



National Transportation Safety Board Aviation Accident Final Report

Location:	GALLUP, NM	Accident Number:	DEN00LA001
Date & Time:	10/01/1999, 0645 MDT	Registration:	N716JB
Aircraft:	GRAY ROTORWAY EXEC	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

The pilot remained in the traffic pattern to practice touch and go landings. At approximately the point where the helicopter would turn onto the base leg, rotor rpm began to decay (95%). The pilot turned towards the runway and began autorotation. During the descent, the pilot managed to avoid houses and powerlines. The helicopter struck the ground tail first, then rolled over on its left side. The engine was later functionally tested and, despite impact damage to the crankshaft, operated normally.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot inadvertently allowing main rotor rpm to decay while avoiding obstacles during an emergency autorotation following a loss of power for reasons undetermined. Factors were houses and powerlines.

Findings

Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: APPROACH - VFR PATTERN - BASE TURN

Findings

1. AUTOROTATION - PERFORMED - PILOT IN COMMAND
2. REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Findings

3. OBJECT - RESIDENCE
4. ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND
5. OBJECT - WIRE, TRANSMISSION

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - EMERGENCY

Factual Information

On October 1, 1999, approximately 0645 mountain daylight time, a Gray Rotorway Executive homebuilt helicopter, N716JB, registered to and operated by the pilot, was destroyed when it collided with terrain during descent at Gallup, New Mexico. The solo student pilot was seriously injured. Visual meteorological conditions prevailed, and no flight plan had been filed for the instructional flight being conducted under Title 14 CFR Part 91. The flight originated at Gallup, New Mexico, approximately 0630.

In his accident report, the pilot said he intended on remaining in the traffic pattern to practice touch and go landings. He had purposely planned the early morning flight because the "wind is usually calm and density altitude is lowest, giving the helicopter best performance capabilities." The flight was uneventful until the helicopter reached the point where the pilot would turn from downwind to base leg, and he noticed the "rotor rpm was low (95%)." He turned the helicopter towards the runway and "lowered collective [to] stabilize rotor rpm." At this point, "the engine failed." He "lowered collective [control] all the way down, [pushed] the cyclic [control] forward, and began autorotation." The helicopter descended toward houses, so he "extended [the descent path] by pulling collective." Rotor rpm fell to 80%. The pilot headed towards a small open field but as he descended to 100 feet agl (above ground level), he noticed powerlines ahead. He did a "second extension," and power dropped to 60%. Approximately 30 feet agl, he pulled the nose up and added full up collective to arrest the descent. The helicopter struck the ground tail first, then rolled over on its left side.

In December 1999, the engine was functionally tested at the facilities of Rotorway in Chandler, Arizona. Despite impact damage to the crankshaft, the engine operated normally.

Pilot Information

Certificate:	Student	Age:	51, Male
Airplane Rating(s):	None	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	03/30/1998
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	158 hours (Total, all aircraft), 155 hours (Total, this make and model), 127 hours (Pilot In Command, all aircraft), 14 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	GRAY	Registration:	N716JB
Model/Series:	ROTORWAY EXEC ROTORWAY E	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	EXEC-3000
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	09/18/1999, Annual	Certified Max Gross Wt.:	1450 lbs
Time Since Last Inspection:	10 Hours	Engines:	1 Reciprocating
Airframe Total Time:	140 Hours	Engine Manufacturer:	Rotorway
ELT:	Not installed	Engine Model/Series:	RW-152
Registered Owner:	JIM R. GRAY	Rated Power:	152 hp
Operator:	JIM R. GRAY	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Dawn
Observation Facility, Elevation:	GUP, 6469 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0650 MDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	15 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	Calm /	Turbulence Type Forecast/Actual:	/
Wind Direction:		Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	-1°C / -2°C
Precipitation and Obscuration:			
Departure Point:	, NM (GUP)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0630 MDT	Type of Airspace:	Class E

Airport Information

Airport:	GALLUP MUNICIPAL (GUP)	Runway Surface Type:	Asphalt
Airport Elevation:	6469 ft	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	7312 ft / 100 ft	VFR Approach/Landing:	Touch and Go

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	ARNOLD W SCOTT	Report Date:	06/21/2000
Additional Participating Persons:	WILLIAM E REISEN; ALBUQUERRQUE, NM		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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