



National Transportation Safety Board Aviation Accident Final Report

Location:	Plattsburgh, NY	Accident Number:	IAD01LA048
Date & Time:	04/26/2001, 1945 EDT	Registration:	N974FE
Aircraft:	Cessna 208B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The pilot said the preflight, engine start, run-up, taxi and takeoff were "normal". The pilot said that during the climb after takeoff, approximately 1,000 to 1,500 feet above the ground, the airplane's engine "spooled down, slowly and smoothly, like a loss of torque or the propeller going to feather." The pilot performed a forced landing to a field, where the airplane nosed over, and came to rest inverted. Examination of the engine and propeller revealed that the propeller-reversing lever was installed on the wrong side of the reversing lever guide pin, and that the reversing linkage carbon block was no longer installed, and had departed the airplane. Examination of the airplane's maintenance records revealed that the carbon block was replaced during a 100-hour maintenance inspection, 5 hours prior to the accident. Installation of the reversing lever on the incorrect side of the guide pin resulted in improper seating and premature wear of the carbon block. According to the engine manufacturer, any disconnection in operation of the propeller control linkage will cause the propeller governor beta control valve to extend, and drive the propeller into feather.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The incorrect installation of the propeller reversing lever and carbon block assembly, which resulted in a loss of propeller thrust.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: CLIMB - TO CRUISE

Findings

1. (C) PROPELLER GOVERNOR CONTROL, LINKAGE - DISCONNECTED
2. (C) MAINTENANCE, INSTALLATION - INCORRECT - COMPANY MAINTENANCE PERSONNEL
3. (C) PROPELLER FEATHERING - UNCONTROLLED - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. TERRAIN CONDITION - OPEN FIELD

Factual Information

On April 26, 2001, at 1945 eastern daylight time, a Cessna 208B, N974FE, was substantially damaged from collision with terrain during a forced landing in Plattsburgh, New York. The airplane was operated as Wiggins Airways flight 7417, doing business as Federal Express. The certificated airline transport pilot was not injured. Visual meteorological conditions prevailed for the flight that originated at the Plattsburgh International Airport (PLB), destined for Albany, New York. An instrument flight rules flight plan was filed for the cargo flight conducted under 14 CFR Part 135.

The pilot provided both a telephone interview and a written statement. During the telephone interview, the pilot said the flight was a scheduled cargo flight for Federal Express. He said the preflight, engine start, run-up, taxi and takeoff were "normal". The pilot said that during the climb after takeoff, approximately 1,000 to 1,500 feet above the ground, the airplane's engine "spooled down, slowly and smoothly, like a loss of torque or the propeller going to feather."

In a written statement, the pilot said:

"Shortly after takeoff, the engine spooled down smoothly and gradually (there was definitely no catastrophic or sudden failure, such as turbine disintegration or bearing failure). I perceived the event as a loss of torque but it might have been propeller blades going to feather. I'm afraid I cannot recall the altitude at which this occurred, but I estimate it was about 1000 to 1500 feet AGL.

"[I] checked fuel selector positions (both on), checked fuel quantity indicators (650 lbs. apiece), checked all power lever positions (throttle at take-off power, prop fwd, condition lever hi), and put the ignition switch "on" (or determined that it was still on from takeoff, I'm not sure which). I made a radio call to [Air Traffic Control] reporting the power failure.

"The controller pointed out the old airbase to my left and PLB at 6 o'clock. I replied that I would not be able to reach either of those and he said that he would notify emergency personnel. I pulled the emergency power lever out of detent and moved it forward gradually to the full forward position, and did not detect any change in engine operation or sound.

"...Up to the time when I decided to try the emergency power lever, there were no warning lights shining on the annunciator panel. At this point, with very little time left for planning the forced landing, I considered the forced landing inevitable and made no further attempts to restore power. I moved the prop control to feather for better glide, and to my surprise did not feel any response to that action."

The pilot said that he assumed the propeller had not feathered, and that an unfeathered prop would provide aerodynamic braking, and a steeper approach angle. Instead, the pilot said the airplane glided "very well and efficiently" and it caused him to over fly his intended point of touchdown. He said, "I crossed the field with lots of speed and ran out of room. I touched down and flipped over."

The airplane wreckage was examined at the site on April 27, 2001, by Federal Aviation Administration (FAA) safety inspectors. In a telephone interview, the operations inspector said the airplane came to rest inverted, and the engine was displaced approximately 70 degrees out of alignment.

The inspector said that a review of weight and balance information revealed an accurate

depiction of what was loaded on the airplane, and that the airplane had been loaded within limits.

The engine and propeller were removed from the airplane and transported to Burlington, Vermont, for further examination. The airframe was transported to the Plattsburgh International Airport.

The Power Analyzer Recorder System (PARS) computer was removed, and the data was retrieved under the supervision of the FAA primary maintenance inspector (PMI) for Wiggins Airways. Examination of the data revealed that during the most recent takeoff and initial climb, the engine exceeded its torque limit of 1,980 foot-pounds for 99 seconds. The peak torque value over that duration was 2,649 foot-pounds.

On April 30, 2001, a representative of Pratt and Whitney Aircraft under the supervision of the FAA primary maintenance inspector examined the engine and propeller and provided a written report. According to the report:

"The engine had been removed from the airframe by sectioning and mechanical disassembly at the airframe firewall. The external cowling had been removed with the exception of the nose bowl. The other items, including the propeller, exhaust duct, inlet shrouding, and engine mount structure, remained attached. The engine was laying inverted on a flat-bed trailer.

"The propeller blades are in the feather position, with uniform deformation away from the direction of rotation.

"The engine housings display no apparent deformation. The engine related controls and accessories are in place and intact. All external lines and connections were intact except as were sectioned or disassembled for removal of the airframe. The engine pneumatic lines, P3 and Py were in place and intact, with all accessible connections intact and lockwired.

"The forward power control linkage propeller reversing linkage carbon block assembly was not in place. The propeller-reversing lever was riding on the left hand side of the guide pin. The guide pin and lever displayed axial rub marks and polishing on the as-discovered contact faces. The normal as-installed contact faces displayed indications of previous contact, but the faces appeared oxidized and dirty. Inspection access was severely limited due to the nose bowl and prop spinner being in place.

"As discussed yesterday, any disconnection in operation of the forward power control linkage will cause the propeller governor beta control valve to extend, driving the propeller into feather. The propeller deformation is characteristic of the propeller being at feather at the time of impact, being driven by the gas generator with torque being absorbed during the ground contact."

The forward power control linkage propeller reversing linkage carbon block assembly was not recovered.

The engine was examined at the Pratt and Whitney Canada Service Investigation Facility in St. Hubert, Quebec, Canada, on May 29-30, 2001, under the supervision of the Transportation Safety Board (TSB) of Canada. Other than the propeller-reversing lever installed on the left side of the guide pin, which was opposite the prescribed right-side position, examination of the engine revealed no mechanical anomalies.

Functional testing of the propeller governor revealed no mechanical anomalies.

The pilot reported the airplane was returned to service on April 23, 2001, after a 100-hour maintenance inspection. He said the airplane logbooks reflected a satisfactory inspection with no discrepancies carried over. The pilot said the airplane had accrued 5 hours of flight time since that date. According to the pilot:

"The plane seemed 100 percent fine to me up until the loss of engine power."

In a written statement, the mechanic who performed the 100-hour inspection described the replacement of the reversing lever carbon block assembly. According to the mechanic:

"The new block was installed to the arm and the retaining snap ring was seated and snug in its groove. During installation of the arm I had to reach down to the block to guide the block onto the channel because it had turned on the first attempt.

"The block was still a slip, but no daylight could be seen between the block and channel. The beta arm was positioned underneath the retaining bar. The center pin was installed with washer and cotter pin. The bolt opposite end of the block was installed with a nut and cotter pin."

During the engine exam at the Pratt and Whitney facility, the TSB investigator supervised the installation of a carbon block assembly on a factory training aid. The reversing lever was installed correctly and incorrectly, in relation to the guide pin. According to the TSB investigator, the incorrect installation "...was not difficult to achieve."

According to Pratt and Whitney, installation of the reversing lever on the incorrect side of the guide pin resulted in improper seating and premature wear of the carbon block.

The pilot reported 9,144 hours of flight experience, 137 hours of which were in the Cessna 208B. The pilot said all of his experience in the 208B was in the 90 days prior to the accident.

At 1953, the weather reported at Plattsburgh, New York was clear skies with winds from 250 degrees at 3 knots.

Pilot Information

Certificate:	Airline Transport	Age:	46, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last Medical Exam:	12/14/2000
Occupational Pilot:		Last Flight Review or Equivalent:	02/07/2001
Flight Time:	9144 hours (Total, all aircraft), 137 hours (Total, this make and model), 9144 hours (Pilot In Command, all aircraft), 137 hours (Last 90 days, all aircraft), 48 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Cessna	Registration:	N974FE
Model/Series:	208B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal; Utility	Serial Number:	099
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	04/24/2001, 100 Hour	Certified Max Gross Wt.:	8750 lbs
Time Since Last Inspection:	5 Hours	Engines:	1 Turbo Prop
Airframe Total Time:	5993 Hours	Engine Manufacturer:	P&W Canada
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	PT6114
Registered Owner:	Federal Express Corporation	Rated Power:	600 hp
Operator:	Wiggins Airways	Air Carrier Operating Certificate:	On-demand Air Taxi (135)
Operator Does Business As:	Federal Express	Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Bright
Observation Facility, Elevation:	PLB, 371 ft msl	Observation Time:	1953 EDT
Distance from Accident Site:	3 Nautical Miles	Direction from Accident Site:	170°
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	9° C / -4° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	6 knots, 170°	Visibility (RVR):	
Altimeter Setting:	30.08 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	Plattsburgh, NY (PLB)	Type of Flight Plan Filed:	IFR
Destination:	Albany, NY (ABY)	Type of Clearance:	IFR
Departure Time:	1940 EDT	Type of Airspace:	Class E

Airport Information

Airport:	Plattsburgh (PLB)	Runway Surface Type:	Concrete
Airport Elevation:	235 ft	Runway Surface Condition:	Dry
Runway Used:	17	IFR Approach:	None
Runway Length/Width:	11759 ft / 150 ft	VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	44.650833, -73.468056

Administrative Information

Investigator In Charge (IIC):	Brian C Rayner	Adopted Date:	08/26/2003
Additional Participating Persons:	Mike Bossert; FAA; Albany, NY David McNair; Transportation Safety Board; Canada, Wayne Gelfand; Federal Express; Memphis, TN Emile Lohman; Cessna Aircraft Company; Wichita, KS Thomas Berthe; Pratt and Whitney; Canada,		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.