
 National Transportation Safety Board <b>FACTUAL REPORT</b> AVIATION		NTSB ID: FTW02FA099		Aircraft Registration Number: N7077B	
		Occurrence Date: 03/23/2002		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Eugene Isld 188	State GM	Zip Code 00000	Local Time 0757	Time Zone CST	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:			
Aircraft Information Summary					
Aircraft Manufacturer Bell		Model/Series 206L-4		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p><b>HISTORY OF FLIGHT</b></p> <p>On March 23, 2002, approximately 0757 central standard time, a Bell 206L-4 helicopter, N7077B was destroyed when it impacted an offshore oil rig and the water following a loss of control during takeoff from Eugene Island 188-P helideck, located in the Gulf of Mexico. The helicopter was registered to and operated by Petroleum Helicopters, Inc. (PHI), of Lafayette, Louisiana. The commercial pilot, sole occupant of the helicopter, was fatally injured. Visual meteorological conditions prevailed, and a company visual flight rules (VFR) flight plan was filed and activated for the 14 Code of Federal Regulations Part 91 positioning flight. At the time of the accident, the pilot was repositioning the helicopter to make room to allow another helicopter to land and refuel.</p> <p>The pilot of the landing helicopter reported that as the accident helicopter began to takeoff to the northeast, its nose rose "moderately" from the platform to an approximate 10-20 degrees nose high attitude, with the heels of the skids remaining on the platform. The helicopter pivoted right 15-25 degrees and became airborne to approximately 1-2 feet above the platform. The helicopter began to drift left while its nose rose to an approximate 30-40 degree nose-high attitude. The pitch of the helicopter continued to increase to a nose high attitude of approximately 70-80 degrees as it drifted to the north side of the platform. The helicopter's skids appeared to vertically touchdown and come to rest on the platform's north side safety fence. After hesitating momentarily, the helicopter began to slide downward off the safety fence. As the helicopter continued downward, it was rotating to the right. The helicopter "fell 100-150 feet nose first into the water," and remained visible for approximately 5-10 seconds before sinking out of sight. The pilot of the landing helicopter further reported that he notified the PHI Communication Center of the situation and circled the platform for approximately 25-30 minutes searching for survivors. Only small pieces of debris, the tail boom, one aircraft float (partially inflated), and one life vest remained visible. The skids of the helicopter remained on the platform's second level with its toes pointing upward. The floats, which remained attached to the skids, were inflated.</p> <p><b>PERSONNEL INFORMATION</b></p> <p>The instrument rated commercial helicopter pilot had been employed by PHI since April 13, 1982. According to FAA records, the pilot also held a private pilot certificate with an airplane single-engine land rating. On July 11, 2001, the pilot completed VFR recurrent training, which included basic instrument proficiency, and demonstrated competency in the Bell 206 helicopter in accordance with FAR 135.293 and FAR 135.299. According to the Pilot Flight Time closeout for February 2002, which was provide by PHI, the pilot had accumulated a total of 11,184 flight hours, of which 11,102 hours were in helicopters, with 3,038 hours in the Bell 206 helicopter. The pilot held a valid second class medical certificate, issued July 24, 2001. The certificate stipulated a limitation to have corrective lenses available for near vision when operating an aircraft.</p>					
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**Narrative** (Continued)

**AIRCRAFT INFORMATION**

The 1993-model, yellow and black helicopter (serial number 52037), was equipped with a 650-horsepower Rolls-Royce 250C-30P turboshaft engine, a two-bladed main rotor system, and a two-bladed tail rotor. The helicopter underwent its most recent 300-hour inspection, in accordance with its approved inspection program, on March 21, 2002, at a total airframe time of 8,965.3 hours.

The engine had accumulated a total of 7,661.5 hours at the time of the accident and underwent its last 150-hour inspection on March 6, 2002. A review of the airframe and engine records did not reveal any anomalies or uncorrected maintenance defects.

The helicopters maximum gross weight was 4,450 pounds. Witnesses reported leaving approximately 105 pounds of cargo in the baggage compartment and 20 pounds of cargo in the cabin area. Using the pilot's weight of 228 pounds (last medical examination), the cargo weight, and an aircraft basic weight of 2,760 pounds, the weight of the helicopter at the time of the accident was 3,866 pounds with an allowable center-of-gravity (CG) range of 119.0 to 127.2 inches. Two separate weight and balance calculations were done with the 20 pound cabin area cargo. First on the forward facing aft seats and then on the rear facing mid seats. In both calculations, the helicopter was within the CG range at 126.8 inches and 126.6 inches respectively.

**COMMUNICATIONS**

The following are from the radio communication transcript between the accident pilot (Echo 36) and pilot of the landing helicopter (Sierra 310):

0755:20 Echo 36 - Sierra 310, you up?

0755:22 Sierra 310 - Hey Charlie, are you shut down or getting ready to leave or ah, what's your status?

0755:29 Echo 36 - I just cranked up....waiting for my people to load up.....Do you need to get in for fuel?

0755:44 Sierra 310 - Yea ah, if you think they're, ah just about there. I can circle, ah, don't matter. I just thought I'd come in here.

0756:48 Ship Shoal - Echo 36, Ship Shoal

0756:49 Echo 36 - Show me local Eugene Island 188 with two plus three zero.

0756:53 Ship Shoal - Echo 36, roger

0757:18 Echo 36 - Come in here and get your fuel, Barry.


Sierra 310 - Okay Charlie, I am right behind you.

0757:30 Sierra 310 - Ship Shoal Sierra 130.....

0757:38 Ship Shoal - Yea, go ahead 310

Sierra 310 - Echo 36 just crashed his helicopter on the side of Eugene Island 188...aircraft in the water and ah standby.

**WRECKAGE IMPACT INFORMATION**

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**Narrative** (Continued)

Eugene Island 188-P, is an offshore oil pumping station located in the Gulf of Mexico at 28 degrees 45 minutes 10 seconds north latitude and 91 degrees 24 minutes 22 seconds west longitude. The oil pumping station consists of a 40-foot by 60-foot helideck, which is 161 feet above the water, and three lower decks.

The examination of the offshore oil pumping station revealed that the right front and rear tie down straps were in a metal storage basket located on the edge of the helideck. The left front tie down strap was fully extended and still attached to its tie down point, and laying randomly on the helideck and the damaged safety fence. The damaged safety fence, which was located on the northwest side of the helideck, exhibited markings consistent with main rotor blade strikes and landing gear contact. On the deck (2nd) below the helideck, the landing gear and baggage door were found. The steel pipe railing was displaced downward with yellow and black paint transfers. The building on the deck (3rd) below had black paint transfers near the top of the door and the metal siding above the door had a cut. The top bar of the railing was displaced downward. The deck (4th) below had pieces of main rotor blade spar. The helicopter was recovered from a depth of 68 feet near the northwest side of the oil pumping station and transported to the PHI facilities located in Lafayette, Louisiana, for examination.

The left side of the nose section of the helicopter was separated from the fuselage. The fuselage near the landing light exhibited hydro-dynamic deformation. The roof structure had a crosswise crack beneath the main rotor transmission. The fuselage aft of the engine was partially separated.

The left forward tie down fitting that is normally attached to the bottom of the fuselage underneath the copilot's seat was missing and never found. The three insert fittings of this tie down were pulled out of the honeycomb panel in a manner consistent with a relatively vertical pull.

Bonding material was observed in the holes where the inserts were attached. According to Bell Helicopter engineers, the load required to pull out the fitting varied from 2,200 to 3,200 pounds, depending on the load orientation. However, structural test data of the inserts suggested that the actual pull out strength could be higher. A pilot who had landed prior to the accident, reported to the NTSB investigator-in-charge (IIC) that he had observed the rear and right front tie down straps of the accident aircraft were removed; however, he did not notice if the left front tie down was still attached to the helicopter.


Examination of the controls under the copilot's seat revealed that the collective balance weight was separated. Numerous fractures, typical of overload, were present through out the control systems. The cyclic, collective, and tail rotor control continuity was confirmed. No pre-impact anomalies were observed in either the fixed or rotating control systems. One main rotor blade was fractured outboard of the last doubler and the other blade was fractured approximately 100 inches from the center of the blade retaining bolt hole. The hydraulic servos were bench tested and all three exhibited a full range of travel with no leaks. The hydraulic pump, when tested, produced correct pressure and fluid flow. The hydraulic switch in the cockpit was found in the "ON" position.

The tailboom was separated about 25-36 inches aft of the tailboom/fuselage attach point. Compression buckling of the tailboom was found just forward of the tail rotor gearbox. The tail rotor hub and blade assembly remained attached to the tail rotor output shaft. One tail rotor blade sustained an inboard chordwise fracture and the other tail rotor blade exhibited bends and wrinkles along the blade.

Visual examination of the Rolls-Royce 250C-30P turboshaft engine (S/N CAE 895603) did not disclose any pre-impact failures of engine hardware or engine accessory components.

**MEDICAL AND PATHOLOGICAL INFORMATION**

On March 25, 2002, an autopsy was performed on the pilot at the Jefferson Parish Forensic Center,

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**Narrative** (Continued)

Harvey, Louisiana. There was no evidence found of any preexisting disease that could have contributed to the accident


Toxicological testing on the pilot, was performed by the FAA's Civil Aeromedical Institute, Oklahoma City, Oklahoma, for carbon monoxide, cyanide, alcohol, and drugs. The toxicological tests noted 16 (mg/dL, mg/hg) ethanol detected in blood, 5 (mg/dL, mg/hg) acetaldehyde detected in blood, and 6.697 (mg/dL, mg/hg) acetaminophen detected in blood. It is probable that the ethanol found was produced post-mortem. Acetaminophen is an over-the-counter pain-reliever and fever-reducer, often know by the trade name Tylenol. No carbon monoxide or cyanide were detected.


**TESTS AND RESEARCH**


Both front tie down straps were examined during the on scene portion of the investigation. Both tie down straps had a hook with a spring loaded closure. As a test, the left forward tie down hook was attached to a spare tie down fitting. It was demonstrated that if the hook got into the proper orientation with the fitting, the fitting could push on the spring loaded closure and the hook would release from the fitting. At the request of the NTSB IIC, the left front tie down strap was examined at Materials Analysis, Inc. of Dallas, Texas. The examination did not reveal any definitive damage to the forward tie down strap assembly that would indicate that it was subjected to overload. There was a partial seam separation in the sewn strap loop attaching the hook, "but such evidence was inclusive of overload."

**ADDITIONAL DATA**

The helicopter wreckage was released to the owner on March 29, 2002.

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<b>Landing Facility/Approach Information</b>					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used	Runway Length	Runway Width
Runway Surface Type: Unknown					
Runway Surface Condition: Unknown					
Approach/Arrival Flown: Unknown					
VFR Approach/Landing: Unknown					
<b>Aircraft Information</b>					
Aircraft Manufacturer Bell		Model/Series 206L-4		Serial Number 52037	
Airworthiness Certificate(s): Normal					
Landing Gear Type: High Skid					
Amateur Built Acft? No	Number of Seats: 7	Certified Max Gross Wt. 4450 LBS		Number of Engines: 1	
Engine Type: Turbo Shaft	Engine Manufacturer: Rolls-Royce		Model/Series: 250C-30P	Rated Power: 650 HP	
<b>- Aircraft Inspection Information</b>					
Type of Last Inspection AAIP	Date of Last Inspection 03/2002	Time Since Last Inspection 0 Hours		Airframe Total Time 8965.3 Hours	
<b>- Emergency Locator Transmitter (ELT) Information</b>					
ELT Installed?/Type Yes /		ELT Operated? No	ELT Aided in Locating Accident Site? No		
<b>Owner/Operator Information</b>					
Registered Aircraft Owner  Petroleum Helicopters, Inc.		Street Address P.O. Box 90808			
		City Lafayette	State LA	Zip Code 70509	
Operator of Aircraft  Petroleum Helicopters, Inc.		Street Address P.O. Box 90808			
		City Lafayette	State LA	Zip Code 70509	
Operator Does Business As:			Operator Designator Code: HEEA		
<b>- Type of U.S. Certificate(s) Held:</b>					
Air Carrier Operating Certificate(s): On-demand Air Taxi					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Positioning					
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<b>First Pilot Information</b>																																																																																													
Name		City		State	Date of Birth	Age																																																																																							
On File		On File		On File	On File	56																																																																																							
Sex: M	Seat Occupied: Right	Occupational Pilot? Civilian Pilot		Certificate Number: On File																																																																																									
Certificate(s): Commercial; Private																																																																																													
Airplane Rating(s): Single-engine Land																																																																																													
Rotorcraft/Glider/LTA: Helicopter																																																																																													
Instrument Rating(s): Helicopter																																																																																													
Instructor Rating(s): None																																																																																													
Current Biennial Flight Review? 07/2001																																																																																													
Medical Cert.: Class 2		Medical Cert. Status: Valid Medical--w/ waivers/lim.		Date of Last Medical Exam: 07/2001																																																																																									
<table border="1"> <tr> <th>- Flight Time Matrix</th> <th>All A/C</th> <th>This Make and Model</th> <th>Airplane Single Engine</th> <th>Airplane Multi-Engine</th> <th>Night</th> <th colspan="2">Instrument Actual Simulated</th> <th>Rotorcraft</th> <th>Glider</th> <th>Lighter Than Air</th> </tr> <tr> <td>Total Time</td> <td>11184</td> <td>3071</td> <td>82</td> <td></td> <td>14</td> <td>30</td> <td></td> <td>11102</td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>10523</td> <td>3038</td> <td></td> <td></td> <td>7</td> <td>25</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instruction Received</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>69</td> <td>69</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>23</td> <td>23</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>4</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument Actual Simulated		Rotorcraft	Glider	Lighter Than Air	Total Time	11184	3071	82		14	30		11102			Pilot In Command(PIC)	10523	3038			7	25					Instructor											Instruction Received											Last 90 Days	69	69									Last 30 Days	23	23									Last 24 Hours	4	4								
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? Yes		Second Pilot? No																																																																																							
<b>Flight Plan/Itinerary</b>																																																																																													
Type of Flight Plan Filed: Company VFR																																																																																													
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																																								
Eugene Island		GM	188P	0754	CST																																																																																								
Destination		State	Airport Identifier																																																																																										
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<b>Weather Information</b>					
WOF ID	Observation Time	Time Zone	WOF Elevation <div style="text-align: center;">Ft. MSL</div>	WOF Distance From Accident Site <div style="text-align: center;">NM</div>	Direction From Accident Site <div style="text-align: center;">Deg. Mag.</div>
Sky/Lowest Cloud Condition:			Ft. AGL	Condition of Light: Day	
Lowest Ceiling:			Ft. AGL	Visibility: SM	Altimeter: "Hg
Temperature: °C	Dew Point: °C	Weather Conditions at Accident Site: Visual Conditions			
Wind Direction: 360		Wind Speed: 10		Wind Gusts:	
Visibility (RVR): Ft.	Visibility (RVV) SM				
Precip and/or Obscuration:					

<b>Accident Information</b>					
Aircraft Damage: Destroyed		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL	
First Pilot	1				1	
Second Pilot						
Student Pilot						
Flight Instructor						
Check Pilot						
Flight Engineer						
Cabin Attendants						
Other Crew						
Passengers						
- TOTAL ABOARD -	1				1	
Other Ground						
- GRAND TOTAL -	1				1	

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## Administrative Information

Investigator-In-Charge (IIC)

Douglas D. Wigington

Additional Persons Participating in This Accident/Incident Investigation:

Kelly L Teague  
FAA FSDO  
Baton Rouge, LA

Mark C Stuntzner  
Bell Helicopter  
Fort Worth, TX

John J Swift  
Rolls-Royce Corporation  
Indianapolis, IN