



National Transportation Safety Board Aviation Accident Final Report

Location:	LAKE WALES, FL	Accident Number:	ATL97LA067
Date & Time:	05/01/1997, 1700 EDT	Registration:	N37754
Aircraft:	Hughes 269A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None

Flight Conducted Under: Part 91: General Aviation - Instructional

Analysis

The certified flight instructor (CFI) was demonstrating a 180 degree turn autorotation with a power recovery. The CFI entered the maneuver approximately 600 feet above the ground. About 3/4 through the 180 degree turn, he noticed that the rotor speed was low. When the CFI decided to return the throttle to full power, there was no engine response. The CFI continued the approach, which resulted in a hard landing on the heel of the left skid, and the helicopter rolling over. Examination of the helicopter failed to disclose a mechanical problem or a system malfunction. During a functional check of the engine, it operated between idle and a moderated power range. Examination of the airframe disclosed that the skids were spread, and the landing gear damper assembly was fractured. According to FAA Advisory Circular, AC 61-13A, during the flare phase of an autorotation, the cyclic control should be moved forward to level the helicopter in preparation for landing. The advisory circular also stated that 'if a landing is to be made, allow the helicopter to descend vertically. Apply collective pitch smoothly to check the descent and cushion the landing.'

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: loss of engine power for undetermined reason(s); and the flight instructor's improper flare and improper use of the flight controls, while flaring for an autorotative landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER
Phase of Operation: MANEUVERING

Findings

1. (C) REASON FOR OCCURRENCE UNDETERMINED

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

2. AUTOROTATION - PERFORMED - PILOT IN COMMAND(CFI)

Occurrence #3: HARD LANDING
Phase of Operation: EMERGENCY LANDING

Findings

3. (C) FLARE - IMPROPER - PILOT IN COMMAND(CFI)
4. (C) ROTORCRAFT FLIGHT CONTROLS - IMPROPER USE OF - PILOT IN COMMAND(CFI)

Factual Information

On May 1, 1997, at 1700 eastern daylight time, a Hughes 269A helicopter, N37754, collided with the ground during an emergency landing after the engine quit at the Lake Wales Municipal Airport in Lake Wales, Florida. The training flight operated under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual weather conditions prevailed at the time of the accident. The helicopter sustained substantial damage. The dual student and the certified flight instructor were not injured. The flight departed from Lake Wales, Florida, at 1650.

The dual student stated that he was enrolled in a certificated pilot school, Sunrise Aviation, and was receiving flight training under the approved helicopter training program. During the accident training session, the flight instructor was demonstrating a 180 autorotation with a power recovery. The certified flight instructor entered the maneuver approximately 600 feet above the ground. The certified flight instructor initiated the procedure by rolling the throttle to idle and entered the simulated power off procedure. As he maneuvered the helicopter through the procedure, the engine quit. Approximately 3/4 through the 180 degree turn the certified flight instructor noticed a low rotor rpm condition. When the certified flight instructor decided to return the throttle to full power, there was no response or power increase from the engine. The certified flight instructor continued the approach and reported that the helicopter landed hard on the left heel of the left skid and rolled over.

The examination of the helicopter failed to disclose a mechanical problem or a system malfunction. During the functional examination, the engine operated between idle and the moderated power range (see attached FAA Inspector's Statement). The airframe examination disclosed that the skids were spread and the landing gear damper assembly was fractured.

According to FAA Advisory Circular, AC61-13A, during the flare phase of the autorotation, the cyclic control should be moved forward to level the helicopter in preparation for landing. The advisory circular also states that "if a landing is to be made, allow the helicopter to descend vertically. Apply collective pitch smoothly to check the descent and cushion the landing." The advisory circular also advises the pilot to avoid landing on the heels of the skid. (see attached excerpts from Advisory Circular AC 61-13A).

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	Age:	40, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane Single-engine; Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	09/30/1996
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	10000 hours (Total, all aircraft), 2000 hours (Total, this make and model), 150 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	Registration:	N37754
Model/Series:	269A 269A	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	67-1664
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	04/21/1997, 100 Hour	Certified Max Gross Wt.:	1550 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1567 Hours	Engine Manufacturer:	Lycoming
ELT:		Engine Model/Series:	HIO-360-A1A
Registered Owner:	SUN-AIR HELICOPTERS	Rated Power:	205 hp
Operator:	SUN-AIR HELICOPTERS	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LAL, 142 ft msl	Distance from Accident Site:	25 Nautical Miles
Observation Time:	1650 EDT	Direction from Accident Site:	325°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	20 Miles
Lowest Ceiling:	Unknown / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	11 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	310°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	29° C / 15° C
Precipitation and Obscuration:			
Departure Point:	(X07)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1650 EST	Type of Airspace:	Class G

Airport Information

Airport:	LAKE WALES MUNICIPAL (X07)	Runway Surface Type:	Asphalt
Airport Elevation:	126 ft	Runway Surface Condition:	Dry
Runway Used:	6	IFR Approach:	None
Runway Length/Width:	3999 ft / 100 ft	VFR Approach/Landing:	Forced Landing; Simulated Forced Landing

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	PHILLIP POWELL	Report Date:	05/21/1998
Additional Participating Persons:	HANK HENRY; ORLANDO, FL		
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.nts.gov/pubdms/ .		

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