



Aviation Investigation Final Report

Location:	FAIRBANKS, Alaska	Accident Number:	ANC99LA043
Date & Time:	April 5, 1999, 10:53 Local	Registration:	N1942H
Aircraft:	Piper PA-32R	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

During initial climb, about 1,500 feet above ground level, as the pilot made his first power reduction, the engine quit. The pilot stated 'it quit so fast I knew I had a problem.' The pilot waited until he cleared trees to extend the landing gear, and landed the airplane on a road. The landing gear did not lock into the down position and collapsed. The right wing struck a snow berm. Inspection revealed that one of the bolts joining the number six connecting rod to the crankshaft had separated. The nut was found in the bottom of the crankcase. Inspection of the bolt and nut at the NTSB metallurgical laboratory did not reveal any preaccident damage to the threads on either the bolt or the nut. The torque on the other 11 connecting rod attachment nuts was checked to be 480 inch-pounds. The engine had been overhauled 241 hours prior to the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the failure of maintenance personnel to properly torque a connecting rod bolt during an engine overhaul, and the subsequent disconnection of the connecting rod bolt and connecting rod.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) ENGINE ASSEMBLY,CONNECTING ROD BOLT - UNDERTORQUED
2. (C) MAINTENANCE,OVERHAUL,MAJOR - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) ENGINE ASSEMBLY,CONNECTING ROD BOLT - DISCONNECTED
4. (C) ENGINE ASSEMBLY,CONNECTING ROD - DISCONNECTED

Occurrence #2: GEAR COLLAPSED

Phase of Operation: EMERGENCY LANDING

Findings

5. GEAR EXTENSION - DELAYED - PILOT IN COMMAND

Occurrence #3: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER

Phase of Operation: EMERGENCY LANDING

Findings

6. TERRAIN CONDITION - SNOWBANK
7. OBJECT - TREE(S)

Factual Information

On April 5, 1999, at 1053 Alaska daylight time, a Piper PA-32R airplane, N1942H, sustained substantial damage during a forced landing at Fairbanks, Alaska. The solo commercial pilot received minor injuries. The airplane was being operated under 14 CFR Part 135 as a cargo flight from Fairbanks International Airport, Fairbanks, to Fort Yukon, Alaska. The flight departed Fairbanks International Airport at 1050. Visual meteorological conditions prevailed at the time of the accident, and a company VFR flight plan was filed.

According to the two FAA inspectors who interviewed the pilot at the scene, the pilot made an initial power reduction upon reaching 1,500 feet above the ground (agl). He said he then heard a loud "thump" and "it quit so fast I knew I had a problem. I guessed a blown cylinder." He indicated he turned to find a place to land, and waited until he cleared trees to lower the landing gear. He put the landing gear down but they did not lock in place. The pilot landed the airplane on a road, and the landing gear collapsed. The left wing struck a tree and came off, then the right wing struck a snow berm and came off.

Postaccident inspection revealed a hole in the engine case at the number six cylinder, and the number six connecting rod loose inside the engine case. Internal inspection of the engine by an FAA airworthiness inspector on April 8 revealed that one of the connecting rod bolts (Lycoming part number 75060) holding the connecting rod to the journal was separated. The matching nut (Lycoming part number LW-12186) was found in the bottom of the oil sump with no apparent internal thread damage. Inspection of these parts at the NTSB metallurgical laboratory revealed that the threads of both the bolt, and the nut, were not fractured or stripped. The washer face of the retaining nut showed circumferential smearing consistent with tightening contact onto the mating area of the rod.

The Lycoming nut (LW-12186) does not have a self-locking feature. It is specified to be torqued to a value of 480 inch-pounds, or 40 foot-pounds. The breakaway torque on the remaining nuts was checked, and the torque values were 480 inch-pounds. The engine had accumulated 241 hours since overhaul.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	31, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	May 9, 1998
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	880 hours (Total, all aircraft), 200 hours (Total, this make and model), 510 hours (Pilot In Command, all aircraft), 200 hours (Last 90 days, all aircraft), 130 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N1942H
Model/Series:	PA-32R PA-32R	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32R-77880206
Landing Gear Type:	Retractable - Tricycle	Seats:	1
Date/Type of Last Inspection:	March 23, 1999 100 hour	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	39 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	7201 Hrs	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	IO-540-K1G5D
Registered Owner:	KARL & REBECCA BRAUN	Rated Power:	300 Horsepower
Operator:	BELLAIR, INC.	Operating Certificate(s) Held:	Commuter air carrier (135), On-demand air taxi (135)
Operator Does Business As:		Operator Designator Code:	GSBA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	FAI ,434 ft msl	Distance from Accident Site:	7 Nautical Miles
Observation Time:	10:53 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:	Scattered / 10000 ft AGL	Visibility	10 miles
Lowest Ceiling:	Broken / 20000 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:	0°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	0°C / -12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, AK (FAI)	Type of Flight Plan Filed:	Company VFR
Destination:	FORT YUKON , AK (FYU)	Type of Clearance:	VFR
Departure Time:	10:50 Local	Type of Airspace:	Class C

Airport Information

Airport:	FAIRBANKS INT'L AIRPORT FAI	Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	64.899497,-148.160797(est)

Administrative Information

Investigator In Charge (IIC):	Thomas, Matthew
Additional Participating Persons:	THOMAS LANE (FAA FSDO); FAIRBANKS , AK
Original Publish Date:	June 22, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=46047

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).