



National Transportation Safety Board Aviation Accident Final Report

Location:	Hilo, HI	Accident Number:	LAX07LA002
Date & Time:	10/02/2006, 0930 HST	Registration:	N142MK
Aircraft:	McDonnell Douglas 369E	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Minor, 3 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled - Sightseeing		

Analysis

The lateral cyclic friction was on prior to departure, and the helicopter landed hard shortly after takeoff. After the pilot's first flight, the helicopter underwent a hot refueling and the passengers were loaded onboard for the pilot's second flight. The pilot performed her pretakeoff checklist items, which included releasing the control frictions and performing a freedom of control check. The pilot then demonstrated to the front seat passengers where to position their feet by bringing her right foot aft. She then obtained tower clearance and began the takeoff. During the takeoff, the cyclic was locked and she could not move it. She attempted to control the helicopter using trim but shortly thereafter, the helicopter impacted the ground. Upon impact, the pilot reached down and released the lateral cyclic friction. The Federal Aviation Administration (FAA) inspector examined the lateral cyclic friction system installation and operation and noted no mechanical anomalies. The FAA inspector did note that if he brought one foot farther aft than is done in normal operation, an inadvertent application of the lateral cyclic friction might result.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Inadvertent application of the lateral cyclic friction, which resulted in a loss of control and subsequent hard landing.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: TAKEOFF

Findings

1. (C) CONTROL FRICTION - INADVERTENT - PILOT IN COMMAND
2. AIRCRAFT CONTROL - NOT POSSIBLE - PILOT IN COMMAND

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

Findings

3. TERRAIN CONDITION - GROUND

Factual Information

On October 2, 2006, at 0930 Hawaiian standard time, an MD Helicopters, Inc., (MDHI) 369E, N142MK, experienced cyclic control difficulty during takeoff and landed hard at Hilo International Airport, Hilo, Hawaii. During the accident sequence, the tailboom was bent and the right skid collapsed. K and S Helicopters, Inc., was operating the helicopter as an on-demand air taxi tour flight under the provisions of 14 Code of Federal Regulations Part 135. The commercial pilot and two passengers were uninjured; two passengers sustained minor injuries. The helicopter sustained substantial damage. Visual meteorological conditions prevailed and a company flight plan was in effect. The 45-minute local tour flight was originating at the time of the accident with a planned return to Hilo.

The pilot submitted a written statement regarding the accident. On the second flight of the day, she had the helicopter refueled without shutting down. Once the helicopter was refueled, the four passengers were loaded onboard. After the passenger briefing, she removed the friction locks and conducted a gauge check. Then, the pilot showed the front passengers where to comfortably rest their feet during the flight so as not to conflict with her access to the radio stack. To do this, the pilot brought her right foot aft, demonstrating to the passengers how to position their feet. After receiving a tower clearance, she entered her squawk code into the transponder and applied flight controls to lift the helicopter off the ground. The cyclic felt heavy to the right, so she applied left cyclic trim to even out the flight control forces. The pilot felt the inputs to the cyclic control were normal and began to transition to forward flight. As the helicopter accelerated, more left trim was necessary to maintain coordinated flight. At this point, the pilot indicated that she ran out of left trim. The helicopter began rolling to the right and the pilot attempted to increase left cyclic input to counter the roll. The helicopter was about 5 to 10 feet above ground level when she aborted the takeoff and applied aft cyclic to slow the helicopter, but it continued to roll to the right. The helicopter impacted the ground, and the right skid collapsed as the helicopter slid to a stop. The pilot stated that she reached down and released the cyclic friction after impact.

A Federal Aviation Administration inspector from the Honolulu Flight Standards District Office examined the helicopter on October 11, 2006. The inspector indicated that the cyclic lateral and longitudinal frictions were off and that the cyclic was in a neutral position. Control continuity was obtained through the flight control systems and the trim system functioned optimally. In addition, the one-way lock valve function operated normally. The inspector attempted to simulate bumping the cyclic lateral lock lever to transition it from an unlocked position to a locked position. The inspector noted that when he brought one of his feet aft farther than normal, the lever might be inadvertently applied. According to the inspector, the installation of the lateral cyclic lock was in compliance with the Supplemental Type Certificate (STC) requirements, and the rotorcraft flight manual supplement required by the STC was onboard the helicopter.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	33, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Helicopter; Instrument Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	06/01/2006
Occupational Pilot:		Last Flight Review or Equivalent:	09/01/2006
Flight Time:	1439 hours (Total, all aircraft), 7 hours (Total, this make and model), 1257 hours (Pilot In Command, all aircraft), 155 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	McDonnell Douglas	Registration:	N142MK
Model/Series:	369E	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	0187E
Landing Gear Type:	High Skid	Seats:	5
Date/Type of Last Inspection:	09/01/2006, 100 Hour	Certified Max Gross Wt.:	3000 lbs
Time Since Last Inspection:	21 Hours	Engines:	1 Turbo Shaft
Airframe Total Time:	9860 Hours at time of accident	Engine Manufacturer:	Rolls Royce
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	C206
Registered Owner:	K and S Helicopters, Inc.	Rated Power:	475 hp
Operator:	K and S Helicopters, Inc.	Operating Certificate(s) Held:	On-demand Air Taxi (135)
Operator Does Business As:		Operator Designator Code:	16SG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	ITO, 38 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0953 HST	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 4100 ft agl	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	3 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	Variable	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.02 inches Hg	Temperature/Dew Point:	28° C / 20° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hilo, HI (ITO)	Type of Flight Plan Filed:	Company VFR
Destination:	(ITO)	Type of Clearance:	VFR
Departure Time:	0930 HST	Type of Airspace:	

Airport Information

Airport:	Hilo International Airport (ITO)	Runway Surface Type:	
Airport Elevation:	38 ft	Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced Landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	2 Minor, 2 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Minor, 3 None	Latitude, Longitude:	19.720278, -155.048333

Administrative Information

Investigator In Charge (IIC):	Kristi Dunks	Report Date:	04/25/2007
Additional Participating Persons:	Dave Lusk; Federal Aviation Administration; Honolulu, HI Adrian Booth; MDHI; Mesa, AZ		
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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