National Transportation Safety Board
Aviation Accident Final Report

Location:	PALO ALTO, CA	**Accident Number:**	LAX00LA086
Date & Time:	02/02/2000, 1437 PST	**Registration:**	N999EV
Aircraft:	Robinson R44	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The pilot and passenger were inbound to land and the pilot requested permission to perform an autorotation, which was approved. The pilot reported that he did not think he was going to reach the runway during the autorotation so he added power. The engine failed to respond and the tail stinger contacted the ground resulting in the separation of the tail boom. The pilot pulled collective pitch; the helicopter briefly became airborne, and spun violently to the right. The pilot maintained a level attitude and the helicopter landed hard. After the rotor stopped, they exited the helicopter. The pilot stated that he should have used carburetor heat prior to the extended engine idle period of the autorotation. The temperature and dew point were in the serious icing-glide power range.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to use carburetor heat, resulting in a loss of engine power, and, his misjudged autorotation approach that resulted in a collision with the ground during the landing flare. Contributing to the accident was the conditions conducive to carburetor icing.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: APPROACH

Findings
1. (F) WEATHER CONDITION - CARBURETOR ICING CONDITIONS
2. AUTOROTATION - ATTEMPTED - PILOT IN COMMAND
3. (C) CHECKLIST - NOT USED - PILOT IN COMMAND
4. (C) CARBURETOR HEAT - NOT USED - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - EMERGENCY

Findings
5. AUTOROTATION - NOT SUCCESSFUL - PILOT IN COMMAND
6. (C) PLANNED APPROACH - MISJUDGED - PILOT IN COMMAND

Factual Information

On February 2, 2000, at 1437 hours Pacific standard time, a Robinson R44, helicopter, N999EV, was substantially damaged during a practice autorotation at Palo Alto, California. Neither the commercial rated pilot nor the passenger was injured. The personal flight was operated by the pilot under 14 CFR Part 91. No flight plan was filed. Visual meteorological conditions prevailed for the operation that originated at San Carlos, California, at 1427.

The pilot reported that during the autorotation the engine had been at idle for an extended period. He said he did not think he was going to make the runway so he added power. The engine failed to respond and the tail stinger contacted the ground, resulting in the separation of the tail boom. The pilot pulled collective pitch; the helicopter briefly became airborne and spun violently to the right. The pilot maintained the helicopter in a level attitude and the landed hard. After the main rotor stopped rotating, the pilot and passenger exited the helicopter.

The pilot told the Federal Aviation Administration inspector on scene that he did not use carburetor heat during the autorotation. According to the Palo Alto METAR, the temperature was 64 degrees Fahrenheit and the dew point was 52 degrees Fahrenheit. Reference to a carburetor icing probability chart revealed that this temperature and dew point were in an area of the graph annotated "moderate icing-cruise power or serious icing-glide power."

Pilot Information

Certificate:	Commercial; Private	**Age:**	49, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	10/01/1999
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	2000 hours (Total, all aircraft), 95 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Robinson	**Registration:**	N999EV
Model/Series:	R44 R44	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Normal	**Serial Number:**	0667
Landing Gear Type:	Skid	**Seats:**	4
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:	94 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	94 Hours	**Engine Manufacturer:**	Lycoming
ELT:	Not installed	**Engine Model/Series:**	0540-F105
Registered Owner:	GARY M. LAMPERT	**Rated Power:**	235 hp
Operator:	GARY LAMPERT	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	PAO, 5 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	1437 PST	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Thin Broken / 20000 ft agl	**Visibility**	7 Miles
Lowest Ceiling:	None / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	18°C / 11°C
Precipitation and Obscuration:			
Departure Point:	SAN CARLOS, CA (SQL)	**Type of Flight Plan Filed:**	None
Destination:	PALO ALTO, CA (PAO)	**Type of Clearance:**	VFR
Departure Time:	1427 PST	**Type of Airspace:**	Class D

Airport Information

Airport:	PALO ALTO (PAO)	**Runway Surface Type:**	Asphalt
Airport Elevation:	5 ft	**Runway Surface Condition:**	Dry
Runway Used:	30	**IFR Approach:**	
Runway Length/Width:	2500 ft / 65 ft	**VFR Approach/Landing:**	Simulated Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	GEORGE E PETTERSON	**Report Date:**	05/09/2001
Additional Participating Persons:	JIM FRIEL; SAN JOSE, CA		
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.ntsb.gov/pubdms/.		