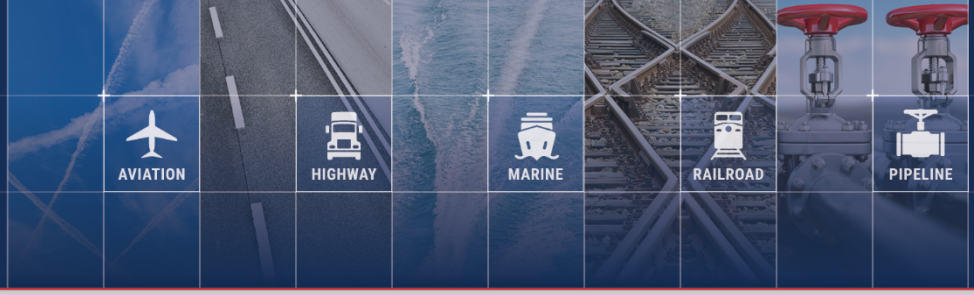

Aviation Investigation Final Report

Location:	SULPHUR, Oklahoma	**Accident Number:**	FTW94LA166
Date & Time:	May 18, 1994, 18:30 Local	**Registration:**	N933B
Aircraft:	BELL 47G	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

A TOTAL LOSS OF ENGINE POWER OCCURRED AT 50 FEET ABOVE THE GROUND DURING THE INITIAL PHASE OF A TURN-AROUND MANEUVER. TREES HINDERED THE PILOT'S COMPLETION OF THE AUTOROTATION. THE HELICOPTER BOUNCED DURING THE LANDING AND THE MAIN ROTOR BLADE FLEXED AND SEVERED THE TAILBOOM. AN EXAMINATION OF THE ENGINE BY THE OPERATOR REVEALED THE FAILURE OF AN ENGINE ACCESSORY OIL PUMP GEAR.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE LOSS OF ENGINE POWER DUE TO THE FAILURE OF AN ENGINE ACCESSORY OIL PUMP GEAR. A FACTOR WAS THE LACK OF SUITABLE TERRAIN FOR THE AUTOROTATION.

Findings

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

Findings
1. (C) ACCESSORY DRIVE ASSY,DRIVE GEAR - FAILURE,TOTAL

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

Occurrence #3: HARD LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings
2. AUTOROTATION - INITIATED - PILOT IN COMMAND
3. (F) TERRAIN CONDITION - NONE SUITABLE
4. OBJECT - TREE(S)

Factual Information

On May 18, 1994, at 1830 central daylight time, a Bell 47G, N933B, sustained substantial damage during a forced landing near Sulphur, Oklahoma. The commercial pilot did not receive injuries. Visual meteorological conditions prevailed for the local aerial application flight.

The pilot reported a total loss of engine power at 50 feet above the ground during the initial phase of a turn-around maneuver. He further said that trees in the area and the height of the helicopter hindered his completion of a successful autorotation. The helicopter bounced during the hard landing and the main rotor blade flexed and severed the tailboom.

During a telephone interview the operator reported the total loss of engine power was due to the failure of the oil pump drive gear in the accessory case.

Pilot Information

Certificate:	Commercial	**Age:**	27,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	March 15, 1994
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1618 hours (Total, all aircraft), 1164 hours (Total, this make and model), 1488 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	**Registration:**	N933B
Model/Series:	47G 47G	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Restricted (Special)	**Serial Number:**	662
Landing Gear Type:	Skid	**Seats:**	2
Date/Type of Last Inspection:	May 5, 1994 Annual	**Certified Max Gross Wt.:**	2350 lbs
Time Since Last Inspection:	21 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	FRANKLIN
ELT:	Not installed	**Engine Model/Series:**	6V-335-A
Registered Owner:	B & S FLYING SERVICE, INC.	**Rated Power:**	210 Horsepower
Operator:		**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	SNMG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**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:**	34.500545,-96.96949(est)

Administrative Information

Investigator In Charge (IIC):	Smith, Joyce
Additional Participating Persons:	BOB DIPPI; OKLAHOMA CITY , OK
Original Publish Date:	November 14, 1994
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=19061