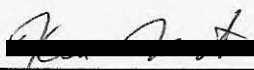


Robinson Helicopter Company Accident Report

AIRCRAFT MODEL:	Raven II
SERIAL NUMBER:	10934
REGISTRATION:	N74805
ACCIDENT DATE:	August 26, 2016
ACCIDENT LOCATION:	Kona, Hawaii

REPORT WRITTEN BY: 

DATE: 25 APRIL 2017

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Note: A compact disc (CD) containing all photos provided to RHC by the FAA/NTSB is included at the end of this report.

GENERAL ACCIDENT DATA

Time and Location Data

Date of Accident: 26 August 2016 Time: Approx. 08:00 HST

Location: Kona, Hawaii

Surface Elevation: _____

Accident Occurred During: Landing

Route of Flight: _____

Purpose of Flight: Training

Last Fuel Point (Location; gal.): _____

Date & Time: _____

Helicopter Data

	Serial		
Model:	No.	Registration	
<u>Raven II</u>	<u>10934</u>	<u>N74805</u>	

Airworthiness Certificate: Type: Standard Category: Normal

Issue Date: 2 November 2005

Aircraft

Total Time: _____

Time Since Overhaul: _____

Engine

Total Time: _____

Time Since Overhaul: _____

Annual Inspection

Time Since Last Inspection: _____

Date of Last Inspection: _____

100 Hour Inspection

Time Since Last Inspection: _____

Date of Last Inspection: _____

N/A = Not Applicable

N/O - Not Obtained

Helicopter Data, Cont'd

Owner (Name/Address):

Operator (Name/Address):

N/A = Not Applicable

N/O - Not Obtained

Pilot in Command Data

Name & Address: Bryan Matthew Heinz

Pilot Certificate No.:

Date of Birth:

Citizenship:

Occupation:

Seat Occupied: Left

Degree of Injury: None

Certificates

☐ None ☐ Student ☐ Private ☒ Commercial ☐ Recreational
☐ ATP ☐ Flight Instructor ☐ Flight Engineer ☐ Foreign ☐ Military

Ratings

Airplane: ☒ None ☐ SE Land ☐ ME Land ☐ SE Sea ☐ ME Sea
Other A/C: ☐ None ☒ Helicopter ☐ Gyroplane ☐ Free Balloon ☐ Powered Lift
 ☐ Airship ☐ Glider
Instrument: ☐ None ☐ Airplane ☒ Helicopter ☐ Powered Lift
Instructor: ☐ None ☐ SE Airplane ☐ ME Airplane ☐ Instr. Airplane ☒ Instr. Helicopter
 ☐ Glider ☒ Helicopter ☐ Gyroplane ☐ Powered Lift

Medical Certificate

Date Issued: 09 July 2006

Class: II

Limitations:

Pilot Time

<u>Aircraft</u>	<u>Last 24 Hrs.</u>	<u>Last 90 Days</u>	<u>Total</u>	<u>Total PIC</u>
R22				
R44			70	
Total Helicopter			650*	
Total Other			650*	

Source of Pilot Time Data: 650 Hours total, helicopter vs fixed wing not known

N/A = Not Applicable

N/O - Not Obtained

Second Pilot or Passenger Data

Name & Address: Jose Meneces

Pilot Certificate No.: _____

Date of Birth: _____

Citizenship: _____

Occupation: _____

Seat Occupied: Right

Degree of Injury: None

Certificates

☐ None ☐ Student ☐ Private ☒ Commercial ☐ Recreational
☐ ATP ☐ Flight Instructor ☐ Flight Engineer ☐ Foreign ☐ Military

Ratings

Airplane: ☐ None ☐ SE Land ☐ ME Land ☐ SE Sea ☐ ME Sea
Other A/C: ☐ None ☒ Helicopter ☐ Gyroplane ☐ Free Balloon ☐ Powered Lift
 ☐ Airship ☐ Glider
Instrument: ☒ None ☐ Airplane ☐ Helicopter ☐ Powered Lift
Instructor: ☐ None ☐ SE Airplane ☐ ME Airplane ☐ Instr. Airplane ☐ Instr. Helicopter
 ☐ Glider ☒ Helicopter ☐ Gyroplane ☐ Powered Lift

Medical Certificate

Date Issued: _____ Class: _____

Limitations: _____

Pilot Time

<u>Aircraft</u>	<u>Last 24 Hrs.</u>	<u>Last 90 Days</u>	<u>Total</u>	<u>Total PIC</u>
R22				
R44			16	
Total Helicopter				
Total Other				

Source of Pilot Time Data: _____

N/A = Not Applicable

N/O - Not Obtained

Weight & Balance, R44

R44

Basic Empty Weight, Center of Gravity,

Basic Empty Weight 1528 lb

Longitudinal CG 107.08377 in

Longitudinal Moment 163624 in-lb

Loading

		Location (in)	Moment (in-lb)
<u>Occupants</u>			
Right Front Seat	<u>187</u> lb	<u>49.5</u>	<u>9256.5</u>
Left Front Seat	<u>185</u> lb	<u>49.5</u>	<u>9157.5</u>
Right Rear Seat	<u> </u> lb	<u>79.5</u>	<u>0</u>
Left Rear Seat	<u> </u> lb	<u>79.5</u>	<u>0</u>

Cargo

Right Front Seat	<u> </u> lb	<u>44</u>	<u>0</u>
Left Front Seat	<u> </u> lb	<u>44</u>	<u>0</u>
Right Rear Seat	<u> </u> lb	<u>79.5</u>	<u>0</u>
Left Rear Seat	<u> </u> lb	<u>79.5</u>	<u>0</u>

Fuel at Takeoff

Main Fuel	<u> </u> gallon	@ 6 lb/gallon =	<u>0</u> lbs	<u>106</u>	<u>0</u>
Auxiliary Fuel	<u> </u> gallon	@ 6 lb/gallon =	<u>0</u> lbs	<u>102</u>	<u>0</u>

Fuel at Time of Accident

Main Fuel	<u>20</u> gallon	@ 6 lb/gallon =	<u>120</u> lbs	<u>106</u>	<u>12720</u>
Auxiliary Fuel	<u>13</u> gallon	@ 6 lb/gallon =	<u>78</u> lbs	<u>102</u>	<u>7956</u>

Total Weight, CG, Moment: Takeoff

Total Weight lb

Longitudinal CG in

Longitudinal Moment in-lb

Total Weight, CG, Moment: Time of Accident

Total Weight 2098 lb

Longitudinal CG 96.62 in

Longitudinal Moment 202714 in-lb

Note: Aircraft weight and balance data obtained from factory records at the time of initial certification

Instrument and Cabin Data (See photos provided by FAA)

<u>Instruments:</u>		<u>Switches:</u>	
Vertical Speed		NAV Lights	
Airspeed		Strobe	
Engine/Rotor Tach.		Clutch	
Altimeter		Clutch Guard	
Manifold Pressure		Alternator	
CAT		Master	
OAT		Ignition	
Amps		Landing Light	
Oil Pressure		Heater Blower	
Oil Temperature		Map Light	
Cyl. Head Temp.		Governor	
Main Fuel		Air Conditioner	
Aux Fuel		Intercom	
Dimmer/Panel Lights		Trim/Hydraulics	
Clock			
Compass		<u>Control Knobs:</u>	
Hour Meter		Cabin Air	
		Mixture	
Transponder		Mixture Guard	
Comm/Nav Radios		Carburetor Heat	
Attitude Indicator		Cabin Heat Valve	
GPS		Cyclic Friction	
Directional Gyro		Collective Friction	
		Fuel Valve	
		Restraint System	

Survey of Temperature Stickers

Main Rotor Gear Box	(220-270)
Tail Rotor Gear Box	(140-190)
Top Belt Actuator Bearing	(140-190)
Bottom Belt Actuator Bearing	(140-190)
Hydraulic Pump	(220-270)

Weather at Time of Accident

Reporting Point Location _____
Distance from Accident Site _____
Direction From Accident Site _____
Sky Cover _____ Wind _____
Turbulence _____ Visibility _____
Altimeter _____
Temperature _____ Setting _____
Dew Point _____
Source of Weather _____

Reporting Point Location _____
Distance from Accident Site _____
Direction From Accident Site _____
Sky Cover _____ Wind _____
Turbulence _____ Visibility _____
Altimeter _____
Temperature _____ Setting _____
Dew Point _____
Source of Weather _____

Flight Plan: _____

Weather Brief: _____

Ground Conditions at Accident Site

Open level ground

Ground Damage

None

WITNESS INFORMATION AND STATEMENTS

NO KNOWN WITNESSES, OTHER THAN PILOTS ON BOARD

Name: _____
Address: _____
Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____
Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____
Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____
Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____
Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Bryan Heinz Pilot Statement

(submitted with his NTSB Pilot/Operator Accident Report form):

On Friday, August 26, 2016, approximately 0740 HST the student and I left from Kilo ramp of KOA to transition to the North Practice Area (NPA) to practice maneuvers.

We entered the NPA and I told the student to make the first approach to a spot in the middle of the gravel road where there is plenty of clearance. The spot chosen was on one of the gravel roads in the NPA, has a wide area which is flat and smooth with no large rocks. He started to set up the approach while on a left downwind, we turned onto base then final and everything was looking great so I told him to complete the approach to a full stop on the ground.

He continued the approach smoothly and the initial set down was very soft and smooth as well. Once the skids were on the ground, he then continued to lower the collective towards the full down position, then the helicopter started to rock in a fore and aft motion. As the intensity quickly increased and I noticed the alarm on the student's face I came on the controls.

From that point on, all I recall is that we were in the air again in uncontrollable flight. The helicopter was oscillating intensely then stopped at the final position; approximately 20-30 feet at a little more than a 45° angle to the forward and left from our initial touchdown spot. Once on the ground again and somewhat stabilized I pulled the mixture then the rotor break. Once the rotor had stopped we both exited the aircraft.

Bryan Heinz

Telephone interview with Bryan Heinz, Tom Little (NTSB) and Ken Martin, 12 Sep 2016

Mr. Heinz stated that he was flying with Jose Meneces, who was a helicopter CFI, to build time for Mr. Meneces. Mr. Heinz was the PIC. He had flown 4 or 5 times before with Mr. Meneces. They departed KOA, flew approximately 1 minute to the practice area, and set up a normal approach to the practice area with Mr. Meneces on the controls. The landing site was a gravel area. Nothing unusual was noted in the flight, all the way to the touch down on the ground. During the approach, everything looked good, so Mr. Heinz told Mr. Meneces to fly the aircraft to the ground. This constitutes making a normal approach, but instead of pulling into a controlled hover at the bottom, the aircraft is flown straight to the ground, with little or no forward speed, without hovering. This is apparently something that Mr. Heinz had done before on several occasions. Mr. Meneces flew the aircraft to the ground and touched down fairly softly. Mr. Meneces started lowering the collective, and a large longitudinal oscillation started. Mr. Meneces seemed to be concerned, so Mr. Heinz took the controls. Mr. Heinz does not know or remember exactly what happened next, but for the next 5 seconds or so they were flying out of control, which included some spinning and tilting of the horizon. He did not regain control, but they ended up on the ground with the aircraft upright. He does not know if Mr. Meneces hands were on the controls through this phase, (there was not a positive transfer of control), but when they were on the ground Mr. Meneces hands were on his head. Mr. Heinz does not remember seeing or hearing any warning lights or horns. He stated he did not check to see if the hydraulic switch on the cyclic was in the ON or OFF position. Mr. Heinz pulled the mixture control to shut down the engine. They walked back to the spot where they think the skids had initially touched the ground, and he said he did not notice any 'hump' or unevenness to the ground.

Jose R Meneces Pilot Statement:

Helicopter accident statement 08/26/2016

Jose R Meneces Robinson R44 II

My instructor and I departed from Kona Airport around 7:50 am local time, we ask for transition to the North practice area of the same airport, everything was good, we departed as procedure from airport is stated, we joined the North practice area and we performed a controlled and smooth normal approach to a flat well open area. The skids touch the ground and then a strong rocking aft and forward movement accompanied by heavy vibrations started, we tried to lower the collective but made it worst, so we tried to pick up to correct, then it felt like we shot out forward/leftwards approximately 10 feet away from landing spot, as I recall, the cyclic did not respond to inputs well enough, ending up in crashing (from my point of view) first nose of helicopter with Main Rotor blade strike in the ground, no dynamic rollover happened, as soon as helicopter stopped moving, mixture was pulled out to cut it.

This is my recollection and statement of the events happened the morning of august 26 2016, I hope this statement serves good regarding the investigation of this accident.

Good day.

José Rogelio Meneces Aguilar.

Telephone interview with Jose Meneces, Tom Little (NTSB), and Ken Martin, 16 Sep 2016.

Mr. Meneces stated that the morning of the accident the weather was clear, so they decided to continue training. He and Mr. Heinz performed a preflight using the checklist, started the aircraft, and departed to the north practice area. Mr. Meneces was flying. They set up a normal approach. They decided to do a 'commercial style approach', where they fly the aircraft straight to the ground, without coming into a hover, but smoothly. They flew to the ground and touched down smoothly, and started lowering the collective. A strong longitudinal vibration started, and Mr. Heinz asked for the controls and grabbed the controls. Mr. Meneces does not remember if he let go of the controls when Mr. Heinz grabbed them. Mr. Heinz raised the collective, and the aircraft got back into the air. The aircraft came up about 2 to 3 feet, and tilted forward. Mr. Heinz tried to correct, but the nose of the aircraft hit the ground and he saw the main rotor blades hitting the ground. The aircraft rocked rearward, then forward, then stopped rocking. Mr. Heinz pulled the mixture control to stop the engine, "as the procedure says" according to Mr. Meneces. Mr. Meneces did not remember seeing or hearing any warning lights or horns throughout the sequence, nor were there any anomalies prior to the oscillation. Mr. Meneces described the oscillation as similar to a washing machine. After shutdown, they walked back to the spot where they think the skids had initially touched the ground, and he said he did not notice any 'hump', or slope to the ground.

CONTACTS

NTSB Investigator in Charge

Name: Tom Little
Title: Senior Aviation Accident Investigator
Address: [REDACTED]
Federal Way, WA, 98003
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]@ntsb.gov

FAA Investigator

Name: Mitchell Reeves
Title: [REDACTED]
Address: [REDACTED]
Honolulu, HI 96819
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

FAA Investigator

Name: Merritte Wilson
Title: Principal Maintenance Inspector – Honolulu FSDO
Address: [REDACTED]
Honolulu, HI 96819
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

Recovery Company

Name: [REDACTED]
Address: [REDACTED]
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

Local Law Enforcement

Name: [REDACTED]
Address: [REDACTED]
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

WRECKAGE EXAMINATION - GENERAL

The aircraft was examined at the accident site by Mitch Reeves and Merritte Wilson of the FAA Honolulu FSDO, and again at the facilities of Mauna Loa Helicopters on October 4, 2016.

Details of the examinations are listed below, as provided by Mitch Reeves.

Inspection of N74805
10/4/2016

Tailcone cowling C706

Inspected Tailcone cowling attach points with Tailcone installed, no damage or defects noted.

Inspected torque on attaching hardware, used a calibrated torque wrench. The torque is 655 inch pounds per the manual. The torque broke (nut moved) at 355 inch pounds on all bolts.

Removed Tailcone C706 and noted no elongation or damage to the bolts, washers, skin or structure.

See attached pictures

Flight control servos and push pull tubes

With mast fairing removed

We inspected the main rotor torque, control tubes and servos. No damage or defects noted.

We also moved the flight controls through a full range of motion with and without hydraulic power, continuity and operation appeared to be normal.

See attached pictures

Main Rotor Gearbox Mounts

Inspected with Tailcone and both fuel tanks removed

Inspected the main rotor gearbox mounts (rubber portion) and as well as the ears of the main rotor gearbox mounts, no damage or defects noted

The torque on the main transmission bolts per the manual is 90 foot pounds. We used a calibrated torque wrench and found the torque to be correct.

See attached pictures

DOM Eric Wettels agrees, he did not notice any unusual defects in these areas.
Photographs from the examinations are provided on a DVD at the end of this report.