



# Aviation Investigation Final Report

<b>Location:</b>	Tracy, California	<b>Accident Number:</b>	LAX01LA255
<b>Date &amp; Time:</b>	July 21, 2001, 11:55 Local	<b>Registration:</b>	N5015V
<b>Aircraft:</b>	Hughes 269C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Instructional		

## Analysis

The flight instructor stated that he was demonstrating an autorotation to his student when the accident occurred. He said that he initiated a straight in autorotation to runway 30 at 600 feet above ground level (agl). The descent rate was stabilized until 200 feet agl, when he felt a sudden increase in the rate of descent. He began the flare at 50 feet agl. He stated that the vertical speed did not decrease at the rate he was accustomed to, resulting in a hard landing. He stated that the tail boom hit the ground first in a right yawing moment. The helicopter then rolled to the right, crushing the right skid, severing the tail boom, and allowing the rotor blades to contact the ground. He noted that no mechanical problems existed with the helicopter during the flight. He did not notice any mechanical anomalies during the autorotation demonstration. He stated that the engine was running normally during the autorotation and the landing flare. The pilot stated that wind shear may have been a factor. He had observed the winds to be from the northwest at 8 knots, and gusts to 12 knots with light turbulence.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's misjudgement of the landing flare during an autorotation demonstration. Factors were shifting winds and an excessive descent rate.

## Findings

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

Findings

1. (F) WEATHER CONDITION - SUDDEN WINDSHIFT
2. (F) DESCENT - EXCESSIVE - PILOT IN COMMAND(CFI)

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

3. AUTOROTATION - PERFORMED - PILOT IN COMMAND
4. (C) FLARE - MISJUDGED - PILOT IN COMMAND

## Factual Information

On July 21, 2001, at 1155 hours Pacific daylight time, a Hughes 269C, N5015V, was substantially damaged when it landed hard and rolled over during an autorotation for training purposes, at the New Jerusalem Airport, Tracy, California. The flight instructor and dual student were not injured. Visual meteorological conditions prevailed for the instructional flight conducted under 14 CFR Part 91 by Advanced Aviation, Stockton, California. The helicopter departed Stockton Metropolitan Airport approximately 1045, and no flight plan was filed.

The flight instructor stated that he was demonstrating an autorotation to his student when the accident occurred. He said that he initiated a straight in autorotation to runway 30 at the New Jerusalem airport at 600 feet above ground level (agl). The descent rate was stabilized until 200 feet agl, when he felt a sudden increase in the rate of descent. He began the flare at 50 feet agl. He stated that the vertical speed did not decrease at the rate he was accustomed to, causing the helicopter to land hard. He stated that the tail boom hit the ground first in a right yawing moment. The helicopter then rolled to the right, crushing the right skid, severing the tail boom, and allowing the rotor blades to contact the ground. He noted that no mechanical problems existed with the helicopter during the flight. He did not notice any mechanical anomalies during the autorotation demonstration. He stated that the engine was running normally during the autorotation and the landing flare. The pilot stated that wind shear may have been a factor. He had observed the winds to be from the northwest at 8 knots, and gusts to 12 knots with light turbulence.

According to the pilot, he had a total flight time of 2,100 hours, of which 650 hours were in helicopters. He had 300 hours of flight experience in this make and model prior to the accident, 6 of which were in the last 30 days. The student had a total of 1,750 hours, of which 1,210 were in helicopters. He had 50 hours in this make and model.

## Pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	34, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	June 1, 2001
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	September 1, 2000
<b>Flight Time:</b>	2100 hours (Total, all aircraft), 300 hours (Total, this make and model), 1900 hours (Pilot In Command, all aircraft), 160 hours (Last 90 days, all aircraft), 55 hours (Last 30 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

## Student pilot Information

<b>Certificate:</b>	Airline transport; Commercial	<b>Age:</b>	32, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Rear
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	March 8, 2001
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	June 27, 2001
<b>Flight Time:</b>	1750 hours (Total, all aircraft), 50 hours (Total, this make and model), 1650 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Hughes	<b>Registration:</b>	N5015V
<b>Model/Series:</b>	269C	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	611058
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	May 22, 2001 Annual	<b>Certified Max Gross Wt.:</b>	2050 lbs
<b>Time Since Last Inspection:</b>	53.3 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	6827 Hrs at time of accident	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	H10-360-D1A
<b>Registered Owner:</b>	Advanced Aviation	<b>Rated Power:</b>	190 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	KSCK, 30 ft msl	<b>Distance from Accident Site:</b>	13 Nautical Miles
<b>Observation Time:</b>	11:56 Local	<b>Direction from Accident Site:</b>	175°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility:</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	260°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.96 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 11°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Stockton, CA (SCK)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	Tracy, CA (1Q4)	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:45 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	New Jerusalem 1Q4	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	62 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	30	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	4000 ft / 100 ft	<b>VFR Approach/Landing:</b>	Simulated forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	37.679164,-121.29972

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Cline, Steven
<b>Additional Participating Persons:</b>	Robert Smedley; Federal Aviation Administration; Oakland, CA
<b>Original Publish Date:</b>	November 28, 2001
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.ntsb.gov/Docket?ProjectID=52790">https://data.ntsb.gov/Docket?ProjectID=52790</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).