



Aviation Investigation Final Report

Location:	MOUNT PLEASANT, Texas	Accident Number:	FTW97LA006
Date & Time:	October 6, 1996, 22:30 Local	Registration:	N8171T
Aircraft:	Cessna 175B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to the pilot, during cruise flight at 5,000 feet MSL, he smelled oil burning. As engine RPM decreased, the oil pressure dropped toward zero. Subsequently, there was an 'explosion' and the engine seized. During the ensuing forced landing, the airplane impacted trees, and came to rest on the ground in a left wing down attitude. A 3 inch diameter hole was found in the crankcase above the #3 cylinder attach point and the #3 connecting rod was separated. During engine disassembly, one of the connecting rod cap bolts for the #3 cylinder was found destroyed. One of the nuts for the #3 connecting rod cap was found laying in the piston skirt, separated from its bolt. The exterior of the nut and its threads were undamaged to the naked eye. No loose cotter pins were found within the engine. All other connecting rod cap bolts were found attached and cotter pinned. The end cap of the #2 piston pin was missing. The inner surface of the #2 cylinder barrel exhibited longitudinal scoring in the direction of piston action, corresponding to the diameter of the piston pin. 1 day prior to the accident, oil was changed and metal particles were found on the oil screen.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total loss of engine power due to the #3 connecting rod separation resulting in engine seizure. Factors were the dark night and the lack of suitable terrain for the forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF

Phase of Operation: CRUISE

Findings

1. ENGINE ASSEMBLY,CONNECTING ROD BOLT - LOOSE PART/BOLT/NUT/CLAMP/ETC
2. (C) ENGINE ASSEMBLY,CONNECTING ROD - SEPARATION
3. (C) ENGINE ASSEMBLY - SEIZED

Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

4. (F) LIGHT CONDITION - DARK NIGHT
5. (F) TERRAIN CONDITION - NONE SUITABLE
6. OBJECT - TREE(S)

Factual Information

On October 6, 1996, at 2230 central daylight time, a Cessna 175B, N8171T, registered to and owned by the pilot, sustained substantial damage during a forced landing following a loss of engine power near Mount Pleasant, Texas. The private pilot, the sole occupant, was seriously injured. Dark night visual meteorological conditions prevailed for the Title 14 CFR Part 91 personal cross country flight which originated from Idabel, Oklahoma at 2206. A flight plan was not filed.

According to the pilot, during cruise flight at 5,000 feet MSL, he began to smell oil burning, and engine RPM began to decrease. Upon scanning the instruments, he noticed that both oil temperature and oil pressure gauges indicated zero. Subsequently (about 40 seconds later), he heard an "explosion" and the engine seized. During the ensuing forced landing, the airplane impacted trees, and came to rest in a left wing down attitude relative to the terrain. The left wing and fuselage were structurally damaged.

Initial on scene examination of the engine by a FAA inspector, revealed a 3 inch hole in the crankcase located above the #3 cylinder. Additionally, it was noted that the under belly skin of the airplane was coated with oil.

The engine was disassembled for examination under the supervision of an NTSB investigator at Air Salvage of Dallas, Lancaster, Texas, on October 7, 1997. During the disassembly, one of the connecting rod cap bolts for the #3 cylinder was found destroyed and in several pieces. The connecting rod was found separated. One of the nuts for the #3 connecting rod cap was found laying in the piston skirt, separated from the bolt. The exterior of the nut and its threads were undamaged to the naked eye; however, the inner sides of 2 opposite castles exhibited minor abrasive wear when examined with a magnifying lens. Therefore, a conclusive determination could not be made as to whether or not the cotter pin was installed prior to the flight or if the pin fell out prior to, or during the internal engine seizure. No loose cotter pins were found within the engine.

All other connecting rod cap bolts and nuts were found still attached to each other and were secured with cotter pins. The rod cap bearing for the number three rod exhibited extreme thermal damage and was melted. The remainder of the rod cap bearings exhibited thermal damage, and their respective connecting rods were not damaged. Additionally, the end cap of the #2 piston pin was missing from its respective piston pin. The inner surface of the #2 cylinder barrel exhibited longitudinal scoring in the direction of piston action, corresponding to the diameter of the piston pin. The oil cooler was not damaged; however, inspection of the interior revealed no signs of oil.

According to maintenance records provided by the owner, the engine had a top overhaul

performed on February, 14, 1995 (tachometer time 3,256.6). On October 5, 1996, one day prior to the accident, the oil was changed and metal particles were found on the oil screen. According to the manufacturer, these metal particles could have been generated by the #2 piston pin (end cap was found missing) machining the inner surface of the #2 cylinder barrel.

See the enclosed engine examination report for additional information.

Pilot Information

Certificate:	Private	Age:	55, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	Last FAA Medical Exam:	August 5, 1996
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	536 hours (Total, all aircraft), 220 hours (Total, this make and model), 498 hours (Pilot In Command, all aircraft), 17 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N8171T
Model/Series:	175B 175B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	17556871
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	February 20, 1996 Annual	Certified Max Gross Wt.:	2350 lbs
Time Since Last Inspection:	64 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3311 Hrs	Engine Manufacturer:	Continental
ELT:		Engine Model/Series:	G0-300-D
Registered Owner:	CECIL W. WILEY	Rated Power:	175 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night/dark
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	15 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	16°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	IDABEL , OK (F62)	Type of Flight Plan Filed:	None
Destination:	MOUNT PLEASANT , TX (MSA)	Type of Clearance:	None
Departure Time:	22:06 Local	Type of Airspace:	Class G

Airport Information

Airport:		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 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	33.160095,-94.970664(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	JOHN COX; DALLAS , TX JOHN T KENT; MOBILE , AL
Original Publish Date:	May 23, 1997
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=20082

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