Aviation Investigation Final Report

Location:	Stockton, California	**Accident Number:**	WPR11LA244
Date & Time:	June 1, 2011, 16:20 Local	**Registration:**	N68012
Aircraft:	Hiller UH-12E	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

The pilot initially reported that he was conducting low level agricultural drying of cherry trees when the tail rotor contacted a tree during a turn. He felt a shake or vibration through the controls and looked for a place to land. He was maneuvering the helicopter towards a road when the helicopter experienced a full left yaw. The pilot applied full right pedal to counter the yawing motion and entered autorotation through the trees to the ground. Subsequently the pilot revised his statement saying that the skids of his helicopter were at least 10-15 feet above the tallest tree when he felt a shake or vibration through the controls. Postaccident examination of the airplane by a mechanic and a FAA inspector found continuity between the tail rotor and the linkages through the drive train which lead to the main transmission. Control system continuity was also established. The tail boom near the tail rotor transmission was twisted clockwise, shearing the aluminum, which is consistent with a tail rotor imbalance condition. Tail rotor blade #1 was sheared off about one quarter of the distance between the blade root and the blade tip, and rotor blade #2 had compression deformation of the trailing edge near the blade root. The sheared off portion of tail rotor blade #1 was located in the orchard. Visual inspection found a circular impact deformation in the leading edge at the blade tip, separation of the blade tip weight from the blade, deformation of the blades surface area, and compression bending of the blade's trailing edge. The damage to blade #1 was consistent with an impact to a tree limb.

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 clearance from obstacles.

Findings

Personnel issues	Attention - Pilot
Personnel issues	Aircraft control - Pilot
Environmental issues	Tree(s) - Response/compensation
Personnel issues	Monitoring environment - Pilot

Factual Information

History of Flight

Maneuvering-low-alt flying	Collision with terr/obj (non-CFIT)
Maneuvering-low-alt flying	Loss of control in flight (Defining event)
Maneuvering-low-alt flying	Off-field or emergency landing
Landing-flare/touchdown	Collision with terr/obj (non-CFIT)

On June 1, 2011, about 1620 Pacific daylight time (PDT), a Hiller UH-12E, N68012, performed an emergency autorotation into a grove of cherry trees while performing low level agricultural operations near Stockton, California. Alpine Helicopter's was operating the helicopter under the provisions of 14 Code of Federal Regulations (CFR) Part 137. The commercial pilot was not injured and the aircraft sustained substantial damage. Visual meteorological conditions prevailed at the time for the local area agricultural flight.

The pilot initially reported that he was conducting low level agricultural drying of cherry trees when the tail rotor struck a tree during a turn. Later in the week the pilot revised his statement saying that the skids of his helicopter were at least 10-15 feet above the tallest tree when he felt a shake or vibration through the control surfaces. He looked for a place to land and was maneuvering the helicopter towards a road when the helicopter experienced a full left yaw. The pilot applied full right pedal to counter the yawing motion and entered autorotation through the trees to the ground. The main rotor blade, tail rotor blade, tail boom, front fuselage, skids, and the undercarriage of the helicopter were substantially damaged. The pilot did not report any emergency alarms or cautionary lights accompanying the accident sequence and sustained no injuries on impact.

Post accident examination of the aircraft by a mechanic and a FAA inspector found continuity between the tail rotor and the linkages through the drive train which lead to the main transmission. Control system continuity was also established. The tail boom near the tail rotor transmission was twisted clockwise, shearing the aluminum. Tail rotor blade #1 was sheared off about one quarter of the distance between the blade root and the blade tip, and rotor blade #2 had compression deformation of the trailing edge near the blade root. The sheared off portion of tail rotor blade #1 was located in the orchard. Visual inspection found a circular impact deformation in the leading edge at the blade tip, separation of the blade tip weight from the blade, deformation of the blades surface area, and compression bending of the blade's trailing edge.

Pilot Information

Certificate:	Commercial	**Age:**	31,Male
Airplane Rating(s):	None	**Seat Occupied:**	Center
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 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 14, 2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 20, 2010
Flight Time:	2382 hours (Total, all aircraft), 1375 hours (Total, this make and model), 2294 hours (Pilot In Command, all aircraft), 70 hours (Last 90 days, all aircraft), 27 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hiller	**Registration:**	N68012
Model/Series:	UH-12E	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility; Restricted (Special)	**Serial Number:**	1500
Landing Gear Type:	Skid	**Seats:**	3
Date/Type of Last Inspection:	March 11, 2011 100 hour	**Certified Max Gross Wt.:**	2800 lbs
Time Since Last Inspection:	66 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	7316 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	V0-540
Registered Owner:	DOZHIER JOEL C	**Rated Power:**	305 Horsepower
Operator:	Alpine Helicopter Service, Inc.	**Operating Certificate(s) Held:**	
Operator Does Business As:		**Operator Designator Code:**	LWZG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 6000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 9000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.92 inches Hg	**Temperature/Dew Point:**	18°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Lodi, CA (l53)	**Type of Flight Plan Filed:**	None
Destination:	Lodi, CA (l53)	**Type of Clearance:**	None
Departure Time:	14:00 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	Lodi Airport L53	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

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:**	38.091388,-121.359169(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jefferey
Additional Participating Persons:	David T Jensen; Federal Aviation Administration; Oakland, CA
Original Publish Date:	August 30, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=79286