



Aviation Investigation Final Report

Location:	STOCKBRIDGE, Michigan	Accident Number:	CHI88DEC05
Date & Time:	July 11, 1988, 10:10 Local	Registration:	N12087
Aircraft:	BELL 47D1 (OH-13E)	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

THE PLT WAS SPRAYING AN ONION FIELD WHEN HE NOTED A VIBRATION, FOLLOWED BY A LOUD NOISE & SEVERE SHAKING OF THE HELICOPTER. HE ATTEMPTED A FORCED LANDING, BUT THE HELICOPTER WAS UNRESPONSIVE TO CYCLIC & COLLECTIVE INPUTS. SUBSEQUENTLY, THE RIGHT SKID DUG INTO THE GROUND & COLLAPSED DURING TOUCHDOWN, THEN THE MAIN ROTOR BLADES STRUCK THE GROUND. A POST ACNT INSPN REVEALED THE BOLT, WHICH CONNECTED THE DRIVE LINK TO THE COLLECTIVE SCISSORS ARM, WAS MISSING.

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: MANEUVERING

Findings

1. (C) ROTORCRAFT FLIGHT CONTROL - DISCONNECTED

Occurrence #2: FORCED LANDING

Phase of Operation: LANDING

Findings

2. RUN ON LANDING - ATTEMPTED - PILOT IN COMMAND

Occurrence #3: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: LANDING

Findings

3. AIRCRAFT CONTROL - NOT POSSIBLE

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING

Factual Information

Pilot Information

Certificate:	Commercial	Age:	62, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	September 27, 1987
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:	12877 hours (Total, all aircraft), 12697 hours (Total, this make and model), 12807 hours (Pilot In Command, all aircraft), 135 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BELL	Registration:	N12087
Model/Series:	47D1 (OH-13E) 47D1 (OH-1	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Restricted (Special)	Serial Number:	734
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	April 21, 1988 Annual	Certified Max Gross Wt.:	2350 lbs
Time Since Last Inspection:	113 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	7951 Hrs	Engine Manufacturer:	FRANKLIN
ELT:	Not installed	Engine Model/Series:	6V4-200-C32
Registered Owner:	ALLIED HELICOPTER SERVICES INC	Rated Power:	200 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:		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:	9 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	230°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	26°C / 19°C
Precipitation and Obscuration:	N/A - None - Haze		
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	08:00 Local	Type of Airspace:	Class G

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced 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:	42.450557,-84.170555(est)

Administrative Information

Investigator In Charge (IIC): Shirey, Stanley

Additional Participating Persons:

Original Publish Date: June 10, 1991

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.ntsb.gov/Docket?ProjectID=13848>

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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](#).