Aviation Investigation Final Report

Location:	BRUCE, Mississippi	**Accident Number:**	ATL99LA087
Date & Time:	May 14, 1999, 11:00 Local	**Registration:**	N1994J
Aircraft:	Cessna T188C	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot finished spraying a field, pulled up and turned the spray pump off, when the engine lost oil pressure and the pilot heard a loud noise. Smoke came out of the cowling and the engine lost power approximately 50 feet above the ground. The pilot elected to perform a forced landing to a cotton field. During the landing roll, the airplane traveled through some small trees and brush, and came to a stop across a ditch. Examination of the engine revealed that the engine experienced lubrication distress to the number 2 connecting rod bearing and journal. The number 2 connecting rod was supplied oil from the number 2 main bearing. The number 2 main bearing was shifted in the crankcase bearing saddle, which restricted the oil feed to the number 2 connecting rod. As a result, the number 2 connecting rod failed.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of lubrication to the number 2 connecting rod due to the shifted bearing that resulted in the total loss of engine power.

Findings

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

Findings
1. (C) ENGINE ASSEMBLY,BEARING - SHIFTED

2. (C) LUBRICATING SYSTEM,OIL PORT/PASSAGE,INTERNAL - RESTRICTED
3. (C) ENGINE ASSEMBLY,CONNECTING ROD - FAILURE

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

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
4. OBJECT - TREE(S)

Factual Information

On May 14, 1999, at 1100 central daylight time, a Cessna T188C, N1994J, collided with the ground during an emergency landing in Bruce, Mississippi. The airplane was operated by the commercial pilot under the provisions of Title 14 CFR Part 137, and visual flight rules. Visual meteorological conditions prevailed at the time of the accident and no flight plan was filed for the local agricultural application flight. The pilot was not injured and the airplane sustained substantial damage. The flight departed Bruce, Mississippi, at 0900.

According to the pilot, he had just finished spraying a field. As he pulled up out of the field and turned the spray pump off, the airplane lost oil pressure and the pilot heard a loud noise. Smoke came out of the cowling and the engine lost power approximately 50 feet above the ground. He engaged the fuel boost pump at that point, but was unable to regain power. The pilot elected to land in a nearby cotton field. The pilot stated that he did not have enough room to stop and the airplane subsequently traveled through some small trees and brush and came to a stop across a ditch in another cotton field.

According to the FAA, the pilot stated that he had to keep decreasing the propeller pitch to keep the RPM up during the agricultural application. The FAA noted that the propeller could only be turned 180 degrees in either direction by hand during field examination of the accident. A pool of oil underneath the airplane was also noted by the FAA. Inspection of the engine revealed an outward protruding cracked area the size of a dime near the number three cylinder, and a hole, approximately two inches in diameter in the top of the crank case adjacent to the number 2 cylinder. The FAA stated that while looking through the hole in the crank case, it was noticed that the connecting rod was not connected to the crank shaft and the area where the connecting rod connects to the crankshaft was dry.

Teardown and examination of the engine by Teledyne Continental Motors in Mobile, Alabama, and observed by the NTSB revealed that the engine experienced lubrication distress to the number 2 connecting rod bearing and journal. The number 2 connecting rod is supplied oil from the number 2 main bearing. The number 2 main bearing was shifted in the crankcase bearing saddle, which restricted or obscured the oil feed to the number 2 connecting rod. As a result, the number 2 connecting rod failed, which resulted in its disconnection from the crankshaft journal. The engine interior was damaged as a result of the number 2 connecting rod failure.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	30,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Center
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 29, 1999
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	3100 hours (Total, all aircraft), 1000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N1994J
Model/Series:	T188C T188C	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	T18803329T
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:	March 27, 1999 Annual	**Certified Max Gross Wt.:**	3300 lbs
Time Since Last Inspection:	15 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5929 Hrs	**Engine Manufacturer:**	Continental
ELT:		**Engine Model/Series:**	TSIO-520-T
Registered Owner:	TEDFORD SERVIVE FLYING INC.	**Rated Power:**	310 Horsepower
Operator:	DARREN L. COLLINS	**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TUP ,346 ft msl	**Distance from Accident Site:**	33 Nautical Miles
Observation Time:	09:53 Local	**Direction from Accident Site:**	245°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	Broken / 25000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	20°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	, MS (PVT)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	09:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:	220 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	33.989601,-89.339187(est)

Administrative Information

Investigator In Charge (IIC):	Wilson, Butch
Additional Participating Persons:	AL DAVIS; JACKSON , MS KAREN A HOUSE; ATLANTA , GA
Original Publish Date:	June 21, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46326