



National Transportation Safety Board

Aviation Incident Data Summary

Location:	Rome, NY	Incident Number:	ERA10IA094
Date & Time:	12/03/2009, 0747 EST	Registration:	N701FX
Aircraft:	CESSNA 208B	Injuries:	1 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The airplane was climbing through 7,500 feet when the pilot heard a grinding noise and saw that the gas generator speed indicator had dropped to zero. The engine then seized and the pilot declared an emergency. An air traffic controller provided vectors toward an airport; however, the airplane landed in a field about 3 miles short of the runway. Subsequent disassembly of the engine revealed compressor turbine blade fractures at varying heights above the platform and downstream damage to the power turbine blades. Further examination revealed that 13 blades were fractured at the platform, with 8 of those exhibiting fatigue fractures at the leading edge, and overload fractures toward the trailing edge. The remaining five blades exhibited ductile overload fractures over the entire fracture surface. A number of blades were also fixed to the disc, with the mating surfaces of both the blades and the disc exhibiting corrosion. Examination of blade serrations revealed an accumulation of orange dust, with black corrosion blisters observed at various locations. Dust analysis revealed sulphidation, with airborne salts likely reacting with the oxide layer on the blades to result in oxide layer decay. Subsequent to the incident, the operator increased engine water washes from once every 50 hours of engine operation to weekly, and incorporated borescope inspections into the engine maintenance program at every 100 hours of operation.

Flight Events

Enroute-climb to cruise - Loss of engine power (total)
Emergency descent - Off-field or emergency landing

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be:
The operator's inadequate engine wash intervals, which resulted in compressor turbine blade sulphidation and subsequent turbine blade failure.

Findings

Aircraft-Aircraft power plant-Engine (turbine/turboprop)-Compressor section-
Fatigue/wear/corrosion - C
Personnel issues-Task performance-Maintenance-Scheduled/routine maintenance-Not specified
Organizational issues-Management-Scheduling-Maintenance scheduling-Operator - C

Pilot Information

Certificate:	Airline Transport	Age:	46
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):	None	Instructor Rating(s):	None
Flight Time:	8200 hours (Total, all aircraft), 4500 hours (Total, this make and model), 4460 hours (Pilot In Command, all aircraft), 126 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	Registration:	N701FX
Model/Series:	208B	Engines:	1 Turbo Prop
Operator:	Wiggins Airways, Inc.	Engine Manufacturer:	P&W
Air Carrier Operating Certificate:	On-demand Air Taxi (135)	Engine Model/Series:	PT6A SER
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	RME, 481 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	Broken / 4000 ft agl
Condition of Light:	Day	Wind Speed/Gusts, Direction:	6 knots, 220°
Temperature:	11° C / 10° C	Visibility	8 Miles
Precipitation and Obscuration:	Light - Rain; No Obscuration		
Departure Point:	Syracuse, NY (SYR)	Destination:	Plattsburgh, NY (PBG)

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	None
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC):	Paul R Cox	Adopted Date:	08/03/2011
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=75155		

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