Aviation Investigation Final Report

Location:	Flagstaff, Arizona	**Accident Number:**	LAX06LA247
Date & Time:	July 28, 2006, 06:00 Local	**Registration:**	N74780
Aircraft:	Robinson R44	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The helicopter collided with trees and rolled over during an emergency landing. About 9 nautical miles south of the departure airport, the pilot encountered a lowering layer of overcast clouds, and was unable to maintain level flight. He performed an autorotation into a clearing from about 100 feet above ground level. The helicopter touched down on a slight incline. The tips of the rotor blades struck the ground and a tree, causing the helicopter to roll over onto its right side. The departing airport Automated Surface Observing System reported that the sky condition at takeoff was 800 feet overcast. Mountainous terrain surrounded the airport.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's inadequate preflight planning decision to take off under a low ceiling into an area of mountainous terrain that resulted in an encounter with lowering clouds and forced the pilot to land in unfavorable terrain.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE - NORMAL

Findings
1. (F) WEATHER CONDITION - LOW CEILING
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND

3. (C) FLIGHT INTO KNOWN ADVERSE WEATHER - INITIATED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
4. AUTOROTATION - ATTEMPTED - PILOT IN COMMAND
5. (F) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED - PILOT IN COMMAND
6. TERRAIN CONDITION - MOUNTAINOUS/HILLY
7. TERRAIN CONDITION - UPHILL
8. OBJECT - TREE(S)

Occurrence #3: ROLL OVER
Phase of Operation: EMERGENCY LANDING

Factual Information

On July 28, 2006, about 0600 mountain standard time, a Robinson R44, N74780, collided with trees during an emergency landing near Flagstaff, Arizona. The pilot/operator was operating the helicopter under the provisions of 14 CFR Part 91. The private pilot sustained minor injuries; the helicopter sustained substantial damage. The cross-country personal flight departed Flagstaff Pulliam Airport, Flagstaff, Arizona, about 0555, with a planned destination of Phoenix Deer Valley Airport, Phoenix, Arizona. Instrument meteorological conditions prevailed, and no flight plan had been filed.

The pilot submitted a written report. He departed Flagstaff Pulliam Airport on the 185-degree radial of the Flagstaff very high frequency omni-directional radio range (VOR). About 9 nautical miles south of the airport, he encountered a lowering cloud layer, and could not maintain level flight. He decided to perform an autorotation into a clearing from about 100 feet above ground level. The helicopter touched down on its skids, but the landing area was slightly inclined. The tips of the rotor blades struck the ground and then hit a tree, causing the helicopter to roll over onto its right side.

The Flagstaff Pulliam Airport Automated Surface Observing System reported that the sky condition at 0556 was 800 feet overcast.

The airframe and engine had about 92 hours since new. The FAA, Robinson, and Textron Lycoming were parties to the investigation.

Investigators examined the wreckage at the Robinson factory under the supervision of the National Transportation Safety Board investigator-in-charge.

The engine remained attached to the airframe by the engine mount. The engine had sustained mechanical damage to the exhaust system, which had been displaced upward. Visual examination of the engine revealed no evidence of preimpact catastrophic mechanical malfunction or fire.

Investigators removed the bottom spark plugs. They rotated the crankshaft by hand utilizing a wrench at the cooling fan bolt. The crankshaft was free and easy to rotate in both directions. They obtained thumb compression in proper firing order on all six cylinders. They established mechanical continuity throughout the rotating/reciprocating group and accessory section. All spark plugs were clean with no mechanical deformation. The spark plug electrodes were gray, which corresponded to normal operation according to the Champion Aviation Check-A-Plug AV-27 Chart. The investigators reinstalled the spark plugs, and attached their respective leads.

Robinson personnel removed the engine from the airframe, and installed it onto a test cell

dynamometer. A technician started the engine with the starter using standard procedures. The oil pressure indicated within the normal operating range at the test cell control panel oil pressure gauge. The engine driven fuel pump delivered a fuel pressure indication within the normal operating range. Once the engine was at operating temperature, the technician advance the throttle to about 1,600 rpm, at which time he checked the magnetos utilizing the test cell mounted ignition switch. Both magnetos operated within manufacturer's specifications. The magneto check produced a smooth 50 to 60 rpm drop at each detent. The engine ran smoothly during the operational check, and exhibited no anomalies, and no fuel or oil leaks. According to the Robinson Helicopter Company test cell operator, the subject engine reached all prescribed performance parameters. The test cell sheet has been attached for reference. He shut the engine down, which completed the test.

Pilot Information

Certificate:	Private	**Age:**	73,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3	**Last FAA Medical Exam:**	March 1, 2005
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 1, 2006
Flight Time:	2000 hours (Total, all aircraft), 87 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Robinson	**Registration:**	N74780
Model/Series:	R44	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	11052
Landing Gear Type:	Skid	**Seats:**	4
Date/Type of Last Inspection:	June 1, 2006 Annual	**Certified Max Gross Wt.:**	2500 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	92 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-540
Registered Owner:	Western Consulting, Inc.	**Rated Power:**	230
Operator:	Donald R. Schwartz	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Dawn
Observation Facility, Elevation:	FLG,7000 ft msl	**Distance from Accident Site:**	9 Nautical Miles
Observation Time:	05:56 Local	**Direction from Accident Site:**	5°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 800 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.28 inches Hg	**Temperature/Dew Point:**	17°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Flagstaff, AZ (FLG)	**Type of Flight Plan Filed:**	None
Destination:	Phoenix, AZ (DVT)	**Type of Clearance:**	None
Departure Time:	05:55 Local	**Type of Airspace:**	

Airport Information

Airport:	Flagstaff Pulliam Airport FLG	**Runway Surface Type:**	
Airport Elevation:	7011 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	35,-111.583335

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	Bill Sapp; Federal Aviation Administration ; Scottsdale, AZ
Original Publish Date:	November 29, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64214