



# National Transportation Safety Board Aviation Accident Final Report

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|--------------------------------|--|-------------------------|-------------|
| <b>Location:</b>               | Yancey, TX                                     | <b>Accident Number:</b> | CEN11LA318  |
| <b>Date &amp; Time:</b>        | 05/03/2011, 1115 CDT                           | <b>Registration:</b>    | N927SH      |
| <b>Aircraft:</b>               | ROBINSON HELICOPTER R22 BETA                   | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         | Fuel related                                   | <b>Injuries:</b>        | 2 None      |
| <b>Flight Conducted Under:</b> | Part 91: General Aviation - Aerial Observation |                         |             |

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## Analysis

While maneuvering at a low altitude, the pilot heard the engine noise change and the low rpm warning horn sound. The helicopter settled to the ground and rolled onto its right side. While exiting the helicopter the pilot noted that the fuel shutoff valve had been moved 3/4 of the way towards the closed position. The pilot concluded that either the passenger's clothing or seat belt had inadvertently closed the fuel valve when the passenger had moved near the valve which resulted in the loss of engine power. Due to the low altitude, the pilot was unable to perform an autorotation in time. A postaccident examination of the helicopter did not reveal any preimpact anomalies. The helicopter was equipped with an older style fuel shutoff valve that had a handle that could be easily moved; however, a newer spring-loaded fuel shutoff valve was available that would have prevented inadvertent valve actuation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The loss of engine power due to the unintentional closure of the fuel shutoff valve.

## Findings

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|                 |   |
|-----------------|---|
| <b>Aircraft</b> | Fuel selector/shutoff valve - Unintentional use/operation (Cause) |
|-----------------|---|

## Factual Information

On May 3, 2011, 1115 central daylight time, a Robinson Helicopter R22 Beta, N927SH, collided with terrain following low rotor rpm near Yancey, Texas. Substantial damage was sustained to the fuselage and tail boom sections. The commercial pilot and passenger were not injured. The helicopter was registered to Prentice Aviation Inc, Bokchito, Oklahoma, and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as an aerial observation flight. Visual meteorological conditions prevailed for the flight, which operated without a flight plan. The flight originated from a private area approximately 1045.

According to a statement provided by the pilot, he was flying an animal control flight over private property. While searching for feral pigs, the pilot was flying 4 to 5 feet above ground level when his passenger notified the pilot of a pig's location. While maneuvering, the pilot heard the engine noise change and the low rpm warning horn sound as the engine began to shut down. The helicopter settled to the ground and rolled onto its right side. While egressing the helicopter, the pilot noticed fuel leaking from the top of the helicopter's fuel tank. While securing the fuel shutoff valve, the pilot noticed that the valve handle was 3/4 the way towards the closed position. The pilot concluded that either the passenger's clothing or seat belt had inadvertently closed the fuel valve which resulted in the loss of engine power when the passenger had moved near the valve. There were no other reported malfunctions or failures with the helicopter. An examination of the helicopter conducted by a Federal Aviation Administration inspector did not reveal any preimpact anomalies.

The helicopter was equipped with an older style fuel shutoff valve that consisted of a handle (part number A670-2). A newer fuel shutoff valve was available to be installed (part number A670-1). The newer fuel shutoff valve was remodeled to be spring-loaded towards the open position to prevent inadvertent valve actuation.

## History of Flight

|                                   |   |
|-----------------------------------|---|
| <b>Maneuvering-low-alt flying</b> | Fuel related (Defining event)<br>Loss of engine power (total)<br>Loss of lift |
| <b>Uncontrolled descent</b>       | Collision with terr/obj (non-CFIT)  |
| <b>Post-impact</b>                | Roll over   |

## Pilot Information

|                                  |  |  |            |
|----------------------------------|--|--|------------|
| <b>Certificate:</b>              | Commercial   | <b>Age:</b>                              | 37, Male   |
| <b>Airplane Rating(s):</b>       | None   | <b>Seat Occupied:</b>                    | Right      |
| <b>Other Aircraft Rating(s):</b> | Helicopter   | <b>Restraint Used:</b>                   | Seatbelt   |
| <b>Instrument Rating(s):</b>     | None   | <b>Second Pilot Present:</b>             | No         |
| <b>Instructor Rating(s):</b>     | None   | <b>Toxicology Performed:</b>             | No         |
| <b>Medical Certification:</b>    | Class 2 With Waivers/Limitations   | <b>Last Medical Exam:</b>                | 08/30/2010 |
| <b>Occupational Pilot:</b>       | Yes  | <b>Last Flight Review or Equivalent:</b> | 08/10/2010 |
| <b>Flight Time:</b>              | 8667 hours (Total, all aircraft), 8265 hours (Total, this make and model), 8667 hours (Pilot In Command, all aircraft), 184 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft) |  |            |

## Aircraft and Owner/Operator Information

|                                      |   |   |                 |
|--------------------------------------|---|---|-----------------|
| <b>Aircraft Manufacturer:</b>        | ROBINSON HELICOPTER   | <b>Registration:</b>                      | N927SH          |
| <b>Model/Series:</b>                 | R22 BETA  | <b>Aircraft Category:</b>                 | Helicopter      |
| <b>Year of Manufacture:</b>          |   | <b>Amateur Built:</b>                     | No              |
| <b>Airworthiness Certificate:</b>    | Normal  | <b>Serial Number:</b>                     | 3880            |
| <b>Landing Gear Type:</b>            | Skid  | <b>Seats:</b>                             | 2               |
| <b>Date/Type of Last Inspection:</b> | 03/18/2011, Annual  | <b>Certified Max Gross Wt.:</b>           | 1370 lbs        |
| <b>Time Since Last Inspection:</b>   | 88 Hours  | <b>Engines:</b>                           | 1 Reciprocating |
| <b>Airframe Total Time:</b>          | 2931 Hours  | <b>Engine Manufacturer:</b>               | LYCOMING        |
| <b>ELT:</b>                          | C126 installed, activated, did not aid in locating accident | <b>Engine Model/Series:</b>               | O-360 SERIES    |
| <b>Registered Owner:</b>             | PRENTICE AVIATION INC                                       | <b>Rated Power:</b>                       | 180 hp          |
| <b>Operator:</b>                     | PRENTICE AVIATION INC                                       | <b>Air Carrier Operating Certificate:</b> |                 |

## Meteorological Information and Flight Plan

|                                  |                                  |                              |                   |
|----------------------------------|----------------------------------|------------------------------|-------------------|
| Observation Facility, Elevation: | KHDO, 930 ft msl                 | Observation Time:            | 1051 CDT          |
| Distance from Accident Site:     | 11 Nautical Miles                | Condition of Light:          | Day               |
| Direction from Accident Site:    | 10°                              | Conditions at Accident Site: | Visual Conditions |
| Lowest Cloud Condition:          | Clear                            | Temperature/Dew Point:       | 20° C / -1° C     |
| Lowest Ceiling:                  | None                             | Visibility                   | 10 Miles          |
| Wind Speed/Gusts, Direction:     | 13 knots/ 20 knots, 50°          | Visibility (RVR):            |                   |
| Altimeter Setting:               | 30.43 inches Hg                  | Visibility (RVV):            |                   |
| Precipitation and Obscuration:   | No Obscuration; No Precipitation |                              |                   |
| Departure Point:                 | Yancey, TX                       | Type of Flight Plan Filed:   | None              |
| Destination:                     | Yancey, TX                       | Type of Clearance:           | None              |
| Departure Time:                  | 1045 CDT                         | Type of Airspace:            |                   |

## Wreckage and Impact Information

|                     |        |                     |             |
|---------------------|--------|---------------------|-------------|
| Crew Injuries:      | 1 None | Aircraft Damage:    | Substantial |
| Passenger Injuries: | 1 None | Aircraft Fire:      | None        |
| Ground Injuries:    | N/A    | Aircraft Explosion: | None        |
| Total Injuries:     | 2 None |                     |             |

## Administrative Information

|                                   |   |               |            |
|-----------------------------------|---|---------------|------------|
| Investigator In Charge (IIC):     | Jason T Aguilera  | Adopted Date: | 11/17/2011 |
| Additional Participating Persons: | Thomas Fowles; Federal Aviation Administration; San Antonio, TX   |               |            |
| Publish Date:                     | 11/17/2011  |               |            |
| Investigation Docket:             | <a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=79031">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=79031</a> |               |            |

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