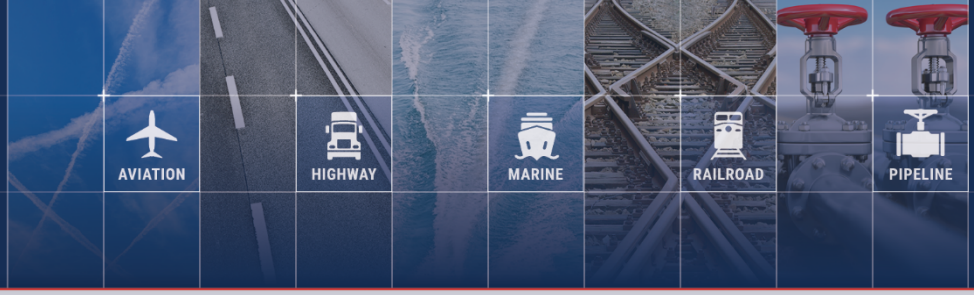

Aviation Investigation Final Report

Location:	Jacksonville, Florida	**Accident Number:**	ERA09TA440
Date & Time:	August 4, 2009, 16:28 Local	**Registration:**	N186AE
Aircraft:	Eurocopter AS 350B3	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Minor, 1 None
Flight Conducted Under:	Public aircraft		

Analysis

The certified flight instructor and a commercial pilot receiving instruction were practicing maneuvers in the helicopter with the hydraulic system turned off, to simulate a hydraulic system failure. The commercial pilot was conducting a practice approach to a runway, with a transition to a hover. As the helicopter approached 5 feet above the ground, the commercial pilot began to lose directional control of the helicopter. The flight instructor assumed control; however, the helicopter entered multiple revolutions, climbs, and descents before it contacted the ground, spun, and rolled over. The fuselage, tail rotor and main rotor drive systems were substantially damaged. Examination of the helicopter did not reveal any preimpact mechanical malfunctions; nor did either pilot report any mechanical abnormalities. According to the helicopter manufacturer's flight manual training supplement, hovering without hydraulic power was not an approved procedure and would result in "excessive pilot workload, poor aircraft control, and possible loss of control."

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's improper decision to attempt hover flight without hydraulic power and his subsequent loss of control.

Findings

Personnel issues	Decision making/judgment - Instructor/check pilot
Aircraft	(general) - Simulated malf/failure
Personnel issues	Aircraft control - Instructor/check pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

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

On August 4, 2009, about 1628 eastern daylight time, a Eurocopter AS 350B3 helicopter, N186AE, was substantially damaged while maneuvering at Herlong Airport (HEG), Jacksonville, Florida. The certified flight instructor (CFI) sustained minor injuries and the certificated commercial pilot receiving instruction was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the instructional flight that originated at Jacksonville Naval Air Station (NIP), Jacksonville, Florida. The helicopter was owned by the US Department of Homeland Security and operated by Customs and Border Protection (CBP) as a public use flight.

According to a CBP representative and the pilots, the pilots were practicing maneuvers with the hydraulic system turned off, to simulate a hydraulic system failure. The commercial pilot was conducting a practice approach to runway 25, with a transition to a hover. As the helicopter approached 5 feet above the ground, the commercial pilot began to lose directional control, and requested that the flight instructor take control of the helicopter. The flight instructor assumed control; however, the helicopter entered multiple revolutions, climbs, and descents, before it contacted the ground, spun, and rolled over.

The helicopter came to rest about 290 feet south of runway 25, on a magnetic heading about 080 degrees. The fuselage, tail rotor and main rotor drive systems were substantially damaged.

Examination of the helicopter by a Federal Aviation Administration (FAA) inspector did not reveal any preimpact mechanical malfunctions; nor did either pilot report any mechanical abnormalities.

The CFI reported 2,782 hours of total helicopter fight experience, which included 580 hours in the same make and model as the accident helicopter.

The commercial pilot reported 1,154 hours of total helicopter flight experience, which included 12 hours in the same make and model as the accident helicopter.

Review of the AS 350B3 flight manual training supplement revealed that practice hovering without hydraulic power was not an approved procedure. The manual stated, in part:

"Caution: Do not attempt to carry out hover flight or any low speed maneuver without hydraulic

pressure assistance. The intensity and direction of the control feedback forces will change rapidly. This will result in excessive pilot workload, poor aircraft control, and possible loss of control."

Winds, reported at an airport located about 5 miles southwest of HEG, at 1550, were variable at 6 knots.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	42,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 12, 2009
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 17, 2009
Flight Time:	3422 hours (Total, all aircraft), 580 hours (Total, this make and model), 1264 hours (Pilot In Command, all aircraft), 62 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Commercial	**Age:**	36,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	January 27, 2009
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 11, 2009
Flight Time:	2620 hours (Total, all aircraft), 12 hours (Total, this make and model), 1200 hours (Pilot In Command, all aircraft), 30 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Eurocopter	**Registration:**	N186AE
Model/Series:	AS 350B3	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	3872
Landing Gear Type:	Skid	**Seats:**	6
Date/Type of Last Inspection:	May 21, 2009 100 hour	**Certified Max Gross Wt.:**	4961 lbs
Time Since Last Inspection:	52 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	1149 Hrs at time of accident	**Engine Manufacturer:**	Turbomeca
ELT:	Installed, not activated	**Engine Model/Series:**	Arriel 2B/2B1
Registered Owner:	U S DEPARTMENT OF HOMELAND SECURITY	**Rated Power:**	847 Horsepower
Operator:	U S Customs and Border Protection	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	VQQ,81 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	15:50 Local	**Direction from Accident Site:**	225°
Lowest Cloud Condition:	Few / 3500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 4500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.01 inches Hg	**Temperature/Dew Point:**	33°C / 24°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Jacksonville, FL (NIP)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Jacksonville, FL (HEG)	**Type of Clearance:**	VFR
Departure Time:	15:58 Local	**Type of Airspace:**	

Airport Information

Airport:	Herlong HEG	**Runway Surface Type:**	Asphalt
Airport Elevation:	87 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	25	**IFR Approach:**	None
Runway Length/Width:	4000 ft / 100 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 1 None	**Latitude, Longitude:**	30.274166,-81.803054(est)

Administrative Information

Investigator In Charge (IIC):	Schiada, Luke
Additional Participating Persons:	Joe Gramzinski; FAA/FSDO; Orlando, FL
Original Publish Date:	January 7, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74447