Aviation Investigation Final Report

Location:	Sebastian, Florida	**Accident Number:**	ERA15LA124
Date & Time:	February 9, 2015, 06:15 Local	**Registration:**	N30EA
Aircraft:	DEHAVILLAND DHC 6 TWIN OTTER	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

A de Havilland DHC-6 Twin Otter airplane, N30EA, collided with another Twin Otter airplane, N70EA, on the runway. The pilot of N30EA reported that, once she started the engines, the airplane rolled forward and to the left 180 degrees because the steering-tiller had been positioned sharply to the left when the airplane was last parked. The pilot stated that, when she applied the brakes, there was no response, and the airplane subsequently collided with the right wing of N70EA. The pilot of N30EA reported that, after the collision, she noted that the hydraulic circuit breaker was open; this would have resulted in insufficient hydraulic pressure to control the parking or pedal brakes. The pilot of N30EA said that she should have noticed that the hydraulic circuit breaker was open before she started the engines because it was part of the Before Starting Engines checklist.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to conduct all of the required items on the Before Starting Engines checklist, which resulted in her failure to detect an open hydraulic circuit breaker and led to insufficient hydraulic pressure to operate the airplane's brakes, her subsequent loss of airplane control, and ground collision with an airplane.

Findings

Personnel issues	Use of checklist - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Standing-engine(s) start-up	Loss of control on ground (Defining event)
Standing-engine(s) start-up	Ground collision

On February 9, 2015, at 0615 eastern standard time, N30EA and N70EA, both de Havilland Canada DHC 6 Twin Otters, sustained substantial damage when N30EA collided with N70EA, when the pilot lost control during engine start at the Sebastian Municipal Airport (X26), Sebastian, Florida. The pilot of N30EA and the pilot and mechanic on N70EA were not injured. Both airplanes were registered to and operated by Eagle Air Transport, Ottawa, Illinois. An instrument flight rules flight plan was filed for both airplanes and destined for the Exuma International Airport (MYEF), George Town, Bahamas. Visual meteorological conditions prevailed for the positioning flights conducted under the provisions of 14 Code of Federal Regulations Part 91.

Both airplanes were parked right next to each other (N30EA was to the right of N70EA) and were preparing to depart. The pilot of N30EA reported that she conducted a normal pre-flight inspection of the airplane and the parking brake was "set." After starting both engines, the pilot advanced the throttles (one at a time) to bring the generators on-line. She said the airplane began to move forward and to the left because the steering-tiller had been positioned "sharply" to the left when the airplane was last parked. The pilot said that when she applied the brakes, there was no response and the airplane turned almost 180 degrees as it collided with N70EA, who also had its engines running. A review of postaccident photographs revealed substantial damage to the right wings and engines of both airplanes. The propeller assembly from N70EA's right engine had sheared off and each blade was damaged. The propeller assembly for N30EA remained attached to the engine and each blade was damaged. The area above the cockpit of N30EA was crushed from impact with N70EA's right wing.

The pilot of N30EA reported that after she did an emergency shut-down of the engines; she realized the hydraulic circuit breaker was "pulled." She said she had been told that a mechanic had "pulled" the circuit breaker to bleed down the hydraulic accumulator during maintenance done the night before the accident, which may have resulted in the parking brake and pedal-brakes not having sufficient fluid to operate correctly. However, a review of maintenance logs for N30EA revealed there was no maintenance to the hydraulic system on the airplane prior to the accident. The pilot also stated that she learned after the accident that even though it is not on the checklist, some pilots will pull the hydraulic circuit breaker when shutting down the aircraft to "save a little wear and tear" on the hydraulic pump. It is not known how or why the hydraulic circuit breaker had opened prior to the accident.

According to the airplane's Normal Operating procedures, section 2.1.2, Before Starting Engines checklist, the pilot was to confirm that all circuit breakers were "In". When asked how this accident could have been prevented, the pilot said she, "...should have seen the pulled circuit breaker on the prestart flow."

The pilot of N70EA stated that he was parked to the left of N30EA and he had just started the engines. He was bringing the generators on-line when the operator's Director of Maintenance (DOM) was boarding the rear of the airplane. The pilot then reached down to turn on the avionics master switch, when N30EA collided with N70EA. He immediately shut down both engines while the DOM exited the airplane.

Pilot Information

Certificate:	Commercial	**Age:**	40
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	September 30, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 4, 2013
Flight Time:	2654 hours (Total, all aircraft), 372 hours (Total, this make and model), 2524 hours (Pilot In Command, all aircraft), 141 hours (Last 90 days, all aircraft), 54 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	DEHAVILLAND	**Registration:**	N30EA
Model/Series:	DHC 6 TWIN OTTER	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	191
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:	January 8, 2015 Continuous airworthiness	**Certified Max Gross Wt.:**	10501 lbs
Time Since Last Inspection:	32305 Hrs	**Engines:**	2 Turbo prop
Airframe Total Time:	at time of accident	**Engine Manufacturer:**	Pratt and Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-34
Registered Owner:	EAGLE AIR TRANSPORT INC	**Rated Power:**	750 Horsepower
Operator:	EAGLE AIR TRANSPORT INC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	E2TM

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	VRB,22 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	05:53 Local	**Direction from Accident Site:**	156°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 9500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	-11°C
Precipitation and Obscuration:			
Departure Point:	Sebastian, FL (X26)	**Type of Flight Plan Filed:**	IFR
Destination:	(MYEF)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	Sebastian Municipal X26	**Runway Surface Type:**	
Airport Elevation:	21 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	27.815555,-80.469718(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	
Original Publish Date:	July 13, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90702

Aviation Investigation Final Report

Location:	Sebastian, Florida	**Accident Number:**	ERA15LA124
Date & Time:	February 9, 2015, 06:15 Local	**Registration:**	N70EA
Aircraft:	DEHAVILLAND DHC 6 200	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

A de Havilland DHC-6 Twin Otter airplane, N30EA, collided with another Twin Otter airplane, N70EA, on the runway. The pilot of N30EA reported that, once she started the engines, the airplane rolled forward and to the left 180 degrees because the steering-tiller had been positioned sharply to the left when the airplane was last parked. The pilot stated that, when she applied the brakes, there was no response, and the airplane subsequently collided with the right wing of N70EA. The pilot of N30EA reported that, after the collision, she noted that the hydraulic circuit breaker was open; this would have resulted in insufficient hydraulic pressure to control the parking or pedal brakes. The pilot of N30EA said that she should have noticed that the hydraulic circuit breaker was open before she started the engines because it was part of the Before Starting Engines checklist.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The failure of the other airplane pilot to conduct all of the required items on the Before Starting Engines checklist, which resulted in her failure to detect an open hydraulic circuit breaker and led to insufficient hydraulic pressure to operate the airplane's brakes, her subsequent loss of airplane control, and ground collision with an airplane.

Findings

Personnel issues	Use of checklist - Pilot of other aircraft
Personnel issues	Aircraft control - Pilot of other aircraft

Factual Information

History of Flight

Standing-engine(s) not oper	Ground collision

On February 9, 2015, at 0615 eastern standard time, N30EA and N70EA, both DeHavilland DH 6 Twin Otters, sustained substantial damage when N30EA collided with N70EA, when it lost control during engine start at the Sebastian Municipal Airport (X26), Sebastian, Florida. The pilot of N30EA and the pilot and mechanic on N70EA were not injured. Both airplanes were registered to and operated by Eagle Air Transport, Ottawa, Illinois. An instrument flight rules flight plan was filed for both airplanes and destined for the Exuma International Airport (MYEF), George Town, Bahamas. Visual meteorological conditions prevailed for the positioning flight conducted under the provisions of 14 Code of Federal Regulations Part 91.

Both airplanes were parked right next to each other (N30EA was to the right of N70EA) and were preparing to depart. The pilot of N30EA reported that she conducted a normal pre-flight inspection of the airplane and the parking brake was "set." After starting both engines, the pilot advanced the throttles (one at a time) to bring the generators on-line. She said the airplane began to move forward and to the left because the steering-tiller had been positioned "sharply" to the left when the airplane was last parked. The pilot said that when she applied the brakes, there was no response and the airplane turned almost 180 degrees as it collided with N70EA, who also had its engines running. A review of postaccident photographs revealed substantial damage to the right wings and engines of both airplanes. The propeller assembly from N70EA's right engine had sheared off and each blade was damaged. The propeller assembly for N30EA remained partially attached to the engine and each blade was damaged. The area above the cockpit of N30EA was crushed from impact with N70EA's right wing.

The pilot of N30EA reported that after she did an emergency shut-down of the engines; she realized the hydraulic circuit breaker was "pulled." She said she had been told that a mechanic had "pulled" the circuit breaker to bleed down the hydraulic accumulator during maintenance done the night before the accident, which may have resulted in the parking brake and pedal-brakes not having sufficient fluid to operate correctly. However, a review of maintenance logs for N30EA revealed there was no maintenance to the hydraulic system on the airplane prior to the accident. The pilot also stated that she learned after the accident that even though it is not on the checklist, some pilots will pull the hydraulic circuit breaker when shutting down the aircraft to "save a little wear and tear" on the hydraulic pump. It is not known how or why the hydraulic circuit breaker had opened prior to the accident.

According to the airplane's Normal Operating procedures, section 2.1.2, Before Starting Engines checklist, the pilot was to confirm that all circuit breakers were "In". When asked how this accident could have been prevented, the pilot said she, "...should have seen the pulled circuit breaker on the prestart flow."

The pilot of N70EA stated that he was parked to the left of N30EA and he had just started the engines. He was bringing the generators on-line when the operator's Director of Maintenance (DOM) was boarding the rear of the airplane. The pilot then reached down to turn on the avionics master switch,

when N30EA collided with N70EA. He immediately shut down both engines while the DOM exited the rear of the airplane.

Pilot Information

Certificate:	Commercial	**Age:**	54
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	February 21, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	5000 hours (Total, all aircraft), 550 hours (Total, this make and model), 102 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	DEHAVILLAND	**Registration:**	N70EA
Model/Series:	DHC 6 200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	139
Landing Gear Type:	Tricycle	**Seats:**	
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	2 Turbo prop
Airframe Total Time:		**Engine Manufacturer:**	Pratt and Whitney
ELT:	Installed	**Engine Model/Series:**	PT6A-34
Registered Owner:	EAGLE AIR TRANSPORT	**Rated Power:**	750 Horsepower
Operator:	EAGLE AIR TRANSPORT INC	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	E2TM

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	VRB,22 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	05:53 Local	**Direction from Accident Site:**	156°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 9500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	-11°C
Precipitation and Obscuration:			
Departure Point:	Sebastian, FL (X26)	**Type of Flight Plan Filed:**	IFR
Destination:	(MYEF)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	Sebastian Municipal X26	**Runway Surface Type:**	
Airport Elevation:	21 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	27.815555,-80.469718(est)

Administrative Information

Investigator In Charge (IIC):	Yeager, Leah
Additional Participating Persons:	
Original Publish Date:	July 13, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=90702