



# Aviation Investigation Preliminary Report

<b>Location:</b>	Naples, FL	<b>Accident Number:</b>	ERA24FA110
<b>Date &amp; Time:</b>	February 9, 2024, 15:17 Local	<b>Registration:</b>	N823KD
<b>Aircraft:</b>	BOMBARDIER INC CL-600-2B16	<b>Injuries:</b>	2 Fatal, 4 Minor
<b>Flight Conducted Under:</b>	Part 135: Air taxi & commuter - Non-scheduled		

## History of Flight

On February 9, 2024, about 1517 eastern standard time, a Bombardier Inc CL-600-2B16, N823KD, was destroyed when it was involved in an accident near Naples, Florida. The two airline transport pilots were fatally injured. The cabin attendant and the two passengers sustained minor injuries, and one person on the ground suffered minor injury. The airplane was operated by Ace Aviation Services (doing business as Hop-A-Jet) as a Title 14 *Code of Federal Regulations* Part 135 on-demand passenger flight.

The airplane was returning to Naples Municipal Airport (APF), Naples, Florida, from Ohio State University Airport (OSU), Columbus, Ohio, where it had flown earlier in the day. The airplane was serviced with 350 gallons of fuel before departure from OSU.

Preliminary Automatic Dependent Surveillance – Broadcast (ADS-B) flight track and air traffic control (ATC) data revealed that the flight crew contacted the ATC tower at APF while on a right downwind leg of the approach to the airport and maneuvering for a 5-mile final approach to runway 23. At 1508, the tower controller cleared the flight to land. The airplane was about 6.5 miles north of APF, about 2,000 ft geometric altitude (GEO) and 166 knots groundspeed, as it turned for the base leg of the traffic pattern.

A preliminary review of the data recovered from the airplane's flight data recorder revealed that the first of three Master Warnings was recorded at 1509:33 (L ENGINE OIL PRESSURE), the second immediately following at 1509:34 (R ENGINE OIL PRESSURE), and at 1509:40 (ENGINE). The system alerted pilots with illumination of a "Master Warning" light on the glareshield, a corresponding red message on the crew alerting system page and a triple chime voice advisory ("Engine oil").

Twenty seconds later, at 1510:05, about 1,000 ft msl and 122 kts, on a shallow intercept angle for the final approach course, the crew announced, "...lost both engines... emergency... making an emergency landing" (see figure 1). The tower controller acknowledged the call and cleared the airplane to land. At 1510:12, about 900 ft and 115 knots, the crew replied, "We are cleared to land but we are not going to make the runway... ah... we have lost both engines."

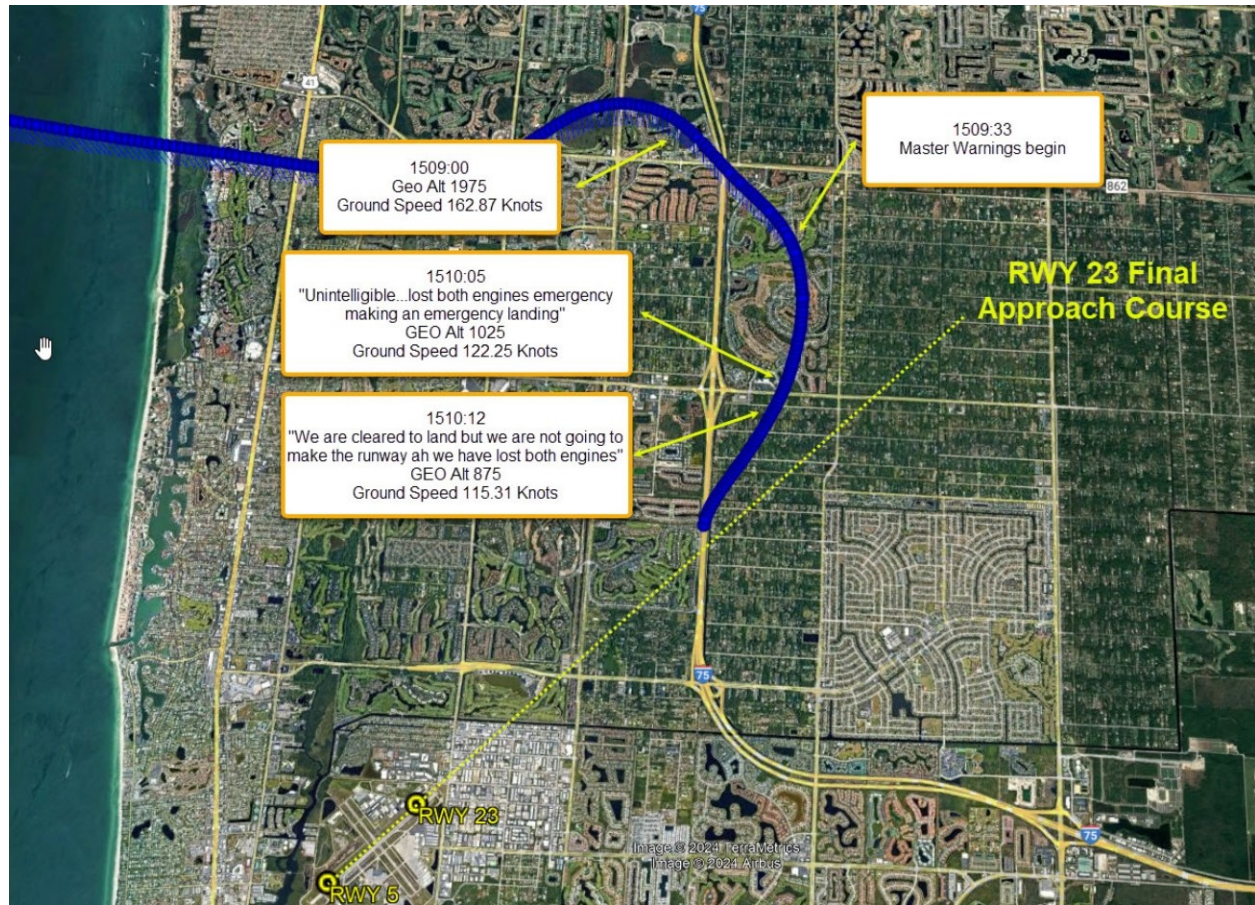


Figure 1 – Plot of the airplane's ADS-B ground track (blue dots) with annotations of specific events during the approach that include time as well as the airplane's geometric altitude and groundspeed (source: Federal Aviation Administration).

There were no further transmissions from the flight crew and the ADS-B track data ended at 1510:47, directly over Interstate 75 in Naples, Florida.

Dashcam video submitted to the National Transportation Safety Board captured the final seconds of the flight. The airplane descended into the camera's view in a shallow left turn and then leveled its wings before it touched down aligned with traffic travelling the southbound lanes of Interstate 75. The left main landing gear touched down first in the center of the three lanes, and then the right main landing gear touched down in the right lane. The airplane continued through the break-down lane and into the grass shoulder area before impacting a concrete sound barrier. The airplane was obscured by dust, fire, smoke, and debris until the video ended.

After the airplane came to rest, the cabin attendant stated that she identified that the cabin and emergency exits were blocked by fire and coordinated the successful egress of her passengers and herself through the baggage compartment door in the tail section of the airplane.

#### Personnel Information

The captain held an airline transport pilot certificate with ratings for airplane single- and multiengine land, with multiple type ratings. His most recent Federal Aviation Administration (FAA) first-class medical certificate was issued on October 10, 2023. His employer reported he had accrued 10,525 total hours of flight experience, of which 2,808 hours were in the accident airplane make and model.

The first officer held an airline transport pilot certificate with ratings for airplane single- and multiengine land, with multiple type ratings. His most recent FAA first-class medical certificate was issued on September 26, 2023. His employer reported he had accrued 24,618 total hours of flight experience, of which 138 hours were in the accident airplane make and model.

#### Airplane Information

According to FAA and maintenance records, the airplane was manufactured in 2004 and was powered by two GE CF34 Series turbofan engines. The airplane's most recent continuous airworthiness inspection was completed on January 5, 2024, at 9,763 total hours of operation.

#### Wreckage Information

Examination of the accident site revealed tire marks on the southbound lane of Interstate 75 consistent with the left main landing gear (see figure 2). The airplane came to rest about 1,000 ft past the initial touchdown point, upright in the grass area between the break-down lane and the sound barrier wall facing north, opposite the direction of travel.





Figure 2 Annotated photograph of the airplane's initial touchdown point on Interstate 75.

The forward portion of the fuselage was consumed by the post-impact fire (see figure 3). All major components of the airplane were accounted for at the scene, and the ground surrounding the wreckage was fuel-soaked having an odor consistent with Jet-A fuel. The cockpit center console was found separated from the main wreckage. Both engine throttle levers were found near the IDLE stop position. The flap selector handle was found in a position consistent with 45° flap extension.



Figure 3 – Annotated photograph of main wreckage as found.

The left wing was nearly entirely consumed by post-impact fire. The flap actuator jack screws were consistent with 45° flap extension. The left wing fuel boost pump was not found. The right wing exhibited leading edge damage consistent with impact with the vertical steel I-beam of a highway sign; the front spar was severed in the area of the impact. The outer portion of the wing was impact-separated; the inboard portion was thermally damaged. The right wing fuel boost pump was located in the vicinity of the right wing and right main landing gear and exhibited thermal damage.

The tail section of the airplane was largely intact but was damaged by the post-impact fire. The aft-mounted engines were secure in their mounts. The vertical fin, the horizontal stabilizer, and elevator control surfaces were all intact.

About 16 ounces of liquid with an odor and appearance consistent with Jet-A fuel was drained from the aft tail fuel tank; the sample contained about ½ ounce of what appeared to be water. The auxiliary power unit fuel filter bowl was removed for visual inspection of the fuel and fuel filter. No debris was noted in the drained fuel and the filter appeared clean. The fuel was retained for further analysis.

The engines and their respective pylons were cut from the airplane to facilitate recovery. A fuel sample was collected from the No. 1 engine main supply when the line was cut; however, no fuel was released when the No. 2 engine main supply line was cut.

#### No. 1 (Left) Engine

The left engine fan and core assemblies displayed thermal damage consistent with post-impact fire, with some of the cowling consumed. When viewed from the front, all fan blades appeared full length and intact, with no evidence of impact damage to the fan blade leading edges. When looking up the exhaust nozzle, the stage 4 low-pressure turbine blades appeared intact, straight, and undamaged. The cowl doors were opened to facilitate examination; there was no evidence of case uncontainment. No thermal distress was noted aft of the gearbox. The main fuel control (MFC) throttle lever spindle, lever arm, and push/pull rod were connected to the throttle linkage/bellcrank and appeared undamaged. The red alignment marks on the throttle lever spindle and lever arm were consistent with an IDLE throttle position.

The fuel filter appeared clean and no evidence of debris or foreign material was observed within the filter pleats. Fuel samples were collected from points throughout the fuel system; all samples appeared clear and consistent in odor with Jet-A.

The fuel flow transmitter was removed and examination of the inlet and outlet ports revealed them to be unobstructed. Examination of the fuel injectors revealed normal operating signatures. One of the fuel igniters was removed and displayed no anomalies.

Visual examination of the MFC, main fuel pump, and main fuel inlet port revealed no anomalies. The oil filter appeared in good condition and no particles were observed within the pleats.

## No. 2 (Right) Engine

The right engine spinner cone, access cowls, translating assembly cowls, and exhaust fairing displayed thermal damage. When viewed from the inlet, all fan blades appeared full length with minimal leading edge or blade tip damage. The stage 4 low-pressure turbine blades appeared full length and undamaged when viewed from the rear. The MFC throttle lever and throttle linkage/bellcrank was observed in a position consistent with being forward of the IDLE stop. The core cowl doors were removed to facilitate examination; no evidence of case uncontainment was observed.

The fuel filter bowl displayed evidence of thermal discoloration. The filter appeared clean with no debris or foreign material within the pleats. Fuel samples were collected from various points throughout the fuel system. The fuel from the fuel filter bowl and heat exchanger displayed a yellowish tint, while the other fuel samples were clear. The odor of the samples was consistent with Jet-A. Samples collected from the MFC and main fuel pump exhibited some small black debris; however, this was likely introduced during removal of the components.

Examination of the fuel injectors revealed normal operating signatures; one of the two fuel igniters was removed and exhibited no anomalies.

Visual examination of the MFC and main fuel pump revealed no anomalies. The main fuel inlet port exhibited a small, yellow-colored debris particle. The oil filter appeared in good condition and no particles were observed within the pleats.

The MFCs and main fuel pumps from both engines, the fuel injectors from both engines, and all collected fuel samples were retained for further examination. Both engines were also retained for additional examination.

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BOMBARDIER INC	<b>Registration:</b>	N823KD
<b>Model/Series:</b>	CL-600-2B16	<b>Aircraft Category:</b>	Airplane
<b>Amateur Built:</b>			
<b>Operator:</b>	Ace Aviation Services	<b>Operating Certificate(s) Held:</b>	Commuter air carrier (135)
<b>Operator Designator Code:</b>			

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	VMC	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KAPF, 7 ft msl	<b>Observation Time:</b>	15:53 Local
<b>Distance from Accident Site:</b>	3 Nautical Miles	<b>Temperature/Dew Point:</b>	26°C / 14°C
<b>Lowest Cloud Condition:</b>	Clear	<b>Wind Speed/Gusts, Direction:</b>	9 knots / , 180°
<b>Lowest Ceiling:</b>	Broken / 5000 ft AGL	<b>Visibility:</b>	10 miles
<b>Altimeter Setting:</b>	30.12 inches Hg	<b>Type of Flight Plan Filed:</b>	
<b>Departure Point:</b>	Columbus, OH (OSU)	<b>Destination:</b>	Naples, FL

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 Fatal, 1 Minor	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>	2 Minor	<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	1 Minor	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Fatal, 4 Minor	<b>Latitude, Longitude:</b>	26.191548,-81.735641 (est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Rayner, Brian
<b>Additional Participating Persons:</b>	Matt Rigsby; FAA/AVP; Fort Worth, TX Sam Farmiga; GE Aerospace; Cincinnati, OH Tim Rounds; Hop-a-Jet; Ft. Lauderdale, FL Michael Lemay; Bombardier; Dorval Ewan Tasker; Transportation Safety Board of Canada
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	