National Transportation Safety Board
Aviation Accident Final Report

Location:	DELHI, CA	**Accident Number:**	LAX99LA293
Date & Time:	09/01/1999, 0615 PDT	**Registration:**	N59551
Aircraft:	Bell 206B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot reported that the engine rpm began decreasing during the takeoff climb, about 200 to 300 feet agl, while he was over a grove of trees. He extended his autorotative glide to make it past the trees, which resulted in a further decrease of main rotor rpm. The helicopter landed hard, about 20 to 30 miles per hour of forward velocity, and rolled over. Postcrash examination by a FAA inspector revealed no evidence of mechanical malfunction; however, the fluid found in the airframe fuel filter and mechanical fuel pump screen was noted to be about 90 percent water. About 30 percent of the fluid found in the Ceco fuel system screen was also water. The FAA inspector reported that the fuel cap was loose in the opening and did not appear to seal properly; the shaft seal was worn in the cap and the cap locking mechanism was not adjusted properly. When the fuel cap was removed, the inspector noted that the bottom of the fuel filler opening was deformed from the fuel nozzles being inserted in the opening. The pilot reported that he had washed the helicopter the night before the accident. He further reported that during the preflight he had drained fuel from the airframe fuel filter and fuel sump and hadn't noted any water or contaminants.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the pilot's inadequate preflight, which failed to detect water contamination of the fuel system. The operator's inadequate maintenance of the loose fitting fuel cap and the deformed filler opening, which allowed water to leak into the fuel tank, were also causal. A factor in the accident was the trees along the autorotative flight path, which required the pilot to stretch the glide and resulted in a low main rotor rpm situation for the landing flare.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (C) FUEL SYSTEM,CAP - LEAK
2. (C) MAINTENANCE,REPLACEMENT - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
3. (C) FLUID,FUEL - CONTAMINATION,WATER
4. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
5. (F) OBJECT - TREE(S)
6. (F) PROPER GLIDEPATH - NOT POSSIBLE - PILOT IN COMMAND
7. (F) ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #4: ROLL OVER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Factual Information

On September 1, 1999, at 0615 hours Pacific daylight time, a Bell 206B, N59551, lost engine power about 1/2-mile after takeoff and force landed in a field in Delhi, California. The helicopter, operated by Bettencourt Flying Service, Inc., Delhi, was substantially damaged during the hard landing. The commercial pilot was not injured. The local aerial application flight was conducted under the provisions of 14 CFR Part 137 and originated from a private airstrip at 0605. Visual meteorological conditions prevailed and no flight plan was filed.

The pilot reported that the night before the accident, he washed the helicopter and then stored it for the night. He stated that on the morning of the accident, he completed the preflight inspection, during which he drained fuel from the airframe fuel filter and the fuel sump. He reported that he didn't note any water or contaminants in the fuel. The pilot stated that he started the engine and, after 5 minutes of warm-up, he lifted off and performed a pass down the runway before departing to the southeast. He reported that he was still in the initial takeoff climb, about 200 to 300 feet agl and about 1/3-mile off the end of the runway, when he heard the engine begin to unspool. He checked the rotor and engine tachometer and noticed that the rpm was decreasing. The pilot stated that the throttle was fully opened and he verified that the fuel valve was open. He was over a grove of almond trees as he began an emergency descent. He reported that he had to alter the angle of descent to make it past the trees, which resulted in further decrease of main rotor rpm. The pilot stated that the low rpm warning horn was sounding as he impacted the ground. He estimated that his speed on impact was approximately 20 to 30 miles per hour. The landing gear collapsed and the main rotor blades severed the tail boom. The helicopter came to rest on its left side.

A Federal Aviation Administration inspector from the Fresno Flight Standards District Office responded to the accident site and examined the aircraft and powerplant. He stated that the throttle and governor linkage appeared to function normally. He inspected the turbine wheel through the exhaust stack and noted no abnormalities. The engine rotated freely.

The inspector removed the airframe fuel filter and noted that approximately 90 percent of the fluid in the filter was water. Further, approximately 90 percent of the fluid found in the mechanical fuel pump screen and about 30 percent of the fluid from the Ceco fuel system screen was also water. He reported that the fuel cap did not appear to seal properly; the cap could be moved in the opening even when locked. He stated that it appeared that the shaft seal was worn in the cap and the cap locking mechanism was not adjusted properly. When the fuel cap was removed, the inspector noted that the bottom of the fuel tank opening was deformed in a dimensional shape that corresponded to the fuel nozzles used by the operator to refuel the helicopter.

Pilot Information

Certificate:	Commercial	**Age:**	36, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**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--w/ waivers/lim.	**Last FAA Medical Exam:**	12/18/1998
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	10000 hours (Total, all aircraft), 1000 hours (Total, this make and model), 9888 hours (Pilot In Command, all aircraft), 100 hours (Last 90 days, all aircraft), 60 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N59551
Model/Series:	206B 206B	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Restricted	**Serial Number:**	1392
Landing Gear Type:	Skid	**Seats:**	5
Date/Type of Last Inspection:	09/04/1998, Annual	**Certified Max Gross Wt.:**	3200 lbs
Time Since Last Inspection:	89 Hours	**Engines:**	1 Turbo Shaft
Airframe Total Time:	10263 Hours	**Engine Manufacturer:**	Allison
ELT:	Installed, not activated	**Engine Model/Series:**	250-C20
Registered Owner:	BETTENCOURT FLYING SERVICE INC	**Rated Power:**	400 hp
Operator:	BETTENCOURT FLYING SERVICE INC	**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	PWFG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Dawn
Observation Facility, Elevation:	MCE, 156 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	0553 PDT	**Direction from Accident Site:**	120°
Lowest Cloud Condition:	Scattered / 10000 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	Unknown / 0 ft agl	**Visibility (RVR):**	0 ft
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	320°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	11°C / 7°C
Precipitation and Obscuration:			
Departure Point:		**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	0605 PDT	**Type of Airspace:**	Class E

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	NOELANI MARS	**Report Date:**	05/09/2001
Additional Participating Persons:	RICK ROBINETTE; FRESNO, 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/.		