Aviation Investigation Final Report

Location:	Chicago, Illinois	**Accident Number:**	CEN15LA334
Date & Time:	August 2, 2015, 14:37 Local	**Registration:**	N942AC
Aircraft:	Cessna 208B	**Aircraft Damage:**	Substantial
Defining Event:	Nose over/nose down	**Injuries:**	2 Minor, 7 None
Flight Conducted Under:	Part 135: Air taxi & commuter - Scheduled		

Analysis

As the commercial flight crew waited for a takeoff clearance on the taxiway, the tower controller asked if they would move aside to allow other aircraft to pass. As the captain made a right turn, a wind gust lifted the right side of the airplane and turned it clockwise. The airplane came to rest on its nose and its left wing for several seconds, then fell back upright on all three landing gear. The engine was secured, and all occupants deplaned through the main cabin door. Thunderstorms were reported west of the airport, moving east at the time of the accident, and wind gusts to 45 knots were recorded about the time of the upset. It is likely that the captain did not properly position the flight controls during the turning maneuver, which led to the wind picking up the wing.

Probable Cause and Findings

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

An encounter with a wind gust during ground maneuvering and the captain's improper flight control positioning to account for wind conditions, which resulted in the airplane being blown onto its left wing.

Findings

Environmental issues	Gusts - Contributed to outcome
Personnel issues	Incorrect action performance - Pilot

Factual Information

History of Flight

Taxi	Windshear or thunderstorm
Taxi	Nose over/nose down (Defining event)

On August 2, 2015, at 1437 central daylight time, a Cessna 208B, N942AC, operating as Air Choice One (call sign Weber) flight 2627, was substantially damaged when a wind gust lifted it up and it impacted the taxiway while awaiting takeoff clearance at Chicago O'Hare International Airport (ORD), Chicago, Illinois. The two flight crewmembers and five passengers were not injured; two passengers sustained minor injuries. The airplane was registered to and operated by Multi-Aero, Inc., under the provisions of Title 14 Code of Federal Regulations Part 135 as a scheduled domestic passenger flight. Day visual meteorological conditions (VMC) prevailed, and an instrument flight rules (IFR) flight plan had been filed. The airplane had departed the terminal gate at 1410 and was destined for Southeast Iowa Regional Airport (BRL), Burlington, Iowa.

There had been numerous reports of wind shear and microbursts in the immediate vicinity. According to the captain and first officer's statements, they were awaiting takeoff clearance on runway 22L when the control tower asked that they move aside to allow other aircraft to pass. As the captain was making a right turn, a wind gust lifted the right side of the airplane and turned it clockwise. The airplane remained nose down, resting on its left wing for several seconds, then fell back upright coming to rest on all three landing gears. The engine was secured, and all occupants deplaned through the main cabin door. A post-accident examination showed the outboard portion of the left wing was bent up about 30 degrees, the left aileron was damaged, and all three propeller blades were impact damaged.

According to a special weather study conducted by the National Transportation Safety Board, the National Weather Service's (NWS) Surface Analysis Chart valid at the time of the accident depicted a low pressure system over northwestern Michigan, with a cold front extending to the southwest through Wisconsin, Minnesota, into Iowa and then westward into Nebraska. To the east of the low, a warm front extended across northern Wisconsin and Lake Michigan, into north-central Michigan. An outflow boundary associated with thunderstorms was depicted just east of the warm front over extreme eastern Michigan into Lake Huron.

The National Center for Atmospheric Research's (NCAR) Research Application Laboratory's (RAL) regional radar mosaic image 2 minutes prior to the accident depicted a defined line of thunderstorms over Lake Michigan and into northeastern Wisconsin in the vicinity of the warm front and another area over eastern Michigan associated with the outflow boundary. There was another large intense-to-extreme area of echoes observed in the vicinity of ORD moving eastward across northern Illinois at approximately 40 knots.

The NWS Storm Prediction Center (SPC) issued a Convective Outlook at 1116 CDT that indicated the potential for thunderstorms and a greater than 30% probability of wind gusts greater than 50 knots, and a

15% probability of hail 1 inch in diameter or larger, and a 2% probability of a tornado in the Chicago area.

ORD's special weather observation at 1429 indicated the wind to be from 230° at 17 knots, gusting to 24 knots, visibility 10 miles in thunderstorm, a few clouds at 5,000 feet agl, scattered clouds at 7,000 feet, ceiling broken at 9,000 feet, and broken at 20,000 feet, temperature 31° Celsius (C), dew point 19° C, altimeter 29.74 inches of mercury (Hg). Remarks: Peak wind from 240° at 27 knots occurred at 1402 CDT, thunderstorm began at 1428 CDT, frequent lightning in cloud-to-cloud and cloud-to-ground to the west. Thunderstorm west moving east, temperature 31.1° C, dew point 19.4° C.

ORD's special weather observation at 1443 indicated the wind to be from 250° at 16 knots gusting to 45 knots. Runway 10L's visual range (RVR) was 700 feet variable to better than 6,000 feet. Weather: thunderstorm, hail, and moderate rain, scattered clouds at 5,000 feet agl. Cumulonimbus and scattered clouds at 7,000 feet, broken ceiling at 9,000 feet, and broken clouds at 20,000 feet. Temperature, 27° C, dew point, 22° C, altimeter 29.76 inches of Hg. Remarks: Peak wind from 270° at 45 knots occurred at 1440 CDT, rain began at 1942, hail began 1943, thunderstorm began 1928, pressure rising rapidly, frequent lightning cloud-to-cloud and cloud-to-ground overhead, thunderstorm overhead moving east, temperature 26.7° C, dew point 21.7° C.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	58,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	February 19, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 25, 2015
Flight Time:	5800 hours (Total, all aircraft), 2100 hours (Total, this make and model), 4200 hours (Pilot In Command, all aircraft), 240 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, 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:**	3-point
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:**	June 22, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	June 27, 2015
Flight Time:	(Estimated) 591 hours (Total, all aircraft), 22 hours (Total, this make and model), 201 hours (Pilot In Command, all aircraft), 175 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N942AC
Model/Series:	208B	**Aircraft Category:**	Airplane
Year of Manufacture:	2015	**Amateur Built:**	
Airworthiness Certificate:	Commuter; Normal	**Serial Number:**	208B-5202
Landing Gear Type:	Tricycle	**Seats:**	10
Date/Type of Last Inspection:	July 25, 2015 AAIP	**Certified Max Gross Wt.:**	8842 lbs
Time Since Last Inspection:	55 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	357 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	C126 installed, not activated	**Engine Model/Series:**	PT6A-140
Registered Owner:	Multi-Aero, Inc.	**Rated Power:**	867 Horsepower
Operator:	Multi-Aero, Inc.	**Operating Certificate(s) Held:**	Commuter air carrier (135)
Operator Does Business As:	Air Choice One, Inc.	**Operator Designator Code:**	MUIA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KORD,674 ft msl	**Distance from Accident Site:**	2 Nautical Miles
Observation Time:	14:43 Local	**Direction from Accident Site:**	313°
Lowest Cloud Condition:	Scattered / 5000 ft AGL	**Visibility**	2 miles
Lowest Ceiling:	Broken / 9000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 45 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.76 inches Hg	**Temperature/Dew Point:**	27°C / 22°C
Precipitation and Obscuration:	Moderate - Thunderstorm - Rain		
Departure Point:	Chicago, IL (ORD)	**Type of Flight Plan Filed:**	IFR
Destination:	Burlington, IA (BRL)	**Type of Clearance:**	IFR
Departure Time:	14:10 Local	**Type of Airspace:**	Air traffic control;Class B

Airport Information

Airport:	Chicago O'Hare International ORD	**Runway Surface Type:**	Concrete
Airport Elevation:	672 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	28C	**IFR Approach:**	None
Runway Length/Width:	10801 ft / 200 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Minor, 5 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor, 7 None	**Latitude, Longitude:**	41.966945,-87.894165(est)

Administrative Information

Investigator In Charge (IIC):	Latson, Thomas
Additional Participating Persons:	Dwayne Hudson; FAA DuPage FSDO; West Chicago, IL
Original Publish Date:	July 16, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=91693