
Collision between Boeing 737-724 and snow plow, January 8, 2005

Micro-summary: This Boeing 737-724 was struck by a snow plow while taxiing to the gate.


Event Date: 2005-01-08 at 1333 MST

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: <http://www.nts.gov/>

Cautions:

1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).
 2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. ***Your company's flight operations manual is the final authority as to the safe operation of your aircraft!***
 3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.
 4. Contact us before reproducing or redistributing a report from this anthology. Individual countries have very differing views on copyright! We can advise you on the steps to follow.
-

		NTSB ID: DEN05LA048		Aircraft Registration Number: N16732	
		Occurrence Date: 01/08/2005		Most Critical Injury: Minor	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Gunnison	State CO	Zip Code 81230	Local Time 1333	Time Zone MST	
Airport Proximity: On Airport		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-724		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On January 8, 2005, at 1333 mountain standard time, a Boeing 737-724, N16732, operated by Continental Airlines Inc, as Continental Flight 1662, was substantially damaged when it was struck by a snowplow while it was stopped on the taxiway at Gunnison-Crested Butte Regional Airport (GUC), Gunnison, Colorado. Instrument meteorological conditions (IMC) prevailed at the time of the accident. The airline transport certificated captain, airline transport certificated first officer, 3 flight attendants, and 68 passengers on board the airplane, and the driver of the snowplow were not injured. A passenger riding in the snowplow received minor injuries. The scheduled domestic passenger flight was being conducted under the provisions of Title 14 CFR Part 121 on an instrument flight rules (IFR) flight plan. The flight originated at Houston, Texas, at 0938.</p> <p>According to the captain, they landed on runway 06 at 1325, and rolled out to turn off on A8 taxiway. While taxiing westbound to the gate, airport operations requested him to hold on the taxiway between A4 and A5, to give a Delta Air Lines pushback crew some room to move another airplane. After stopping, he set the brakes, and made a passenger announcement. Approximately 3 minutes later, the airplane was struck from the left rear by a snowplow. The force of the impact pushed the left main landing gear forward approximately 10 feet, turning the airplane to the right as it rotated about its right main landing gear. The captain stated that he shut down the engines, requested an assessment from the flight attendants, and told the first officer to call for fire equipment. He then surveyed the damage from the cockpit window and aft galley service door window. By that time, the snowplow had backed off to the east approximately 50 yards. He stated that airport visibility was reported at 2 miles. However, he could see the Western State "W" on a hill, approximately 2.5 miles south of the airport. After an assessment of the damage and confirmation from the fire crew that it was safe, the airplane was towed to the ramp and the passengers were deplaned with the airstairs.</p> <p>The snowplow driver stated that when they started plowing around 1200, it was snowing and the "visibility was poor." There were no airplanes landing due to the weather; however, there was a 737 circling and waiting for the weather to clear. While he waited for a 737 to land, he continued to clear the taxiway and turnouts. He stated that once the 737 landed, it pulled off on A-7 or A-8, but he wasn't sure due to the "poor visibility." The 737 then taxied to the ramp. He resumed plowing the runway and when he was finished, he went back to cleanup the taxiway. The taxiway had not been plowed recently and was covered with snow. The plow was "really throwing snow up in the windshield." The windshield wipers were doing a good job, but the consistency of the snow made it hard to see. As he continued down the taxiway, "out of no where was a 737." He applied the brakes, but it was too late and the snowplow slid into the airplane, striking its left main landing gear. The snowplow driver stated that the snowplow's right side window was broken out. The airplane's engine exhaust was choking both of them so he backed up the snowplow to a safe distance. After the crew of 737 shut down the airplane's engines, he examined the damage to the airplane and noted that there were no fuel leaks.</p>					
FACTUAL REPORT - AVIATION					
					Page 1

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: DEN05LA048

Occurrence Date: 01/08/2005

Occurrence Type: Accident

Narrative (Continued)

According to the passenger in the snowplow, he stated that he had no idea how fast they were traveling when they struck the airplane, however; while plowing earlier, he asked the driver how fast they were going and the driver stated "45 miles per hour."


According to a second witness, the snowplow was approaching the parked airplane at a speed of approximately 40 to 60 miles per hour.


According to the airport manager, the snowplow was an Oshkosh H-series truck with a 22-foot wide plow. The snowplow driver was plowing the taxiway and did not realize that the airplane had stopped. The snowplow hit the left main landing gear assembly. The right end of the plow blade struck the underside of the airplane's fuselage, on the wing-to-fuselage fairing, approximately 3 feet aft of the trailing edge of the wing. The impact resulted in a 10-foot gash, running forward from the point of initial contact along the keel beam between the main landing gear wheel wells.

At 1235, Denver Automated Flight Service Station (DEN AFSS) reported "Gunnison has gone from thin loose snow all surfaces to an inch of loose snow all surfaces."

At 1335, the reported weather conditions at Gunnison-Crested Butte Regional Airport (elevation 7,673 feet msl) was, wind, 000 degrees at 0 knots; visibility, 1.5 statute miles; sky condition, overcast at 001; temperature, minus 6 degrees C.; dew point, minus 8 degrees C.; altimeter setting, 230.03. The calculated density altitude was 6,885 feet msl.

According to Gunnison Airport Operations, as a result of this accident, on January 28, 2005, several protocol changes were made to enhance snowplow operations and radio communications with airport vehicles.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: DEN05LA048			
		Occurrence Date: 01/08/2005			
		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
Gunnison County Airport	GUC	7673 Ft. MSL	NA		
Runway Surface Type: Unknown					
Runway Surface Condition: Unknown					
Type Instrument Approach: ILS-complete					
VFR Approach/Landing: Full Stop					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
Boeing		737-724		28948	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 131	Certified Max Gross Wt.	141100 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	CFM International	CFM56-7	24200 LBS		
- Aircraft Inspection Information					
Type of Last Inspection		Date of Last Inspection	Time Since Last Inspection	Airframe Total Time	
Continuous Airworthiness		01/2005	6.29 Hours	18377 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
Continental Airlines Inc.		1600 Smith Street			
		City	State	Zip Code	
		Houston	TX	77002	
Operator of Aircraft		Street Address			
Same as Reg'd Aircraft Owner		Same as Reg'd Aircraft Owner			
		City	State	Zip Code	
Operator Does Business As:			Operator Designator Code: CALA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): Flag Carrier/Domestic					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: DEN05LA048
	Occurrence Date: 01/08/2005
	Occurrence Type: Accident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 56
-----------------	-----------------	------------------	--------------------------	-----------

Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
--------	---------------------	--------------------------------------	-----------------------------

Certificate(s): Airline Transport; Flight Instructor; Commercial

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review? 08/2004
---	---

Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 08/2004
------------------------	--	------------------------------------

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	20000	7000								
Pilot In Command(PIC)	14000	2600								
Instructor	1000									
Last 90 Days	150	150								
Last 30 Days	53	53								
Last 24 Hours	4	4								

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes
--------------------	----------------------------	--------------------------	-------------------

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point Houston	State TX	Airport Identifier IAH	Departure Time 0938	Time Zone MST
----------------------------	-------------	---------------------------	------------------------	------------------

Destination Same as Accident/Incident Location	State	Airport Identifier GUC	
---	-------	---------------------------	--


Type of Clearance: IFR

Type of Airspace: Class A; Class E

Weather Information

Source of Briefing: Company; Flight Service Station; National Weather Service

Method of Briefing: Aircraft Radio; In Person

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: DEN05LA048
	Occurrence Date: 01/08/2005
	Occurrence Type: Accident

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
KGUC	1335	MDT	7673 Ft. MSL	NM	Deg. Mag.
Sky/Lowest Cloud Condition:			Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Overcast		1 Ft. AGL	Visibility: 1.5	SM	Altimeter: 30.03 "Hg
Temperature: -6 °C	Dew Point: -8 °C	Wind Direction:		Density Altitude: 6885 Ft.	
Wind Speed: Calm	Gusts:	Weather Conditions at Accident Site: Instrument Conditions			
Visibility (RVR): Ft.	Visibility (RVV)	SM	Intensity of Precipitation: Light		
Restrictions to Visibility: Blowing Snow					
Type of Precipitation: Snow					

Accident Information		
Aircraft Damage: Substantial	Aircraft Fire: None	Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants				3	3
Other Crew					
Passengers				68	68
- TOTAL ABOARD -				73	73
Other Ground			1		1
- GRAND TOTAL -			1	73	74

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: DEN05LA048

Occurrence Date: 01/08/2005

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

David C. Bowling

Additional Persons Participating in This Accident/Incident Investigation:

Jack Muldoon
Aviation Safety Inspector
Federal Aviation Administration
Denver, CO 80249