



National Transportation Safety Board Aviation Accident Final Report

Location:	HOULTON, WI	Accident Number:	CHI00LA034
Date & Time:	12/01/1999, 1105 CST	Registration:	N2005J
Aircraft:	Taylorcraft F-21	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None

Flight Conducted Under: Part 91: General Aviation - Personal

Analysis

The pilot reported, 'The engine developed a bad noise and vibration so I turned it off and looked for a place to land.' He landed in a farm field and the landing gear collapsed during rollout. The inspection of the engine revealed the #1 connecting rod was detached from the crankshaft and the connecting rod cap was missing. One rod cap bolt was intact although bent, and no nut was found on the bolt. The other rod cap bolt was broken with the nut portion missing. The #1 cylinder crankshaft journal was inspected. No discoloring, significant scoring, or other damage was noted. The rod bolts and nuts for cylinders 2, 3, and 4 were inspected for proper installation and torque. All nuts appeared to be properly installed. The nuts were torque checked at 40 lbs. No nuts moved at this torque setting. The overhauled engine had been installed on the airplane on July 15, 1998. The airplane had been flown approximately 50 hours since the major overhaul.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the mechanic failed to torque the rod cap bolt during the major engine overhaul. Factors relating to the accident included the rough field and the collapsed landing gear.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: UNKNOWN

Findings

1. ENGINE ASSEMBLY,CONNECTING ROD BOLT - LOOSE PART/BOLT/NUT/CLAMP/ETC
2. (C) MAINTENANCE,OVERHAUL,MAJOR - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. ENGINE ASSEMBLY,CONNECTING ROD BOLT - FAILURE,TOTAL

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

Occurrence #3: GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Factual Information

On December 1, 1999, at 1105 central standard time, a Taylorcraft F-21, N2005J, was substantially damaged during an emergency landing in a farm field near Houlton, Wisconsin, after the airplane experienced a loss of engine power. The 14 CFR Part 91 personal flight departed Lake Elmo (21D), Minnesota, at 1040, on a local flight. The private pilot was not injured. Visual meteorological conditions prevailed and no flight plan was filed.

The pilot reported he was returning to land at Lake Elmo. He reported, "The engine developed a bad noise and vibration so I turned it off and looked for a place to land. I was in farm country. Some smoke came into the cabin. I picked a clear field and landed wings level at stall speeds. The field was very rough. The wheels folded up and I slid 60 feet. Got out of the airplane after turning off the master."

An Airworthiness Inspector from the Federal Aviation Administration inspected the airplane. He reported the inspection of the engine revealed that the case was broken in the area of the number #1 cylinder. He reported, "The #1 connecting rod was detached from the crankshaft and the connecting rod cap was missing. One rod cap bolt was intact although bent, [and] no nut was found on the bolt. The other rod cap bolt was broken with the nut portion missing. The #1 cylinder crankshaft journal was inspected. No discoloring was noted. No significant scoring or other damage was noted." The inspector reported, "The rod bolts and nuts for cylinders 2, 3, and 4 were inspected for proper installation and torque. All nuts appeared to be properly installed. The nuts were torque checked at 40 lbs. No nuts moved at this torque setting."

The overhauled engine had been installed on the airplane on July 15, 1998. The airplane had been flown approximately 50 hours since the major overhaul. The airplane received an annual inspection on July 7, 1999. It had flown approximately 9 hours since the annual inspection.

Pilot Information

Certificate:	Commercial	Age:	70, Male
Airplane Rating(s):	Single-engine Land	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 Single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	05/10/1999
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	2026 hours (Total, all aircraft), 654 hours (Total, this make and model), 1836 hours (Pilot In Command, all aircraft), 11 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Taylorcraft	Registration:	N2005J
Model/Series:	F-21 F-21	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Utility	Serial Number:	1014
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	07/09/1999, Annual	Certified Max Gross Wt.:	1500 lbs
Time Since Last Inspection:	9 Hours	Engines:	1 Reciprocating
Airframe Total Time:	883 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, activated	Engine Model/Series:	O-235-L2C
Registered Owner:	DALE O. RUPP	Rated Power:	118 hp
Operator:	DALE O. RUPP	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	2 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	50°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	6° C
Precipitation and Obscuration:			
Departure Point:	LAKE ELMO, MI (21D)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1040 CST	Type of Airspace:	Class E

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:	

Administrative Information

Investigator In Charge (IIC): JIM SILLIMAN Report Date: 03/02/2001

Additional Participating Persons: JOHN LYONS; MINNEAPOLIS, MN

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/>.

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