



National Transportation Safety Board Aviation Accident Final Report

Location:	San Antonio, TX	Accident Number:	CEN14LA430
Date & Time:	08/09/2014, 0734 CDT	Registration:	N943LR
Aircraft:	BOMBARDIER CL600 2D24 - 900	Aircraft Damage:	Substantial
Defining Event:	Ground collision	Injuries:	4 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

During pushback from the gate, the tug positioned the airplane on the taxiway. Before disconnecting, the tug reversed and the airplane rolled forward while still attached to the tug. As the airplane rolled past the tug, the tug impacted the left side of the fuselage. The tow bar pin was found sheared, but it could not be determined if the pin failed before or during the tow operation. Further, the operator did not have an immediate means of communicating with the flight crew the need to apply the brakes while the tug was still attached.

The tug operator's postaccident urine test was positive for marijuana, which indicated prior use. However, it could not be determined whether the tug operator was impaired by the effects of marijuana at the time of the event.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Failure of the tow bar shear pin, which resulted in the tug operator's loss of control of the airplane during pushback operations. Contributing to the accident was the tug operator's inability to communicate to the flight crew to apply the airplane's brakes.

Findings

Personnel issues	Use of equip/system - Ground crew (Cause) Lack of communication - Ground crew (Factor)
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Factual Information

On August 9, 2014, about 0735 central daylight time (CDT), a Bombardier CL600 airplane, N943LR, collided with a tug during pushback from the gate at San Antonio International Airport (SAT) San Antonio, Texas. The airplane sustained substantial damage to the fuselage structure and internal damage to nose landing gear. The airplane was registered to and operated by Mesa Airlines Inc. as US Airways flight 2763. The four flight crewmembers and passengers on-board were not injured. Visual meteorological conditions prevailed at the time of the accident and the flight operated on a instrument flight rules flight plan. The scheduled, domestic passenger flight was operated under the provisions of 14 *Code of Federal Regulations* Part 121. The flight was destined for Phoenix Sky Harbor International Airport (PHX), Phoenix, Arizona.

The first officer reported the tug driver did not have an operable headset and the pushback was initiated using hand signals. The airplane was positioned on the ramp at a 90-degree angle to the gate. The tug driver stated after turning the airplane onto the taxiway he "reversed back," pulling the airplane forward. The tug stopped perpendicular to the left nose of the airplane, but the airplane continued to roll forward while still attached to the tow bar. The airplane rolled into the tug impacting the left side of the fuselage.

Examination revealed the tow bar shear pin had failed, but the investigation could not determine if the shear pin failed prior to or during the pushback process.

In accordance with company policies and procedures, a postaccident drug test of the tug driver was administered about 9 hours after the accident, which was positive for marijuana. According to 49 CFR Part 40 Section 40.87, the initial test cut off is 50 ng/ml, but a positive marijuana test can be reported if the confirmatory test identifies 15 ng/ml or more of marijuana metabolite (tetrahydrocannabinol carboxylic acid, or THC-COOH) in urine. According to the NTSB Medical Officer, about 30% of THC is eventually excreted in urine, primarily as THC-COOH. However, its presence in urine only indicates prior THC exposure. After smoking marijuana, it can take as long as four hours for THC-COOH to appear in the urine at concentrations above the initial reporting cut off of 50 ng/ml. Positive urine test results generally indicate use within hours to a few days; however, the detection window can be significantly longer following chronic, heavy use.

History of Flight

Pushback/towing

Ground collision (Defining event)

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	46
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last Medical Exam:	05/06/2014
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	02/09/2014
Flight Time:	(Estimated) 11454 hours (Total, all aircraft), 10871 hours (Total, this make and model), 11381 hours (Pilot In Command, all aircraft), 238 hours (Last 90 days, all aircraft), 72 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Commercial	Age:	35
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	03/27/2014
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	10/09/2013
Flight Time:	(Estimated) 1864 hours (Total, all aircraft), 1864 hours (Total, this make and model), 208 hours (Last 90 days, all aircraft), 64 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Other Flight Crew Information

Certificate:	None	Age:	
Airplane Rating(s):	None	Seat Occupied:	Rear
Other Aircraft Rating(s):	None	Restraint Used:	5-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:		Last Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Other Flight Crew Information

Certificate:	None	Age:	
Airplane Rating(s):	None	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:		Last Medical Exam:	
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BOMBARDIER	Registration:	N943LR
Model/Series:	CL600 2D24 - 900	Aircraft Category:	Airplane
Year of Manufacture:	2006	Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	15068
Landing Gear Type:	Retractable - Tricycle	Seats:	80
Date/Type of Last Inspection:	06/26/2014, Continuous Airworthiness	Certified Max Gross Wt.:	82060 lbs
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:	12283 Hours	Engine Manufacturer:	General Electric
ELT:	C126 installed, not activated	Engine Model/Series:	CF34-8C5
Registered Owner:	MESA AIRLINES INC	Rated Power:	14500 lbs
Operator:	MESA AIRLINES INC	Air Carrier Operating Certificate:	Flag carrier (121); Supplemental
Operator Does Business As:	American Eagle	Operator Designator Code:	SIMA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KSAT, 789 ft msl	Observation Time:	1251 UTC
Distance from Accident Site:	1 Nautical Miles	Direction from Accident Site:	328°
Lowest Cloud Condition:	Few / 1700 ft agl	Temperature/Dew Point:	26° C / 22° C
Lowest Ceiling:		Visibility	10 Miles
Wind Speed/Gusts, Direction:	5 knots, 180°	Visibility (RVR):	
Altimeter Setting:	30.02 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Antonio, TX (SAT)	Type of Flight Plan Filed:	IFR
Destination:	PHOENIX, AZ (PHX)	Type of Clearance:	IFR
Departure Time:	CDT	Type of Airspace:	Class C

Airport Information

Airport:	SAN ANTONIO INTL (SAT)	Runway Surface Type:	N/A
Airport Elevation:	809 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	4 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 None	Latitude, Longitude:	29.526944, -98.471944 (est)

Administrative Information

Investigator In Charge (IIC):	Courtney Liedler	Adopted Date:	08/28/2017
Additional Participating Persons:	Thomas C Fowles; Federal Aviation Administration; San Antonio, TX Mary Pat McKay; NTSB; Washington, DC		
Publish Date:	08/28/2017		
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=89879		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.