



National Transportation Safety Board Aviation Accident Final Report

Location:	DENVER, CO	Accident Number:	FTW98FA273
Date & Time:	06/17/1998, 2046 MDT	Registration:	N364UA
Aircraft:	Boeing 737-322	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor, 70 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The catering truck driver parked directly behind the airplane, awaiting the arrival of another flight at an adjacent gate. He set the parking brake, turned off the engine, but left the headlights on. He said he was not concerned about parking behind the airplane because the jetway was still in position, the airplane's rotating beacon was not flashing, and another catering truck was servicing the coach section. The other truck then moved around to the front of the airplane to service the first class section. After baggage had been loaded in the forward cargo bin, the belt loader was backed away from the airplane. Normally, the belt loader would then be positioned on the vehicle service road to warn traffic that an airplane was being pushed back. This was not possible because the belt loader was blocked by the catering truck that had backed away from the airplane. The tug operator had made a previous walk-around inspection of the airplane and observed no hazards. He said that prior to pushback, he looked under the airplane one more time and saw no obstacles. He said he did not see the parked catering truck. As the catering truck was backing away from the airplane, pushback began and the airplane collided with the parked catering truck.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadequate visual lookout by ground personnel (tug operator). Factors include failure of the airline to provide proper assistance (wing walkers) to the tug operator, and inadequate pushback procedures by the airline; inattention of the catering truck driver, and failure of the flight crew to illuminate the rotating beacon prior to or during pushback.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: TAXI - PUSHBACK/TOW

Findings

1. (F) OBJECT - VEHICLE
2. (C) VISUAL LOOKOUT - INADEQUATE - GROUND PERSONNEL
3. (F) PROPER ASSISTANCE - NOT AVAILABLE - GROUND PERSONNEL
4. (F) PROCEDURE INADEQUATE - COMPANY/OPERATOR MANAGEMENT
5. (F) VISUAL LOOKOUT - INATTENTIVE - DRIVER OF VEHICLE
6. (F) STROBE LIGHT(S) - NOT USED - FLIGHTCREW

Factual Information

HISTORY OF FLIGHT

On June 17, 1998, at 2046 mountain daylight time, a Boeing 737-322, N364UA, registered to the Wilmington Trust Company and operated by United Airlines, and a 1992 International truck, registered to and operated by Dobbs International Services, Inc., were both substantially damaged when the airplane was pushed back from its gate and collided with the parked truck at Denver International Airport, Denver, Colorado. There were no injuries to the airline transport rated captain and first officer, 3 flight attendants, and 65 passengers aboard the airplane. The two occupants of the truck received minor injuries. Visual meteorological conditions prevailed, and an IFR flight plan had been filed for the flight that was to be operated under Title 14 CFR Part 121. The flight had not yet originated when the accident occurred.

United Airlines flight 475, scheduled domestic passenger service from Denver, Colorado, to Ontario, California, had been cleared by ramp control for pushback from B53 (gate 53, B concourse). According to the captain's safety report, the airplane had moved backwards about 20 feet when the captain felt "a thud." The tug operator advised him that they had struck a catering truck. The APU DET INOP light illuminated and the APU (auxiliary power unit) was secured. The passengers and crew deplaned via mobile airstairs. Postaccident inspection revealed the airplane's tailcone had struck the Dobbs International Services truck, knocking the truck over on its right side.

The accident occurred at a location of 39 degrees, 51.51 minutes north latitude and 104 degrees, 40.02 minutes west longitude.

DAMAGE TO AIRCRAFT

According to United Airlines, N364UA (s/n 24533) struck the truck just aft of BS (body station) 1016. This tore a 15 inch hole between stringers 16L (left) and 26R (right). Stringers 26L, 26R, and 27R were also damaged. Four inches aft of BS 1016, between stringers 22R and 23R, there was a 3 inch x 3 inch hole in the fuselage. The skin and stringers 26L and 26R, from BS 1033 to BS 1066, were damaged. BS 1156 frame was crushed and there was a large hole in the APU access door. There was an 11 inch x 5 inch hole in the aft pressure bulkhead. Three chords and BS 1016 frame were damaged in this area. The fiberglass tailcone was crushed. Cost of repairs was estimated to be \$33,000.

According to Dobbs International Services, most of the damage to the airplane was caused by the truck's stabilizers that were in the retracted position. In addition to peripheral body damage, the frame of the truck (VIN 1GTSCPMN1NH453389) was sprung. Cost of repairs were estimated to be \$5,000.

PERSONNEL INFORMATION

According to the Federal Aviation Administration, Captain Scott C. Volk, First Officer Christine R. Shanholtzer, and the three flight attendants aboard flight 475 were properly certificated and qualified in their respective positions to conduct the flight.

Documents submitted by United Airlines indicate the tug operator, Aircraft Maintenance Technician Gary Weekly, had been trained and found qualified to perform his assigned duties.

Dobbs International Services' documents indicate Customer Service Representative Kim Ngo

and Customer Service Assistant Leroy Prince had both been trained and found qualified to perform their assigned duties. Mr. Ngo had 9-1/2 years of airline catering experience: 6 years with Chelsea Airline Catering (owned by Continental Airlines), and 3-1/2 years with Dobbs. During those 9-1/2 years, he had been cited only once by Denver International Airport. On January 18, 1996, he failed to yield the right of way to a Sierra Pacific Airlines Convair 580.

METEOROLOGICAL INFORMATION

The accident occurred in visual meteorological conditions during the hours of dusk (for details, see page 4 of this report). According to NTSB's Operational Factors Division, sunset occurred at 2037, and twilight ended at 2110.

AERODROME INFORMATION

The accident occurred in a non-movement area (not under air traffic control). Directly behind the parked airplanes are two lines painted on the tarmac to delineate traffic lanes used by ground support and other motorized vehicles. These lanes are referred to as the vehicle service road (VSR).

MEDICAL AND PATHOLOGICAL INFORMATION

Toxicological screening was not performed on the crew of flight 475.

Toxicological screening was performed on Mr. Ngo and Mr. Prince. According to a report from SmithKline Beecham Clinical Laboratories, both Mr. Ngo and Mr. Prince tested negative for ethyl alcohol, and basic, acidic, and neutral drugs. Specimens were taken six hours after the accident.

Toxicological screening was also performed on Mr. Weekly. According to a report from Quest Diagnostics, the drug test was negative. Specimens were taken 18 hours after the accident.

TESTS AND RESEARCH

At the request of the investigator in charge, a human performance investigator was dispatched from NTSB headquarters to assist in the investigation. She assisted the investigator in charge in conducting interviews with the principals that were involved in the accident. The interviews were conducted on June 22, 1998, at Denver International Airport. The following based on those interviews, and is chronologically formatted (stated times vary between interviewees and are therefore approximate).

2030: Dobbs International Services (DIS) truck #53389, manned by Customer Service Representative (CSR) Ngo and Customer Service Assistant (CSA) Prince, was dispatched to gate B51 to service United Airlines (UAL) flight 1144, scheduled to arrive at 2053. The drive from the kitchen to the gate took approximately 10 minutes.

2035: Meanwhile, DIS truck #246 arrived at gate B53 to service UAL flight 475. Access to the airplane's first class (right front) galley was blocked by ramp service vehicles, so CSR Nauzad and CSA Eskeias began servicing the coach (left aft) galley. It was about this time that Aircraft Maintenance Technician (AMT) Weekly said he conducted a walk-around inspection of the airplane, and noted that the accident truck (#53389) had not yet arrived. His walk-around inspection was confirmed by Ramp Serviceman (RSM) Steven Kirsch.

2040: DIS truck #53389 arrived at gate B51, but UAL flight 1144 had still not arrived. CSR Ngo parked his truck directly behind flight 475 parked at gate B53, setting the parking brake

and turning off the engine but leaving the headlights on. He said he was unconcerned about parking behind the airplane because the jetway was in place, the airplane's rotating beacon was not flashing, and another DIS truck (#246) was in the process of finishing service to the coach section (left aft galley). At about this time, DIS truck #246 backed away from the airplane and drove around the right side of DIS truck #53389. Both CSR Nauzad and CSA Eskeias noticed the parked truck (#53389) behind the airplane. They stopped briefly at the airplane's right wing tip to allow a baggage cart to be moved, then positioned their truck to service the first class galley.

2043: RSM Steven Kirsch finished loading baggage into the forward cargo bin and backed his belt loader away from the airplane. Normally, he said, he would drive the belt loader to the vehicle service road and block traffic, an indication that an airplane was being pushed back. He was unable to do so this time because he was blocked by DIS truck #246. CSR Nauzad and CSA Eskeias said they noticed AMT Weekly sitting in the tug. CSR Nauzad said he never saw AMT Weekly get out and make a walk-around inspection of the airplane. At about this time, AMT Weekly said he "looked under the airplane one more time," then got into the tug.

2043: Ramp controller Carl Noda said he is responsible for airplanes taxiing in the non-movement area. He keeps airplanes separated from airplanes, not from ground vehicles. From his position in the ramp tower, he was unable to see the catering truck parked behind United flight 475 because his line of sight was obstructed by buildings protuberances. Pushback clearance was issued at 2043.

2046: With catering completed, CSR Nauzad began backing truck #246 away from the airplane as the airplane was being pushed back. CSA Eskeias saw the truck behind the airplane and signaled CSR Nauzad to stop, then attempted to signal AMT Weekly to stop. The collision then occurred.

2052: UAL flight 1144 arrived at gate B51, having been delayed for several minutes due to the collision.

ADDITIONAL INFORMATION

In addition to the Federal Aviation Administration, the investigator in charge designated the following to be parties to the investigation: United Airlines, International Association of Machinists, Dobbs International Services, and Denver International Airport. All of the parties to the investigation were invited to and did submit reports that are attached as exhibits to this report.

N364UA was released to United Airlines on June 18, 1998. The truck was released to Dobbs International on June 18, 1998.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Flight Engineer	Age:	43, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last Medical Exam:	05/11/1998
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	10466 hours (Total, all aircraft), 3783 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Boeing	Registration:	N364UA
Model/Series:	737-322 737-322	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	24533
Landing Gear Type:	Retractable - Tricycle	Seats:	132
Date/Type of Last Inspection:	06/16/1998, Continuous Airworthiness	Certified Max Gross Wt.:	130000 lbs
Time Since Last Inspection:	18 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	27323 Hours	Engine Manufacturer:	Cfm
ELT:	Not installed	Engine Model/Series:	C56-3-C1
Registered Owner:	UNITED AIRLINES, INC.	Rated Power:	20000 lbs
Operator:	UNITED AIRLINES, INC.	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	UALA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Dusk
Observation Facility, Elevation:	DEN, 5431 ft msl	Observation Time:	2045 MDT
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 12000 ft agl	Temperature/Dew Point:	27° C
Lowest Ceiling:	Broken / 25000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	9 knots, 70°	Visibility (RVR):	0 ft
Altimeter Setting:	29 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	(DEN)	Type of Flight Plan Filed:	IFR
Destination:	ONTARIO, CA (ONT)	Type of Clearance:	None
Departure Time:	0000	Type of Airspace:	Class B

Airport Information

Airport:	DENVER INTERNATIONAL (DEN)	Runway Surface Type:	
Airport Elevation:	5431 ft	Runway Surface Condition:	
Runway Used:	0	IFR Approach:	
Runway Length/Width:		VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	Substantial
Passenger Injuries:	65 None	Aircraft Fire:	None
Ground Injuries:	2 Minor	Aircraft Explosion:	None
Total Injuries:	2 Minor, 70 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	ARNOLD W SCOTT	Adopted Date:	05/19/1999
Additional Participating Persons:	ALVIN H HANKINS; DENVER, CO		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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