National Transportation Safety Board **FACTUAL REPORT** **AVIATION**	NTSB ID: ERA12LA268	Aircraft Registration Number: N8116L
	Occurrence Date: 04/03/2012	Most Critical Injury: None
	Occurrence Type: Accident	Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone
Caribbean Sea	CB	N/A	0920	AST

Airport Proximity: Off Airport/Airstrip	Distance From Landing Facility:

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
HAWKER BEECHCRAFT	C90GTX	Airplane

Revenue Sightseeing Flight: No Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

*** Note: NTSB investigators may not have traveled in support of this investigation and used data provided by various sources to prepare this aircraft accident report. ***

HISTORY OF FLIGHT

On April 3, 2012, about 0920 atlantic standard time (ast), a Hawker Beechcraft C90GTx, N8116L, operated by Lider Taxi Aereo, was substantially damaged after ditching in the waters of the Caribbean Sea, 17 miles north of Aruba, following a dual loss of engine power during cruise. The flight departed Fort Lauderdale Executive Airport (FXE), Fort Lauderdale, Florida, and was destined for Hato International Airport (TNCC), Willemstad, Curacao. The airline transport pilot and the pilot rated passenger were uninjured. Visual meteorological conditions prevailed, and an instrument flight plan was filed for the delivery flight conducted under 14 Code of Federal Regulations Part 91.

On April 2, 2012, the pilots took delivery of the newly manufactured airplane on behalf of the owner from Hawker Beechcraft Corporation at Beech Factory Airport (BEC), Wichita, Kansas. The pilots then departed for FXE on the first leg of the delivery flight. During the leg from BEC to FXE the pilots made a decision to divert due to strong headwinds. After 3:15 of flight time, they landed at Marianna Municipal Airport (MAI), Marianna, Florida and added 253 gallons of fuel.

After taking on fuel at MAI they departed for FXE arriving there after 1:54 of flight time. At approximately 1715 eastern daylight time (edt) the pilots requested that that the airplane be refueled and gave their fuel request to the customer service agent at the fixed base operator (FBO) and advised them that they would be departing at 0500 on the following day. The airplane was then fueled about 20 minutes later and the pilots went to the rental car counter and rented a car.

On the morning of the accident, at approximately 0400 edt, the pilots returned their car. One pilot went to file the flight plan and the pilot rated passenger conducted the preflight of the airplane. The pilot finished his flight plan and walked out on to the ramp. After having their

luggage placed onboard along with a bag of ice, they closed the door and started the engines. About 20 minutes later, they taxied out for departure and at approximately 0534 edt, the pilots took off.

After takeoff the pilots climbed the airplane eventually reaching a cruising altitude of 27,000 feet. The flight was uneventful until the pilots observed that the fuel quantity indicators were reading lower than they anticipated. According to air traffic control (ATC), sometime later the pilots reported that they were having engine problems and declared an emergency.

PERSONNEL INFORMATION

Pilot

According to Federal Aviation Administration (FAA) and pilot records, the pilot completed C90A/B initial training on November 11, 2006 and C90A/B recurrent training on February 21, 2008. He held an airline transport pilot certificate with ratings for airplane single-engine land, airplane multi-engine land, and instrument airplane, issued on the basis of his Brazilian pilot license. He also held a type rating for the CE-525. His most recent FAA first-class medical certificate was issued on November 25, 2011. He reported that he had accrued 11,500 total hours of flight experience, 2,600 of which were in make and model. He was contracted by Lider Taxi Aereo to deliver the airplane.

Pilot Rated Passenger

According to FAA records, the pilot rated passenger had completed C90GTi initial training three days before the accident on April 1, 2012. He was issued an airline transport pilot certificate with a rating for airplane multi-engine land on April 2, 2012. He also held a private pilot certificate with ratings for airplane multi-engine land, airplane single-engine land, and instrument airplane, issued on the basis of his Brazilian pilot license and held a type rating for the LR40. His most recent FAA second-class medical certificate was issued in December 15, 2009. On the day of his check ride, he reported that he had accrued 3,648.7 hours as pilot in command and 1,259.9 hours of instrument time. He was employed by the purchaser of the Airplane.

AIRCRAFT INFORMATION

Narrative (Continued)

The accident aircraft was a low wing, pressurized, twin engine airplane, of conventional metal construction equipped with retractable landing gear. It was powered by two Pratt &Whitney Canada PT6A-135A turbopropeller engines each capable of producing 550 shaft horsepower. It could cruise at 272 knots true airspeed and could operate at altitudes up to 30,000 feet. Its range with full fuel was 1,236 nautical miles.

On April 2, 2012, after receiving its airworthiness certificate, a receiving inspection and a preflight inspection were conducted by Beechcraft Personnel.

At the time of the accident, the airplane had accrued approximately 14 total hours of operation.

METEOROLOGICAL INFORMATION

The reported weather at Fort Lauderdale Executive Airport (FXE), Fort Lauderdale, Florida, at 0553 edt, approximately 19 minutes after departure, included: winds calm, 10 miles visibility, clear, temperature 20 degrees C, dew point 16 degrees C, and an altimeter setting of 29.91 inches of mercury.

Review of radiosonde data indicated that at approximately 27,000 feet the winds along the route of flight averaged 270 degrees at 43 knots.

The reported weather at Queen Beatrix International Airport (TNCA), Oranjestad, Aruba., located approximately 25 nautical miles south of the accident site, at 0900 ast, included: winds 090 degrees at18 knots, 10 miles visibility, few clouds at 2,300 feet, temperature 29 degrees C, dew point 24 degrees C, and an altimeter setting of 29.89 inches of mercury.

SURVIVAL FACTORS INFORMATION

After the loss of engine power in both engines the pilot asked the pilot rated passenger to prepare the life rafts and life jackets. The pilot rated passenger then activated the emergency locator

Narrative (Continued)

transmitter and the pilot verbally declared an emergency. The pilot also set code 7700 on the transponder and requested a direct approach to TNCA. Air traffic control halted all approaches and then cleared the runway for landing. The pilot then advised ATC that he did not know if they were going to reach Aruba. About 25 nautical miles from touchdown while descending through 6,000 feet, the pilot concluded that he was not going to be able to reach TNCA and advised that he would be ditching and requested rescue services.

The pilot also advised the pilot rated passenger that they were going to have to ditch. The pilot rated passenger moved into the rear facing passenger seat located behind the copilot seat. During the ditching no injuries were incurred by either the pilot or pilot rated passenger. After the airplane came to rest, the over wing emergency exit window located on the right side of the cabin was opened. The pilot egressed first, followed by the pilot rated passenger who threw out two life rafts prior to exiting.

The emergency was reported by ATC to the rescue coordination center in Curacao who contacted Coast Guard Station Aruba and the Royal Netherlands Navy Ship Amsterdam which was participating in an exercise near the northern coast of Aruba. In response, the Amsterdam launched a helicopter and Coast Guard Station Aruba launched a ridged bottom inflatable boat.

At 0952 the helicopter arrived at the ditching site and found the airplane still floating and the pilots in one of the life rafts. At 1010 the pilots were hoisted out of the life raft by the helicopter and flown to the Amsterdam. They were then given dry clothing, examined by medical personnel, and determined to be in good health.

WRECKAGE AND IMPACT INFORMATION

The Amsterdam arrived at the ditching location at 1120. The airplane was partially submerged. The crew of the Amsterdam attempted to prevent the airplane from sinking by placing a cable around it and hoisting it onboard. However during the attempted recovery, the fuselage broke in half and the airplane sank.

TESTS AND RESEARCH

Fueling Personnel Statements

Narrative (Continued)

According to fueling personnel after arriving at FXE, the pilot requested them to "Top Nacelles" at approximately 1730. The fuel order to top the nacelles was relayed to the fueler who fueled both nacelle tanks while the pilot was present at the airplane. The fuel ticket and truck sheet were then turned in to the FBO's front desk where it was processed. The pilot then signed the fuel ticket and billing statement.

About 0400 on the day of the accident the pilots showed up at the FBO. They first returned a rental car that they had rented the evening before. The pilot then went to file his flight plan and the pilot Rated passenger went to the airplane and conducted a preflight for about 45 minutes. The pilot finished his flight plan and then walked out to the ramp. One of the personnel helped the pilot put his bags on board while another got ice for them. After everything was done, the pilots closed the door and started the airplane. They sat in the airplane for about 20 minutes with both engines running before starting to taxi. They accidently turned to the right but then turned left and taxied out.

Pilot Statements

According to the pilot, they departed MAI with 2,573 pounds of fuel and landed at FXE with 1,563 pounds of fuel remaining. He stated that after arrival at FXE "I did oversee the fueling".

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The next morning based on the fueling ticket he concluded that the airplane had been refueled with 134 gallons of fuel which would have brought the airplane's fuel load up to 2,454 pounds of fuel (approximately 121 pounds short of a full fuel load). This quantity was entered into the flight management system.

The route of flight was FXE-JOSES-A315-TNCC. The pilot stated that prior to taxi they observed the fuel quantity indicators and concluded that the aircraft was loaded with approximately 2,454 pounds of fuel. After takeoff they climbed to FL270 (27,000 feet pressure altitude). The consumption on the first hour was 600 pounds of fuel and "440 pounds on the cruise level". At altitude they had a 40 knot tailwind, and the pilot estimated that it would have taken them 3 hours and 45 minutes to reach TNCC, and that on landing they would have had 750 pounds of fuel remaining. However, after two hours of flight (while over Haiti) they observed the fuel quantity indicators and they indicated "fuel below that is usual for two hours of flying". The pilot then picked up the fuel ticket again and confirmed that 134 gallons of fuel had been delivered. They concluded that they still had "a margin of safety" as there were alternates close by TNCC. This calculation was made somewhere near DOGPI or PIGBI intersections. At the time he did not have any doubts that the fuel

Narrative (Continued)

would be enough for them to reach TNCC and if they had any doubt, they would have been able to divert to Punta Cana Airport (MDCC), La Alagracia, Dominican Republic, which would have been approximately 25 minutes from their position.

They continued the flight, and over VESKA intersection the fuel quantity indicators displayed "lower than normal" This made the pilot "distrust about fuel leak or indication failure". He then requested the weather for TNCC and requested a "direct approach to runway 11" which was then approved by ATC. Approximately 90 nautical miles from TNCC and near the top of descent, the fuel quantity indicators were displaying "very low indications" (it was below "2" on the fuel quantity indicators). He then determined that TNCA was closer and requested to divert. By this time the fuel quantity indicators were indicating below "1". As they descended through FL250, the right engine lost power. Then as they descended through FL220 the left engine lost power.

When asked what the fuel quantity indicators would read when the fuel quantity selector switch was in the lower position the pilot advised that it would indicate the quantity in the nacelle tanks.

When asked what the fuel quantity indicators would read when the fuel quantity selector switch was in the upper position the pilot advised that they would indicate the amount of fuel in the "wing fuel tanks".

When asked what positions the switches were in on the fuel control panel prior to the ditching, the pilot advised that:

- The transfer pump override was in "AUTO".

- The boost pumps were "ON".

- The crossfeed was in "AUTO".

- The fuel quantity switch was normally in "NACELLE" but, "every 20 minutes we checked the wing quantity".

Fuel System

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Narrative (Continued)

The fuel systems in the King Air C90A, C90B, C90GTi, and C90GTx were all similar and consisted of two separate systems connected by a crossfeed system.

Fuel for each engine was supplied from a nacelle tank and four interconnected wing tanks for a total of 192 gallons of usable fuel for each side with all tanks full. The outboard wing tanks supplied the center section wing tank by gravity flow. Since the center section tank was lower than the other wing tanks and the nacelle tank, the fuel was transferred to the nacelle by the fuel transfer pump in the low spot of the center section tank.

Each system had two filler openings, one in the nacelle tank, and one in the leading edge tank.

According to Beechcraft Corporation, "to assure that the system was properly filled", the nacelle tank should be serviced first, then the wing tanks.

Fuel Transfer Pumps

Submerged, electrically driven, impeller type fuel transfer pumps located at the low spots in the wing center section tanks provided the motive force for fuel transfer from the wing tanks to the nacelle tanks. Fuel was transferred automatically when the "TRANSFER PUMP-OVERRIDE-AUTO-OFF" switches were placed in "AUTO", unless the nacelle tanks were full.

The nacelle tank would fill until fuel reached the upper transfer limit then a float switch would turn the transfer pump off. As the engines burned fuel from the nacelle tanks (61 gallon capacity each tank), fuel from the wing center section tanks would transfer into the nacelle tanks each time the nacelle tank levels dropped approximately 10 gallons.

When 130 gallons of fuel each side was used from the wing tanks (131 gallons usable each side), a pressure sensing switch would react to a pressure drop in the fuel line. After 30 seconds, the transfer pump would shut off and the "NO FUEL XFR" annunciator would illuminate. The "NO FUEL XFR" annunciator would also function as an operation indicator for the transfer pump. Extinguishing the "NO FUEL XFR" annunciator required that the transfer pump switch be placed in the "OFF" position.

Narrative (Continued)

If a transfer pump failed to operate during flight, gravity feed would perform the transfer. When the nacelle tank level dropped to approximately 150 pounds, or approximately 22 gallons, the gravity port in the nacelle tank would open and gravity flow from the wing would start.

Fuel Gauging System

The airplane was equipped with a capacitance type fuel quantity indication system.

A maximum indication error of 3% full scale could be encountered in the system.

The system was designed for the use of Jet A, Jet A1, JP-5 and JP-8 aviation kerosene, and it would compensate for changes in fuel density due to temperature.

The fuel panel utilized a fuel quantity indicator for each side and fuel quantity was read directly in pounds. A toggle switch, located between the two fuel quantity indicators, could be placed in the "TOTAL" position to provide an indication on all fuel in the system, or in the "NACELLE" position to indicate the quantity of fuel in the nacelle tanks only.

According to Beechcraft Corporation, the "NACELLE" position was provided in order to verify nacelle fuel quantity during operations with the "NO FUEL XFR" annunciator illuminated, where it would be desirable to monitor gravity feed from the wing tanks.

Fuel Burn Calculations

At the request of the NTSB, Beechcraft Corporation reviewed the accident flight. Using performance data from the C90GTx Pilot Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM), they performed fuel burn calculations for a Model C90GTx flight from KFXE to TNCC with both zero wind and a 30 knot headwind. Full fuel at departure (384 gallons usable) was assumed as well as a direct course of 1045 nautical miles.

Narrative (Continued)

For comparison purposes they also performed calculations using three commercially available flight planning programs.

In all four cases, it was determined that the airplane with full fuel should have been able to complete the trip.

Fuel burn calculations were then performed using data from the POH/AFM by the NTSB with 366 gallons usable onboard (as reported by the pilot). This was also compared to the results of the three commercially available flight planning programs and in all four cases, it was once again determined that the airplane should have been able to complete the trip.

Fuel Ticket

Review of the fuel ticket revealed that the misspelled words; "Top Neclles" was handwritten on it. It was also signed by the pilot.

Further review revealed that only 25 gallons had been uploaded to the airplane, and this number had been entered in the box labeled "TOTAL GALLONS DELIVERED". Review of the start reading and end reading from the truck meter also concurred with this amount.

Furthermore, It was discovered that the "134 gallons" that the pilot believed had been uploaded to the airplane was in fact the employee number of the fueler that had topped off the nacelle tanks and had entered his employee number on the "FUEL DEL BY:" line.

Utilizing the information contained on the fuel ticket, it was determined that the airplane had departed with only 261 gallons of fuel on-board. Review of performance data in the POH/AFM revealed that in order to complete the flight the airplane would have needed to depart with 328 gallons on-board.

Narrative (Continued)

Pilot's Operating Handbook

Review of the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (POH/AFM) revealed that under "SECTION 4 – NORMAL PROCEDURES", the POH/AFM required during the "PREFLIGHT INSPECTION" checklist that the fuel quantity be confirmed by looking at the fuel quantity indicators, and also by removing the fuel caps and looking in both wing tank fuel filler openings.

The POH/AFM also required that the fuel quantity be checked during the "BEFORE ENGINE STARTING" checklist, and on the "BEFORE TAKEOFF (RUNUP)" checklist.

ADDITIONAL INFORMATION

Review of fuel testing information revealed no evidence of any contamination of the FBO's fuel storage tanks or in their fuel trucks, and no reports of anyone experiencing difficulty with the FBO's fuel was reported.

Photographs of the area that the airplane was parked in also revealed no evidence of fuel staining or spillage.

Review of security camera video revealed that during the fueling process the fueler was observed to fuel the nacelle tanks but not the wing tanks. Neither the pilot, nor pilot rated passenger was observed to be monitoring the fueling process. Review of security camera video also revealed that on the morning of the accident the pilot rated passenger performed the preflight. During the review he was not observed removing the fuel caps and looking in both wing tank fuel filler openings. Further review also revealed that the pilot arrived at the airplane after the pilot rated passenger, and circled the airplane in a clockwise direction before entering and starting the engines. He did not perform a preflight inspection nor did he remove the fuel caps and look in both wing tank fuel filler openings.
Updated on Oct 31 2013 11:51AM

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ERA12LA268

Occurrence Date: 04/03/2012

Occurrence Type: Accident

Landing Facility/Approach Information

Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
N/A		Ft. MSL	N/A		

Runway Surface Type: Water

Runway Surface Condition: Water--choppy

Approach/Arrival Flown: NONE

VFR Approach/Landing: Forced Landing

Aircraft Information

Aircraft Manufacturer	Model/Series	Serial Number
HAWKER BEECHCRAFT	C90GTX	LJ-2042

Airworthiness Certificate(s): Normal

Landing Gear Type: Retractable - Tricycle

Amateur Built Acft?	Number of Seats:	Certified Max Gross Wt.	Number of Engines:
No	8	10485 LBS	2

Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:
Turbo Prop	Pratt & Whitney Canada	PT6A-135A	550 HP

- Aircraft Inspection Information

Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time
Annual	04/2012	14 Hours	14 Hours

- Emergency Locator Transmitter (ELT) Information

ELT Installed?/Type	ELT Operated?	ELT Aided in Locating Accident Site?
Yes / C126	Yes	Yes

Owner/Operator Information

Registered Aircraft Owner	Street Address	City	State	Zip Code
Wells Fargo Bank Northwest NA Trustee		Salt Lake City	UT	84116

Operator of Aircraft	Street Address	City	State	Zip Code
Lider Taxi Aereo		Sao Paulo	FN	

Operator Does Business As:

Operator Designator Code:

- Type of U.S. Certificate(s) Held: None

Air Carrier Operating Certificate(s):

Operating Certificate:

Operator Certificate:

Regulation Flight Conducted Under: Part 91: General Aviation

Type of Flight Operation Conducted: Ferry

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ERA12LA268

Occurrence Date: 04/03/2012

Occurrence Type: Accident

First Pilot Information

Name	City	State	Date of Birth	Age
	On File			48

Sex: | Seat Occupied: Left | Occupational Pilot? Yes | Certificate Number:

Certificate(s): Airline Transport

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Current Biennial Flight Review? 10/2011

Medical Cert.: Class 1 | Medical Cert. Status: With Waivers/Limitations | Date of Last Medical Exam: 11/2011

- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air
Total Time	11700	2600	3700	7000	2400	6500				
Pilot In Command(PIC)	11000	2600	3700	7000	2400	6500				
Instructor										
Instruction Received										
Last 90 Days	30	5								
Last 30 Days	15	5								
Last 24 Hours	10	10								

Seatbelt Used? Yes | Shoulder Harness Used? Yes | Toxicology Performed? No | Second Pilot? Yes

Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point	State	Airport Identifier	Departure Time	Time Zone
Fort Lauderdale	FL	FXE	0534	EDT

Destination	State	Airport Identifier
Willemstad	CB	TNCC

Type of Clearance: IFR

Type of Airspace:

Weather Information

Source of Wx Information:

Internet

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ERA12LA268

Occurrence Date: 04/03/2012

Occurrence Type: Accident

Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
TNCA	0900	AST	59 Ft. MSL	17 NM	180 Deg. Mag.

Sky/Lowest Cloud Condition: Few 2300 Ft. AGL

Condition of Light: Day

Lowest Ceiling: None Ft. AGL

Visibility: 10 SM

Altimeter: 29.89 "Hg

Temperature: 29 °C

Dew Point: 24 °C

Weather Conditions at Accident Site: Visual Conditions

Wind Direction: 90

Wind Speed: 18

Wind Gusts:

Visibility (RVR): Ft.

Visibility (RVV) SM

Precip and/or Obscuration:

No Obscuration; No Precipitation

Accident Information

Aircraft Damage: Substantial

Aircraft Fire: None

Aircraft Explosion None

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers					
- TOTAL ABOARD -				2	2
Other Ground					
- GRAND TOTAL -				2	2

National Transportation Safety Board

FACTUAL REPORT AVIATION

NTSB ID: ERA12LA268

Occurrence Date: 04/03/2012

Occurrence Type: Accident

Administrative Information

Investigator-In-Charge (IIC)

Todd G. Gunther

Additional Persons Participating in This Accident/Incident Investigation:

William R Jolly
FAA / IFO
Miramar, FL

Edwin F Kelly
Aruban Aviation Safety Board
Aruba,

Michael J Gibbons
Hawker Beechcraft Corporation
Wichita, KS

Regis Barreto
CENIPA
Brazil,

Rafael N Ramos
Lider Taxi Aereo
Brazil,