



Aviation Investigation Final Report

Location:	OAKDALE, Minnesota	Accident Number:	MKC90LA088
Date & Time:	April 18, 1990, 09:30 Local	Registration:	N5120B
Aircraft:	BELL 47	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious
Flight Conducted Under:	Part 137: Agricultural		

Analysis

WHILE FERRYING THE HELICOPTER TO CONDUCT AN AERIAL APPLICATION OPERATION, THE PLT SAID THAT THE ENGINE BEGAN TO OVERSPEED. THE PLT ENTERED AN AUTOROTATION TO REDUCE ENGINE RPM, BUT HAD TO CLEAR POWER LINES. USING THE ROTOR RPM TO CLEAR THE POWER LINES, THE ROTOR RPM DECAYED AND THE ACFT DROPPED IN FROM ABOUT 50 TO 75 FEET AGL. POST ACCIDENT INVESTIGATION REVEALED A MALFUNCTIONING MAIN TRANSMISSION CENTRIFUGAL CLUTCH. THE POWERPLANT TEST FAILED TO REVEAL ANY MALFUNCTION. AN ANNUAL INSPECTION HAD BEEN PERFORMED 6 DAYS AND 4 HOURS OF FLIGHT TIME PRIOR TO THE ACCIDENT.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A SLIPPING ROTOR DRIVE CLUTCH ASSEMBLY DUE TO IMPROPER MAINTENANCE BY COMPANY PERSONNEL. CONTRIBUTING FACTORS WERE STATIC WIRES IN THE PATH.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE - NORMAL

Findings

1. (C) ROTOR DRIVE SYSTEM, CLUTCH ASSEMBLY - SLIPPED
2. (C) MAINTENANCE - IMPROPER - COMPANY MAINTENANCE PERSONNEL

3. AUTOROTATION - ATTEMPTED - PILOT IN COMMAND

4. (F) OBJECT - WIRE,STATIC

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. ROTOR RPM - NOT POSSIBLE - PILOT IN COMMAND

Factual Information

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	43, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	April 2, 1990
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	4100 hours (Total, all aircraft), 1200 hours (Total, this make and model), 3900 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	N5120B
Model/Series:	47 47	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	1941
Landing Gear Type:	Skid	Seats:	3
Date/Type of Last Inspection:	April 12, 1990 Annual	Certified Max Gross Wt.:	2450 lbs
Time Since Last Inspection:	4 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	4610 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	VO-435-A1F
Registered Owner:	JIMS AVIATION SERVICES, LTD	Rated Power:	260 Horsepower
Operator:	TWIN CITY HELICOPTERS, INC.	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:	MSP	Distance from Accident Site:	4 Nautical Miles
Observation Time:		Direction from Accident Site:	240°
Lowest Cloud Condition:	Clear	Visibility	15 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	14 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	220°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	9°C / -7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	09:25 Local	Type of Airspace:	Class G

Airport Information

Airport:	NONE	Runway Surface Type:	
Airport Elevation:	0 ft msl	Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:	0 ft / 0 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	45.010219,-93.030418(est)

Administrative Information

Investigator In Charge (IIC): Hruban, John

Additional Participating Persons: LARRY JOHNSON;

Original Publish Date: September 28, 1992

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.ntsb.gov/Docket?ProjectID=34963>

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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](#).