



Aviation Investigation Factual Report

Location:	Nicholasville, Kentucky	Accident Number:	NYC04LA059
Date & Time:	January 19, 2004, 14:30 Local	Registration:	N224LC
Aircraft:	Robinson R-22	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 91: General aviation - Flight test		

Factual Information

On January 19, 2004, at 1430 eastern standard time, N224LC, a Robinson R-22, was destroyed during a forced landing, following a loss of engine power after takeoff from a private residence, in Nicholasville, Kentucky. The certificated private pilot was not injured. Visual meteorological conditions prevailed and no flight plan was filed for the maintenance test flight conducted under 14 CFR Part 91.

According to a mechanic, who had performed adjustments to the helicopter prior to the flight, he observed the helicopter liftoff and hover about 20 feet above the ground. The helicopter appeared to be operating satisfactorily and the pilot began a departure toward the northwest. As the helicopter climbed to about 200 feet, the mechanic heard the engine sputtering, and the helicopter began to oscillate slightly. The helicopter started descending, and then disappeared behind trees.

The pilot reported that at an altitude of about 200 feet, the helicopter lost power and altitude. The pilot then performed an emergency landing to an open field. After landing, the pilot observed fire on the left side of the helicopter and exited the helicopter from the right side.

According to a Federal Aviation Administration (FAA) inspector, examination of the helicopter revealed severe post-crash fire damage. Examination of the engine revealed the main fuel line to the carburetor was separated and sitting just below its 90-degree elbow fitting. The threads of the elbow fitting displayed severe fire damage and downward melting, and the line end of the fitting was filled with melted aluminum.

The fitting was removed from the carburetor, and it was noted that the "B-nut," used to secure the fuel line to elbow fitting, was loose. Additionally, "tooling marks" were observed on the fitting.

The elbow fitting and fuel line were sent to the Safety Board Metallurgical Laboratory in Washington D.C. for further examination; however, due to the severe fire damage, no pre-impact fractures were visible.

An interview with the mechanic revealed maintenance was recently performed to the main rotor blades and trim system. No maintenance was performed on the carburetor. The last 100-hour inspection was performed on December 9, 2003, and the helicopter had flown approximately 7 hours since that date.

According to 14 CFR Part 43 Appendix D - Scope and Detail of Items (as Applicable to the Particular Aircraft) To Be Included in Annual and 100 Hour Inspections:

"Each person performing an annual or 100 hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:

- (1) Engine section - for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.
- (2) Studs and nuts - for improper torquing and obvious defects.
- (3) Internal engine - for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.
- (4) Engine mount - for cracks, looseness of mounting, and looseness of engine to mount.
- (5) Flexible vibration dampeners - for poor condition and deterioration.
- (6) Engine controls - for defects, improper travel, and improper safetying.
- (7) Lines, hoses, and clamps - for leaks, improper condition and looseness.
- (8) Exhaust stacks - for cracks, defects, and improper attachment.
- (9) Accessories - for apparent defects in security of mounting.
- (10) All systems - for improper installation, poor general condition, defects, and insecure attachment.
- (11) Cowling - for cracks, and defects."

Pilot Information

Certificate:	Private	Age:	52, Male
Airplane Rating(s):	None	Seat Occupied:	Right
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:	February 16, 2001
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	September 30, 2003
Flight Time:	354 hours (Total, all aircraft), 300 hours (Total, this make and model), 8 hours (Last 90 days, all aircraft), 4 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Robinson	Registration:	N224LC
Model/Series:	R-22	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	2447
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	December 9, 2003 Annual	Certified Max Gross Wt.:	1300 lbs
Time Since Last Inspection:	7 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3007 Hrs at time of accident	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320
Registered Owner:	Charles Woodward	Rated Power:	160 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	LEX,979 ft msl	Distance from Accident Site:	10 Nautical Miles
Observation Time:	14:54 Local	Direction from Accident Site:	180°
Lowest Cloud Condition:		Visibility	10 miles
Lowest Ceiling:	Overcast / 3200 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	8 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	330°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.09 inches Hg	Temperature/Dew Point:	-6°C / -12°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Nicholasville, KY (NONE)	Type of Flight Plan Filed:	None
Destination:	Nicholasville, KY (NONE)	Type of Clearance:	None
Departure Time:	14:29 Local	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	37.866943,-84.521385

Administrative Information

Investigator In Charge (IIC):	Andrews, Jill
Additional Participating Persons:	Chuck Holsclaw; FAA/FSDO SO-01; Louisville, KY
Report Date:	December 29, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=58633

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

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](#).