Attachment 1

To Operations Group Factual Report

DCA15IA089

Interview Summaries

The interview schedule was as follows:

March 31, 2015

Patrick Richards, incident FO
Michael McLeod, incident captain
Gregory Mason, second crew FO
William Hessler, second crew captain

Interviewee:	**Patrick Louis Richards, First Officer – Gojet Airlines**
Date and time:	**March 31, 2015, 0825 CDT**
Location:	**Trans States HQ, St Louis, Missouri**
Present were:	**Roger Cox, NTSB; Ralph Hicks, NTSB; Robert Miller, FAA; Chris Miller, Gojet Airlines; Craig Markert, IBT; Alan Wongkee, Bombardier**

During the interview, FO Richards stated the following:

At the time of the incident, FO Richards was 51 years old. His current position was FO on the CRJ-700, and he started training October 15, 2013. He had flown with GoJet since January, 2014, and he had no other duties with GoJet.

He had been flying since 1982 in various airplanes and jobs. He began in Traverse City, Michigan flying cargo in the Beech 18 and Cherokee Six. In Willow Run, Michigan he flew cargo in a Cessna 208, and he flew a Learjet at Active Aero. At a UPS feeder he flew the C-208 and C-404. He also flew corporate airplanes, including the King Air 200 and 90. His total flight time was about 14,000 hours, of which about 900 hours was in the CRJ. He had 12,500 hours of PIC time. His type ratings were Learjet, DA-10, CL65, and his certificate was an ATP. He held a class I medical certificate with no limitations. He had no accidents, incidents, or violations.

Asked why he chose GoJet, he stated he interviewed for the job and liked the company.

The FO was asked to describe his duty day and flying on March 13. The day started around 3:30 pm and they flew from Toronto (YYZ) to Denver (DEN). They picked up the incident airplane, N157GJ, at DEN, and left around 7:40 pm to fly to Grand Rapids (GRR). They landed in GRR just after midnight on March 14th. Arriving in GRR they heard a "funny" noise when the landing gear extended. He had never heard this sound before. The FO did an extensive post-flight inspection. He looked at the nose gear and took pictures. It looked like the data plate came loose on the strut. The captain called maintenance and made an entry in the logbook. The entire discussion took about 35-40 min. They then went to crew rest, arriving at the hotel around 1:30 am.

On the afternoon of March 14 they checked in around 2:22 pm for the flight to Chicago (ORD). Earlier that day N157GJ was flown from GRR-DEN-GRR by a different crew. When they arrived at the gate, the FO noted this was the "nose gear" airplane. His captain spoke with the captain who flew the airplane in from DEN, who reported the nose gear made a little noise but worked fine. Maintenance in GRR was performed on the nose gear overnight, and the mechanic had left the nosewheel torque link disconnected. The mechanic had to return to place a pin in scissor arm (reconnect the torque link). The incident FO did not see anything wrong during preflight.

The incident flight was the captain's leg. Normally the captain gave a full length departure briefing the first flight of the pairing and after that he said it would be the standard pre-flight briefing. The FO did not recall specifics of the brief, but the captain did not brief the possibility of a return to GRR for a problem.

The FO did not recall the exact fuel at departure from GRR. He estimated it to be "above load plan fuel." Ground ops through taxi and takeoff roll were all normal. Upon gear retraction, he heard a "good clunk." Both CA and FO commented "That didn't sound good." They did not discuss a return to the departure airport, and other than the noise, there were no abnormal indications.

The approach briefing for ORD was to go to runway 27L. The FO recommended configuring early due to possible problem with the gear, and the captain agreed. About 8 miles from the runway 27L FAF (TAFFS) they began configuring. Their speed was around 200 kts, but he could not recall the flap sequence. The main landing gear indicated green, but the nose gear indicated red. 3 seconds later he observed a GEAR DISAGREE on the EICAS with a "beep-beep-beep" aural warning. The FO did not recall the fuel status at the commencement of the approach.

The FO was asked what actions they took to assess the situation. He stated that after they observed the gear disagree message, he suggested they cycle the gear handle up and down. The unsafe gear indication remained in both up and down positions. The gear noise was "not a normal sound" and seemed to be at a "higher pitch." Asked if the captain called for the QRH procedure at that time, he said no. They were still on approach control frequency. After informing ATC they needed to work on a problem, they were assigned to fly a heading of 360 degrees and an altitude of 4000 ft. The FO did not recall if the gear was retracted at that time. The captain declared an emergency.

After leveling at 4000 ft. they switched the radio frequency to 125.0 over Lake Michigan. The FO stated he recalled the captain called for the QRH procedure and the FO read the Gear Disagree checklist. Asked if he performed that checklist as a read and do checklist or a challenge and response checklist, the FO stated it was not a challenge and response checklist. The FO called it out and the captain watched. Asked if he ran the Gear up Disagree or the Gear down Disagree portion of the checklist, he stated he thought they had both abnormal conditions, so he read both. The FO remarked 6 of the 12 rings of the checklist binder were broken and he had difficulty turning the pages.

Asked specifically if he ran the "Landing Gear Up – Unsafe Landing Procedure," he stated he did not run that checklist. Asked why he did not run that checklist he stated it took 6 seconds to set up the 27L ILS, they had to perform the flyby, fuel was becoming critical and they were hurried. They had about 2200 lbs. of fuel remaining. There were also lots of frequency changes, and the captain was busy on the radio. He stated that the captain took some of the radio calls and he took some. Asked if they considered holding, he stated they did not have enough fuel. Asked at what level the EICAS fuel low level light would come on, he said he thought it was 800 lbs. per side.

The FO stated the captain initiated the checklists. When asked if the captain asked him to complete the checklists, he said no. The captain briefed the flight attendants but the FO did not hear the briefing. He and the captain discussed a possible evacuation. The captain initially wanted to conduct an evacuation, but the FO suggested that they wait to see if the situation

dictated one. The FO said a lot of people get hurt in evacuations. The captain then agreed and told the FA to hold off on the evacuation.

Asked if he ran the evacuation checklist after landing, he said no. He read it and discussed it while airborne in the pattern after the fly by. Asked if he accomplished all the items on the evacuation checklist, he stated he did some and the captain did some. They just did it. The FO recalled getting the engine fire buttons and battery master switch.

Asked how he evaluated whether there was no fire after landing, he said there were firemen walking around. The FO made a PA to the people in the back.

After landing, they decided to open the service door since they did not know if the entry door would go all the way to the ground. The service door swings out to the side. Lots of ARFF personnel responded. The FO stayed on the airplane until all the passengers were off. They held passengers in their seats until busses arrived (10-15 min). The captain stood at the service door. All passengers exited through the main entry door. They could walk on the stairs at that angle.
The captain spoke with the passengers after the event without using the megaphone, and the passengers could hear and understand. There were more firemen than people and there were three firemen on each side of the main door as people exited.

The crew stayed on the aircraft until Chicago Ops brought them a pickup truck and transported them to GoJet Ops. After leaving the aircraft, they took photos of the damage and spoke to the first responders. The Chicago Authority had a big yellow Ford truck which they rode in to the F gates. Once they got into their Ops, they went for breathalyzer and urine tests. They were given the option to leave and the FO caught a flight home.

When asked if he had concerns about smoke/fire, he said no smoke/fire were observed and ARFF personnel were there right away. They had no radio communications with ARFF.

There were two FA's on the crew. A UAL crew was riding as passengers but offered no assistance. The weather was beautiful, with wind 310/15 gusting to 20 kts. Temperature was in the mid-30's and they needed jackets. This contributed to the decision to keep the passengers on board. There was perhaps one child on board but the FO did not see any panic.

The FO stated his training twice a year for 15 years at Flight Safety and his 14,000 hours prepared him for this emergency. He thought he had done a nose landing gear up scenario in GoJet training. He thought the checklist would be better if it just used bullet points. He stated the situation was stressful and he didn't have time to "massage" the procedure. The FO stated the captain made a great landing and the FO called off speeds; -120, 110, 100, 90 80 etc. The captain said "I'm glad you did that." The captain timed it perfectly. The FO told him don't use thrust reverse above idle but he did not discuss use of trim. They did not consider flying to another airport. The FO did not file an ASAP report. He filed an irregularity report.

Both pilots felt doing the flyby was imperative. They flew at normal pattern altitude.

He felt he should only file an ASAP report if he did something wrong. The use of flybys was not discussed in GoJet training.

Asked if the captain took the radios while the FO was running the checklist, he said so much was changing that this was unspoken. He said the captain flew the entire time. It was too labor intensive, they were inundated by calls and they responded based on who was least busy.

When asked what checklist he ran first, he said it was gear disagree "up." He thought the previous gear extension did not take longer than normal. He was 95% sure he had done a nose gear up scenario in the sim but it might have been in the King Air.

When asked, he said the gear handle position at the beginning of the gear disagree procedure was down.

They performed the flyby at 500 to 600 feet AGL at 20 flaps. The captain wanted to do the flyby in a clean configuration, but the FO suggested flaps 20 because the slower speed provided more time for the tower to look at the airplane. Fire after landing was one of the first things they thought of. Based on reaction of the firemen they did not think they had a fire.

Asked if he coached the captain, he said yes. He was "throwing out options." The FO stated the captain was "one of the best CRM guys we have." "CRM could not have been better." He thought coordination with the captain was good. The FO's experience factored in. He was looking at the situation as the man not flying. He recalled receiving CFIT training at Flight Safety.

Asked why he did not run the entire set of checklists, he stated it was too cumbersome to run checklists.

He thought the time from the flyby to landing was about 5 to 7 minutes. He thought they landed with 1400 or 1500 lbs. of fuel.

The FO commented he thought the items of greatest importance in handling this emergency were:

- Knowing the position of the gear
- The speed countdown after landing
- Leaving reverse thrust at idle
- Changing the emergency checklist to just bullet points for a better flow.

Interviewee:	**Michael Joseph McLeod, Captain**
Date and Time:	**March 31, 2015, 1000 CDT**
Location:	**GoJet offices, St. Louis, Missouri**
Present:	**Roger Cox, NTSB; Ralph Hicks, NTSB; Robert Miller, FAA; Chris Miller, Gojet Airlines; Craig Markert, IBT; Alan Wongkee, Bombardier**

During the interview, Captain McLeod stated the following:

He was 29 years of age and a captain at GoJet. He had no other duties. He was hired at Gojet February 7, 2011, and had upgraded to captain in 2013. He had been a captain about 1 ½ years. His total flight time was 5,200 hours, of which 3,800 hours were in the CRJ200 or 700 aircraft. He had 1,300 hours of PIC time, and 950 of those hours were in the CRJ700.

Before flying at GoJet he flew B1900's at Gulfstream Airlines for 3 years and was furloughed from that airline for one year of the three. Prior to Gulfstream he had flown CRJ200's at Pinnacle Airlines, where he flew about 700 hours. His certificates included an ATP and type ratings on the CL65 and SIC only on the B1900. He had no accidents, incidents or violations and he held a class I medical with no limitations.

Captain McLeod stated he first picked up the incident airplane in Denver (DEN) on March 13th. He flew from DEN to Grand Rapids (GRR), arriving just after midnight. He described the sound when they extended the gear for landing at GRR as a "bang" sound. It was odd and he had never heard it before. After landing he took photos of the nose landing gear and sent them to maintenance control. Maintenance control told him the problem appeared to be with the placard strap, and he wrote "placard strap bent" in the logbook. Asked why he did not write up the "bang" sound during gear extension, he stated he made the entry based on his conversation with maintenance control. They then went into crew rest.

The following day when they came to the airport he saw he would be flying the same airplane. He spoke with the inbound crew in passing, and they said they had taken a delay that morning because when they picked up the airplane the nose gear torque links were disconnected. He recalled the inbound FO saying the airplane "sounds strange in a turn" when the gear was extended. However, he and the FO inspected the nosewheel and it was fine. He did not suspect they would have any further problem.

The captain could not recall the exact departure fuel load but he said the reserve was 2,400 lbs. and they did not file an alternate. The weather was beautiful. Contingency fuel was 500 or 600 lbs. He said this was a fairly normal fuel load.

There were no abnormalities during start, taxi and takeoff. When they raised the gear he heard a bang or thud sound and he and the FO both commented on it. However, indications were normal and he did not consider returning to GRR.

On approach to Chicago when they extended the gear it seemed louder than normal as though the doors were in a funny position. The gear noise did not grow quiet, which lead him to watch the gear indication. The nose gear indication was amber not green. A “gear disagree” EICAS came on. They cycled the landing gear and then he went around. He did not call for the “gear disagree” checklist. Asked why he did not, he stated the FO had the checklist out to do it before he could get to it. The captain stated he wanted to do a climb checklist but the words never came out of his mouth. The FO already had the QRH out.

Asked what things he considered when preparing to handle the emergency, he stated fuel was important and declaring an emergency was necessary. He recalled fuel was 3,200 lbs. at that point. He felt that unlike the simulator, where the fuel is put in freeze, they were “on the clock” and time was an issue.

When asked if he considered contacting the company to discuss the situation, he stated he could have used ARINC and gotten a phone patch with operations, but there was no time for that. He saw fuel burn was high and thought about how much time they had. Talking to the manager on duty would have been an option but after doing the tower flyby he took a breath and saw there was only 2,000 lbs. of fuel remaining, and there just was no time.

When asked what emergency or abnormal checklist they ran, he stated “Pat (the FO) ran the gear disagree checklist.” Shown the gear disagree checklist and asked if this was a read and do or a challenge and response checklist, he stated he was not sure. He stated he followed the FO along, looking at the instrument panel and trying to be as involved as possible while flying. He said there was a lot of non-verbal communication. Asked if the FO ran the gear up or gear down portion of the gear disagree checklist, the captain stated he did not know where the FO started the checklist.

Asked if they ran the “Landing Gear Up/Unsafe Landing Procedure” checklist, he said no. Asked why not, he stated it was an odd situation. He thought they had reached the end of the checklist in the way the FO read it, and thought there was no other checklist. Later, during the approach there was a loud warning sound that came on. He thought, “shut that up” and “we must have missed something.”

Asked if he had ever experienced a gear up landing scenario in training at GoJet, he stated he had, but the gear always came down when the checklist was run. Asked about doing an evacuation in the simulator, he said he had done this, but did not recall if the triggering event was a gear problem.

Asked if he called for and ran the evacuation checklist after landing, he said no. He stated “we decided not to evacuate so we didn’t run the checklist.” He stated they just started shutting down the airplane. Asked if he ran the shutdown or terminating normal checklists, he said, no, not immediately. The reason he did not was they had crash fire and rescue personnel right in the window. He did go back later and complete the normal shutdown and terminating checklists.

Asked why he chose to leave the passengers on board the airplane, he considered an evacuation but felt it was not necessary. He was concerned that people might get hurt. After a discussion

with Linda (FA) he said do not evacuate. He had no concerns about fire and felt the situation was pretty obvious. Asked if he considered using the radio to speak to ARFF or the tower, he said he should have called the tower.

He stated his last recurrent training was in December 2014. Regarding the mechanics of conducting the landing, he stated he and the FO had a discussion and agreed he should hold the nose off as long as possible. They decided together he would use reverse idle and use the brakes carefully. He never touched the brakes until the nose was on the ground. He did hold the nose up but did not use any trim to assist him in doing this. During the go around he used the autopilot but during the flyby he flew manually. When asked if he filed an ASAP report, he said yes.

He told maintenance it was a strange noise. He was asked if the "bang" he heard was in the beginning, middle or end of the retraction cycle, and he said it was in the middle. Regarding the approach at O'Hare, he was asked if he intentionally dropped the gear early, and he stated he extended the gear at normal speeds, after extending flaps to 1, 8 and 20. Asked why he felt time pressure after they received the EICAS message on approach, he stated he felt things were "chaotic" because they were in ORD airspace. He felt there were two things going on: the environment and crew interaction. He thought they were nervous and played off each other and things developed very quickly.

Asked to elaborate about what he saw in the nosewheel well after the landing in GRR, he stated he saw straps bent. Maintenance control described it that way and he agreed. He had never seen straps that were bent or broken like that.

The captain stated that, based on his training, he chose to fly the airplane and run the radios during the emergency. When asked when he thought it was appropriate to file an ASAP report, he stated you should do it if you think you've done something wrong.

Asked how the FO's years of experience affected CRM, he stated it had no effect. The FO was ready to go before he, the captain, was ready. The captain felt he should have stopped him. However, they got along well. Asked if he saw a carry over or an NEF on a gear placard, he said no. The captain filed an ASAP. He felt he made some mistakes.

He felt time compression during the event. It seemed like 15-20 minutes. Another go around would have caused a real bad fuel situation. It was not an option. He had 30 to 35 minutes of gas left. He thought they could have gone through the checklist.

The captain made the decision to do the flyby. This subject was not covered in training; he decided on his own.

Asked if he had ever flown with the FO before, he said no. His general impression of the FO was he was less procedural than some; he had lots of time in corporate aviation. There were other FO's with background similar to this FO and they were less procedural as well. Asked how he would handle them, he stated he would stress following SOP's.

Asked what takeaway lessons he had learned from the event, he stated he should “slow it down.” He felt the simulator was easier and very unsaturated, and if training were more “chaotic” he would learn to run a better cockpit.

Interviewee:	**Gregory Joseph Mason, First Officer – GoJet Airlines**
Date and time:	**March 31, 2015, 1255 CDT**
Location:	**Trans States HQ, STL (Telephone Interview)**
Present were:	**Roger Cox, NTSB; Ralph Hicks, NTSB; Robert Miller, FAA; Chris Miller, Gojet Airlines; Craig Markert, IBT; Alan Wongkee, Bombardier**

During the interview, FO Mason stated the following:

At the time of the incident, FO Mason was 37 years old, and had been assigned as an FO on the CRJ-700 for 1 year and 2 months with GoJet. His date of hire was January 1, 2014.

He reported no other duties with GoJet. His total experience included work as an A&P mechanic, a pilot in Part 135 operations, a flight school instructor, and charter work flying the King Air. He had Embry Riddle training. He reported 2000 hours total time, including 500-600 in the CRJ. He possessed a type rating on the CRJ with no restrictions. His three certificates were ATP, Flight Instructor, and A&P. He reported no accidents, incidents, violations.

He and the captain arrived around 8 am on March 24 for a GRR-DEN-GRR turnaround. He performed the walk around inspection and noticed that the nose gear torque link was disconnected. The placard on the nose gear strut had been recently repaired and the write-up was made in the logbook before his arrival. He called for maintenance assistance to resolve the issue with the torque link. He did not understand why the torque link needed to be disconnected in the first place. He had a discussion with the mechanic, who performed the work earlier that evening, to finish the job he had started. The mechanic complained about being busy and it was dark.

The airplane flew fine from GRR to DEN, with no problems noted. They departed DEN uneventfully for GRR. All was normal on the departure and enroute portions of the flight. On final approach for GRR, he heard a “slight noise” like a “surge.” He did not think that this was very unusual. The noise was not loud at all. After the flight, the captain had a brief conversation with the incident captain about the noise from the nose gear.

FO Mason stated some dissatisfaction with the way the airplane was written up by the flight crew before the nose gear strut placard was repaired. He wanted to see the loud noise entered in the logbook and not that the placard was loose.

Interviewee:	**William Robert Hessler, Captain**
Date and Time:	**March 31, 2015, 1320 CDT**
Location:	**GoJet offices, St. Louis, Missouri**
Present:	**Roger Cox, NTSB; Ralph Hicks, NTSB; Robert Miller, FAA; Chris Miller, Gojet Airlines; Craig Markert, IBT; Alan Wongkee, Bombardier**

During the interview, Captain Hessler stated the following:

He was 45 years of age and a captain at GoJet airlines, He had been a captain for 9 years and had no other duties at the airline. He had previously been a pilot at Chicago Express Air. He had total flight time of 14,000 hours, of which 9,000 hours was in the CRJ and 11,000 to 12,000 hours was PIC. He held the ATP and CFI certificates and was type rated on the CRJ and the Saab 340.

He flew the incident airplane March 14th from GRR to DEN and back to GRR. He had no concerns about the maintenance status of the airplane until the FO noticed the torque links were disconnected. There had been a write-up on the nose strut placard, which he thought was not too big a deal as long as there were no sharp edges. The link was sitting on the ground. He told the FO to leave it alone and he called maintenance. After it was fixed he checked the work. He did not recall any other maintenance issues on the airplane.

Asked if he had ever experienced landing gear problems in the CRJ, he stated 3 years previously he had a nosewheel not extend during an approach to Austin. He got a gear disagree indication. As he began to run the checklist the nosewheel came down. They finished the checklist, wrote it up and landed. He did not know why this happened and never found out afterward. the delay in nose gear extension was 30 to 60 seconds.

Asked if the gear disagree checklist was hard or easy to understand, he stated he had run it a couple of times and couldn't remember details, but it didn't seems difficult. He thought one checklist in the QRH (single engine) was confusing.

Asked if he trained to do evacuations, he stated they do one every year in the simulator. The most common scenario in training to cause an evacuation was an engine fire. They discussed use of exits once in initial training 9 years ago. They did train having crews call the tower to confirm existence of fire before evacuating.

Asked about the gear extension noise, he stated it was normal except for a little click, which was for about a second and then it went quiet. He thought it was the gear locking, It was unusual but only a small sound.

He had not encountered any difficulties during pushback in DEN.