



National Transportation Safety Board Aviation Accident Final Report

Location:	Fredericksburg, TX	Accident Number:	DFW06FA102
Date & Time:	04/13/2006, 1840 CDT	Registration:	N123CK
Aircraft:	Robinson R44 II	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal, 2 Serious
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The 430-hour commercial helicopter pilot collided with unmarked power lines while attempting to depart the uncontrolled airport on an easterly heading from the airport's parking apron. The pilot lost control of the helicopter following the collision with the power lines and the helicopter impacted the ground. A post impact fire consumed most of the helicopter. Several witnesses observed the accident and provided written statements. The uncontrolled airport features a single runway aligned 140/320 degrees, and Unicom services are available. Eye-witnesses reported that the pilot did not hover-taxi the helicopter from the parking apron onto the parallel taxiway to the runway, but instead departed the apron area on an easterly direction between two ramp light fixtures that were 35 feet tall and 150 feet apart. The 32-foot high power lines impacted by the helicopter were located outside the airport perimeter and were 220 feet from the airport parking apron. The wind at the time of the mishap was reported from 190 degrees at 10 knots, with VMC weather conditions; however, the accident occurred during the early evening at 1840. Examination of the wreckage did not reveal any anomalies. Maintenance records for the helicopter that were provided did not reveal any discrepancies. The flight logbook for the pilot was not made available to the NTSB during the course of the investigation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's failure to maintain clearance with the power lines. Contributing factors were the dusk light condition and the pilot's non-compliance with standard taxi and takeoff procedures.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. OBJECT - WIRE, TRANSMISSION
2. (F) LIGHT CONDITION - DUSK
3. (F) PROCEDURES/DIRECTIVES - NOT COMPLIED WITH - PILOT IN COMMAND
4. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - UNCONTROLLED

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. TERRAIN CONDITION - GROUND

Factual Information

HISTORY OF FLIGHT

On April 13, 2006, approximately 1840 central daylight time (CDT), a single-engine Robinson R44 II helicopter, N123CK, was destroyed when it impacted the ground following an in-flight collision with power lines during takeoff from the Gillespie County Airport (T82), near Fredericksburg, Texas. The commercial pilot and one passenger sustained serious injuries, and two

other passengers were fatally injured. The helicopter was registered to IL Falconiere Holdings LLC, of Austin, Texas, and operated by the pilot. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The flight was originating at the time of the accident, and according to local authorities, its destination was to a private ranch near Austin, Texas.

Several witnesses observed the taxi and takeoff, including the helicopter's collision with the power lines. The following information was obtained from these statements. After topping-off the fuel tanks about 1800 from an airport fuel truck, the pilot hovered-taxied the helicopter from a parking-apron location between the airport's hotel and restaurant toward the southeastern end of the apron. There are two exits from the apron onto a parallel taxiway for the airport's one asphalt runway (5,202 feet by 75 feet); however, the helicopter did not turn onto the parallel taxiway, but departed in an easterly direction approximately 15-20 feet above the ground from the southern edge of the apron. The helicopter flew between two light fixtures, which are about 35 feet tall and 150 feet apart, before colliding with power lines running in a north/south direction. After the helicopter collided with the power lines, witnesses stated that the helicopter continued on an easterly heading with wire wrapped around the main rotor "while the nose of the aircraft appeared to be pulled down until the aircraft was in a vertical nose-down attitude." At the time of the accident, many fixed-wing aircraft were parked on the apron area, and two other helicopters were parked on a grassy area at the southern edge of the asphalt apron.

The power lines were reported to be approximately 32 feet above the ground, and were situated along the eastern edge of the airport's property, about 220 feet from the edge of the apron. The Gillespie County Airport does not have a control tower; the taxiway and runway (Runway 14/32) are oriented in a northwest-southeast direction.

A representative from Central Texas Electric Co-op reported that the three top primary conductor wires, including the cross arm, were yanked from a power line pole by the helicopter. The poles are approximately 276 feet apart, and the conductor wires are 0.313 inches in diameter.

PERSONNEL INFORMATION

The 40-year old pilot held a commercial pilot certificate with a helicopter rating and a private pilot certificate with a airplane single-engine land rating. The pilot's flight logbook was not located.

The pilot's most recent FAA second-class medical certificate was issued on September 7, 2005, with no medical restrictions. The pilot reported on the medical application that he had accumulated 400 hours of total flight time, of which 150 hours was in the last six months.

AIRCRAFT INFORMATION

The 2003-model single-engine, four-place, Robinson R-44 II helicopter, serial number 10190, was powered by a single 245-horsepower Lycoming IO-540-AE1A5 engine, serial number L-28965-48A, six cylinder, horizontally opposed, direct drive, air cooled, fuel injected, normally aspirated reciprocating engine. According to the maintenance records provided to the NTSB, the helicopter completed a 100-hour inspection on December 22, 2005, with 506.5 hours total time (TT). On April 3, 2006, a clutch actuator assembly was repaired indicating TT as 556.5 hours.

METEOROLOGICAL INFORMATION

At 1825, the automated surface observing system at T82 reported wind from 190 degrees at 10, visibility 10 statute miles, clear skies, temperature 28 degrees Celsius, dew point 10 degrees Celsius, and barometric pressure at 30.12 inches of Mercury. The density altitude was calculated by the NTSB investigator-in-charge (IIC) at 3,451 feet.

COMMUNICATION

One witness with a hand-held radio selected to the local UNICOM frequency (a nongovernmental communication service that provides airport information) stated that he heard the pilot say that he was taxiing, and that was all that the pilot said. The next transmission that the witness heard was "I hit it." No further transmissions or distress calls were heard by the witness.

WRECKAGE AND IMPACT INFORMATION

The on-scene investigation was conducted by the NTSB investigator-in-charge on April 14, 2006. The Global Positioning System (GPS) coordinates recorded at the accident site using a hand-held unit were latitude 30 degrees 14.03 minutes North and longitude 98 degrees 54.02 minutes West. The helicopter impacted the ground and came to rest in a drainage ditch on a heading of 032 degrees, approximately 265 feet from the airport property and power lines. The elevation was recorded at 1,688 feet. The first evidence of impact was a ground scar about 39 feet southwest of the wreckage, which showed a clean slice in the soil that was 36 inches long and 9 inches deep. One piece of power line wire extended 148 feet from the helicopter to the cross arm that was yanked from the power line pole. Another piece of power line wire that was wrapped around the main rotor and tail rotor extended outward 18 feet.

The cabin area was completely destroyed by a post impact fire that consumed the forward portion of the helicopter, including most of the flight instruments. No evidence of circuit breakers or warning lights was identified. The tail boom and tail rotor were attached to the fuselage, but not burned. A power line was found wrapped around the rotor head and passing around the tail rotor gearbox. The burned and warped main rotor blades remained attached to the rotor head. One main rotor blade was bent rearward; the other was bent upward and rearward. The engine was still attached to the rear section of the fuselage frame, and exhibited little impact damage, but was extensively damaged by fire. The forward portion of the main fuel tank was destroyed by fire. The auxiliary tank was unattached and located adjacent to the engine area; airport personnel stated that they removed the fuel cap and drained approximately one gallon of fuel during the wreckage recovery.

On April 16, 2006, the helicopter was recovered from the accident site to a hangar located at the Gillespie County Airport (T82)

for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

At the time of this report, the pilot has been in a coma since the accident.

FIRE

A post impact fire consumed the cockpit/cabin area. Both fuel tanks were ruptured, and fire also burned approximately one-half acre of pasture grass surrounding the wreckage.

TESTS AND RESEARCH

On June 28, 2006, at the Gillespie County Airport (T82), the wreckage was examined under the supervision of the NTSB investigator-in-charge (IIC) with representatives from the Federal Aviation Administration, Robinson Helicopter Company, and Lycoming Engines.

The forward portion of the airframe was severely damaged by fire, and most of the cabin, doors, and cowling were destroyed by fire. The empennage, tail skid "stinger" and tail rotor visual guard were intact. The mast fairing was torn or burned away along with most of the leading edge. The removable controls were all found loose in the cockpit and cabin wreckage area. The collective friction slider was not located. Four seat belt blade portions and four receptacles were located in the wreckage, but most of the webbing was burned away. The landing gear was separated from the cabin. The left skid was essentially intact, but the forward portion was bent to the left approximately 90 degrees. The skid was separated at the rear strut attachment point and from the forward strut. The right skid was separated from both struts. Both cross tubes were partially destroyed by fire; the remaining portions did not exhibit significant bowing.

The drive belts were destroyed by fire. The main rotor gearbox was free to rotate, but motion was constrained by the upper sheave contacting the centering link. A length of power line wire that was wrapped around the rotor head and tail rotor was removed; the cable was stretched out and measured to be 165 feet. The cable was also wrapped around the swashplate several times, and was pinched between the lower swashplate ears and the upper swashplate arms. The aft flex coupling appeared to be undamaged. The tail rotor gearbox appeared to be undamaged, and it rotated freely. The tail rotor hub and blades did not appear to be damaged. The tail rotor pitch change slider was free to slide along the tail rotor gearbox output shaft.

Most of the fuel system components were not located, and those that were found were severely fire damaged. The fuel valve was not located, and the electric fuel pump was fire damaged, including the fuel line between the gascolator and the pump. The mechanical pump was also fire damaged. There was continuity between the fuel servo and mixture/throttle control.

The magnetos sustained major thermal damage and would not rotate. A borescope inspection of the cylinders revealed no anomalies, and the spark plugs appeared normal as compared to the Champion Aviation Check-A-Plug Chart (AVO27). The crankshaft was rotated; thumb compression and continuity were established throughout the gear train. The fuel injectors and fuel flow divider were found free of debris. The examination of the engine did not reveal any preimpact mechanical anomalies that would have prevented normal operation.

ADDITIONAL INFORMATION

The wreckage was released to the owner's representative on September 13, 2006.

Pilot Information

Certificate:	Commercial; Private	Age:	40, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without Waivers/Limitations	Last FAA Medical Exam:	09/01/2005
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	430 hours (Total, all aircraft), 350 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Robinson	Registration:	N123CK
Model/Series:	R44 II	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Normal	Serial Number:	10190
Landing Gear Type:	Skid	Seats:	4
Date/Type of Last Inspection:	12/01/2005, 100 Hour	Certified Max Gross Wt.:	2500 lbs
Time Since Last Inspection:		Engines:	1 Turbo Shaft
Airframe Total Time:	506.5 Hours as of last inspection	Engine Manufacturer:	Lycoming

ELT:	Installed, not activated	Engine Model/Series:	IO-540-AE1A5
Registered Owner:	IL Falconiere Holdings LLC	Rated Power:	245 hp
Operator:	Edward C. Nemic	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Dusk
Observation Facility, Elevation:	T82, 1695 ft msl	Distance from Accident Site:	
Observation Time:	1825 CDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	190°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.12 inches Hg	Temperature/Dew Point:	28° C / 10° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fredericksburg, TX (T82)	Type of Flight Plan Filed:	None
Destination:	Private ranch, TX	Type of Clearance:	None
Departure Time:	1840 CDT	Type of Airspace:	

Airport Information

Airport:	Gillespie County airport (T82)	Runway Surface Type:	
Airport Elevation:	1695 ft	Runway Surface Condition:	
Runway Used:	NA	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Destroyed
Passenger Injuries:	2 Fatal, 1 Serious	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal, 2 Serious	Latitude, Longitude:	30.234167, -98.900556

Administrative Information

Investigator In Charge (IIC):	Frank McGill	Report Date:	02/26/2007
Additional Participating Persons:	Robert Arispe; FAA FSDO; San Antonio, TX Ken Martin; Robinson Helicopter Company; Torrance, CA Troy Helgeson; Lycoming Engines; Miliken, CO		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).