Aviation Investigation Preliminary Report

Location:	New York, NY	**Accident Number:**	DCA26MA161
Date & Time:	March 22, 2026, 23:37 Local	**Registration:**	C-GNJZ
Aircraft:	Mitsubishi CL-600	**Injuries:**	2 Fatal, 6 Serious, 33 Minor
Flight Conducted Under:	Part 129: Foreign		

On March 22, 2026, at 2337 eastern daylight time, Jazz Aviation LP flight 646 (doing business as Air Canada flight 8646), an MHI (Mitsubishi Heavy Industries) RJ Aviation (formerly Bombardier) CL-600-2D24 (CRJ-900) airplane, registration C-GNJZ, was substantially damaged after it collided with Rescue 35 (R35), an Oshkosh Striker 1500 aircraft rescue firefighting (ARFF) vehicle, while landing on runway 4 at LaGuardia Airport (LGA), New York, New York. The captain and first officer were fatally injured. Of the 2 flight attendants, 72 passengers, and 2 crew of the ARFF vehicle, 39 were transported to local hospitals with 6 serious injuries reported. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 129 scheduled flight from Montréal–Trudeau International Airport (YUL), Montreal, Quebec to LGA.

The National Transportation Safety Board (NTSB) traveled to the accident site and invited qualified parties to participate in the investigation. These included the Federal Aviation Administration, the National Air Traffic Controllers Association, the Port Authority of New York and New Jersey, the Sergeant's Benevolent Association, and the Police Benevolent Association. In accordance with the International Civil Aviation Organization Annex 13, the Transportation Safety Board of Canada assigned an Accredited Representative to the investigation, as the airplane was both manufactured and operated by companies based in Canada. MHI RJ Aviation Group, Jazz Aviation LP, Transport Canada, the Air Line Pilots Association, and the Canadian Flight Attendant Union are technical advisors to the Accredited Representative.

The parties and technical advisors were formed into specialized investigative groups led by NTSB group chairs in the areas of Air Carrier Operations and Human Performance, Airplane Structures, Airplane Systems and Powerplants, Air Traffic Control (ATC) and Human Performance, and Airport Operations, ARFF, Survival Factors and Human Performance.

The airplane's cockpit voice recorder (CVR), flight data recorder and quick access recorder were recovered and downloaded at NTSB's recorders lab in Washington, DC. A CVR group was formed to transcribe CVR audio. In addition, exterior light bulbs and several avionics units were removed from the airplane and sent to NTSB's laboratories. R35's vehicle data recorder, engine control module and situational display were also retained for future download. NTSB specialists were also assigned in the areas of data recorders, meteorology, airplane/ground vehicle performance, medical, and drone/surveying.

History of Ground Vehicles Movement and Airplane's Landing

A review of preliminary airplane and ARFF vehicle tracking data, ATC and airplane CVR audio recordings, airplane flight data recorder information, and surveillance video revealed that prior to the accident, six ARFF response vehicles (four ARFF trucks, a tool truck, and an airstair truck) and one Port Authority police vehicle were responding to an emergency that was declared at 2331:42 near terminal B.

At 2335:07, the ATC local controller (LC, also referred to as 'tower') cleared Jazz flight 646 to land on runway 4. At the time the flight was on a 5-mile final at an altitude of about 1,900 ft.

At 2335:28, the accident ARFF vehicle (R35) left the fire station area along with the other six vehicles. Jazz flight 646 was about 4.6 nautical miles from taxiway D at an altitude of about 1,500 ft. The vehicles initially gathered near the intersection of taxiways BB and D, shown as a green circle in figure 1. The intended path was to continue on taxiway D, cross runway 4 (depicted with dashed arrow), and then proceed to the destination noted on the right side of figure 1.

Figure 1. Google Earth image of the accident area, with the green circle indicating where the ground vehicles initially gathered, the yellow dash line their intended path on taxiway D, and the red star indicates where the collision occurred.

At 2335:47, the tool truck (call sign Truck 7), which was planned to be the lead vehicle, crew attempted to call the LGA ATC tower, however a simultaneous radio transmission on the same frequency obscured Truck 7's radio call. R35 entered taxiway BB, another airplane that had landed on runway 4 crossed taxiway D, and Jazz flight 646 was about 3.7 nautical miles from taxiway D and at 1,180 ft altitude.

At 2336:21, Truck 7 tried again to contact the tower. Before ATC responded, Truck 7 coordinated with R35 (call sign Truck 1) to contact the tower. Jazz flight 646 was about 2.3 nautical miles from taxiway D and about 650 ft altitude.

At 2336:44, the LC asked which vehicle needed to cross a runway. At the same time, Truck 1 moved to the front of the waiting response vehicles at the intersection taxiway BB and D. Jazz flight 646 was about 1.5 nautical miles from taxiway D and at 400 ft altitude.

At 2336:51, the red runway entrance lights (RELs, discussed later) illuminated for the intersection of runway 4 and taxiway D. Jazz flight 646 was about 1.2 nautical miles from

taxiway D and at 287 ft altitude. Truck 1 was stopped on taxiway D about 460 feet from edge of runway 4.

At 2336:56, Truck 1's crew replied to ATC with "Truck 1 and company", and the LC acknowledged. Truck 1 then requested "Truck 1 and company" to cross runway 4 at taxiway D, and the LC instructed them to cross. At that time, 2337:04, the airplane was at an altitude of about 130 ft above ground and about ¼ mile on final approach, which was about 4,400 ft away from taxiway D (see figure 2).

Figure 2. R35 (Truck 1) and Jazz flight 646 (C-GNJZ) positions at 23:37:04.

At 2337:07, Truck 1's crew read back the clearance and began moving along taxiway D towards runway 4. Jazz flight 646 was about 3,700 feet from taxiway D and at 87 ft altitude.

At 2337:11, Jazz flight 646 crossed runway 4's threshold, and Truck 1 was traveling at a speed of 10 kts (11.5 mph) and about 410 ft from the edge of runway 4.

At 2337:12, the LC gave a taxiing instruction to another airplane, and immediately afterward instructed Truck 1 to stop, as the truck was crossing taxiway AA. Truck 1's speed continued to increase. Jazz flight 646 was about 2,550 ft from taxiway D and at 30 ft altitude and 133 kts ground speed.

At 2337:17, the airplane's main landing gear touched down about 1,450 ft from taxiway D at a groundspeed of 128 kts and there was a transfer of control from the first officer to the captain. At that time, Truck 1 had crossed the hold short line at a speed of about 24 mph.

At 2337:20, the LC again instructed Truck 1 to stop. At this time the airplane's brake application began and the thrust reversers were deployed. Truck 1 was just over 100 ft from entering runway 4 and travelling at about 29 mph.

At 2337:21, the RELs extinguish.

At 2337:22, roughly 2 seconds before the collision, the airplane's nose landing gear touched down while the airplane was about 400 ft from taxiway D and at a groundspeed of 106 kts. Truck 1 was travelling at a speed of 30 mph and just entering runway 4.

Truck 1 turned toward the left just prior to the collision. The airplane's rudder deflected about 6° to the left just prior to the end of the flight recorder data. The collision occurred at the intersection of taxiway D and runway 4 denoted by the red star in figure 1. The airplane's last recorded ground speed before the collision was 90 knots (104 mph).

Evacuation

The airplane came to rest adjacent to taxiway B between taxiways D and E, upright on a heading of about 28° magnetic. Initially it was in a nose down attitude, due to the crush damage and partial separation of the forward fuselage and nose landing gear. Truck 1 came to rest just northwest of the airplane, on its left side, on a heading of about 206° magnetic.

Passengers self-evacuated through the 4 overwing exits. The ground vehicles redirected from the emergency at terminal B to the accident airplane, and ARFF personnel assisted with the evacuation. During the evacuation, the airplane tilted nose upward until the tail contacted the ground.

Figure 3. View of both vehicles after collision.

Interviews of ARFF Members and Aft Flight Attendant

Multiple members of ARFF were interviewed. The driver of Truck 7 reported hearing ATC clearing Truck 1 and company to cross runway 4. Shortly thereafter, she saw the airplane and announced “stop stop stop” on the radio. There are no recordings available for the inter-ARFF communications.

The turret operator in Truck 1 recalled hearing the words “stop stop stop” (on the tower frequency) radio, but he did not know who that transmission was intended for. He subsequently heard “Truck 1 stop stop stop” and realized it was for them and subsequently noticed that they had entered the runway. He further recalled that as they turned left, he saw the airplane’s lights on the runway.

The airplane’s CVR captured the communications between Truck 1 and the LC that were transmitted on the LC frequency (including the request and clearance to cross runway 4).

The aft flight attendant reported getting in the aft jump seat for landing and described the flight as normal until he felt an impact and jar. He did not know what had happened and attempted to call the pilots and received no response. He reported the conditions were dark, but passengers deplaned orderly through all exits. He stayed with 4 passengers in front of the airplane until ARFF entered and assisted him and the remaining passengers to the exits.

Debris Field

The debris field was surveyed using drone imaging, GPS locations, and photography. The airplane and truck were scanned with a three-dimensional laser measurement system. The runway was examined to document the witness marks sustained during the accident sequence. The wreckage path was about 300 ft long and 150 ft wide, oriented on a magnetic heading of about 65°.

Airplane Examination

An examination of the airplane revealed that the most severe damage was forward of passenger seat row No. 1. Crush damage extended from the nose, to about the wardrobe No. 2 (coat closet) on the left side of the cabin and to about the forward lavatory on the right side. The two pilot seats, an unoccupied flight deck observer seat, and the forward flight attendant seat were separated from the airplane and found in the debris to the northeast (near the aft end) of Truck 1. All passenger seats were intact and remained secured to their attachment points. Seats 1A and 2A had inboard sidewall and seat leg deformation. The remainder of the passenger seats sustained minor or no damage.

There were no anomalies found with the pitch, roll, or yaw flight control surfaces. The leading edge slats and trailing edge flaps were found in their fully extended positions. All eight spoilers were found in the retracted position, however a review of the flight recorder data indicated that the ground spoilers activated about six seconds before the end of recorded data. Both thrust reversers were found in their fully deployed positions.

Figure 4. A view of the accident airplane from the left side.

ARFF Truck Examination

Examination of the R35 ARFF truck revealed it sustained substantial damage to its right-side body structure and equipment storage compartments. The 1,500-gallon water tank was fragmented, and all of the water was released. The 210-gallon foam tank was largely intact, though breeched, and all of the foam was released. The right-side body structure had a semicircular indentation in the inboard direction, just forward of the right rear wheel. The operator cab was largely undamaged.

Figure 5. Truck 1 with a view of the right and top side of the truck.

Flight Crew Schedule, Pairing, and Experience

The accident flight occurred on the first day of a four-day trip for the flight deck crew. The first day had three flights; the accident flight was the last scheduled flight. The first flight was from Montreal (YUL) to Quebec City (YQB). The second flight was from YQB to YUL. The third flight was from YUL to LGA. The crew flew together one other time on February 11, 2026. They flew two round trips to YUL and YQB.

The captain was the pilot in command (PIC) and was hired on December 12, 2022, and was upgraded to captain December 31, 2025. The PIC had accrued a total of 3,560 flight hours with 1,600 hours while at Jazz. The first officer (FO) was hired on April 22, 2024. The FO had accrued a total of 718 flight hours, with 435 hours while at Jazz.

ARFF Crew Schedule and Experience

The Truck 1 driver had 3 years of ARFF experience and had been on duty for about 5.5 hours, while on a 12-hour shift. The turret operator had 12 years of ARFF experience and had been on duty about 4.5 hours, while on a 12-hour shift.

ATC Controllers Schedule and Experience

There were two controllers on duty in the ATC tower at the time of the accident, consistent with the mid-shift basic watch schedule. Both were qualified and current on all control positions at LGA.

The LC, who had about 18 years of experience, was responsible, in part, for the arrival and departure of aircraft on assigned runways, aircraft operating within assigned airspace, and all runway surfaces. The LC had been on position for about 42 minutes at the time of the accident.

The ground controller (GC) was also the controller-in-charge (CIC), had about 19 years of experience, and was responsible, in part, to taxi aircraft on a first come first serve basis. As circumstances permitted, the GC/CIC ensured that the instrument landing system critical areas were protected, sequenced departure aircraft, provided guidance and goals for the shift, monitored and managed traffic volume and flow. The GC/CIC was on position for about 51 minutes at the time of the accident.

Prior to the accident, the GC/CIC had been coordinating ground operations with an airplane that had performed two rejected takeoffs, followed by a ground emergency at terminal B, which included communicating with the airplane that declared the emergency, ramp operations, and ARFF. As the GC/CIC continued to coordinate the emergency, the LC took over transmitting ATC instructions on both the GC and LC radio frequencies.

Airport Surface Detection and Runway Status Lights

The airport was equipped with an Airport Surface Detection Equipment, Model X (ASDE-X), which was a surface surveillance system used by ATC to track surface movement of aircraft and ground vehicles. The system collected data from surface surveillance radar, multilateration sensors, Automatic Dependent Surveillance-Broadcast (ADS-B) sensors, Mode S transponders, and terminal automation systems. It fused this information into a display in the control tower, allowing controllers to see the real-time positions of aircraft and vehicles on the airport surface, even in low visibility, see figure 6. There were multiple ASDE-X displays in the control tower. ASDE-X provides visual and aural alerts when it detects potential runway incursions or conflicts, giving controllers the ability to intervene before an accident occurs.

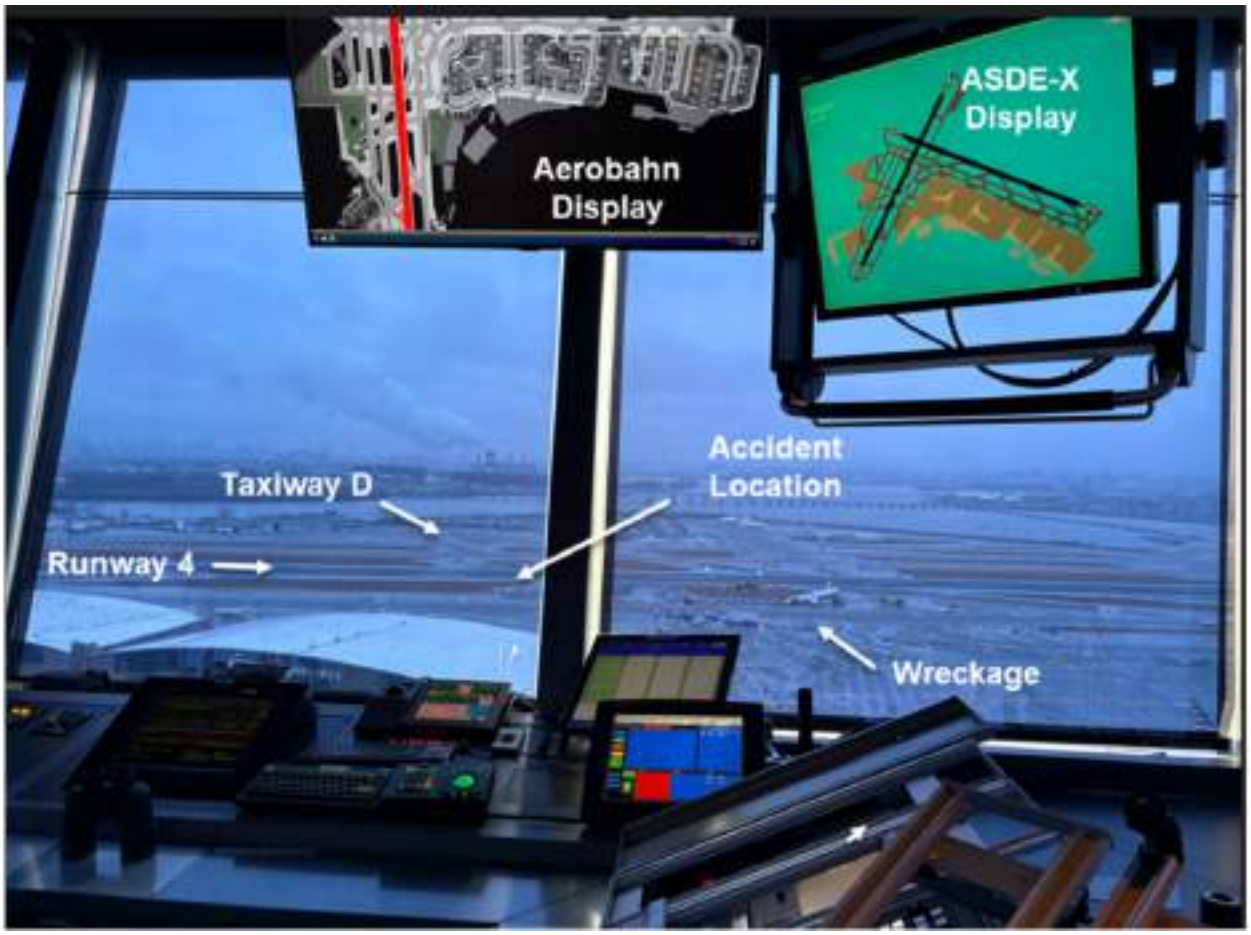

Figure 6. Photo taken from the ground control position looking toward runway 4 at taxiway D.

A review of the ASDE-X system data by the FAA determined that the system did not generate an aural or visual alert on the ASDE-X displays in the LGA ATC tower to warn controllers of the potential runway conflict.

Multiple ground vehicles, none of which were equipped with transponders, were intermittently detected as radar targets, while holding on taxiway D at taxiway BB. However, due to their close (and varying) proximity to each other, and the intermittent merging and unmerging of radar targets, the ASDE-X system was unable to establish high-confidence tracks. At the time of the accident, ASDE-X displayed only two radar targets on taxiway D (near taxiway BB), rather than all seven of the response vehicles as distinct targets at their respective locations, see figure 7.

Without transponder-equipped vehicles, the ASDE-X system could not uniquely identify each of the seven responding vehicles or reliably determine their positions, or tracks. As a result, the system was unable to correlate the track of the airplane with the track of Truck 1 (or any of the other vehicles in the group) and did not predict a potential conflict with the landing airplane.

A review of the system's maintenance logs indicated weekly preventative maintenance tasks were performed the day prior to the accident.

Figure 7. ADSE-X display just after the accident airplane passed taxiway D. JZA646 is the accident airplane and is shown within the red circle. The ground vehicles targets are shown in the cyan circle. (Source: FAA)

The airport was one of the 20 airports equipped with a runway status light (RWSL) system, which provides airplane and ground vehicle operators with a real time warning about potential conflicts at runway/taxiway intersections. It includes RELs installed at most taxiway/runway intersections, which illuminate red to warn taxiway traffic whenever runway traffic is approaching the intersection. A depiction of these lights is shown for the intersection of taxiway D and runway 4 in figure 8. These lights are located along taxiway centerlines from the hold short line(s) to the runway edge(s) with another on the runway centerline. They are focused away from the runway, such that when activated, they are visible to traffic on the taxiway approaching the runway.

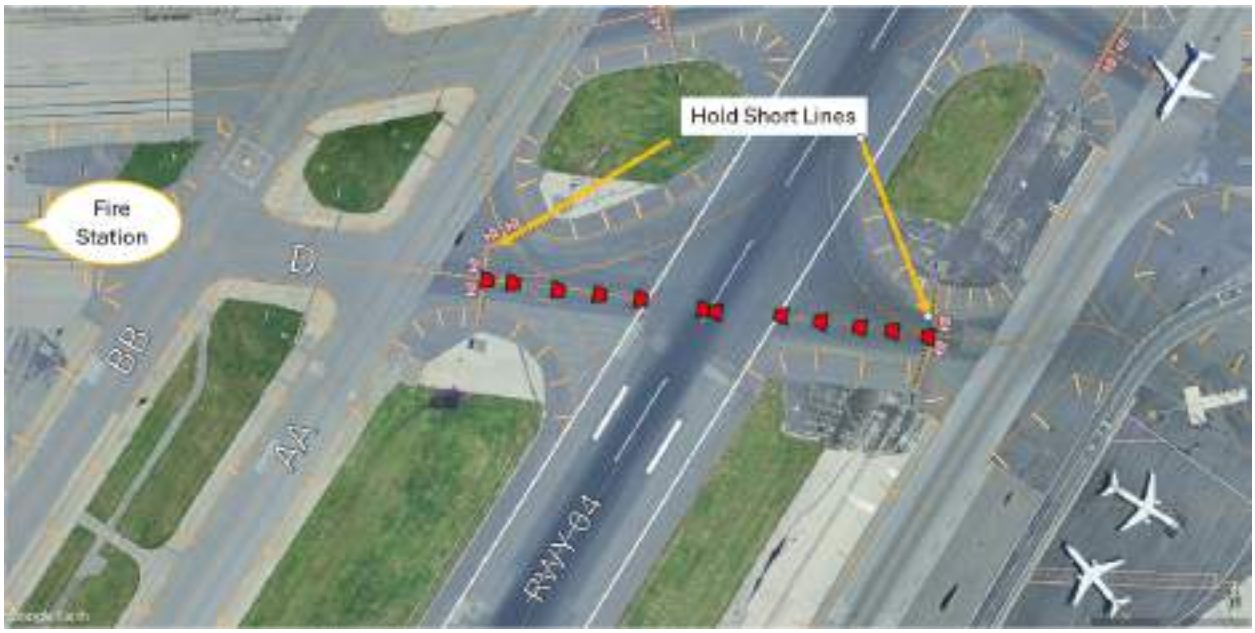

Figure 8. Depiction of runway entrance lights (RELs) for the intersection of taxiway D and runway 4.

These red lights are off when no runway traffic is approaching an intersection. They are automatically activated by the ASDE-X system when an airplane is approaching a runway for landing, or on a runway preparing to take off. As a landing airplane approaches the runway, the RELs at each of the equipped intersecting taxiways along the runway are simultaneously illuminated, to warn potential crossing traffic about the landing airplane. After an airplane touches down, the RELs turn off at each taxiway sequentially, as the airplane progresses down the runway. The system is designed to turn the lights off about 2 to 3 seconds before the airplane reaches each intersection.

A review of airport surveillance video recordings revealed that the RELs illuminated for the arrival of the accident airplane, as Truck 1 and company were stationary in the vicinity of the taxiway AA and taxiway D intersection, about 300 ft away from the runway 4 hold short line on taxiway D. The RELs on taxiway D remained illuminated until about the time Truck 1 reached the (near) edge of runway, when they extinguished, about 3 seconds prior to the collision. Figure 9 shows surveillance video of the RELs both when off and when activated, on taxiway D east of runway 4.

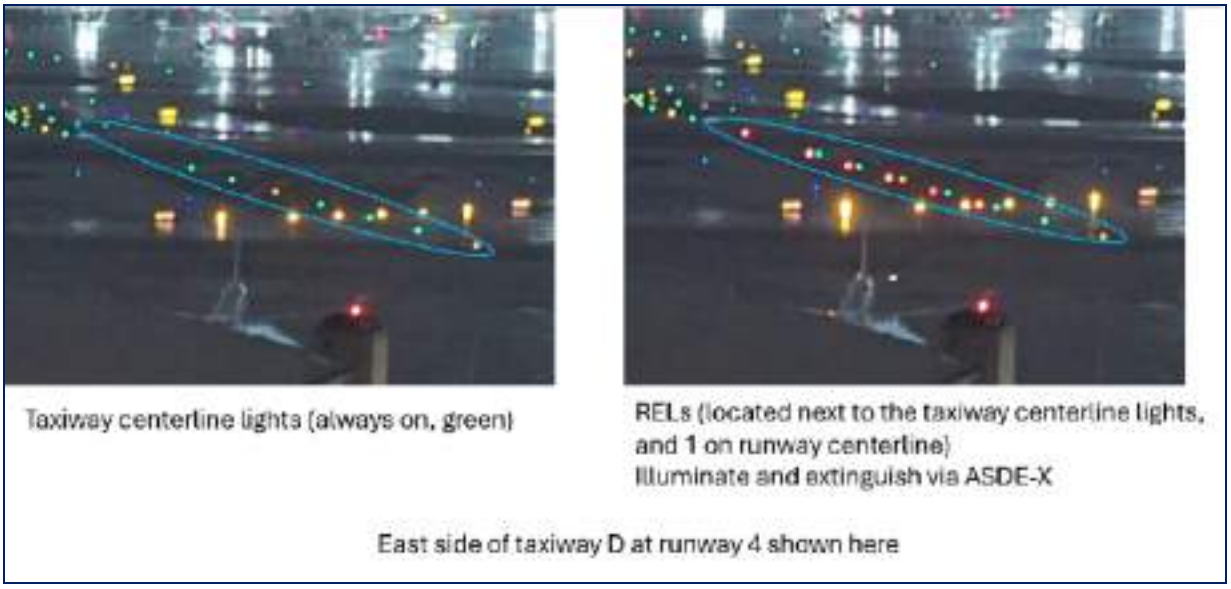

Figure 9. Left image RELs OFF - Right image RELs ON. (Source: Port Authority of New York and New Jersey)

Truck 1 was equipped with a situational awareness display (INDMEX tablet) that depicted the truck location, as well as other ground vehicles and aircraft on the airport. It could provide both visual and aural alerts to the crew when the truck approached runways. It did not have the capability to detect or warn of impending collisions.

Meteorology

Night visual meteorological conditions prevailed at the airport, and the runway was considered wet or contaminated for landing purposes. At 2251, about 46 minutes prior to the accident, the automated weather observation at LGA included a visibility of 7 statute miles in light rain, with scattered clouds at 6,000 ft and an overcast layer at 9,500 ft. Automated terminal information India was current at the time, which included, in part, the 2251 weather observation and a field condition report for runway 4 which indicated good braking action along the entire runway. The next weather observation occurred at 2351, about 14 minutes after the accident and included visibility 4 statute miles in light rain and mist, with few clouds at 4,500 ft and an overcast layer at 11,000 ft.

Aircraft and Owner/Operator Information

Aircraft Make:	Mitsubishi	**Registration:**	C-GNJZ
Model/Series:	CL-600 2D24	**Aircraft Category:**	Airplane
Amateur Built:			
Operator:	Jazz Aviation LP	**Operating Certificate(s) Held:**	Foreign air carrier (129)
Operator Designator Code:			

Meteorological Information and Flight Plan

Conditions at Accident Site:	VMC	**Condition of Light:**	Night
Observation Facility, Elevation:	KLGA,210 ft msl	**Observation Time:**	22:51 Local
Distance from Accident Site:	1 Nautical Miles	**Temperature/Dew Point:**	9°C /8°C
Lowest Cloud Condition:	Scattered / 6000 ft AGL	**Wind Speed/Gusts, Direction:**	7 knots, 73°
Lowest Ceiling:	Overcast / 9500 ft AGL	**Visibility:**	7 miles
Altimeter Setting:	29.73 inches Hg	**Type of Flight Plan Filed:**	IFR
Departure Point:	Montreal, Canada (CYUL)	**Destination:**	New York, NY

Wreckage and Impact Information

Crew Injuries:	2 Fatal, 1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 Serious, 33 Minor	**Aircraft Fire:**	None
Ground Injuries:	2 Serious	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal, 6 Serious, 33 Minor	**Latitude, Longitude:**	40.775521,-73.878882 (est)

Administrative Information

Investigator In Charge (IIC):	Brazy, Douglass
Additional Participating Persons:	Matt Rigsby; Federal Aviation Administration Ewan Tasker; Transportation Safety Board of Canada; Ottowa, OF Cory Davids; NATCA; Washington, DC Francis Scalley; Federal Aviation Administration; Dallas Fort Worth, TX Amar El Tarazi ; MHIRJ; Boisbriand, OF Dean Ciaschini; Transport Canada; Ottowa, OF Cal Purves; Jazz Aviation LP; Enfield, OF Hanson Lee; Port Authority of NYNJ; New York, NY Al Faraday; Sgts Benevolent Association; New York, NY Michael Chatterton; Police Benevolent Association; New York, NY Marsha Walters; Canadian Flight Attendants Union; Etobicoke, OF Jean-Claude Patchell; Air Line Pilot's Association; McLean, VA Daniel Carrico; NATCA; Chicago, IL
Investigation Class:	Class 1
Note:	The NTSB traveled to the scene of this accident.