Aviation Investigation Final Report

Location:	Chester, California	**Accident Number:**	LAX04TA264
Date & Time:	May 24, 2004, 20:30 Local	**Registration:**	N362EH
Aircraft:	Bell 212HP	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Public aircraft		

Analysis

The helicopter's main rotor blade made contact with the upper wire cutter device during an attempted landing on a sloped landing zone. Upon arriving at the landing zone, the pilot selected an area to land clear from other aircraft and began the descent toward rough terrain with a slope of about 8 to 9 degrees. As the helicopter settled onto the skids, the nose pitched upward and the helicopter slid backward. The pilot quickly increased the collective and moved the cyclic forward in an effort to reestablish the hover. The helicopter began to stabilize in the hover and the pilot felt a shudder and heard a corresponding thump sound. The pilot landed in a different area and noted that it appeared that a portion of the skid had dug into the terrain. A main rotor blade had impacted the upper wire cutter device, leaving the blade damaged beyond repair. The owner reported no preimpact mechanical malfunctions or failures with the helicopter.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's excessive use of the cyclic and collective controls in response to the helicopter's unexpected rocking motion, which led to a main rotor contact with the upper wire cutter mounted on the cabin roof. A factor in the accident was the rough, sloping nature of the landing zone chosen for the firebase.

Findings

Occurrence #1: MISCELLANEOUS/OTHER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. (F) TERRAIN CONDITION - ROUGH/UNEVEN
2. (F) TERRAIN CONDITION - UPHILL
3. (C) ROTOR SYSTEM,MAIN ROTOR BLADE - PERFORATED
4. (C) ROTORCRAFT FLIGHT CONTROLS - IMPROPER USE OF - PILOT IN COMMAND

Factual Information

On May 24, 2004, about 2030 Pacific daylight time, a Bell 212HP, N362EH, main rotor blade made contact with the upper wire cutter device during an attempted landing near Chester, California. The helicopter was registered to Era Aviation, Inc., and operated by the United States Forest Service as a public-use flight under the provisions of 14 CFR Part 133. The airline transport pilot, the sole occupant, was not injured; the helicopter sustained substantial damage. The local flight departed Chester Fire Base, Chester, at an unknown time for the purpose of firefighting operations. Visual meteorological conditions prevailed and a company visual flight rules (VFR) flight plan had been filed.

In a written statement, Era Aviation Inc., reported that the purpose of the flight was for the pilot to execute a water drop via the use of a 100-foot line with a Bambi bucket attached. After an uneventful drop, the pilot was instructed to touchdown at a landing zone (LZ) that had been previously been cleared. Upon arriving at the LZ, the pilot selected an area to land clear from other aircraft and began the descent toward rough terrain with a slope of about 8 to 9 degrees. As the helicopter touched down facing up the slope, the pilot lowered the collective, resulting in the helicopter rocking backward.

As the helicopter rocked backward, the pilot increased the collective in an effort to relocate to a level area and attempt the landing again. He repositioned the helicopter forward and touched down again, while lowering the collective and centering the cyclic. As the helicopter settled onto the skids, the nose pitched upward and the helicopter slid backward. The pilot quickly increased the collective and moved the cyclic forward in an effort to reestablish the hover. As the helicopter began to stabilize in the hover, the pilot felt a "shutter" and heard a corresponding "thump."

The pilot elected to land in a different area and shut down the engine. Upon exiting the helicopter, the pilot noted that it appeared that a portion of the skid had dug into the terrain. He did not complete a further examination of the helicopter because he did not think it incurred damage during the landing. He loaded the helicopter and returned back to Chester Fire Base without mishap.

During a routine daily inspection, the operator's aviation maintenance technician found that one of the main rotor blades was damaged. He noted that the blade appeared to have come into contact with the upper wire cutter device. The damaged blade was sent to Bell Helicopter for repair. They reported that the subject blade was damaged beyond repair.

Era Aviation Inc., reported no preimpact mechanical malfunctions or failures with the helicopter. They further stated that they had contracted the helicopter to the U. S. Forest Service. On this particular flight, the U. S. Forest Service had subcontracted the helicopter out

to the California Department of Forestry for firefighting operations.

Pilot Information

Certificate:	Airline transport	**Age:**	51,Male
Airplane Rating(s):	None	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 12, 2004
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 18, 2004
Flight Time:	8730 hours (Total, all aircraft), 4375 hours (Total, this make and model), 6275 hours (Pilot In Command, all aircraft), 33 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N362EH
Model/Series:	212HP	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	30853
Landing Gear Type:	Skid	**Seats:**	11
Date/Type of Last Inspection:	June 29, 2004 Continuous airworthiness	**Certified Max Gross Wt.:**	11200 lbs
Time Since Last Inspection:	29.1 Hrs	**Engines:**	2 Turbo shaft
Airframe Total Time:	11309.1 Hrs as of last inspection	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6T-3B
Registered Owner:	Era Helicopters Inc.	**Rated Power:**	1800 Horsepower
Operator:	United States Forest Service	**Operating Certificate(s) Held:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Dusk
Observation Facility, Elevation:	RBL	**Distance from Accident Site:**	
Observation Time:	19:54 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.79 inches Hg	**Temperature/Dew Point:**	21°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Chester, CA (O05)	**Type of Flight Plan Filed:**	Company VFR
Destination:		**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	Class G

Airport Information

Airport:	Chester Fire Base	**Runway Surface Type:**	Dirt;Grass/turf
Airport Elevation:	4526 ft msl	**Runway Surface Condition:**	Dry;Rough;Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	40.306388,-121.230834

Administrative Information

Investigator In Charge (IIC):	Petterson, George
Additional Participating Persons:	
Original Publish Date:	July 7, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=59662