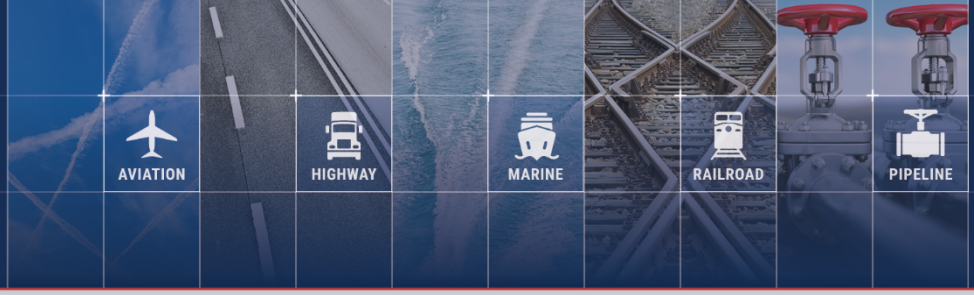

Aviation Investigation Final Report

Location:	St. Petersburg, Florida	**Accident Number:**	ERA12LA477
Date & Time:	July 24, 2012, 19:00 Local	**Registration:**	N9679F
Aircraft:	Hughes 269C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

According to the pilot, the helicopter's last annual inspection had been completed 12 years prior to the accident. On the day of the accident, he decided to fly it to lubricate the parts. After liftoff, he brought the helicopter to a hover about 25 feet in the air and initiated some pedal turns. The nose of the helicopter then began to drift toward the right. He applied left pedal but the helicopter didn't respond. The helicopter then circled 6 to 8 times, so the pilot lowered the collective, and the helicopter impacted the ground on the left skid, struck a fence, and then rolled over on its left side.

However, according to witnesses, the helicopter was about 50 feet in the air, did not circle but moved side to side, and was described as being out of control before it impacted the ground. Total flight time from liftoff to impact was about 2 minutes in duration. Postaccident examination did not reveal any preimpact failures or malfunctions of the helicopter which would have precluded normal operation. However, the cyclic control system would not move freely because the lateral friction control was tightened down. Once the lateral friction control was released, lateral movement of the cyclic control was possible.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to assure that the lateral friction control was released prior to flight.

Findings

Aircraft	Gust lock or damper - Incorrect use/operation
Personnel issues	Use of equip/system - Pilot
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Prior to flight	Preflight or dispatch event
Maneuvering-hover	Loss of control in flight (Defining event)
Uncontrolled descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On July 24, 2012, about 1900 eastern daylight time, a Hughes 269C helicopter, N9679F, was substantially damaged following a loss of control and an uncontrolled descent during hover over the owner's business property in St. Petersburg, Florida. The pilot was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local personal flight conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

According to the pilot, on the day of the accident he decided to fly it to "lube parts". After liftoff he brought the helicopter to a hover facing east about 25 feet in the air for about 5 minutes and initiated some pedal turns. The nose of the helicopter then began to drift towards the right. He applied left pedal but the helicopter was unresponsive and began to spin clockwise. It continued to spin clockwise for 6 to 8 complete 360 degree turns before he lowered the collective and the helicopter impacted the ground on the left skid, struck a fence, and then rolled over on its left side.

However, according to two men who witnessed the accident, they observed that the helicopter was facing west and flying from side to side anywhere from 50 to 80 feet high, somewhat out of control, in a U shape pattern (from their viewpoint), until the helicopter turned with its left side facing down, and then went straight down. Both men stated the helicopter did not spin in circles.

Other witnesses also reported similar observations and though their observations differed in some respects. The majority of the witnesses indicated that the helicopter was observed approximately 50 feet in the air and was either swaying side to side, turning side to side, moving side to side, or turning clockwise and then counterclockwise. None described it as spinning in circles. The helicopter was also described as being out of control before it impacted the ground, and one witness estimated that the entire flight from liftoff to impact took approximately 2 minutes.

PERSONNEL INFORMATION

According to FAA and pilot records, the pilot held a private pilot certificate with ratings for airplane single-engine land, and rotorcraft-helicopter. His most recent FAA third-class medical

certificate was issued on April 26, 2012. He reported that he had accrued 1,183 total hours of flight experience, of which, 365 hours were in the accident helicopter make and model.

He reported that his last flight review had been completed on January 20, 2010 approximately 30 months prior to the accident.

AIRCRAFT INFORMATION

According to FAA records, the helicopter was manufactured in 1971. At the time of accident, the helicopter had accrued approximately 2,393 total hours of operation.

Review of the maintenance records revealed that the last entry in the maintenance log was in February of 2000 when the helicopter's last annual inspection was completed 12 years prior to the accident.

METEOROLOGICAL INFORMATION

The recorded weather at Albert Whitted Airport (SPG), St. Petersburg, Florida, at 1900, included: winds 250 degrees at 6 knots, 10 miles visibility, clear skies, temperature 29 degrees C, dew point 26 degrees C, and an altimeter setting of 30.03 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Post Accident Examination

Examination of the helicopter by a Federal Aviation Administration (FAA) inspector did not reveal any evidence of any preimpact mechanical failures or malfunctions of the helicopter which would have precluded normal operation.

Tail Rotor Control System

Examination of the tail rotor control system revealed that during the accident sequence, the tailboom tail rotor control rod which attached to the forward tail rotor bellcrank , had been severed just aft of where the rod end bearing screws into the control rod. The forward end of the tailboom had separated from the frame assembly, and was approximately 18 inches from the frame, and the tail rotor control rod in the tailboom was bent where it exited the forward end of the tailboom, and was bent at a 45 degree angle towards the tail rotor bellcrank. One of the tail rotor blades had been severed and the tail stinger was severed. Control continuity was able to be confirmed however, from the tail rotor pedals to the tail rotor bellcrank on the aft end of the frame,

The main transmission aft pinion nut was confirmed to be tight, and the cotter key was in place and unbroken. Examination of the tail rotor driveshaft also revealed no evidence of abnormalities. Both plugs at each end of the tail rotor driveshaft were serviceable and the

driveshaft displayed torsional twisting at the forward end coming out of the tailboom.

Cyclic Control Friction

During the examination, the FAA inspector asked the pilot if he would actuate the cyclic control stick for him so that he could check for control continuity. Initially, the pilot was unable to move the cyclic stick laterally, but "then he reached down and released the friction on the cyclic stick". Lateral movement of the flight controls was then possible, and continuity and movement was able to be confirmed by the inspector up to the rotor head. Full longitudinal movement was not possible due to the impact damage however, continuity was able to be conformed and slight movement of the control rods was observed. Collective control continuity was also confirmed.

TESTS AND RESEARCH

Longitudinal and Lateral Cyclic Friction Installations

Review of the helicopters cyclic control system revealed that there were two cyclic friction controls installed. One friction control was used to apply longitudinal cyclic friction, and the other one was used to apply lateral cyclic friction. Each friction control consisted of a control linkage with a pilot adjustable knob that when turned manually applied friction to sliding link by compressing a stack of spring loaded friction discs.

The longitudinal friction linkage was located to the right side of the pilot's cyclic stick.

The lateral friction linkage was located in front of and below, the base of the pilot's cyclic stick assembly.

According to the type certificate holder, the friction controls when tightened sufficiently could also be used as a control lock and would prevent movement of the cyclic stick.

Pilot's Flight Manual

Review of the "Normal Procedures" section of the Model 269C Pilot's Flight Manual revealed that before hovering and takeoff, the pilot should "release CONTROL frictions and set as desired".

Pilot Information

Certificate:	Private	**Age:**	60,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
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 3 Unknown	**Last FAA Medical Exam:**	April 26, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	January 20, 2010
Flight Time:	1183 hours (Total, all aircraft), 365 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	**Registration:**	N9679F
Model/Series:	269C	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	310103
Landing Gear Type:	N/A; Skid	**Seats:**	3
Date/Type of Last Inspection:	February 5, 2000 Annual	**Certified Max Gross Wt.:**	2050 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	2393 Hrs at time of accident	**Engine Manufacturer:**	LYCOMING
ELT:	Not installed	**Engine Model/Series:**	HIO-360-D1A
Registered Owner:	On file	**Rated Power:**	190 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SPG,7 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	19:00 Local	**Direction from Accident Site:**	135°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.03 inches Hg	**Temperature/Dew Point:**	29°C / 26°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	St. Petersburg, FL	**Type of Flight Plan Filed:**	None
Destination:	St. Petersburg, FL	**Type of Clearance:**	None
Departure Time:	18:50 Local	**Type of Airspace:**	Unknown

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:**	27.813333,-82.681388(est)

Administrative Information

Investigator In Charge (IIC):	Gunther, Todd
Additional Participating Persons:	Mark Keefer; FAA / FSDO; Tampa, FL
Original Publish Date:	August 13, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=84434