# Aviation Investigation Final Report

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| **Location:** | Bruceville, Texas | **Accident Number:** | DFW05CA168 |
| **Date & Time:** | June 22, 2005, 19:45 Local | **Registration:** | N7487F |
| **Aircraft:** | Hughes 269C | **Aircraft Damage:** | Substantial |
| **Defining Event:** | | **Injuries:** | 2 None |
| **Flight Conducted Under:** | Part 91: General aviation - Instructional | | |

## Analysis

The 724-hour flight instructor reported that the student pilot initiated a planned power-recovery 180-degree autorotation to a plowed field. As the student attempted to recover with power, approximately 20-50 feet above ground level, the instructor noticed "that the engine rpm needle was not coming up to meet the rotor rpm needle." The instructor immediately attempted to "roll maximum throttle on," but realized the throttle would not move, and took control of the helicopter. The student told the instructor that the throttle was stuck. However, the instructor stated the throttle seemed "stuck because it was all the way open." Subsequently, the helicopter contacted the ground and the right skid "dug into the ground," as the helicopter rolled over and came to rest on its right side. The instructor stated that the engine was not running and the throttle was wide open when he took the controls. No mechanical anomolies were noted with the engine or the airframe. The reason for the loss of engine power was undetermined.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor's improper flare during autorotation, which resulted in a hard landing. Contributing factor was, the lack of suitable terrain.

## Findings

Occurrence #1: HARD LANDING
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
1. EMERGENCY PROCEDURE - SIMULATED - PILOT IN COMMAND
2. (C) FLARE - IMPROPER - PILOT IN COMMAND
3. MISC ROTORCRAFT,TAIL BOOM - SEPARATION
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Occurrence #2: ROLL OVER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
4. TERRAIN CONDITION - PLOWED/FURROWED
5. (F) TERRAIN CONDITION - NONE SUITABLE

## Factual Information

On June 22, 2005, approximately 1945 central daylight time, a single-engine Hughes 269C helicopter, N7487F, registered to DD Leasing of McGregor, Texas and operated by Brazos Helicopters of Bruceville, Texas, was substantially damaged during a practice autorotation after a reported loss of engine power near Bruceville, Texas. The flight instructor and the private pilot receiving instruction, were not injured. Visual meteorological conditions prevailed throughout the area, and a flight plan was not filed for the instructional flight conducted under 14 Code of Federal Regulations Part 91. The local flight departed from a private heliport near Bruceville, Texas, approximately 1910.

According to information provided to the NTSB by the 724-hour flight instructor, the student pilot initiated a practice 180-degree autorotation to a plowed field from an altitude of 700 feet above ground level. The flight instructor added that the practice autorotation was intended to be terminated by a "power recovery," which is a typical recovery technique utilized in primary helicopter instruction. The instructor reported that, "at the time to commence a power recovery," while at approximately 20-50 feet above ground level, he noticed "the engine rpm needle was not coming up to meet the rotor rpm needle." The instructor immediately attempted to "roll maximum throttle on," but realized the throttle would not move, and took control of the helicopter. The student pilot told the instructor that the throttle was stuck. However, the instructor stated the throttle seemed "stuck because it was all the way open."

Subsequently, the helicopter contacted the ground and the right skid "dug into the soft ground." The helicopter rolled over coming to rest on its right side. The instructor stated that the engine was not running and the throttle was wide open when he took over the controls of the helicopter.

Examination of the helicopter by a Federal Aviation Administration (FAA) safety inspector, who responded to the accident site, revealed that the tail boom was severed, the main rotor blades were damaged, and the forward section of the right landing skid was separated from the landing gear crosstube assembly. Usable fuel was observed in the fuel tank and examination of the Lycoming HIO-360 engine revealed no mechanical anomalies. The throttle control cable was found connected and moved freely when manipulated by hand.

At 1951, the automated surface observing system (ASOS) at the Waco Regional Airport, near Waco, Texas, located approximately 15 miles north of the accident site reported wind from 110 degrees at 4 knots, visibility 10 statute miles, clear sky, temperature 86 degrees Fahrenheit, dew point 59 degrees Fahrenheit, and an altimeter setting of 30.06 inches of Mercury.

## Flight instructor Information

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| **Certificate:** | Flight instructor | **Age:** | 23,Male |
| **Airplane Rating(s):** | Single-engine land | **Seat Occupied:** | Right |
| **Other Aircraft Rating(s):** | Helicopter | **Restraint Used:** | |
| **Instrument Rating(s):** | Airplane; Helicopter | **Second Pilot Present:** | No |
| **Instructor Rating(s):** | Helicopter; Instrument helicopter | **Toxicology Performed:** | No |
| **Medical Certification:** | Class 2 Without waivers/limitations | **Last FAA Medical Exam:** | November 1, 2004 |
| **Occupational Pilot:** | Yes | **Last Flight Review or Equivalent:** | June 1, 2005 |
| **Flight Time:** | 724 hours (Total, all aircraft), 298 hours (Total, this make and model), 645 hours (Pilot In Command, all aircraft), 258 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft) | | |

## Aircraft and Owner/Operator Information

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| **Aircraft Make:** | Hughes | **Registration:** | N7487F |
| **Model/Series:** | 269C | **Aircraft Category:** | Helicopter |
| **Year of Manufacture:** | | **Amateur Built:** | |
| **Airworthiness Certificate:** | Normal | **Serial Number:** | 470589 |
| **Landing Gear Type:** | Skid | **Seats:** | 2 |
| **Date/Type of Last Inspection:** | May 1, 2005 100 hour | **Certified Max Gross Wt.:** | |
| **Time Since Last Inspection:** | 81.1 Hrs | **Engines:** | 1 Reciprocating |
| **Airframe Total Time:** | 6078.7 Hrs at time of accident | **Engine Manufacturer:** | Lycoming |
| **ELT:** | Not installed | **Engine Model/Series:** | HIO-360 |
| **Registered Owner:** | D.D. Leasing | **Rated Power:** | 198 Horsepower |
| **Operator:** | Brazos Helicopters LLC | **Operating Certificate(s) Held:** | None |
| **Operator Does Business As:** | Brazos Helicopters LLC | **Operator Designator Code:** | |

## Meteorological Information and Flight Plan

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| **Conditions at Accident Site:** | Visual (VMC) | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | KACT | **Distance from Accident Site:** | 25 Nautical Miles |
| **Observation Time:** | 00:51 Local | **Direction from Accident Site:** | 130° |
| **Lowest Cloud Condition:** | Clear | **Visibility** | 10 miles |
| **Lowest Ceiling:** | None | **Visibility (RVR):** | |
| **Wind Speed/Gusts:** | 4 knots / | **Turbulence Type Forecast/Actual:** | / |
| **Wind Direction:** | 110° | **Turbulence Severity Forecast/Actual:** | / |
| **Altimeter Setting:** | 30.04 inches Hg | **Temperature/Dew Point:** | 30°C / 15°C |
| **Precipitation and Obscuration:** | No Obscuration; No Precipitation | | |
| **Departure Point:** | Bruceville, TX | **Type of Flight Plan Filed:** | None |
| **Destination:** | Bruceville, TX | **Type of Clearance:** | None |
| **Departure Time:** | 19:10 Local | **Type of Airspace:** | |

## Wreckage and Impact Information

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| **Crew Injuries:** | 2 None | **Aircraft Damage:** | Substantial |
| **Passenger Injuries:** | | **Aircraft Fire:** | None |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | None |
| **Total Injuries:** | 2 None | **Latitude, Longitude:** | 31.299999,-97.150001 |

## Administrative Information

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| **Investigator In Charge (IIC):** | Lemishko, Alexander |
| **Additional Participating Persons:** | Dale R Johnson; Fort Worth, Texas; Fort Worth, TX |
| **Original Publish Date:** | October 27, 2005 |
| **Last Revision Date:** | |
| **Investigation Class:** | Class |
| **Note:** | This accident report documents the factual circumstances of this accident as described to the NTSB. |
| **Investigation Docket:** | https://data.ntsb.gov/Docket?ProjectID=61785 |