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THE FINAL REPORT

**Investigation of the ACCIDENT
Allitalia airlines, MD 80
At LKPR on 26th May 2005**

**Prague
NOVEMBER 2005**



A) Introduction

Owner:	Alitalia
Operator:	Alitalia
Aircraft type:	McDonnell Douglas 80 Super, USA
Registration Marks:	I-DAWD
Place and Date:	LKPR/PRG, 26 th May 2005

B) Information Survey

After embarking, during push-back from the embarking bridge and subsequent pulling by a tractor towards the taxiway line, the tractor platform was destroyed, the tractor turned, and the airplane's nose undercarriage and fuselage were damaged. Neither passengers nor crew were injured.

The cause of the Accident was investigated by an AAII commission comprising:

Investigator in charge: Ing. Lubomír Střihavka

Members: Ing. Josef Procházka
Ing. František Šmíd

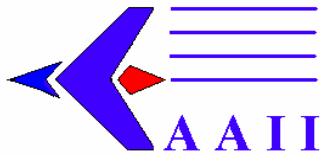
The Final Report was released by:

AIR ACCIDENT INVESTIGATION INSTITUTE
Beranových 130
199 01 PRAHA 99
Czech Republic

On the 22th November 2005

C) The main part of the report contains:

- 1) Investigation
- 2) Analysis Conclusion
- 3) Safety measures
- 4) Appendices (to copy No.1 stored in AAII archive)



1. INVESTIGATION

1.1 History of the flight

After loading the plane, passengers check-out and embarkment, the AZA517 scheduled flight to Milan was ready to tow from the A5 stand onto the taxiway. After going through standard pre-flight procedures, the PIC received an ATC clearance to be towed to B1 taxiway and radioed the ramp control to attach the tractor. Using a standard prescribed way, the ramp controller asked the tractor operator to come and attach the nose undercarriage to push back the plane from the embarking bridge to taxiway B1. Simultaneously with removing the embarking bridge from the plane, the tractor driver drove to the airplane, fixed the front undercarriage leg onto the tractor platform and waited for further oral instructions from ramp control. The ramp controller checked visually that the airplane door had been shut, the tractor attached properly and the safety pin of nose wheel steering disconnection had been properly in place. Then he advised the PIC that the plane was prepared for push-back. The PIC released brakes, issued the instruction based upon ATC information to push back to taxiway B1 and the push-back commenced. During the push-back the PIC started both of the plane's engines. After reaching the right position on B1, the plane was stopped and the ground controller passed information about end of push-back to the PIC, who braked the plane to stop. The tractor driver began to release the front undercarriage leg. At this moment the ground controller received from PIC the instruction to tow the plane from taxiway B1 to taxiway B 2. The ground controller passed the oral instruction to the tractor driver who attached the plane again, getting it ready for another tow. The brakes released, the plane was towed in a left turn perpendicularly onto taxiway B2. When aligning the plane to be in line with B2 direction, the tractor made a sudden tight right bend so that the tractor began to turn under the right-hand side of the plane. This manoeuvre caused the plane to pass the tractor so the latter might have begun to brake. The plane moved in its direction and drew the tractor in behind the front undercarriage leg. The ramp controller, who was standing on the tractor step, fell over to the ground. As he fell down, radio contact with the PIC got broken so the ground controller signalled with hands to F/O to brake the aircraft. Before the plane had stopped, the tractor driver's cabin hit the fuselage starboard and the front undercarriage was pulled out of the tractor tongs. The airplane continued to travel with the damaged undercarriage perpendicularly towards taxiway B2 turning gradually to the left. After travelling 7 m the pilot braked the plane to a standstill and switched the engines off.



1.2 Injuries to Persons

<i>Injurie</i>	<i>Crew</i>	<i>Passengers</i>	<i>Others</i>
Fatal	0	0	0
Serious	0	0	0
Minor/None	0/5	0/125	0

1.3 Damage of aircraft

The starboard fuselage skin was pierced showing a hole of 150 x 70 cm, air condition pipe under the wing skin was damaged and the nose undercarriage got broken off due to breaking the end stop limiting the swivelling of the nose wheel.

1.4 Other damage

Also damaged were the tractor framework, swivelling mechanism of driver's cabin and the nose wheel grip cradle. Damage to the tractor is rated at CZK 331,834. If another tractor is rented for the time of repair, the cost will increase by CZK 192,500.

No other movables or immovables were damaged.

1.5 Personnel Information

- PIC, age 51 years, valid ATPL(A) certificate holder, valid medical certificate and type rating.
- Ground controller, age 30 years, employed by Cz Airlines, J.S.C. Handling Comp., Plc, as Ramp-Control.
- Tractor driver, age 56 years, employed by Cz Airlines, J.S.C. as a driver of special vehicles, driving licence class C, special training for tractor type DOUGLAS Kalmar TBL-180.

1.6 Aircraft information

The aircraft was airworthy before the flight. The operator has made public no further information influencing the accident.

1.6.1 Tractor information

Shaftless tractor DOUGLAS Kalmar TLB-180. Last maintenance inspection "Revision C" was made 14th to 28th April 2005, at which the right front bearing and both fixed wheels were replaced.

1.7 Meteorological information



CAVOK, wind 2 m/s variable.

1.8 Aids to navigation

NIL

1.9 Communication

Communication means worked without failure.

1.10 Aerodrome information

International Airport Praha – Ruzyně LKPR/PRG, all-year-round operation. The taxiways used, with concrete surface, were serviceable and dry at the time of accident.

1.11 Flight records

The QAR (FDR) flight recorder and cabin voice recorder (CVR) worked without failure at the time of accident. The operator only provided the QAR record with needed parameters of the crucial phase on the commission's request.

1.12 Wreckage and impact information

A/C and tractor was staying in the middle of A2 and B1 sectors on the A/D LKPR.

1.13 Medical and pathological information

The three persons involved were breathalyzed negative for alcohol just after the accident by the Cz Airlines, J.S.C. inspectors assisted by the Police of Czech republic.

1.14 Fire

NIL

1.15 Survival aspects

Immediately after the accident the local emergency service transferred the passengers back to the airport hall.

1.16 Tests and research

NIL

1.17 Organizational and management information



NIL

1.18 Additional information

- The statements and personal identifications of the PIC, the ground controller and the tractor driver were secured in collaboration with the Police of Czech republic ;
- The QAR record was analyzed;
- A copy of the video record of No.5 safety camera, lensing movements on the parking apron, was secured;

1.19 Useful or effective investigation techniques

The AAII commission proceeded conforming to L13 Regulation.

2. ANALYSIS

2.1 Factual Information Analysis

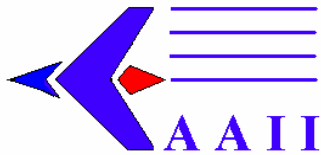
- PIC had rating and medical certificate for the flight;
- The tractor driver had a valid licence and revision check for tractor operators;
- All the persons involved were tested negative for alcohol;
- The aircraft and the ground facilities used were serviceable and compatible
- The taxiways were clean and dry;
- Communication between the ground controller and PIC was without failure till the occurrence;
- The worker controlling the push-back of the plane stood on the tractor step, which violates the guidance for ground personnel.

2.2 Analysis of Tractor Movement

- Push-back and tow were in accordance with airport procedures for ground movement;
- Presumably, the tow speed was not exceeded;
- The tractor driver directed the plane to the B2 taking an abrupt turn. Perceiving this movement as acceleration caused by the airplane, he reacted to this situation unconsciously by braking the tractor.

2.3 QAR Record Analysis

QUAR record analysis revealed no abnormal airplane's movements or significant exceeding acceleration values in all of the three axes, or exceeding engine rpm.



3. CONCLUSIONS

The probable cause of the incident was the driver's unconscious reaction to the abrupt right turn manoeuvre to reach the B2 line. Braking and slowing down the tractor caused it to be drawn under the plane due to the plane's inertia and mass resulting in damage to both the plane and the tractor.

4. SAFETY RECOMMENDATION

We leave safety recommendation and corrective measures to decisions by Cz Airlines, J.S.C.

Prague, November 22, 2003