



National Transportation Safety Board Aviation Accident Final Report

Location:	Sparta, TN	Accident Number:	ATL05TA055
Date & Time:	03/03/2005, 1615 CST	Registration:	N14449
Aircraft:	Cessna T-41B	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious
Flight Conducted Under:	Part 91: General Aviation - Public Aircraft		

Analysis

The pilot stated the flight was cruising at 3,500 feet mean sea level when the engine began to run rough. Moments later, engine oil sprayed on the windscreen and the cockpit filled with smoke. Several hundred yards short of runway 4, the engine lost power completely, and the propeller stopped. The pilot maneuvered the airplane to avoid trees and landed in a field. The pilot stated when the nose wheel touched down, it sank into the soft ground, and the airplane nosed over. Examination of the airplane revealed the empennage was nearly separated aft of the baggage compartment, the fuselage was buckled aft of the firewall, and damage was observed on the engine crankcase. The post-accident examination of the engine revealed the timing reference plug was missing from the crankcase. The timing reference plug threads in the crankcase were not stripped. The crankshaft did not reveal any signs of movement or rotation, and the pistons, rings, and pins in all six cylinders revealed discoloration and mechanical damage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Improper installation of the timing reference plug by other maintenance personnel, which resulted in oil starvation, and the loss of engine power.

Findings

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

Findings

1. (C) FLUID,OIL - STARVATION
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) MISCELLANEOUS,BOLT/NUT/FASTENER/CLAMP/SPRING - MISSING

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

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

Findings

4. (F) TERRAIN CONDITION - GRASS

Factual Information

On March 3, 2005, about 1615 central standard time, a Cessna T-41B, N14449, registered to and operated by the State of Tennessee Division of Forestry, nosed over during emergency landing in Sparta, Tennessee. The public use flight was operated under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual meteorological conditions prevailed. The private pilot received serious injuries, and the airplane sustained substantial damage. The flight departed Nashville International Airport, Nashville, Tennessee, at 1544.

The pilot stated the flight was cruising at 3,500 feet when the engine began to run rough. Moments later, engine oil sprayed on the windscreen and the cockpit filled with smoke. The pilot estimated he was five or six miles from the Upper Cumberland Regional Airport, Sparta, Tennessee, and he reported the emergency on the airport common traffic advisory frequency. The pilot continued flight towards the airport. The pilot ventilated the cabin by opening the passenger-side window, and attempted to maintain engine power but could see engine oil spurting out the oil service door in the cowling. Several hundred yards short of runway 4, the engine quit completely, and the propeller stopped. The pilot maneuvered the airplane to avoid trees and landed in a field. The pilot stated the field was soft with recent rains, and when the nose wheel touched down, it sank into the soft ground, and the airplane nosed over.

Examination of the airplane revealed the empennage was nearly separated aft of the baggage compartment, the fuselage was buckled aft of the firewall, and damage was observed on the engine crankcase.

Post-accident examination of the engine revealed the timing reference plug was missing from the crankcase. The timing reference plug threads in the crankcase were not stripped. The aircraft oil pressure gauge reference (45-degree fitting) located below and between the numbers two and four cylinder was loose at the union fitting in the crankcase. The crankshaft did not reveal any signs of movement or rotation, and the pistons, rings, and pins in all six cylinders revealed discoloration and mechanical damage. The crankshaft bearings revealed scoring, discoloration, and mechanical damage concentrated at the number two connecting rod journal. The crankcase was breached above the centerline of the number two-cylinder bay. The plug gasket seating area position on the crankcase revealed staining adjacent the crankcase breach. There was no safety wire in the area of the timing reference plug.

Review of maintenance records revealed that the last 100 hour inspection was completed on December 16, 2004. During the 100-hour inspection both magnetos were installed and timed to the engine.

Pilot Information

Certificate:	Private	Age:	51, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With Waivers/Limitations	Last Medical Exam:	11/01/2003
Occupational Pilot:		Last Flight Review or Equivalent:	10/01/2003
Flight Time:	407 hours (Total, all aircraft), 298 hours (Total, this make and model), 1 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Cessna	Registration:	N14449
Model/Series:	T-41B	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	R172-0208
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	12/01/2004, Annual	Certified Max Gross Wt.:	2500 lbs
Time Since Last Inspection:	0 Hours	Engines:	1 Reciprocating
Airframe Total Time:	4144 Hours	Engine Manufacturer:	Continental
ELT:	Installed, activated, aided in locating accident	Engine Model/Series:	IO 360-D
Registered Owner:	State of Tennessee, Division of Forestry	Rated Power:	210 hp
Operator:	State of Tennessee, Division of Forestry	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	KBNA, 599 ft msl	Observation Time:	1553 CST
Distance from Accident Site:	0 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	0°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 5000 ft agl	Temperature/Dew Point:	12 °C / -6 °C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	6 knots, 110°	Visibility (RVR):	
Altimeter Setting:	30.07 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Nashville, TN (KBNA)	Type of Flight Plan Filed:	None
Destination:	Sparta, TN (KSRB)	Type of Clearance:	VFR
Departure Time:	1544 CST	Type of Airspace:	

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Catherine E Gagne	Adopted Date:	02/28/2006
Additional Participating Persons:	Rocky Davidson; FAA - Nashville FSDO - 03; Nashville, TN		
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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