required within 20 metres (approx 60ft.) of the engine intake. At idle thrust the engine inlet hazard area is bounded by a radius of 9ft from the intake and rearwards a distance of 6ft. (Appendix B). The aircraft manufacturer's Maintenance Manual states that technicians who enter the hazard areas should be in headset communication with the crew.

The Operator's engineering procedures notice instructs that *"ground personnel must stand clear of the hazard zones and maintain communication with flight compartment personnel during engine running."* Red strobe lights are placed on the top and bottom of the aircraft. When the engines are about to start the flying crew will switch them to the "ON" position in order to warn ground personnel that the hazards of engine intake suction and jet blast exists. Cleaning trucks, cargo/baggage loaders and personnel may not approach the aircraft whilst these lights are flashing.

The dispatching crew would normally consist of a tug driver, wingman and headsetman with the technician in attendance. The headsetman would normally receive instructions from the Captain, repeat the instructions and pass them on to the tug driver and wingman. However, it is reported that industrial action by members of the Ground Handling Agents (GHA) was taking place at this time and that staff from the Operator's Quality Department and engineering staff were carrying out the GHA's duties.

2 ANALYSIS

By his own admission the injured employee was not wearing ear protection nor headset when he approached the aircraft. His eagerness to help, under the circumstances, was commendable if misplaced. However, the hazard areas for this aircraft under engine idle conditions are well defined and he chose to ignore these. He had no headset through which he could contact the Captain.

He did not request that the No.2 engine be shut down whilst he carry out the trouble shooting on the cargo door.

The pushback checks require that the crew verify that all lights are out and doors closed prior to pushback. The cargo door warning light should have been checked prior to push-back from the aircraft stand. The crew cannot recall or confirm any abnormalities during execution of the checklist. It may have been that the door appeared closed during the pre-flight inspection but subsequently moved due to pressure exerted by the engine exhaust gases. However, the door safety should have been confirmed by the technician detailed to conduct the final walk-around check. If the light came on after engine start up, a decision should have been made to return to the stand. When the aircraft did stop, it was just off the taxiway between Stand 35 and 36. The technician, happy about his own aircraft, was prevailed upon to get involved in the problems of EI-CNZ. His solution to its problem included entering the hazard area behind the engine.

If the warning light had been observed sooner, perhaps the crew would have been in a better position to return the aircraft to its stand where its own dispatch technician might then have been available.

3. CONCLUSIONS

(a) Findings

3.1 The injured technician should not have entered the hazard area behind the engine with the engine running.

3.2 He did not have an adequate means of communicating with the crew of the aircraft.

3.3 The aircraft should have returned to the stand in order to have the fault rectified.

3.4 The aircraft's own dispatch technician was not available when the cargo door warning light was first observed by the crew.

(b) Cause

The technician was knocked to the ground by the jet blast, after he had completed non- routine checks on the aircraft.

4. SAFETY RECOMMENDATIONS

4.1 It is recommended that the Operator install spare headsets in the technician's aircraft servicing vehicle. **(SR 3 of 2002)**

4.2 The Operator should revise or lay down procedures for approaching aircraft with engines running, in non-routine situations. **(SR 4 of 2002)**

4.3 The Operator should review the time required for the dispatch technician to remain on stand following departure of the aircraft under its own power. **(SR 5 of 2002)**

APPENDIX A

1.4 SMOKING

Smoking on all apron areas is strictly prohibited, including at aircraft parking stands, on roadways and walkways, on board ground vehicles, in baggage make-up areas and in airside stores.

1.5 ACCIDENT AND INCIDENTS ON THE APRON

1.5.1 Accidents or incidents involving aircraft, equipment, vehicles, passengers or airport personnel, must be reported immediately to one of the following:-

(a) Duty Airport Manager- extn. 4274/4774
(b) Airport Police Control- extn. 4300/4666
(c) Fire Station Watch Room- extn. 4343/4444

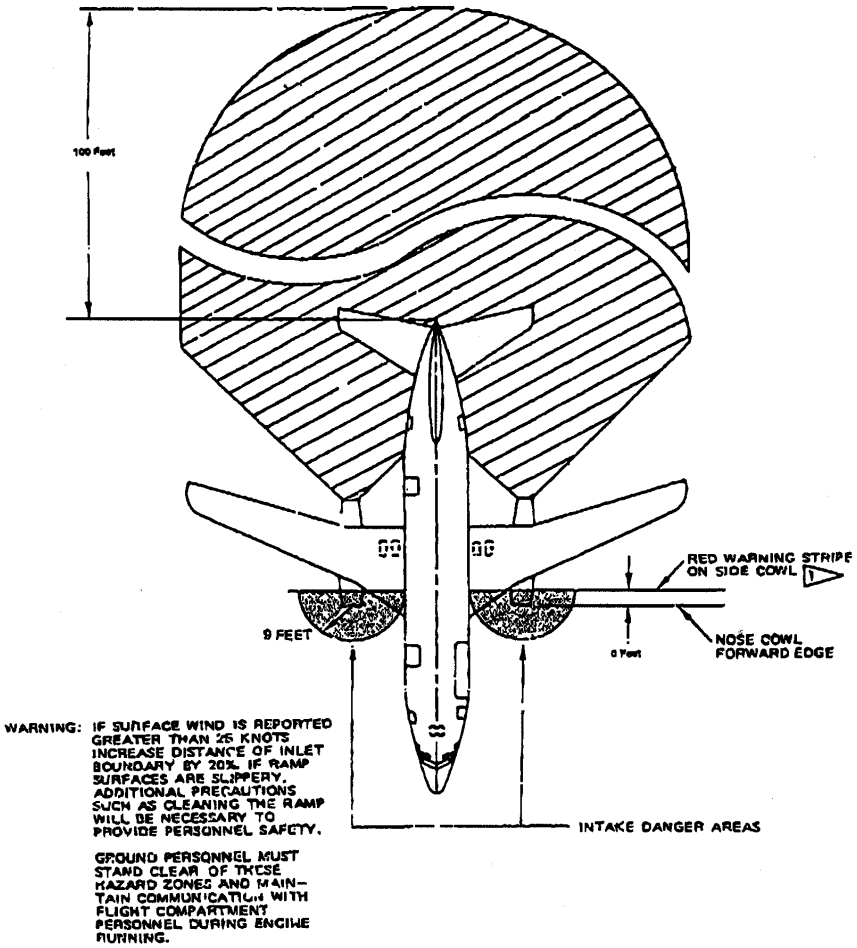
1.5.2 Where damage to property or injury to personnel is involved, copies of these reports shall be sent to the Airport Administration Manager.

1.5.3 A confidential reporting telephone line - extension 5999 -is also available in the event of any airside accident or incident occurring.

1.5.4 Apron users are reminded that certain sections of the Airport Bye-Laws apply to the apron, in particular Sections 4, 6 and 9 (see Appendix 2). It is the responsibility of employers to ensure that their employees are thoroughly familiar with the Bye-Laws which are displayed throughout the airport.

APPENDIX B

Engineering Procedures Notice



JT8D Turbofan Engine Hazard Areas