NATIONAL TRANSPORTATION SAFETY BOARD
Office of Aviation Safety
Washington, D.C. 20594

October 18, 2019

Airworthiness Group Chairman's Factual Report

DCA19FA089

A. ACCIDENT

Operator:	CommutAir flight 4933, dba United Express
Location:	Presque Isle Airport (KPQI), Maine
Date:	March 4, 2019
Time:	1129 eastern standard time
Airplane:	EMB-145XR, registration N14171

B. AIRWORTHINESS GROUP

Chairman: Scott Warren
National Transportation Safety Board
Washington, D.C.

Member: Eric West
Federal Aviation Administration
Washington, DC

Member: Zachary Barrett
CommutAir
New York, NY

Member: Terry Hinton
CommutAir
Albany, NY

C. SUMMARY

On March 4, 2019, about 1129 eastern standard time, CommutAir flight 4933, dba United Express, an EMB-145XR, registration N14171, landed at Presque Isle Airport (KPQI), Maine, to the right side of the runway 01, in light to moderate snow. On board were the captain, first officer, one flight attendant, and 28 passengers. Two passengers and one crewmember received minor injuries, and the airplane received substantial damage. The regularly scheduled domestic passenger flight was operating under the provisions of 14 Code of Federal Regulations Part 121 from Newark International Airport (KEWR), Newark New Jersey.

The Airworthiness Group convened on March 5-7, 2019 in Presque Isle, ME to examine and document selected portions of wreckage.

D. DETAILS OF THE INVESTIGATION

1.0 Cockpit Examination

A quick reference handbook (QRH) was found in the left seat, and it was open to the emergency evacuation page.

The panels throughout the cockpit were examined and the following items were noted:

Generator buttons - in
GPU button - out
APU Gen button - in
Batteries 1 and 2 – both off
Shed bus – Auto
Bus Ties – Auto
Avionics – in
Backup battery – in
AC power – in
Emergency light – on
Overhead lights – off
Left T handle – pulled, but not twisted
Fuel Eng – 1 and 2 – both on B
Fuel cross feed – low 1
Fuel pumps 1 and 2 – both off
Ventral tank – off
Exterior lights – on
Fire - APU and Baggage – both not pressed
APU master – off
Powerplants ignition – Auto

Engine Start/Stop – Stop
Lights – Landing/taxi/nose – all on
Right T handle – pulled, but not twisted
Ail/Rud hyd shutoff – in
Engine hydraulic pump switches – out
Electrical pump – off
Logo lights – on
Flight deck dome – off
Fasten seat belt light – on
No smoking light – off
Sterile flight light – on
Wipers – off
Eng bleed 1 and 2 – both on
APU bleed – not selected
Air crossfeed – Auto
Pack 1 and 2 – in
Gasper – on
Recirc fan – on
Cockpit ECM – ¾ hot position
Pass ECM – Flt Attendant position
Ice detection – auto
Windshield heat – 1 and 2 – in
Pitot/AOA/TAT heat – all in
Engine air inlet heat – in
Wing/Stab heated edges – in

Overhead panel circuit breakers – all in except for:
ENG 1 A/I ind
CVR – operator stated that their representative pulled this breaker after the accident
FDR– operator stated that their representative pulled this breaker after the accident

Cockpit oxygen masks – both stowed
Passenger oxygen – auto
Elevator and aileron disconnects – both stowed, not pressed
The left column appeared to be further forward than the right column
Speed brake - closed
MEL book present
Both cockpit windows – closed and locked
Gear handle – down
Gust lock – not engaged
Thrust levers – idle
Parking brake – set
Flaps – 45 deg

Autopress – green dot – auto
Circuit breaker panels behind left and right seats – all circuit breakers in on both panels
Gear pins were stowed
Fire extinguisher – present
Gear manual extension panel – stowed

1.1 Exterior examination

The aircraft came to rest on packed snow to the right of runway 1 (see figure 1).

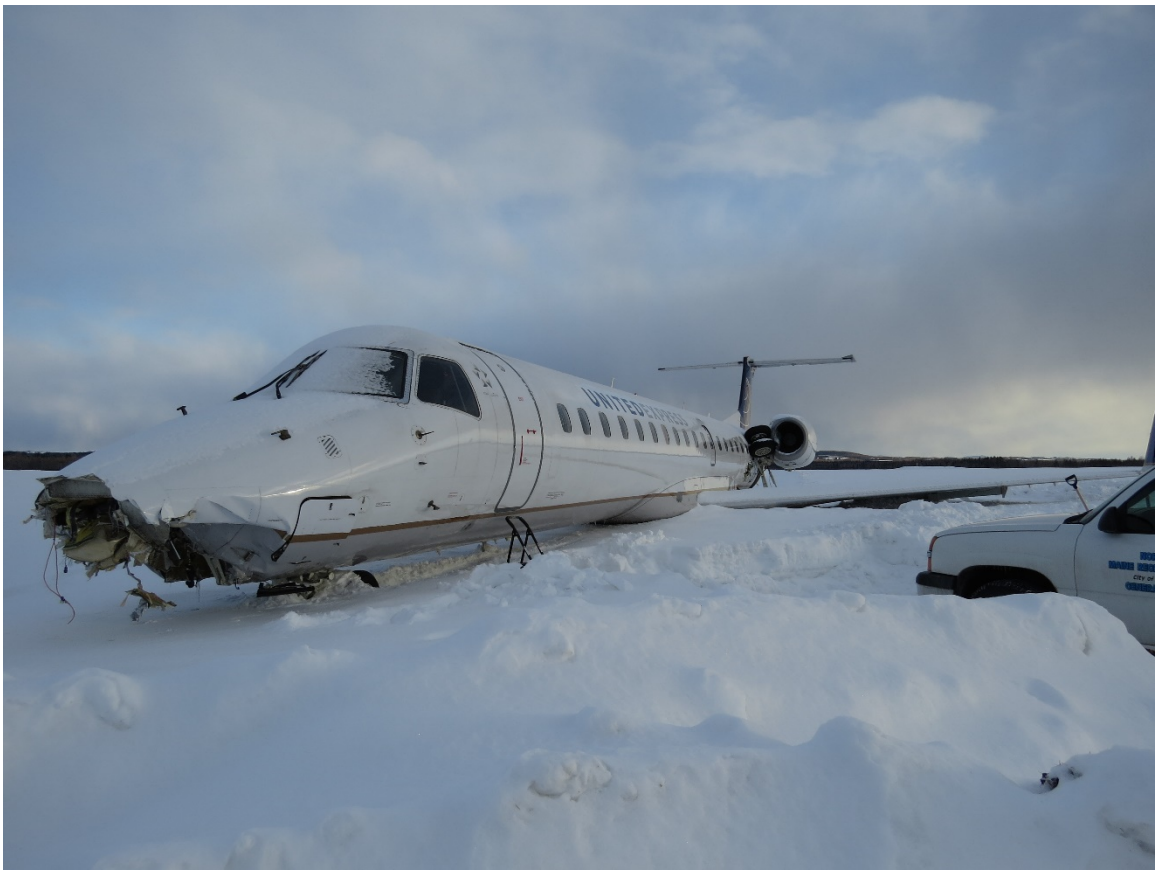

Figure 1
Overall view of the aircraft

The nose cone, radar, glide slope antenna, and nose gear doors were all missing.

The nose of the aircraft was damaged up to the point of the first bulkhead on the upper side and damaged or missing back through the nose gear position on the bottom.

The nose gear wheels were found aft of their normal position. The exact broken/damaged components could not be determined due to visibility restrictions (see figure 2).

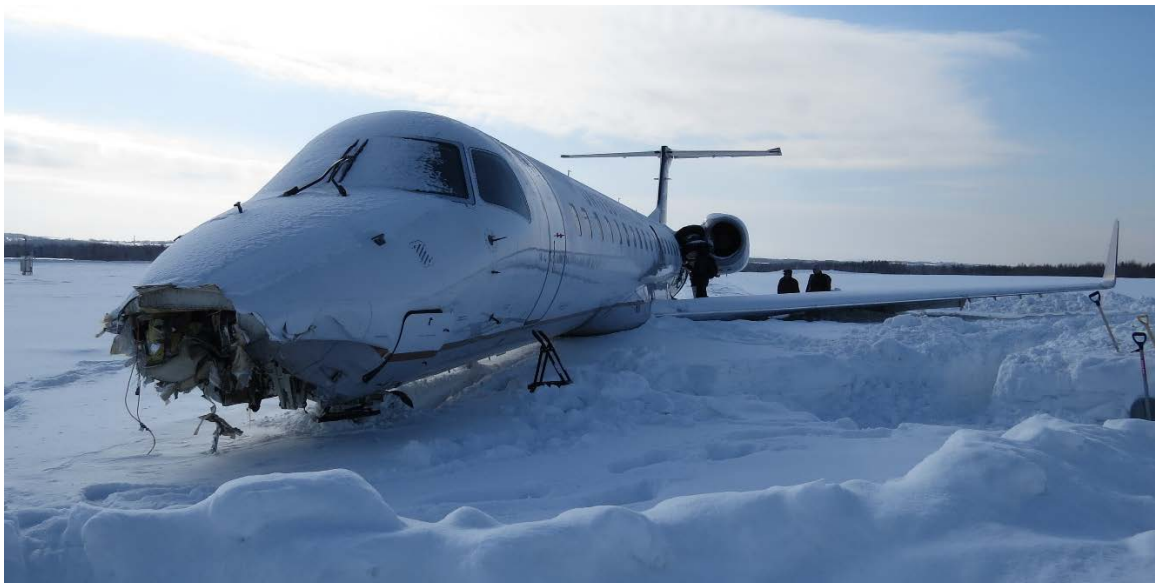

Figure 2
Aircraft nose area damage

The nose gear door actuators were present – the right side gear door actuator was broken at the door attachment point; the left side gear door actuator was still attached to the door attachment point, but the door was missing.

All pitot probes, AOA vanes, and TAT probes were intact.

Wipers were intact and in the stowed position.

The batteries appeared undamaged when viewed through the access door. They were disconnected by CommutAir personnel after the accident.

Lower and upper antennas and beacon lights were all present and appeared undamaged.

The cabin door was intact and operable.

The left side over wing exit was recessed at the top edge.

The left wing leading edge was undamaged except for a location on the inboard section – there was a scuff mark, and the landing light lens was pushed back.

The left wingtip and aileron appeared intact.

The left wing outboard flap appeared to be extended – the exact extension angle could not be determined. The inboard jackscrew was broken, and there was a crack in the aft most flap panel close to the outboard edge.

The left wing inboard flap was found to be in a position where the flap trailing edge was above the full retracted position, and the flap was shifted aft (see figures 3 and 4).

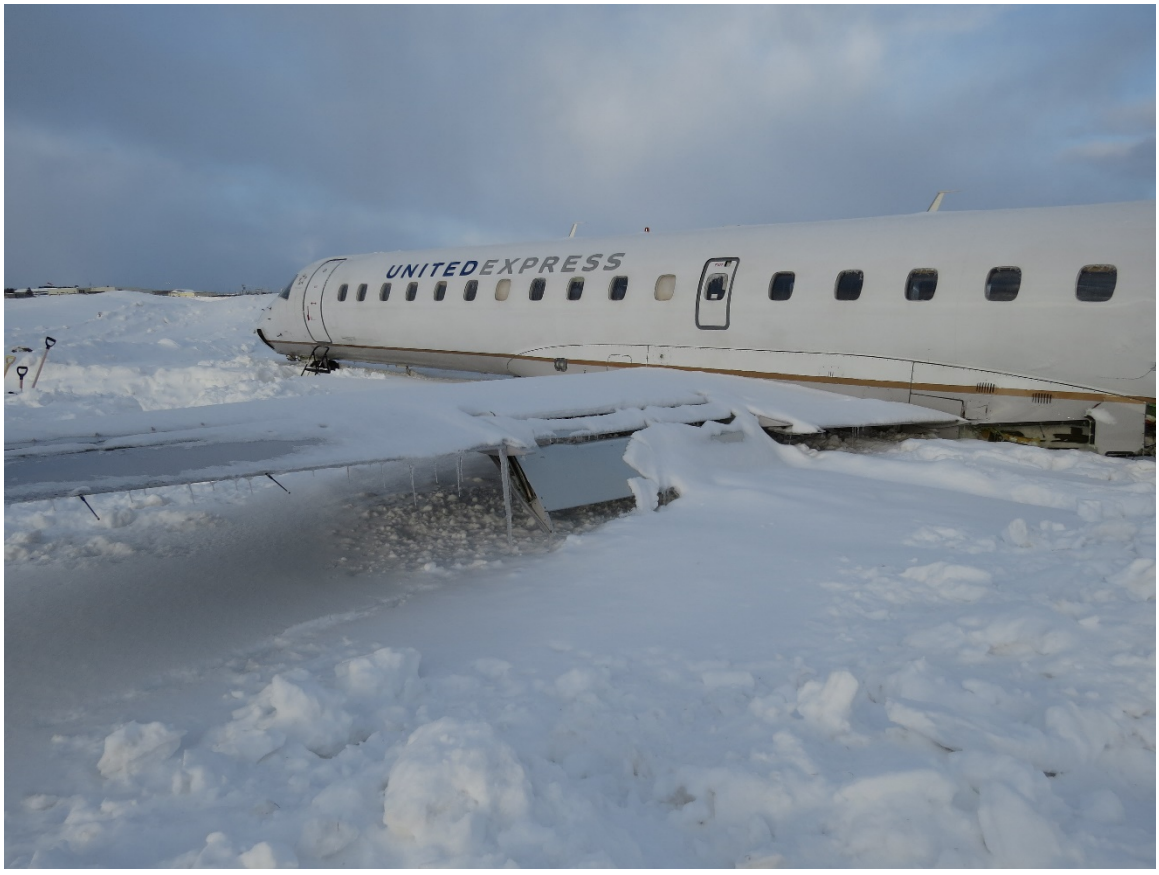

Figure 3
Left wing trailing edge

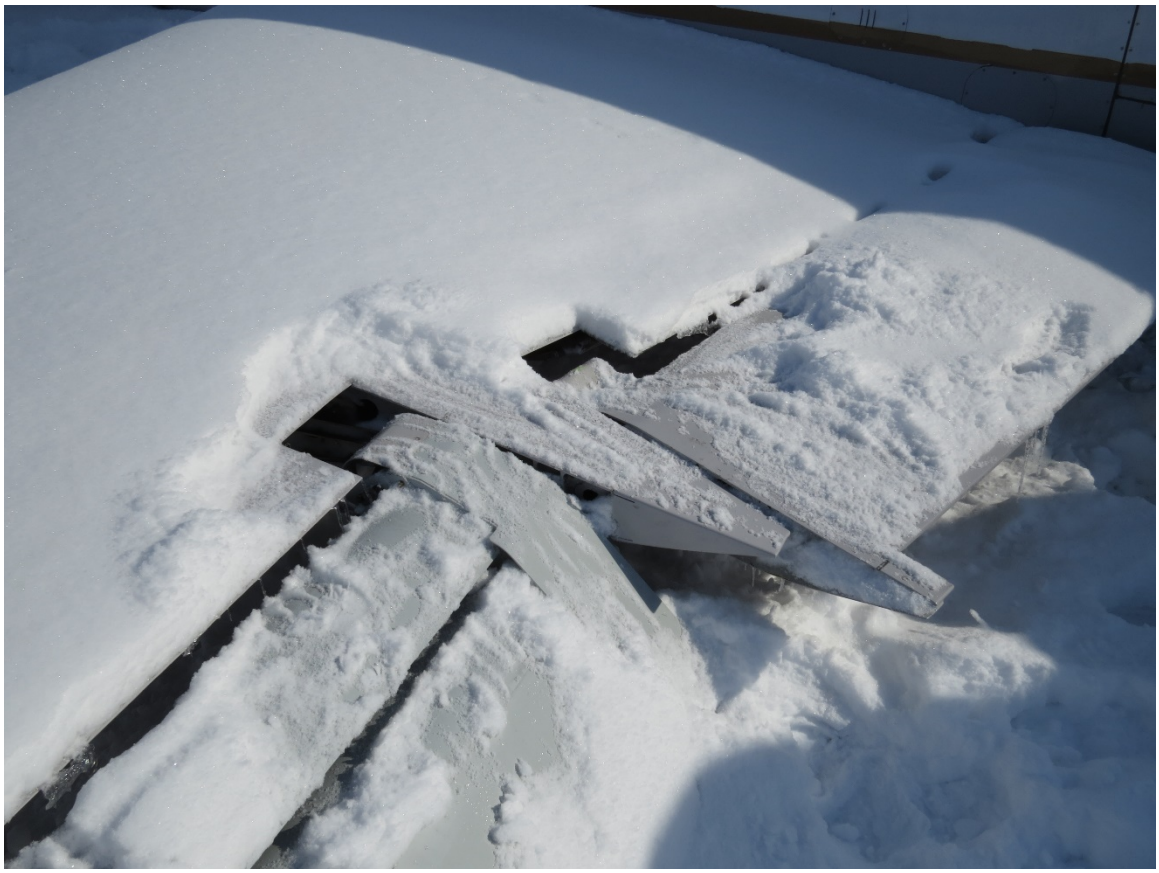

Figure 4
Left inboard and outboard flaps

The aft wing/fuselage fairing was missing, and the electrohydraulic pump (left side) and filter manifold were missing.

The ventral tank appeared intact.

The left main gear was found lodged between the left engine nacelle and fuselage. There was ripped and damaged fuselage structure in the area of the gear, and the fuselage was distorted around the gear wheels. The landing gear trunnion was found to have penetrated into the left engine gear box (see figures 5 and 6).

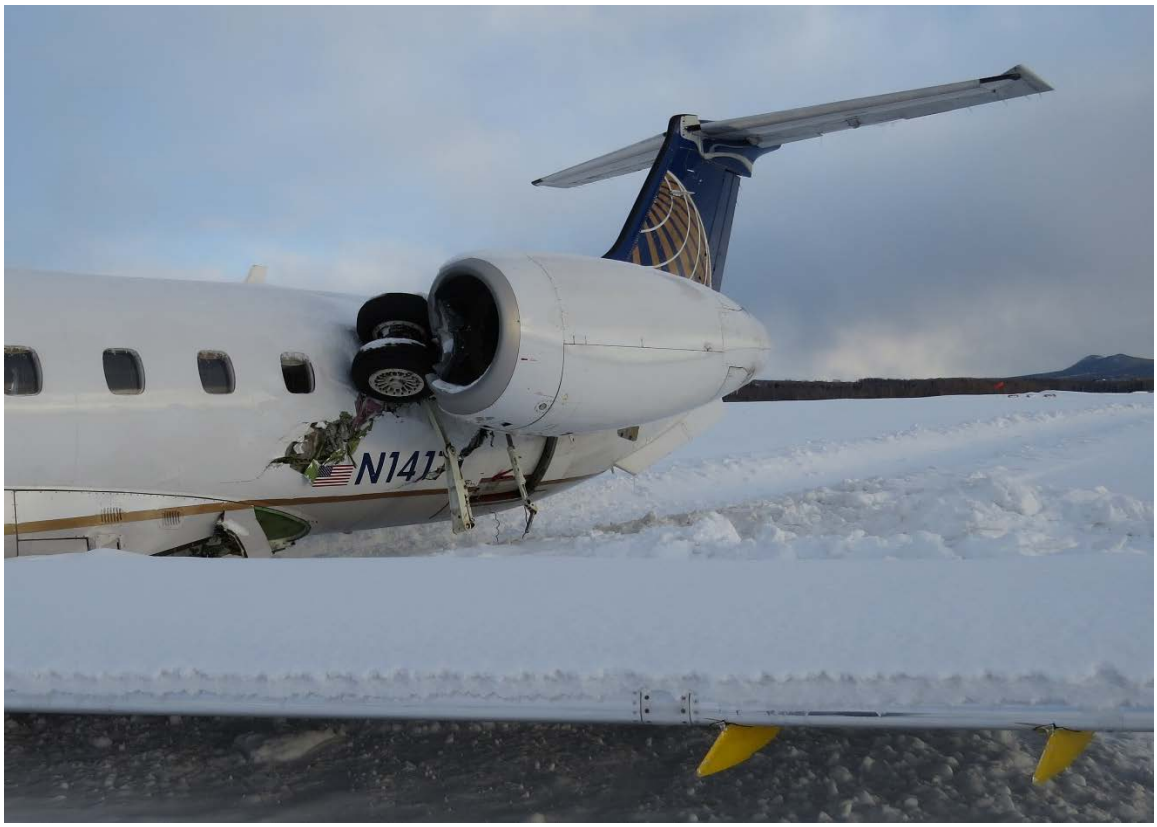

Figure 5
Left main landing gear lodged between left engine nacelle and the aircraft fuselage

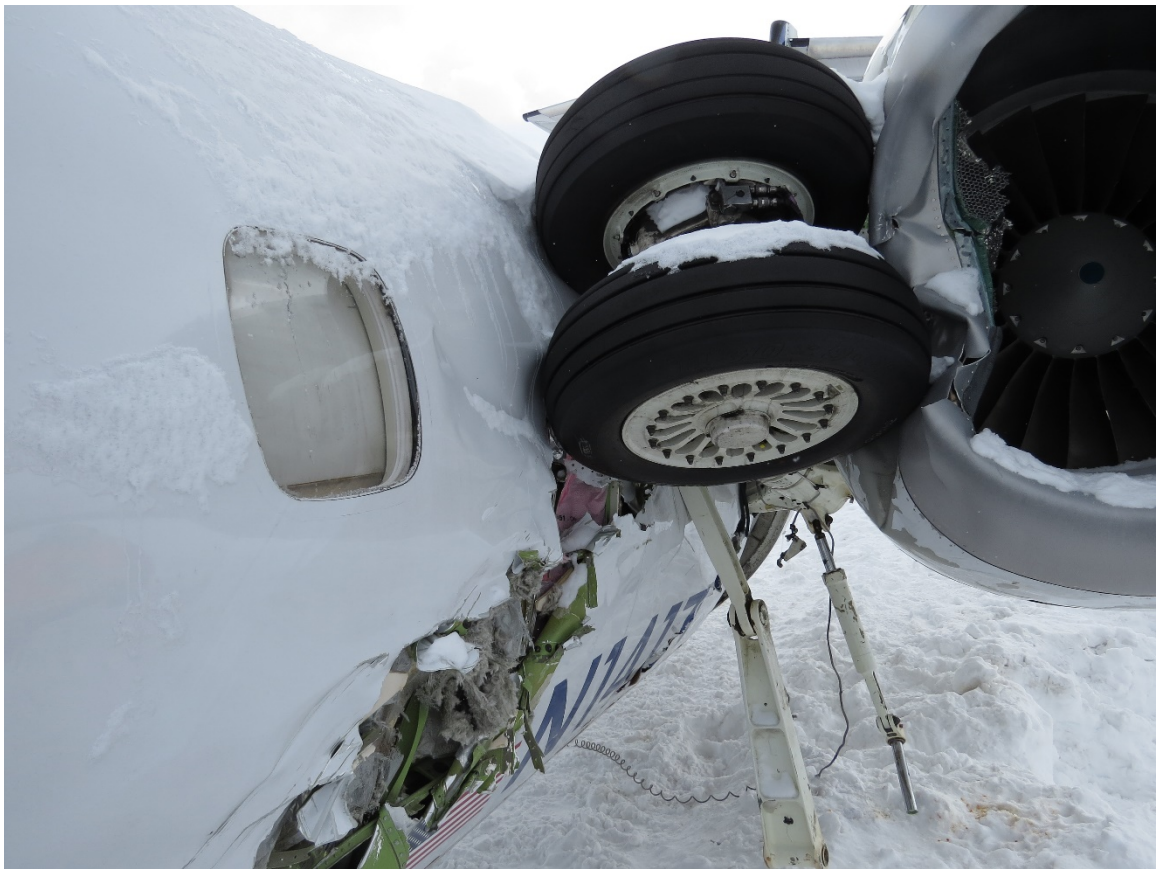

Figure 6
Left main landing gear lodged between left engine nacelle and the aircraft fuselage – close up view

The left engine inlet and nacelle were distorted around the wheel location. There was rotational scoring in the engine inlet in the area of the fan blades. The fan blades could be rotated using minimal force. Approximately ½ of the fan blades had leading edge damage (nicks or gouges).

The baggage compartment door was open – it had been opened by CommutAir personnel. According to CommutAir, the door had to be forced open. There was distortion noted in the door and door frame structure.

Other than the damage associated with the main gear lodging next to the left engine nacelle, there was no other damage noted in the nacelle. The thrust reversers appeared to be in the stowed position.

The left and right sides of the vertical tail appeared to be intact and undamaged. The localizer antenna was present on both sides and appeared undamaged. The rudder and elevators appeared to be undamaged. The rudder

was noted to be in a trailing edge right position. The left elevator was noted to be in a position that appeared to be further trailing edge down than the right elevator. The stabilizer was noted to be in a position between the third and fourth index mark from the bottom of the scale.

The aft fuselage appeared to be undamaged. The APU inlet appeared to be intact and undamaged (see figure 7).

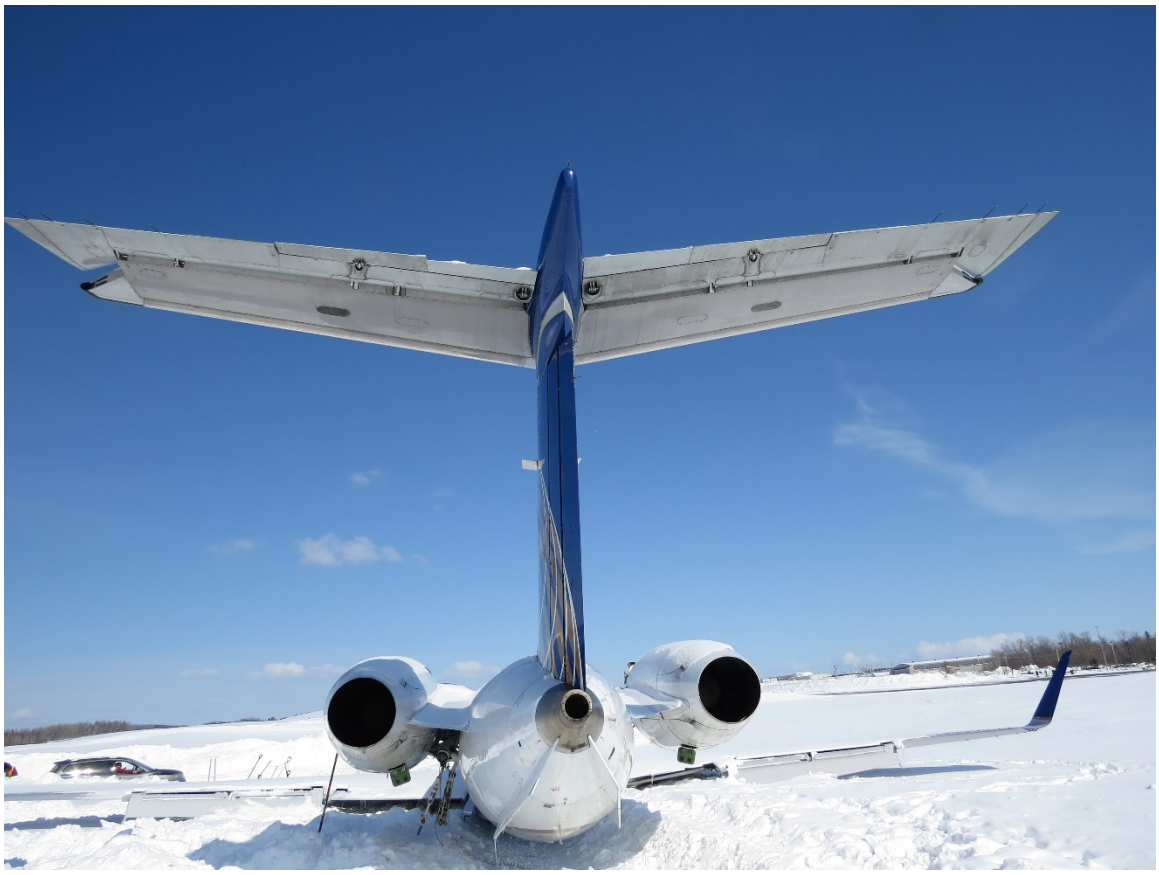

Figure 7
Aft fuselage and tail area

The right engine inlet was damaged on the inboard side (see figure 8). There were some marks that appeared to be consistent with rubber scuff marks noted on the fuselage in the area adjacent to the right engine inlet. There was rotational scoring in the engine inlet in the area of the fan blades. The fan blades could be rotated using minimal force. Approximately ½ of the fan blades had leading edge damage (nicks).

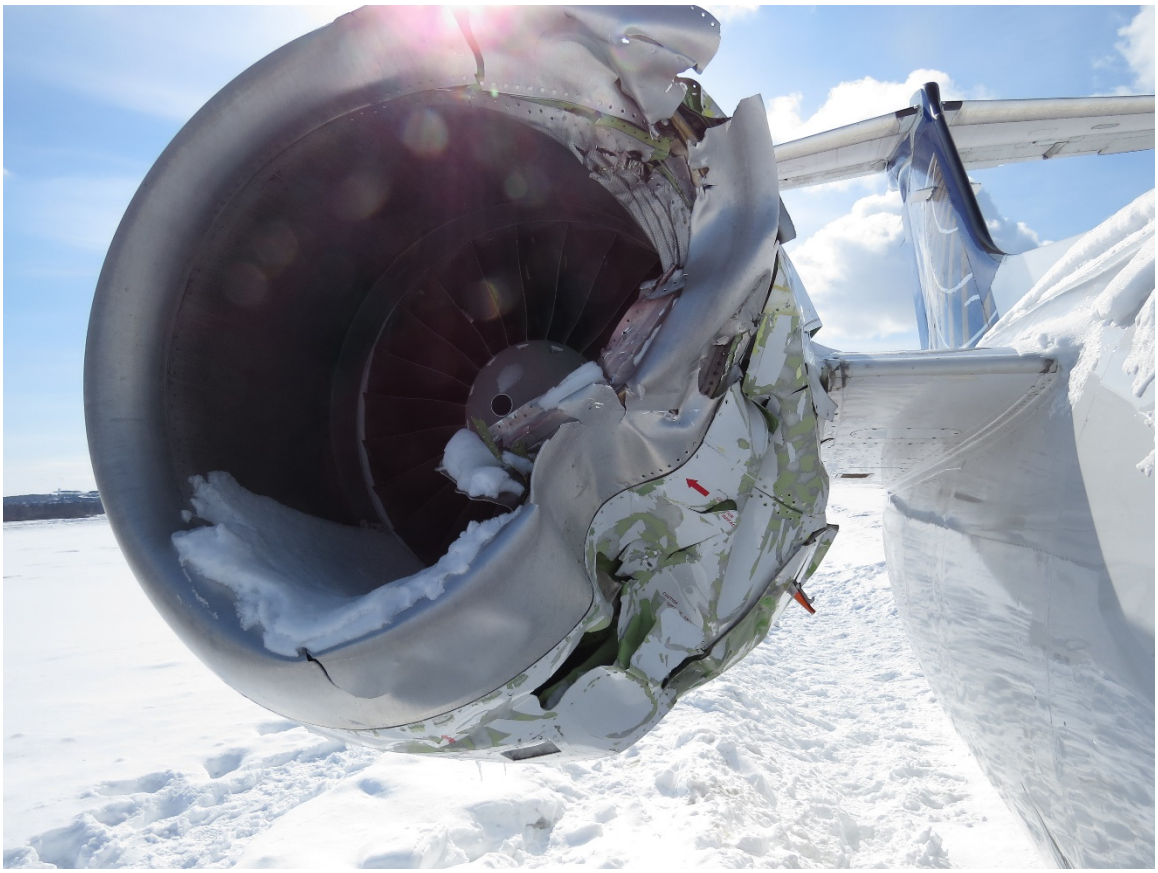

Figure 8
Right engine nacelle damage

Other than the damage noted on the right engine inlet, there was no other damage noted in the nacelle. The thrust reversers appeared to be in the stowed position.

The right wing leading edge was undamaged except for a location on the inboard section – there was a hole (approximately 1 in diameter), dents, scratches, and scuff marks, and the landing light lens was pushed back.

The right wingtip and aileron appeared intact.

The right wing outboard flap appeared to be extended – the exact extension angle could not be determined (see figure 9). The inboard jackscrew was broken, and there was a crack in the aft most flap panel close to the outboard edge.

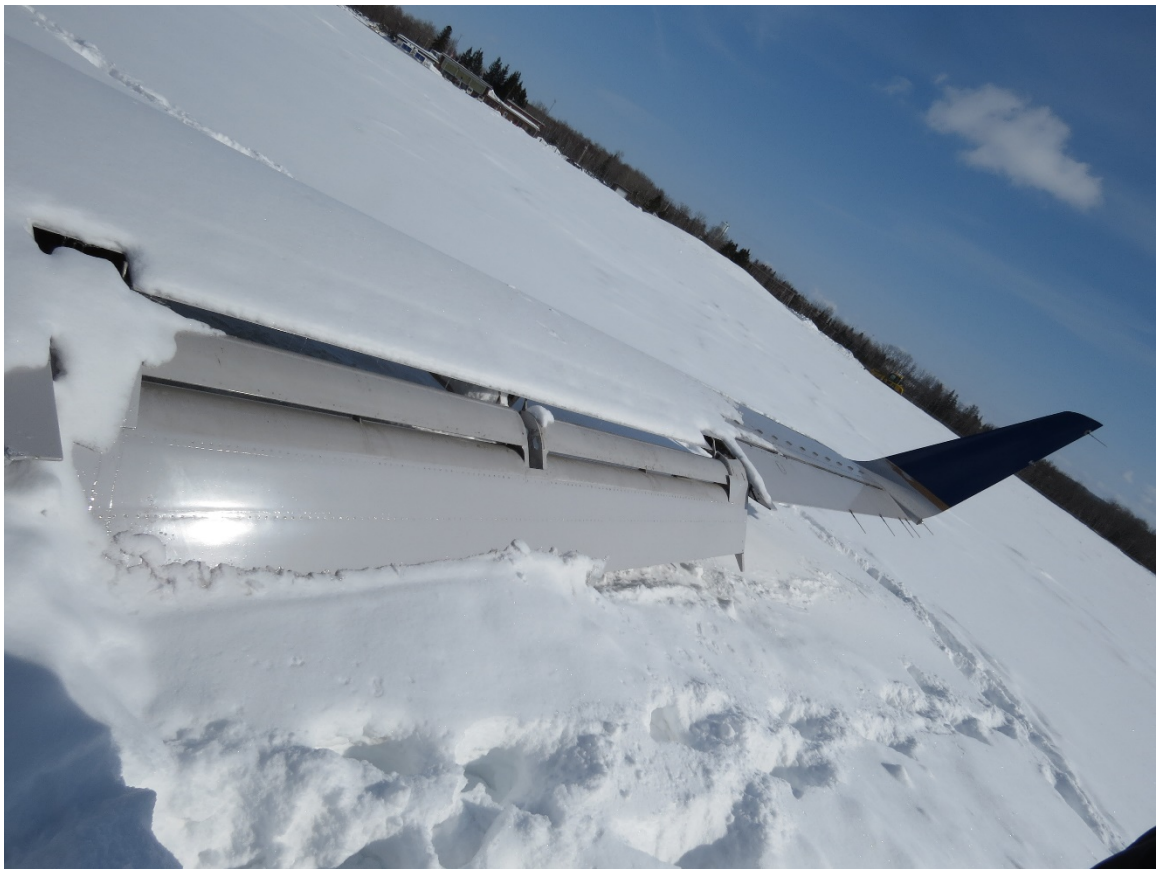

Figure 9
Right wing outboard flap and aileron

The right wing inboard flap was missing. The inboard jackscrew was missing, and the outboard jack screw was broken (see figure 10).

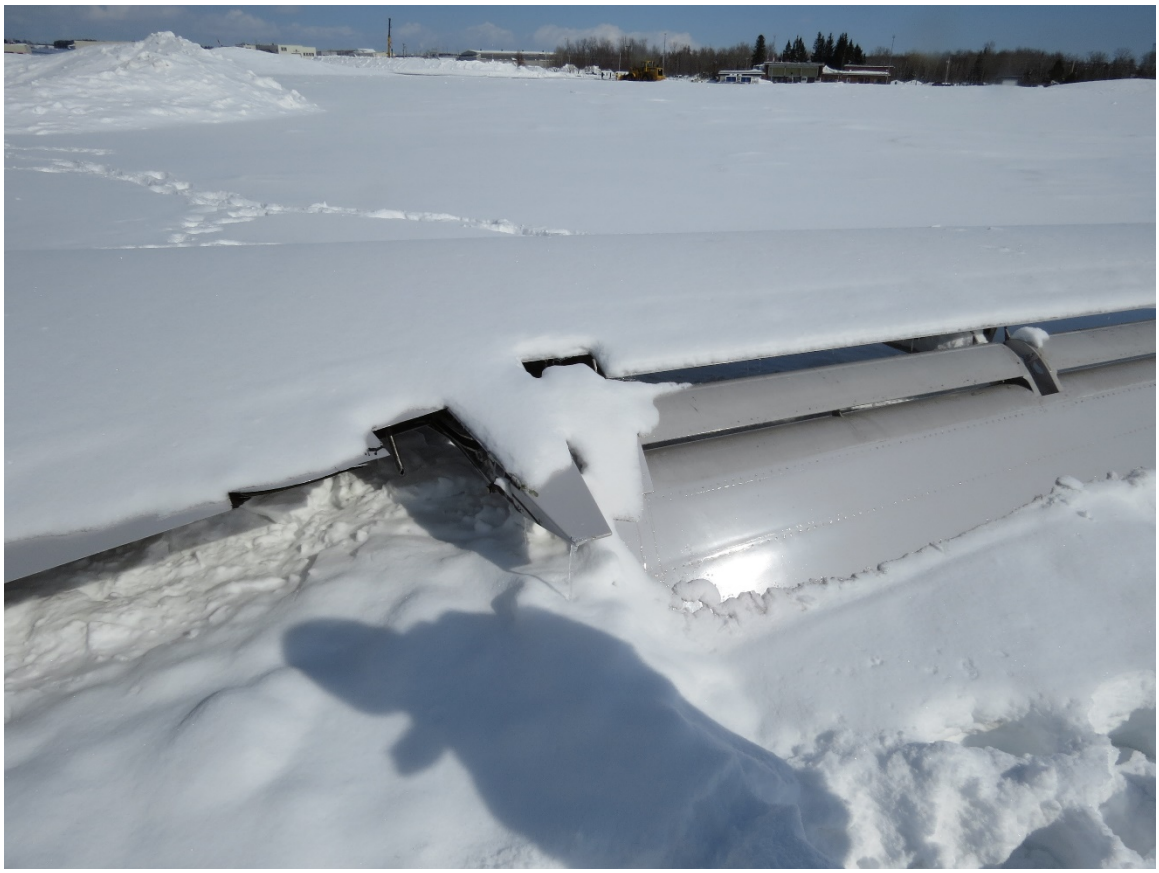

Figure 10
Right wing inboard flap position

The refueling access door was damaged, and open. The ground air connection door was closed, but three of the latches were found to be open.

The right cabin door was closed with an intact security seal on the aft side of the door. The bumper plate under the right cabin door was noted to be damaged on the forward lower edge.

The nose hydraulic compartment door was distorted, but still latched and closed.

1.2 Interior examination

On the fuselage cabin wall in the area of seat 24A, two small penetration holes were noted. Both of these holes appeared to have composite material present across the diameter of the holes (see figure 11).

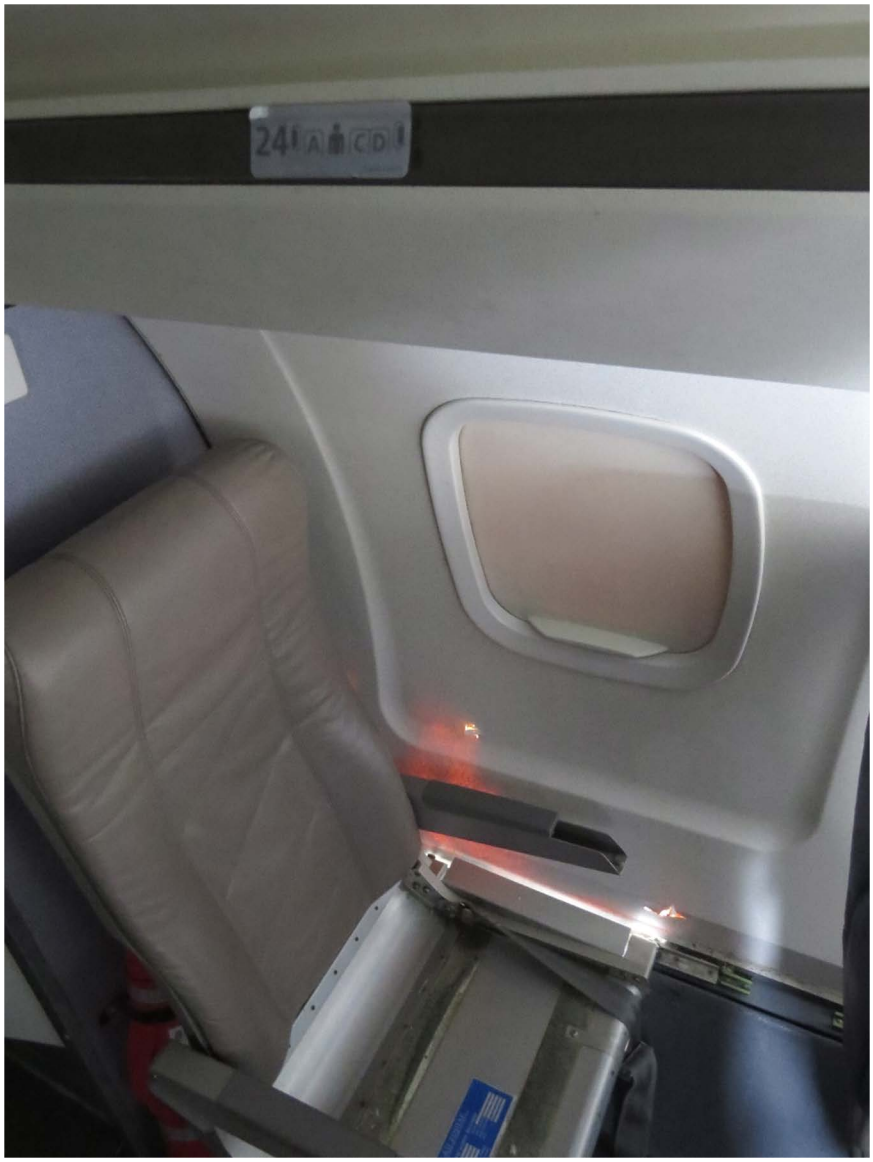

Figure 11
Fuselage penetration points in the area of seat 24A

The aft, left side interior cabin wall panel seams were distorted on both the forward (in the area of seat 23A) and aft sides (in the area behind seat 24A).

The left over wing exit door (in the area of seat 18A) was found with the handle cover removed and the latch partially pulled. The right over wing exit door was found in place.

There were 5 seats noted (9A, 8A, 9D, 7C, and 3C) where the lower seat hinge on the recline actuator was broken (see figure 12).

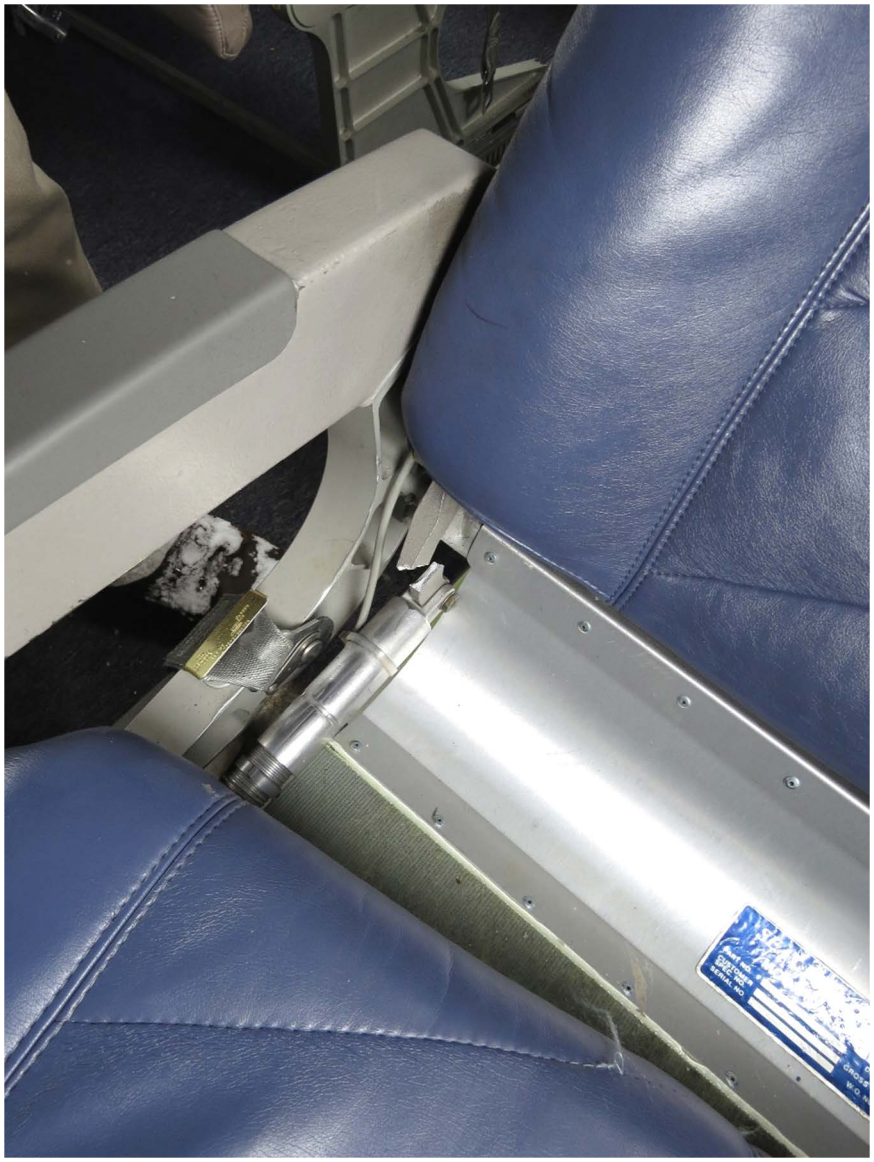

Figure 12
Broken recline actuator hinge on seat 9A

Scott Warren
Lead Aerospace Engineer