



National Transportation Safety Board Aviation Accident Final Report

Location:	MARIETTA, GA	Accident Number:	MIA98LA037
Date & Time:	12/01/1997, 1105 EST	Registration:	N14493
Aircraft:	Cessna FR-172J	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Ferry		

Analysis

While in cruise flight, the engine began making banging and hissing sounds, emitting white smoke, and steadily losing power. The pilot requested vectors from ATC to the nearest airport, Dobbins ARB, but couldn't stretch his glide, and made a forced landing onto a construction site. The airplane came to a stop in trees and was destroyed. An NTSB-supervised teardown inspection revealed failure of the oil cooler core resulting in oil starvation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A catastrophic failure of the oil cooler core which led to overboard porting of lubricating oil and subsequent engine failure.

Findings

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

Findings

1. (C) LUBRICATING SYSTEM,OIL COOLER - RUPTURED
2. (C) FLUID,OIL - STARVATION

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

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

3. OBJECT - TREE(S)

Factual Information

On December 1, 1997, about 1105 eastern standard time, a Cessna FR-172J, N14493, registered to The Flight School of Gwinnett, Inc., operating as a 14 CFR Part 91 ferry flight, experienced a loss of engine power during cruise flight about 10 miles southwest of Dobbins Air Reserve Base, Georgia. Visual meteorological conditions prevailed and an instrument flight rules flight plan was filed. The aircraft was destroyed, and the commercial pilot sustained minor injuries. The flight originated from Gwinnett County/Briscoe Field, Lawrenceville, Georgia, about 20 minutes before the accident.

The pilot stated while in cruise flight at an altitude of 6,000 feet, under the control of Atlanta Approach Control, the engine tachometer suddenly increased about 100 rpm and as he adjusted power, he experienced "hissing" and "banging" from the engine. Simultaneously, he experienced gradual rpm decay, cowling vibration, oil on the windshield, and white smoke from under the cowl and in the cockpit. Upon notification of the problem, ATC gave the pilot an immediate vector toward Dobbins ARB. The pilot realized he could not make the airfield, and made a forced landing to a graded, terraced construction site, and came to rest in a wooded area.

NTSB supervised teardown inspection of the engine revealed a rupture in the core of the oil-cooler, indication of no oil from dipstick, heavily scored and burned connecting-rod-to-crankshaft bearing surfaces and scored and burned crankshaft journals. The No. 2 connecting rod cap had separated and the rod was protruding through a hole in the upper crankcase. The No. 1 connecting rod was broken at the crankshaft journal. Parts of the broken No. 1 connecting rod end, the No. 2 rod cap, a pushrod tappet assembly, and other metal fragments were found in the bottom of the crankcase.

FAA supervised engine manufacturer's inspection revealed the oil-cooler leak as "severe", and "..would empty the engine oil supply in a short period of time." No previous repair to the oil-cooler was visible, and no reason for the core failure could be determined.

From the engine logbooks, it was determined that on September 14, 1988, the oil-cooler was installed as a reconditioned component. At the time of the accident, using tachometer readings, the oil-cooler had accumulated about 422 hours.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	27, Male
Airplane Rating(s):	Multi-engine Land; 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 Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	04/02/1997
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	950 hours (Total, all aircraft), 5 hours (Total, this make and model), 876 hours (Pilot In Command, all aircraft), 121 hours (Last 90 days, all aircraft), 44 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	Registration:	N14493
Model/Series:	FR-172J FR-172J	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	0444
Landing Gear Type:	Tricycle	Seats:	4
Date/Type of Last Inspection:	11/29/1997, 100 Hour	Certified Max Gross Wt.:	2550 lbs
Time Since Last Inspection:	1 Hours	Engines:	1 Reciprocating
Airframe Total Time:	2904 Hours	Engine Manufacturer:	Continental
ELT:	Installed	Engine Model/Series:	IO-360-H
Registered Owner:	WILLIAM B. ALLISON	Rated Power:	210 hp
Operator:	THE FLIGHT SCHOOL OF GWINNETT	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MGE, 1068 ft msl	Distance from Accident Site:	3 Nautical Miles
Observation Time:	1107 EST	Direction from Accident Site:	60°
Lowest Cloud Condition:	Thin Broken / 1800 ft agl	Visibility	15 Miles
Lowest Ceiling:	Broken / 1800 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	14 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	12° C / 9° C
Precipitation and Obscuration:			
Departure Point:	LAWRENCEVILLE, GA (LZU)	Type of Flight Plan Filed:	IFR
Destination:	WETUMPKA, AL (08A)	Type of Clearance:	IFR
Departure Time:	1030 EST	Type of Airspace:	Class B

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Destroyed
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	ALAN C STONE	Report Date:	11/06/1998
Additional Participating Persons:	MARK MEOLA; COLLEGE PARK, GA DALE CARTER; MARIETTA, GA HOWARD J BURK; MOBILE, AL		
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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