



Aviation Investigation Final Report

Location:	Winterhaven, California	Accident Number:	LAX01LA098
Date & Time:	February 9, 2001, 19:00 Local	Registration:	N3084G
Aircraft:	Bell 47-G3B1	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot was applying chemicals at night to a field of lettuce and had just taken off from his truck platform with 60 gallons of chemicals. He was about 20 feet above ground level and had a forward air speed of approximately 30 miles per hour when he heard a loud screeching sound, followed by a yaw to the left, a rapid decay of rotor rpm, and an increase/overspeed in engine rpm. The helicopter landed hard, collapsing the skids. Post accident examination of the transmission was conducted, revealing that the outer surface of the free wheeling unit of the inner gear assembly was worn below allowable limits at the roller/gear operating surface. The worn freewheeling inner ring gear allowed a mechanical disconnect between the engine output and the main rotor transmission, and resulted in a loss of main rotor speed and the subsequent hard landing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A failure of the transmission free wheeling unit due to improper maintenance. A factor was the dark night visual condition.

Findings

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

Findings

1. (F) LIGHT CONDITION - DARK NIGHT
2. (C) MAINTENANCE - IMPROPER - OTHER MAINTENANCE PERSONNEL

Factual Information

On February 9, 2001, about 1900 hours Pacific standard time, a Bell 47-G3B1, N3084G, landed hard near Winterhaven, California, following a drive train failure during a night agricultural spraying operation. The helicopter was owned and operated by Sundown Helicopters, Inc., of Yuma, Arizona, and was substantially damaged. The certificated commercial pilot was not injured. Visual meteorological conditions prevailed for the flight, which was operating under 14 CFR Part 137. The flight was originating at the time of the occurrence.

The pilot reported that he was applying chemicals to a field of lettuce and had just taken off from his truck platform with 60 gallons of chemicals. He said that he was about 20 feet above ground level and had a forward air speed of approximately 30 miles per hour when he heard a loud screeching sound, followed by a yaw to the left, a rapid decay of rotor rpm, and an increase/overspeed in engine rpm. The helicopter landed hard, collapsing the skids.

Post accident examination of the transmission was conducted on February 10, 2001. Examination of the free wheeling unit revealed the outer surface of the inner gear assembly was worn below allowable limits at the roller/gear operating surface. No other discrepancies were noted.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	53, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	September 21, 2000
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 29, 2000
Flight Time:	18930 hours (Total, all aircraft), 2500 hours (Total, this make and model), 18400 hours (Pilot In Command, all aircraft), 52 hours (Last 90 days, all aircraft), 29 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	Registration:	N3084G
Model/Series:	47-G3B1	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2916
Landing Gear Type:	Skid	Seats:	3
Date/Type of Last Inspection:	November 27, 2000 100 hour	Certified Max Gross Wt.:	2950 lbs
Time Since Last Inspection:	38 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	6322 Hrs at time of accident	Engine Manufacturer:	Avco Lycoming
ELT:	Not installed	Engine Model/Series:	TVO-435-B1A
Registered Owner:	Sundown Helicopters, Inc.	Rated Power:	280 Horsepower
Operator:		Operating Certificate(s) Held:	
Operator Does Business As:		Operator Designator Code:	SCDG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Night/dark
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:	1 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	30°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Yuma, AZ (NONE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	18:55 Local	Type of Airspace:	Class G

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:	33.710815,-116.229301(est)

Administrative Information

Investigator In Charge (IIC):	Petterson, George
Additional Participating Persons:	John L White; Federal Aviation Administration - FSDO; San Diego, CA
Original Publish Date:	July 15, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=51735

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