



Aviation Investigation Final Report

Location:	Greeley, Colorado	Accident Number:	CEN17LA350
Date & Time:	September 12, 2017, 20:45 Local	Registration:	N121CZ
Aircraft:	Embraer EMB 120ER	Aircraft Damage:	Substantial
Defining Event:	Aircraft loading event	Injuries:	3 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The airplane, which was operating as a nonscheduled domestic passenger flight, was standing on a ramp during dark night conditions waiting for the flight's passengers to arrive by bus; the flight crew was onboard the airplane. The only airport employee on duty opened the gate, told the bus driver to drop the passengers next to the airplane, and then returned to previous duties. The bus driver reported that there was no lighting on the ramp when he drove the bus onto it. He added that he made a right turn around the back of the airplane and "didn't see the wing." At that point, he was unable to stop the bus before it hit the wing. Although the bus driver reported that there was no light on the back of the wing, a video of the ramp area showed that the vertical portion of the T-tail was illuminated and that the airplane position lights were illuminated.

The bus driver possessed current commercial passenger-carrying vehicle operational and medical certifications. The driver did not have vision problems. The driver stated that he was not using his cell phone at the time of the crash. A review of the driver's 72-hour activity history did not reveal any irregularities. The driver's postaccident toxicological testing results were negative for the tests performed. Given these facts, it is likely that the unescorted driver failed to maintain clearance from the airplane during the planeside delivery of passengers in dark night conditions. The lack of an airport employee to escort the bus to the side of the airplane likely contributed to the accident. After the accident, the operator stated that it would make a policy that drivers be guided to airplanes by a ground guide. If a ground guide was not available, the drivers would not be permitted to drop passengers planeside.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The bus driver's failure to maintain clearance from the standing airplane during dark night conditions. Contributing to the accident was the airport's lack of an escort for the bus.

Findings

Personnel issues	Attention - Other
Environmental issues	Aircraft - Effect on operation
Environmental issues	Dark - Effect on personnel
Organizational issues	Oversight of operation - Airport

Factual Information

History of Flight

Standing	Aircraft loading event (Defining event)
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On September 12, 2017, about 2045 mountain daylight time, an Embraer EMB 120ER airplane, N121CZ, while standing on a ramp at the Greeley-Weld County Airport (GXY), near Greeley, Colorado, was struck by a bus. The airline transport pilot and two crewmembers on board the airplane were uninjured and the bus driver and 23 passengers on board the bus were uninjured. The airplane sustained substantial damage to its left aileron. The airplane was registered to and operated by Freight Runners Express, Inc. as a 14 Code of Federal Regulations Part 135 non-scheduled domestic passenger flight. Night visual meteorological conditions prevailed in the area about the time of the accident, and an unactivated instrument flight rules flight plan was on file. The flight was originating from GXY and was destined for the University-Oxford Airport, near Oxford, Mississippi.

The airplane was waiting for passenger arrival with the intent for flight. About 2040, an employee of a fixed base operator (FBO) at GXY was attending to another airplane when he opened the gate and told the bus driver to drop the passengers next to the airplane. The driver said that the "place is dark" and no lighting was present and drove the bus onto the airport ramp. After letting the bus onto the ramp, the employee returned to attend to the other airplane. The driver drove the bus to the airplane and he made a right turn around the back of the airplane and "didn't see the wing." The driver said that the wing was above his vision level and he didn't see the wing until he made the complete turn. At that point, he was unable to stop in time. He said that there is no light on the back of the wing.

According to a ramp video, the airplane was standing on a ramp in the left portion of the camera's field of view. A 3/4 view of the airplane was present under night conditions where its right wing, right side fuselage, and right side of its empennage are visible. The vertical portion of the T-tail was illuminated by airplane mounted lights and the airplane position lights were illuminated. A bus transporting the passengers can be seen traveling on the ramp behind the airplane. The bus's headlights were illuminated. The bus can be seen making a right turn behind the airplane and came to a stop. The bus then backed away from the airplane.

Pilot Information

Certificate:	Airline transport	Age:	28,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	None
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	October 24, 2016
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	August 17, 2017
Flight Time:	3365.5 hours (Total, all aircraft), 799.2 hours (Total, this make and model), 3123.6 hours (Pilot In Command, all aircraft), 196.6 hours (Last 90 days, all aircraft), 71 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial	Age:	23,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	None
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	May 23, 2017
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	August 4, 2017
Flight Time:	1153 hours (Total, all aircraft), 61.5 hours (Total, this make and model), 904.4 hours (Pilot In Command, all aircraft), 61.5 hours (Last 90 days, all aircraft), 49.5 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

The 28-year-old captain, held a Federal Aviation Administration (FAA) airline transport pilot (ATP) certificate with an airplane multiengine land rating and commercial pilot privileges with airplane single-engine land and sea ratings. He held a flight instructor certificate with airplane single engine land and instrument ratings. He held type ratings in the Beechcraft 1900 and EMB-120 airplanes. The captain's most recent first-class medical certificate was issued on October 24, 2016, with no restrictions or limitations. According to the operator's accident report, the captain had accumulated 3,365.5 hours of total flight time, including 755.7 hours as pilot-in-command in the EMB-120.

The 23-year-old first officer, held an FAA commercial pilot certificate with airplane single and multiengine land and instrument ratings. He also held a flight instructor certificate with airplane single engine land and instrument ratings. The first officer's most recent first-class medical certificate was issued on May 23, 2017, with no restrictions or limitations. According to operator's accident report, the first officer had accumulated 1,153.1 hours of total flight time, including 61.6 hours of total flight time in the EMB-120.

The 48-year-old bus driver possessed a Colorado class B commercial driver's license (CDL) with a

passenger endorsement and an "M" restriction which allows him to operate a Class B or Class C passenger carrying vehicle. The driver has held a commercial driver's license since 2001; his license was renewed on July 20, 2016 and expires on August 15, 2020. The driver's motor vehicle record did not list any violations or crashes in a commercial motor vehicle. He had one ticket in his personal vehicle in the past 10 years.

According to the bus operator, the bus driver joined the company in April of 2014; he completed initial training on April 23, 2014, which included classroom training and a minimum of 5 days of on-the-road training. All company drivers participate in on-going/remedial training minimally twice per year, and on an "as-needed" basis. The driver had a current medical certificate issued in June 26, 2016, with an expiration date of January 2018. The driver passed the visual and perceptual tests with a visual acuity of 20/20 in both eyes. The driver does not have vision problems and does not wear glasses or contacts. The driver was 5 ft 4 in tall and his "straight forward" vision level when sitting in the driver's seat is approximately 7 ft from the ground. The driver provided his 72-hour activity history to include activities on the day of the crash and a review of his history did not reveal any irregularities.

Aircraft and Owner/Operator Information

Aircraft Make:	Embraer	Registration:	N121CZ
Model/Series:	EMB 120ER RT	Aircraft Category:	Airplane
Year of Manufacture:	1999	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	120350
Landing Gear Type:	Retractable - Tricycle	Seats:	34
Date/Type of Last Inspection:	September 11, 2017 Continuous airworthiness	Certified Max Gross Wt.:	26433 lbs
Time Since Last Inspection:		Engines:	2 Turbo prop
Airframe Total Time:	33531.47 Hrs at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	C126 installed, not activated	Engine Model/Series:	PW118B
Registered Owner:		Rated Power:	1800 Horsepower
Operator:		Operating Certificate(s) Held:	On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	KCQA

N121CZ, was an Embraer EMB 120ER, 34-seat, low wing, T-tail airplane, equipped with two Pratt & Whitney Canada PW118 turboprop engines and Hamilton Standard 4-bladed propellers. The airplane was maintained under an approved continuous maintenance inspection program. The airplane had wing span of 64.9 ft and an aileron span of 10.83 ft. The wing's height above can vary from about 7.2 ft to 7.7 ft above ground level. The airplane was equipped with position lights for flight during night conditions and with lights that illuminate the vertical portion of the T-tail.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night
Observation Facility, Elevation:	KGXY, 4697 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	19:56 Local	Direction from Accident Site:	146°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.96 inches Hg	Temperature/Dew Point:	24°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GREELEY, CO (GXY)	Type of Flight Plan Filed:	IFR
Destination:	OXFORD, MS (UOX)	Type of Clearance:	None
Departure Time:		Type of Airspace:	Class G

At 1956, the recorded weather at GXY was: Wind 220° at 3 kts; visibility 10 statute miles; sky condition clear; temperature 24° C; dew point 10° C; altimeter 29.97 inches of mercury.

According to U.S. Naval Observatory Sun and Moon Data, the end of local civil twilight was 1940 and local moonrise was at 2343.

Airport Information

Airport:	GREELEY-WELD COUNTY GXY	Runway Surface Type:	
Airport Elevation:	4696 ft msl	Runway Surface Condition:	Dry
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

GXY was a public, non-towered airport, which was owned by the Greeley-Weld County Airport Authority. It was located three miles east of Greeley, Colorado. The airport had two runways and a surveyed elevation of 4,696.8 ft above mean sea level. Runway 17/35 was a 10,000 ft by 100 ft runway with an asphalt surface. Runway 10/28 was a 5,801 ft by 100 ft runway with an asphalt surface. The airport listed 122.8 megahertz as its common traffic advisory frequency.

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	3 None	Latitude, Longitude:	40.4375,-104.633331(est)

The airplane operator reported that the left-hand aileron and aileron tab were damaged beyond repair. Images of the control surfaces confirmed the substantial damage. Images of the bus showed the right-side mirror and right-side windshield exhibited linear witness marks. The bus operator estimated the impact point of the witness marks was about 7 ft above ground level.

Additional Information

The accident vehicle was a 2015 model MCI J-4500 motorcoach. The bus operator reported that it has a stringent preventative maintenance program and that there were no safety defects with the vehicle at the time of the accident. Additionally, the driver stated that he was not using his cell phone at the time of the crash. The bus operator received a satisfactory safety rating during a Federal Motor Carrier Safety Administration review dated August 4, 2016. The review indicated that the operator had two recordable accidents and a 0.78 recordable accident per million mile rate.

At the time of the accident, the FBO at GXY had one employee on duty. Subsequent to the accident, the FBO indicated that they now ask if vehicles would like an escort and will be more vigilant in the future to escorting busses, limos, etc. to the aircraft.

Subsequent to the accident, the bus operator reported, "Going forward, we will make policy that a driver must be guided onto the tarmac, to the plane, by a ground guide (representative from the airport). If/when a ground guide is not present, they will not be permitted to drop plane-side."

Medical and Pathological Information

The airplane operator reported that they did not perform post-accident drug screening on the flightcrew due to the fact that Part 120.109(c) only requires it if "that employee's performance either contributed to an accident or cannot be completely discounted as a contributing factor to the accident." Alcohol testing was not conducted due to the fact that 120.217(b) only requires it if "that employee's performance of a safety-sensitive function either contributed to the accident or cannot be completely discounted as a contributing factor to the accident." The airplane operator determined that none of the flight crew's performance contributed to the accident and could be completely discounted as a contributing factor.

Following the accident, driver toxicological testing was performed by the bus operator on September 13, 2017 and testing results were negative for the tests performed.

Organizational and Management Information

Ramblin Express is a ground transportation company that has been providing service since 1993, with operations in Colorado Springs and Denver. Their fleet consists of motorcoaches, 21 and 32-passenger minibuses, as well as event shuttle buses. Ramblin's fleet of MCJ J4500, and Van Hool CX45 motorcoaches had 56 seats. Ramblin indicated that about 1/3 of their fleet is less than 4 years old, with 1-3 brand new motorcoaches being introduced into the fleet every year.

Administrative Information

Investigator In Charge (IIC):	Malinowski, Edward
Additional Participating Persons:	Ronald O Stilwell; Federal Aviation Administration; Denver, CO
Original Publish Date:	January 25, 2018
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=96008

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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).