
 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: NYC95FA221		Aircraft Registration Number: N22BX	
		Occurrence Date: 09/10/1995		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place AKRON	State OH	Zip Code 44306	Local Time 1750	Time Zone EDT	
Airport Proximity: On Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer ROBINSON		Model/Series R-22 BETA /R-22 BETA		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
HISTORY OF FLIGHT					
<p>On September 10, 1995, at 1750 eastern daylight time, a Robinson R-22 Beta, N22BX, was destroyed when it impacted the ground after takeoff at the Akron-Fulton Airport, Akron, Ohio. The private pilot was fatally injured. Visual meteorological conditions prevailed, for the personal flight that originated from Akron-Canton, Ohio, about 1735. No flight plan had been filed for the flight conducted under 14 CFR Part 91.</p> <p>The pilot departed the Akron-Canton traffic pattern in N22BX, for the Akron-Fulton Airport (AKR). According to witnesses near AKR, the helicopter was observed hovering on the airport before takeoff. The helicopter departed to the north and climbed to about 200 feet, where it was observed to "wobble."</p> <p>A police officer who witnessed the accident stated:</p> <p>...I heard what sounded like an aircraft engine suddenly running at full throttle. Looking up, I observed a small helicopter two to three hundred feet off the ground. The helicopter was at an odd attitude, with the tail at a down angle and wobbling back and forth. While I watched, the craft pitched sideways to the right and began to spin out of control, with the aircraft body revolving 360 degrees about 4 times, before impact. The tail rotor appeared to be spinning slower than normal as the blades were visible instead of the usual blur. Impact was in a bulldozed field...</p> <p>Another police officer who witnessed the accident stated:</p> <p>...I saw the helicopter come across...It was swaying from left to right. It then made a U-Turn, and started to head back towards the airport. At that point it began to spin in circles and came straight down...</p> <p>The accident occurred during the hours of daylight about 41 degrees, 02 minutes north latitude, and 81 degrees, 28 minutes west longitude.</p>					
PILOT INFORMATION					
<p>The pilot, Mr. Gerald P. Nye, held a Private Pilot Certificate with ratings for airplane single engine land, rotorcraft helicopter, and instrument airplane.</p> <p>His most recent Federal Aviation Administration (FAA) Third Class Medical Certificate was issued on October 19, 1993.</p>					
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Narrative (Continued)

Mr. Nye's pilot log books revealed that he had about 2,575 hours of total flight experience, of which 417 hours were in helicopters. According to the log books, he had not logged any helicopter flight hours between April 1991, and August 30, 1995. He logged a total of 10 hours of dual instruction in the R-22, on August 30, and September 1, 1995. His estimated total flight experience in the R-22 was 13 hours, which included 3 hours that was logged on the helicopter's hobbs meter, between August 11, 1995, and the accident.

WRECKAGE INFORMATION

The helicopter wreckage was examined at the accident site on September 11 and 12, 1995. The examination revealed that all major components of the helicopter were accounted for at the scene. The helicopter came to rest upright, on a magnetic bearing of 195 degrees, on a level dirt area about 400 feet north of runway 27.

Examination of the wreckage revealed that the lower right, aft side of the fuselage, was crushed upward. The tailboom was buckled upward at the fuselage attaching point, and about 4 feet forward of the tail rotor gear box. The examination further revealed no pre-impact failure of helicopter systems or structures.

Control continuity was confirmed from the pilot's flight controls, to the cyclic, collective and tail rotor. Drive train continuity was confirmed from the engine, through the transmission, to the main rotor. Continuity was also confirmed to the tail rotor drive shaft; however, the shaft was observed to be buckled and separated near the tail rotor gear box. There were no rotational scratches on the inside tailboom paint, where the shaft end was laying against the tailboom.

The main rotor blades displayed symmetrical upward coning, with corresponding chord wise wrinkling. There was no leading edge damage or marks on the rotor blades. A few chord wise scratches were observed on the yellow paint, on the lower side of both blades tips. Yellow paint was observed on the white tailboom, in the vicinity of the crushed area, where the tail rotor drive shaft was separated inside the boom.

One tail rotor blade was bent over at a 90 degree angle, a few inches from the hub. Neither of the tail rotor blades displayed any chord wise scratches nor leading edge damage.

The main fuel tank was bulged outward, ruptured, and absent of fuel. The airframe fuel filter contained a few ounces of fuel. The fuel sample was tested with water finding paste and found to be absent of water.

The engine cooling fan was observed to be crushed on one side. No rotational scratches were observed. The engine was removed from the wreckage for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was performed on Mr. Gerald Nye, on September 11, 1995, by Dr. William A. Cox, Coroner of Summit County, Ohio.

Toxicological testing was conducted by the FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma.

TESTS AND RESEARCH

The engine was examined and test run at the Textron-Lycoming Facility, Williamsport, Pennsylvania, on October 31, 1995. Present during the examination were representatives from Lycoming, and the National Transportation Safety Board.

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The examination revealed that the timing of the left and right magnetos were set 4 and 5 degrees late, respectively. The carburetor fuel inlet finger screen, and the oil sump screen, were absent of debris. Due to impact damage, components replaced included the number two cylinder intake sump tube, number two and four intake pipe tubes, right magneto wiring harness, starter motor, and the carburetor pump inlet strainer housing (dome only). The engine was placed on a test stand, started, and ran within normal limits for about 30 minutes.

ADDITIONAL INFORMATION

The pilot purchased the helicopter on August 11, 1995, and helped ferry it to the Akron-Canton Airport. The pilot received the mandatory R-22 awareness training, required by SFAR 73, in West Mifflin, Pennsylvania, on August 31, and September 1, 1995. The training was not a qualification course, and the pilot did not receive a "sign-off" in the R-22. In a written statement, one of the flight instructors who flew with the pilot stated:

...I conducted the first session of his flight training...[The pilot] seemed to resent the fact that he had to take any training since he was already a rated helicopter pilot...he told me that he had 'a lot of time in the R22,' and had recently purchased one...[He] appeared knowledgeable about the operation of helicopters during the preflight briefing, but prior to liftoff, [he] asked me to 'stay close on the controls' since he did not have a lot of R22 time...By the end of the session [he] performed the awareness maneuvers satisfactorily...During the post flight briefing...I also discussed the differences between the R22 and the other helicopters that he had flown (especially in respect to rotor inertia), and recommended that when he returned to Akron he should seek additional training in the R22, especially since he did not appear from his logbooks to have much recent helicopter time. (Although [he] claimed he was current in helicopters, the last logbook he could produce showed no helicopter time since 1991)...As [he] was preparing to leave, [the flight school owner] strongly recommended that he receive more training at his home base...

In a written statement, the owner of the flight school stated:

...[The pilot] requested and received the ten hours of dual instruction required by SFAR 73...We trained him without the governor turned on, since he stated that his aircraft was not equipped. I recommended strongly that he have a governor installed...I recommended further that he seek out a local instructor, or return to us for more training prior to operating his aircraft...

The pilot's log books revealed that his helicopter flight experience was as follows:

Type Helicopter	Total Hours	Bell 47-----355
Enstrom F-28-----	49	Robinson R-22-----13

The pilot's log books also revealed a statement by a flight instructor that stated, "Needs additional work on basic aircraft control, settling with power, approach terminations, RPM-manual coordination." The pilot's total helicopter flight experience at that time was about 370 hours.

The helicopter, N22BX, was not equipped with an RPM Governor. According to the Robinson R-22 systems description:

The governor senses engine RPM changes and applies corrective input forces to the throttle; when RPM is low, it tends to increase the throttle and vice versa...The governor is designed to assist the pilot in controlling the RPM in the normal operating range...

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A review of the Robinson R-22 awareness training, revealed that of the 7 segments, 1 segment dealt with "Low RPM Rotor Stall," and another dealt with "Energy Management and Rotor RPM Decay."

A Robinson Helicopter Safety Notice, SN-10, discussed Low Rotor Stall. The Safety Notice stated:

...every pilot must have his reflexes conditioned so he will instantly add throttle and lower collective to maintain RPM in any emergency...Power available from the engine is directly proportional to RPM. If the RPM drops 10%, there is 10% less power. With less power, the helicopter will start to settle, and if the collective is raised to stop it from settling, the RPM will be pulled down even lower, causing the ship to settle even faster. If the pilot not only fails to lower collective, but instead pulls up on the collective to keep the ship from going down, the rotor will stall almost immediately. When it stalls, the blades will either "blow back" and cut off the tail cone or it will just stop flying, allowing the helicopter to fall at an extreme rate...

The helicopter wreckage was released on September 12, 1995, to the AKR airport manager. The wreckage and engine were released to Dr. Richard Simmons, the owners son, on October 31, 1995.

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Landing Facility/Approach Information					
Airport Name AKRON-FULTON INTL	Airport ID: AKR	Airport Elevation 1068 Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown:					
VFR Approach/Landing:					
Aircraft Information					
Aircraft Manufacturer ROBINSON	Model/Series R-22 BETA /R-22 BETA		Serial Number 1050		
Airworthiness Certificate(s): Normal					
Landing Gear Type: Skid					
Amateur Built Acft? No	Number of Seats: 2	Certified Max Gross Wt.	1370 LBS	Number of Engines: 1	
Engine Type: Reciprocating	Engine Manufacturer: LYCOMING	Model/Series: O-320-B2C	Rated Power: 160 HP		
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 06/1995	Time Since Last Inspection 49 Hours	Airframe Total Time 2831 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type No	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner GERALD P. NYE	Street Address PO BOX 4393				
	City AKRON	State OH	Zip Code 44321		
Operator of Aircraft GERALD P. NYE	Street Address PO BOX 4393				
	City AKRON	State OH	Zip Code 44321		
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Personal					
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First Pilot Information																																																																																															
Name		City		State	Date of Birth	Age																																																																																									
On File		On File		On File	On File	61																																																																																									
Sex: M	Seat Occupied: Right	Occupational Pilot? Retired		Certificate Number: On File																																																																																											
Certificate(s): Private																																																																																															
Airplane Rating(s): Single-engine Land																																																																																															
Rotorcraft/Glider/LTA: Helicopter																																																																																															
Instrument Rating(s): Airplane																																																																																															
Instructor Rating(s): None																																																																																															
Current Biennial Flight Review?																																																																																															
Medical Cert.: Class 3		Medical Cert. Status: Valid Medical--w/ waivers/lim.		Date of Last Medical Exam: 10/1993																																																																																											
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>2575</td> <td>13</td> <td>2158</td> <td></td> <td>405</td> <td>60</td> <td>82</td> <td>417</td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>2511</td> <td>3</td> <td>2134</td> <td></td> <td></td> <td></td> <td></td> <td>376</td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instruction Received</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>37</td> <td>13</td> <td>24</td> <td></td> <td></td> <td></td> <td></td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>14</td> <td>13</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	2575	13	2158		405	60	82	417			Pilot In Command(PIC)	2511	3	2134					376			Instructor											Instruction Received											Last 90 Days	37	13	24					13			Last 30 Days	14	13	1					13			Last 24 Hours										
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes		Second Pilot? No																																																																																									
Flight Plan/Itinerary																																																																																															
Type of Flight Plan Filed: None																																																																																															
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CANTON		OH	CAK	1735	EDT																																																																																										
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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
CAK	1820	EDT	1228 Ft. MSL	7 NM	180 Deg. Mag.
Sky/Lowest Cloud Condition: Clear				0 Ft. AGL	Condition of Light: Day
Lowest Ceiling: None			0 Ft. AGL	Visibility: 10 SM	Altimeter: 30.00 "Hg
Temperature: 17 °C		Dew Point: 4 °C	Weather Conditions at Accident Site: Visual Conditions		
Wind Direction: 10		Wind Speed: 8		Wind Gusts:	
Visibility (RVR): 0 Ft.		Visibility (RVV) 0 SM			
Precip and/or Obscuration:					

Accident Information					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL	
First Pilot	1				1	
Second Pilot						
Student Pilot						
Flight Instructor						
Check Pilot						
Flight Engineer						
Cabin Attendants						
Other Crew						
Passengers						
- TOTAL ABOARD -	1				1	
Other Ground	0	0	0		0	
- GRAND TOTAL -	1	0	0		1	

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Administrative Information		
Investigator-In-Charge (IIC) ROBERT L. PEARCE		
Additional Persons Participating in This Accident/Incident Investigation: JAMES DAVIDSON CLEVELAND, OH SHERWOOD BRESLER TORRANCE, CA		
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