



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

August 27, 2015

Factual Report

OPERATIONAL FACTORS

DCA15IA089

A. ACCIDENT

Operator: GoJet Airlines
Location: O'Hare International Airport, Chicago, Illinois
Date: March 14, 2015
Time: 1521 central daylight time (CDT)¹
Airplane: Bombardier CRJ 700, N157GJ

B. OPERATIONAL FACTORS GROUP

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C. SUMMARY

On March 14, 2015, about 1521 central daylight time, GoJet Airlines flight 3645, d.b.a. United Express, a Bombardier CRJ 700, registration N157GJ, landed with the nose gear retracted on runway 32R at Chicago O'Hare International Airport (ORD), Chicago, Illinois. There were no injuries to the 37 passengers and 4 crewmembers onboard and the airplane received minor damage. The flight was operating under the provisions of 14 *Code of Federal Regulations* (CFR) Part 121 as a regularly scheduled passenger flight from Gerald R. Ford International Airport (GRR), Grand Rapids, Michigan.

¹ All times in the report will be in central daylight time, except as noted

D. INVESTIGATION

The operations group was formed on March 26, 2015 and travelled to St. Louis March 30, 2015. Interviews with the incident crew and a second crew were conducted on March 31, 2015.

Flight documents and company manuals were obtained from GoJet Airlines.

E. FACTUAL INFORMATION

1.0 History of the Flight

On the day prior to the incident, March 13, 2015, the incident crew flew the incident airplane from Denver (DEN) to Grand Rapids (GRR), landing just after midnight. In an interview, the captain described the sound when they extended the gear for landing at GRR as a “bang” sound. He stated it was odd and he had never heard it before. All three landing gear extended normally. After landing he took photos of the nose landing gear and sent them to maintenance control. Based on his conversation with maintenance control, the captain entered “placard strap bent” in the aircraft logbook. The crew then went into crew rest.

On March 14, a second crew flew the incident airplane from GRR to DEN and back. The captain of that crew stated he heard a slight noise and the FO stated he heard a small click when they extended the landing gear approaching GRR, but there were no other abnormal indications. After reporting for duty on the afternoon of March 14, the incident crew realized they would be flying the same airplane they had flown the previous day. Both the captain and the FO inspected the nosewheel and found no discrepancies. The captain, who was the pilot flying (PF), stated that when the flight departed GRR for ORD he heard a loud bang or thud sound when they raised the landing gear. The FO described the sound as “a good clunk.” However, there were no abnormal indications in the cockpit.

During the approach to runway 27L at ORD the crew observed a “gear disagree” EICAS² message when they extended the gear and they observed the nose landing gear indication was unsafe. The captain did not call for the Gear Disagree checklist. However, the FO, who was the pilot monitoring (PM), suggested they cycle (raise and lower) the gear handle, which the FO did. When they re-extended the gear handle the nose gear indication illuminated red and the “gear disagree” indication came back on. The crew conducted a go-around and ATC vectored the flight north of the airport. The FO then ran the “gear disagree” checklist³ by calling out the items on the checklist while the captain watched, and after again cycling the landing gear the nosewheel remained up. The captain then declared an emergency.

The FO suggested and the captain agreed they should conduct a flyby of the tower to verify the nose gear position. According to the FO, they performed the flyby at 500 to 600 feet AGL⁴ with the flaps in the 20 degree position following an approach to runway 27L. The tower reported the

² Engine indication and crew alerting system

³ See attachment 2, Gear Disagree checklist

⁴ Above ground level

nose gear was not extended. The captain noted the fuel remaining after the flyby was 2,000 lbs. The captain did not contact the company to discuss alternatives.

Following the flyby ATC vectored the flight to an approach to runway 32R. The captain briefed the cabin crew and passengers were notified and braced for an emergency landing. The captain stated he used reverse idle thrust and minimum wheel braking and held the nose off the ground as long as possible during the landing. According to a report from the company, the landing was on the centerline of the runway and in the touchdown zone.

After the airplane came to a stop, the captain decided a passenger evacuation was not necessary. He did not discuss potential fire or other hazards with the tower or airport rescue and firefighting (ARFF) personnel, but the ARFF team was present on the scene almost immediately. After the crew shut the engines down, the passengers and crew remained on the airplane for 10 to 15 minutes until busses arrived. The captain stated that cold and windy conditions outside contributed to his decision to leave the passengers on board. The captain stood at the service door as all passengers exited through the main entry door.

The crew was transported to the terminal in a Chicago Airport Authority truck, and after taking breathalyzer and urine tests in the GoJet operations office, they were released from duty.

2.0 Flight Crew Information

2.1 The Captain

According to GoJet Airlines records, FAA records, and interview statements, the following information pertained to the captain:

Age at the time of the incident:	29
Date of Hire with GoJet:	February 7, 2011
Prior Aviation Employment:	
Gulfstream Airlines	2008 to 2011
FO B1900	
Pinnacle Airlines	2006 to 2008
FO CRJ200	

At GoJet Airlines the captain flew as a CRJ700 first officer until he completed captain upgrade in March 2013. In an interview, the captain estimated he had about 5,200 hours total flight time, of which 3,800 hours were in the CRJ200 or CRJ700. He estimated he had 1,300 hours of pilot-in-command (PIC) time, of which 950 hours were in the CRJ700.

According to FAA records and his interview statement, the captain had no prior accidents, incidents or violations.

2.1.1 The Captain's Training, Currency and Certification

Training

A synopsis of the captain's pertinent recent training at GoJet Airlines is as follows:

Ground Training – runway excursions	March 9, 2015
Ground Training – maintenance CBT	March 8, 2015
Continuing Qualification (CQ) seat dependent training	December 13, 2014
AQP Line Oriented Experience (LOE) Transition	December 13, 2014
AQP Maneuvers Validation (MV) transition	December 12, 2014
Constant Angle Non Precision Approach	December 12, 2014
CQ ground school	December 5, 2014
AQP Security ground school	December 5, 2014
AQP Line check transition training	December 4, 2014
Recurrent Proficiency training	May 5, 2014

The captain's initial CRJ700 Captain upgrade qualification proficiency check was on November 19, 2013, and his initial upgrade line check was on December 29, 2013.

According to GoJet officials, a captain leadership course had not been developed by the company at the time of the incident.

Flight Currency

The captain's recent flight currency was as follows:

Flight Time, previous 24 hours	7 hr.
Flight Time, previous 7 days	17 hr.
Flight Time, previous 30 days	17 hr.
Flight Time, previous 90 days	160 hr.

Certification

A review of FAA records showed the captain's progressive record of certification and original issue dates were as follows:

- Private Pilot – Airplane Single Engine Land August 8, 2002
- Private Pilot – Airplane Multi-Engine Land December 26, 2002
- Commercial Pilot – Airplane Multi-engine and
 - Instrument airplane September 29, 2005
- Commercial Pilot – CL65 type rating
 - SIC privileges only
 - Circling approach VMC only August 22, 2006
- Commercial Pilot – BE-1900 type rating
 - SIC privileges only
 - Circling approach VMC only January 10, 2008
- Airline Transport Pilot – Airplane Multi-engine Land

- CL65 and BE1900 type ratings
- Private privileges Airplane Single Engine Land
- English Proficient
- B1900 SIC privileges only
- ATP circling approach VMC only
- CL65 circling approach VMC only

March 27, 2013

The captain was disapproved for his initial practical test for the instrument airplane rating on August 25, 2003. Areas cited were non-precision instrument approach and loss of gyro attitude and/or heading indicators. He was re-issued a private pilot certificate for airplane multi-engine VFR only on August 26, 2003.

The captain possessed an FAA first class medical certificate dated February 3, 2015. There were no limitations on the certificate.

2.2 The First Officer

According to GoJet Airlines records, FAA records, and interview statements, the following information pertained to the first officer:

Age at the time of the incident:	51
Date of Hire with GoJet:	October 14, 2013
Prior Aviation Employment:	
Air Services, Inc.	2013
Cherry Capital Flight	2012
Rite Hite, Inc.	2010

The first officer stated in an interview that he had been flying since 1982 in a variety of airplanes, including the Beech 18, Cherokee Six, Cessna 208, Cessna 404, King Air 90 and 200 and Learjet.

At GoJet Airlines the first officer had been flying as a CRJ700 first officer since January 2014. The first officer estimated he had about 14,000 hours total flight time, of which about 900 hours were in the CRJ700. He estimated he had 12,500 hours of pilot-in-command (PIC) time.

According to FAA records and his interview statement, he had no prior accidents, incidents or violations.

2.2.1 The First Officer’s Training, Currency and Certification

Training

A synopsis of the first officer’s pertinent recent training at GoJet Airlines is as follows:

Ground Training – runway excursions	March 6, 2015
Ipad training	February 24, 2015

CQ line check	February 12, 2015
AQP line check transition	January 21, 2015
Maintenance CBT	January 3, 2015
AQP LOE transition	October 21, 2014
Constant Angle Non Precision Approach	October 21, 2014
AQP MV transition	October 20, 2014
CQ ground school	October 14, 2014
AQP Security ground school	October 14, 2014
AQP Hazmat training	October 14, 2014

The FO's initial CRJ700 proficiency check on December 6, 2013, was unsatisfactory. He received one hour of remedial training on December 7, 2013, and satisfactorily completed the check the same day. The FO was graded unsatisfactory on three occasions during his Initial operating experience (IOE) but successfully completed his initial line check at GoJet on January 14, 2014. His total flight time on IOE was 50 hours 22 minutes, and his total number of landings was 16.

Flight Currency

Flight Time, previous 24 hours	7 hr.
Flight Time, previous 7 days	31 hr.
Flight Time, previous 30 days	42 hr.
Flight Time, previous 90 days	191 hr.

Certification

A review of FAA records showed the first officer's progressive record of certification and original issue dates were as follows:

- Private Pilot – Airplane Single Engine Land June 6, 1983
- Commercial Pilot– Airplane Single Engine Land March 26, 1985
- Commercial Pilot–
 - Instrument airplane May 6, 1985
- Flight Instructor – Airplane Single Engine Land August 15, 1985
- Flight Instructor – Airplane Single Engine Land
 - Instrument Airplane March 8, 1986
- Commercial Pilot - Airplane Single and Multi-engine Land
 - Instrument airplane June 25, 1986
- Airline Transport Pilot – Airplane Multi-engine Land
 - Commercial privileges -
 - Airplane Single Engine Land February 18, 1989
- Airline Transport Pilot – LR-jet type rating February 2, 1991
- Flight Instructor – Airplane Single and Multi-engine Land
 - Instrument Airplane July 9, 1995
- Airline Transport Pilot – DA-10 type rating April 27, 2010
- Airline Transport Pilot – CL-65 type rating December 7, 2013

The first officer was disapproved for his initial flight instructor oral test and flight test on July 5, 1985. He was approved for the certificate on August 15, 1985.

The first officer was disapproved for his initial instrument flight instructor oral test and flight test on December 5, 1985. He was disapproved a second time on the flight test for failure to set the correct altimeter setting on January 8, 1986. He was approved for the certificate on March 8, 1986.

The first officer was disapproved for his initial practical test for the CL-65 type rating on December 6, 2013. Areas cited were single engine missed approach and normal and abnormal procedures. He was approved for the type rating on December 7, 2013.

The first officer possessed an FAA first class medical certificate dated January 15, 2015. There were no limitations on the certificate.

3.0 Normal, Abnormal and Emergency Procedures

The GoJet General Operations Manuals (GOM), section 3-1.3.11.1, "Normal Checklists," dated October 15, 2012, stated:

"GoJet's approved aircraft checklists, which pertain to the subject aircraft, must be utilized. The Captain is responsible to see that checklists are used. Use of the checklist in a "challenge" and "response" manner provides a system for double-checking that items are accomplished. The approved checklists include each item necessary for flight crewmembers to check for safety before starting engines, taking off, or landing. The checklists are designed so that a flight crewmember will not need to rely upon his/her memory for items to be checked.

On the ground the Captain will call for the appropriate checklists. During the flight the crewmember flying the aircraft will normally call for the checklist to be read. The checklist should be read in a loud, clear voice and the response should be equally loud and clear. Any response different from that listed should mean that something is abnormal. When no response or an abnormal response is made the non-flying pilot should repeat the challenge and verify that the system is functioning or the flying pilot is aware of his/her surroundings and coherent.

No checklist item should be passed until the action called for on the checklist has been completed and the appropriate response has been verbally announced. A crewmember making the response to an "As Required" item should always give the switch position or system status such as "On" or "Not Required". In the event that the reading of a checklist is interrupted by flight procedures or ATC requirements, the checklist shall be restarted and completed in its entirety, regardless of the point of interruption or the systems affected.

Note: Checklists must be kept in a place easily accessible and usable in the cockpit of each aircraft.”

GoJet’s CRJ700 Normal checklist was provided in the CRJ700 Standard Operating Procedures Manual, section 2.2, dated December 4, 2014.⁵

The GoJet General Operations Manuals (GOM), section 3-1.3.11.2, “Immediate Action Checklist,” dated October 15, 2012, stated:

“Immediate Action Checklists are designed so that a flight crewmember will not need to rely upon his/her memory for items to be checked.

The urgency of certain emergencies requires immediate action. Those checklist items, which are boxed, must be committed to memory by each flight crewmember. During any of these emergencies, the flying pilot will call out for the appropriate checklist and the non-flying pilot will call out these memory items and the actions called for. Following the completion of the memory items, the Emergency and or Abnormal Procedure checklist will be read for the appropriate condition to ensure that all items have been completed.

Note: The Immediate Action Checklist must be kept in the cockpit in a plane readily accessible to each flight crewmember. Normally one Immediate Action Checklist is kept in each side pocket in the cockpit.”

The GoJet General Operations Manuals (GOM), section 3-1.3.11.3, “Abnormal/Emergency Checklist (Quick Reference Handbook),” dated October 15, 2012, stated:

“Abnormal/Emergency Checklists are designed so that a flight crewmember will not need to rely upon his/her memory for items to be checked.

Many situations, which may appear serious at that moment, can be handled safely if a thorough analysis is made before hasty action is taken. The checklist is an abbreviated guide, which is to be used at the initial sign of difficulty. Where time and circumstances permit, the Captain should use both the publications available on the aircraft and the company air-ground communications network to gain assistance in analysis and correction of any problems.

Completion of any checklist will not be announced until each and every item required has been completed.

The GoJet Quick Reference Handbook (QRH) contained the following emergency procedures that pertained to the incident. They were:

- **Gear Disagree⁶**

⁵ See attachment 5, CRJ700 Normal Checklist

⁶ See attachment 2, Gear Disagree Checklist

- **Landing Gear Up/ Unsafe Landing Procedure**⁷
- **Passenger Evacuation**⁸

4.0 Attachments

Attachment 1: Interview Summaries

Attachment 2: Gear Disagree Checklist

Attachment 3: Landing Gear Up/Unsafe Landing Procedure Checklist

Attachment 4: Passenger Evacuation Checklist

Attachment 5: GoJet CRJ700 Normal Checklist

⁷ See attachment 3, Landing Gear Up/Unsafe Landing Procedure

⁸ See attachment 4, Passenger Evacuation