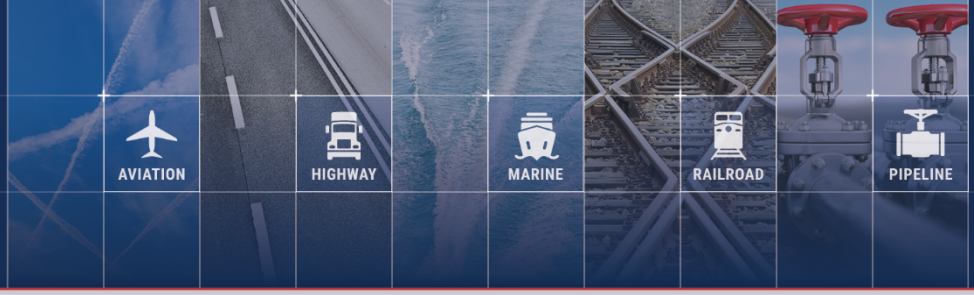

Aviation Investigation Final Report

Location:	Ahwahnee, California	**Accident Number:**	WPR11LA469
Date & Time:	September 27, 2011, 10:30 Local	**Registration:**	N9158R
Aircraft:	Bell 47D1	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot and mechanic were on a local area flight to warm the oil before changing the oil lines. As they returned, the pilot slowed the helicopter and initiated a gradual descent to the landing site. The main rotor rpm decreased. As they continued the descent, the clearance from the trees surrounding the landing area was minimal. The pilot attempted to avoid the trees as he tried to regain main rotor rpm. The helicopter impacted a tree and descended nose down into the terrain. According to the mechanic and pilot, they encountered no mechanical anomalies during the flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain adequate main rotor rpm during the landing approach, which resulted in a loss of control.

Findings

Aircraft	Prop/rotor parameters - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Environmental issues	Tree(s) - Contributed to outcome

Factual Information

History of Flight

Landing	Loss of control in flight (Defining event)
Landing	Collision with terr/obj (non-CFIT)

On September 27, 2011, at 1030 Pacific daylight time, a Bell 47D1, N9158R, collided with trees while descending near Ahwahnee, California. The helicopter was being operated under the provisions of Title 14 Code of Federal Regulations Part 91. The helicopter was substantially damaged. The private pilot sustained serious injuries, and the passenger sustained minor injuries. Visual meteorological conditions prevailed and no flight plan was filed. The pilot departed about 1020 for the local area flight.

The Federal Aviation Administration (FAA) accident coordinator responded to the accident site. The helicopter had impacted terrain in a nose down attitude and the tail and tail rotor systems were resting upright against a tree.

The pilot submitted a written statement on May 14, 2012. He reported that he was conducting a run on landing and the rotor revolutions per minute (RPM) decreased. He turned away from the trees hoping to recover the RPM. The helicopter then settled into a tree. He said that there were no mechanical malfunctions or failures.

In an interview with the NTSB investigator, the passenger said that he had been maintaining the helicopter for about 5 years. The owner had reported what he surmised to be a problem with the number one bearing being loose on the tail rotor drive shaft. Additionally, they had previously installed an oil filter and they were going to change the oil lines. The pilot and mechanic completed the pre-flight inspection and review and noted no problems with the tail rotor drive shaft. They decided to take the helicopter on a short flight to warm the oil. The mechanic had flown with the pilot previously and had no concerns about his operation of the helicopter.

They departed from the private landing pad which was located at the pilot's residence. They flew for about 15 minutes with no problems noted. They returned to the area of the landing pad which was surrounded by trees and terrain. The helicopter gradually descended and the mechanic told the pilot that he did not think they were going to maintain clearance from a large tree to the west of their position. About 10 yards from the tree, they were below treetop level and the power [rotor RPM] continued to decrease while the helicopter descended. The pilot attempted to pull out of the landing to avoid the tree and turned the helicopter to the right while increasing collective. The helicopter then collided with the tree. The mechanic had flown in and out of the area with the pilot multiple times. He felt on this occasion, due to the confined area there were no options to recover the helicopter prior to impact with the tree. The mechanic

indicated that no mechanical malfunctions occurred.

A witness was working as a fire lookout in Miami Mountain Fire Lookout Tower, which was located about 1 mile from the accident site. She heard the helicopter and saw a cloud of dust appear. The helicopter ascended out of the dust cloud and flew approximately 500 feet above ground level down a valley. The helicopter then turned and appeared to be returning to the landing pad. The landing pad was surrounded by trees and houses. As the helicopter approached the landing pad, it made a gradual descent while almost coming to a stop. She then saw the tail move from left to right, and the helicopter quickly descended and impacted a tree. The wind was calm at the time. There was no postimpact fire. She immediately called emergency response personnel.

Pilot Information

Certificate:	Private	**Age:**	71,Male
Airplane Rating(s):	None	**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 3 Without waivers/limitations	**Last FAA Medical Exam:**	December 8, 2008
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N9158R
Model/Series:	47D1	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	455
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	June 14, 2011 Annual	**Certified Max Gross Wt.:**	2200 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	4831 Hrs as of last inspection	**Engine Manufacturer:**	FRANKLIN
ELT:	Not installed	**Engine Model/Series:**	6V4-178-B32
Registered Owner:	Lee Haley	**Rated Power:**	210 Horsepower
Operator:	Lee Haley	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KMAE,255 ft msl	**Distance from Accident Site:**	33 Nautical Miles
Observation Time:	09:53 Local	**Direction from Accident Site:**	200°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	22°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Ahwahnee, CA	**Type of Flight Plan Filed:**	None
Destination:	Ahwahnee, CA	**Type of Clearance:**	None
Departure Time:	10:20 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 1 Minor	**Latitude, Longitude:**	37.407501,-119.723335(est)

Administrative Information

Investigator In Charge (IIC):	Dunks, Kristi
Additional Participating Persons:	Bjorn Beijens; Federal Aviation Administration; Fresno, CA
Original Publish Date:	June 28, 2012
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=81906