



Aviation Investigation Final Report

Location:	SHAFTER, California	Accident Number:	LAX86DVA13
Date & Time:	August 8, 1986, 08:15 Local	Registration:	N1185W
Aircraft:	BELL 47G-4A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

SHORTLY AFTER DEPARTING THE LOADING RIG, EN ROUTE TO AN AGRICULTURAL AERIAL APPLICATION OPERATION, THE FORWARD COUPLING TAIL ROTOR DRIVE SHAFT FAILED. THE HELICOPTER WAS ABOUT 10 FT ABOVE GROUND LEVEL AND ABOUT 100 FT WEST OF THE LOADING RIG. THE PILOT ATTEMPTED AN IMMEDIATE AUTOROTATION BUT COLLIDED WITH THE GROUND AND ROLLED OVER. EXAMINATION OF THE WRECKAGE DISCLOSED THE COUPLING SUSTAINED EXTREME HIGH TEMP DISTRESS DUE TO LACK OF LUBRICATION. THE HELICOPTER HAD FLOWN 178 HOURS SINCE THE LAST ANNUAL/100-HOUR INSPECTION. A 100-HOUR INSPECTION IS REQUIRED FOR THE OPERATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) ROTOR DRIVE SYSTEM, TAIL ROTOR DRIVE SHAFT BEARING - FAILURE, TOTAL
2. (C) ROTOR DRIVE SYSTEM, TAIL ROTOR DRIVE SHAFT BEARING - OVERTEMPERATURE
3. (C) MAINTENANCE, LUBRICATION - NOT PERFORMED - COMPANY MAINTENANCE PERSONNEL
4. (C) MAINTENANCE, 100-HOUR INSPECTION - NOT PERFORMED - COMPANY MAINTENANCE PERSONNEL

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

Findings
5. AUTOROTATION - ATTEMPTED - PILOT IN COMMAND

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

Findings
6. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

Pilot Information

Certificate:	Commercial	Age:	40, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	January 24, 1986
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	2438 hours (Total, all aircraft), 1438 hours (Total, this make and model), 2438 hours (Pilot In Command, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	N1185W
Model/Series:	47G-4A 47G-4A	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	7513
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	June 21, 1986 100 hour	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:	178 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	7723 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	VO-540
Registered Owner:	SHAFTER AVIATION INC.	Rated Power:	305 Horsepower
Operator:		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:	BFL ,490 ft msl	Distance from Accident Site:	6 Nautical Miles
Observation Time:	07:50 Local	Direction from Accident Site:	330°
Lowest Cloud Condition:	Clear	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	130°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	31 inches Hg	Temperature/Dew Point:	26°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	08:20 Local	Type of Airspace:	Class G

Airport Information

Airport:	SHAFTER-MINTER FIELD MIT	Runway Surface Type:	Grass/turf
Airport Elevation:	0 ft msl	Runway Surface Condition:	Dry
Runway Used:	0	IFR Approach:	None
Runway Length/Width:	0 ft / 0 ft	VFR Approach/Landing:	Forced landing;Straight-in

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:	35.489562,-119.299324(est)

Administrative Information

Investigator In Charge (IIC): De costa, Larry

Additional Participating Persons:

Original Publish Date:

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=24867>

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The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).