



# Aviation Investigation Final Report

<b>Location:</b>	NEAR BROOTEN, Minnesota	<b>Accident Number:</b>	CHI82DA347
<b>Date &amp; Time:</b>	August 20, 1982, 09:00 Local	<b>Registration:</b>	N4090G
<b>Aircraft:</b>	BELL 47G-4A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

## Analysis

THE PILOT HAD BEEN ENGAGED IN A SPRAYING OPERATION FOR 2.5 HRS WHEN HE RETURNED AND LANDED ON A FLAT BED TYPE TRAILER TO SERVICE THE HELICOPTER. AFTER THE HOPPER WAS SERVICED WITH 60 GAL OF HERBICIDE, THE PILOT BEGAN HIS TAKE OFF. HE STATED THAT JUST AFTER LIFT-OFF, THE HELICOPTER LOST POWER AND YAWED TO THE LEFT. HE STATED THAT HE ATTEMPTED TO CUSHION THE LANDING WITH THE COLLECTIVE, BUT THE GEAR COLLAPSED AND THE MAIN ROTOR HIT A FENCE. AN EXAMINATION REVEALED NO DISCREPANCIES OF THE TRANSMISSION OR ENGINE, EXCEPT THE SPARK PLUGS WERE SEVERELY WORN. AN ENGINE RUN-UP WAS MADE AND IT OPERATED SATISFACTORILY.

## Probable Cause and Findings

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

### Findings

Occurrence #1: LOSS OF ENGINE POWER  
Phase of Operation: TAKEOFF - INITIAL CLIMB

#### Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED
2. IGNITION SYSTEM, SPARK PLUG - WORN

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Occurrence #2: FORCED LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings  
3. AUTOROTATION - PERFORMED - PILOT IN COMMAND

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Occurrence #3: HARD LANDING  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

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Occurrence #4: OTHER GEAR COLLAPSED  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings  
4. LANDING GEAR - OVERLOAD

## Factual Information

### Pilot Information

<b>Certificate:</b>	Airline transport; Flight instructor	<b>Age:</b>	36, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Unknown
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	April 22, 1982
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	8460 hours (Total, all aircraft), 1512 hours (Total, this make and model), 175 hours (Last 90 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	BELL	<b>Registration:</b>	N4090G
<b>Model/Series:</b>	47G-4A 47G-4A	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>		<b>Serial Number:</b>	7640
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	Unknown	<b>Certified Max Gross Wt.:</b>	2600 lbs
<b>Time Since Last Inspection:</b>	0 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	4300 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	VO-540-B1B3
<b>Registered Owner:</b>	BONANZA VALLEY AVIATION	<b>Rated Power:</b>	280 Horsepower
<b>Operator:</b>	BONANZA VALLEY AVIATION	<b>Operating Certificate(s) Held:</b>	
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	15 miles
<b>Lowest Ceiling:</b>	Unknown	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	225°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	60°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	NEAR BROOTEN , MN	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	NEAR BROOTEN , MN	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	09:00 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	0 ft msl	<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	0 ft / 0 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	

## Administrative Information

**Investigator In Charge (IIC):**

**Additional Participating Persons:**

**Original Publish Date:** August 20, 1983

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.ntsb.gov/Docket?ProjectID=71852>

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