Aviation Investigation Final Report

Location:	WINTERHAVEN, California	**Accident Number:**	LAX99LA049
Date & Time:	December 4, 1998, 01:00 Local	**Registration:**	N3084G
Aircraft:	Bell 47G-3B-1	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot had been spraying the field for about 3 hours. He attempted to take off at or over gross weight and the rotor rpm began to decay. The helicopter was positioned perpendicular to the furrowed rows in the field and when the pilot attempted to land the left skid dug into the mud. The aircraft bounced forward and the main rotor blades flexed downward and severed the tailboom. The pilot reported that he had not experienced any mechanical discrepancies with the aircraft prior to the accident. He further stated that he had not experienced any problems with the engine during the accident.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain rotor rpm. A factor was his attempt to take off over gross weight.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
1. (C) ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND
2. (F) AIRCRAFT WEIGHT AND BALANCE - INACCURATE - PILOT IN COMMAND
3. TERRAIN CONDITION - ROUGH/UNEVEN

Factual Information

On December 4, 1998, at 0100 hours Pacific standard time, a Bell 47G-3B-1 helicopter, N3084G, lost rotor rpm on takeoff and impacted the ground near Winterhaven, California. The aircraft sustained substantial damage, and the commercial pilot, the sole occupant, was not injured. The aerial application flight was conducted under the provisions of 14 CFR Part 137, and the aircraft was being operated by Sundown Helicopters, Yuma, Arizona. The local flight originated about 2200. Night visual meteorological conditions prevailed and no flight plan was filed.

The pilot reported that he had been spraying a field with fertilizer for 3 hours. He stopped for approximately 5 minutes to add "30 to 40 gallons of fuel and about 50 gallons of [spray] material." He reported that the takeoff seemed normal and the helicopter accelerated through translational lift. The pilot stated that the rotor rpm began to decay and he was unable to regain it. The aircraft was positioned perpendicular to the furrowed rows in the field, and when the pilot attempted to land, the left skid dug into the mud. The helicopter bounced forward and the main rotor blades flexed downward and cut through the tailboom. The pilot reported that he had not experienced any mechanical discrepancies with the aircraft prior to the accident. He further stated that he had not experienced any problems with the engine during the accident.

According to the Bell Pilot Operator Handbook, the maximum gross weight for the Bell 47G-3B-1 is 2,950 pounds. The pilot supplied the weight and balance he had worked out for the accident flight, which listed a takeoff weight of 2,930.13 pounds. He calculated 35 gallons of 100 low lead aviation fuel at 6 pounds per gallon, totaling 210 pounds. Aviation fuel weighs 6.7 pounds; 35 gallons of fuel at 6.7 pounds per gallon equals 234.5 pounds. This calculation of fuel weight adds 24.5 gallons to the pilot's calculation of 2,930.13, bringing the takeoff weight to 2,954.63 pounds.

Pilot Information

Certificate:	Commercial	**Age:**	51,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:**	August 13, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	18065 hours (Total, all aircraft), 10000 hours (Total, this make and model), 17533 hours (Pilot In Command, all aircraft), 215 hours (Last 90 days, all aircraft), 57 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N3084G
Model/Series:	47G-3B-1 47G-3B-1	**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 28, 1998 100 hour	**Certified Max Gross Wt.:**	2950 lbs
Time Since Last Inspection:	8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5521 Hrs	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	TVO-435-BIA
Registered Owner:	SUNDOWN HELICOPTERS	**Rated Power:**	270 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:**	Night/dark
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	5 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	11°C
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 E

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/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:**	32.870479,-114.719604(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	GARY GLEN; SAN DIEGO , CA
Original Publish Date:	February 16, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45465

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