



National Transportation Safety Board Aviation Accident Final Report

Location:	LEANDER, LA	Accident Number:	FTW94LA253
Date & Time:	08/01/1994, 1345 CDT	Registration:	N9062G
Aircraft:	Hughes 269A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 None
Flight Conducted Under:	Part 137: Agricultural		

Analysis

THE HELICOPTER EXPERIENCED A COMPLETE LOSS OF ENGINE POWER DURING AN IGNITION FIRE CONTROL FLIGHT AT 100 FEET AGL. THE PILOT ENTERED AUTOROTATION TO THE ONLY AVAILABLE FORCED LANDING AREA. THE AIRCRAFT TOUCHED DOWN HARD AND SUSTAINED STRUCTURAL DAMAGE. POSTACCIDENT EXAMINATION OF THE ENGINE REALED THAT BOTH CONNECTING ROD BOLTS IN THE #1 CYLINDER WERE FRACTURED. A SAFETY BOARD METALLURGICAL EXAMINATION REVEALED THAT ONE OF THE CONNECTING ROD BOLTS HAD FAILED DUE TO A PREEXISTING FATIGUE CRACK THAT EMANATED FROM THE HEAD-TO-SHOULDER FILLET RADIUS OF THE BOLT. THE ENGINE WAS LAST OVERHAULED IN 1970. THE ENGINE MANUFACTURER ADVISES IN THEIR SERVICE INSTRUCTION LETTER DATED 7/1/92 THAT 'ALL ENGINES THAT DO NOT ACCUMULATE THE RECOMMENDED TIME OPERATING HOURS BETWEEN OVERHAULS IN A TWELVE YEAR PERIOD, MUST BE OVERHAULED DURING THE TWELFTH YEAR.' TEXTRON LYCOMING MANDATORY SERVICE BULLETIN NO. 240M REQUIRES REPLACEMENT OF THE CONNECTING ROD BOLTS AND NUTS EACH TIME THE ENGINE IS SUBJECT TO OVERHAUL.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: INADEQUATE MAINTENANCE AND A FATIGUE FAILURE OF A #1 CYLINDER CONNECTING ROD BOLT. A FACTOR WAS THE LACK OF SUITABLE TERRAIN AVAILABLE TO THE PILOT FOR A FORCED LANDING.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: MANEUVERING - AERIAL APPLICATION

Findings

1. (C) ENGINE ASSEMBLY,CONNECTING ROD BOLT - FATIGUE
2. (C) MAINTENANCE,OVERHAUL - NOT PERFORMED - OTHER MAINTENANCE PERSONNEL
3. (C) ENGINE ASSEMBLY,OTHER - FAILURE,TOTAL

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING

Findings

4. AUTOROTATION - PERFORMED - PILOT IN COMMAND

Occurrence #3: HARD LANDING
Phase of Operation: EMERGENCY LANDING

Findings

5. (F) TERRAIN CONDITION - NONE SUITABLE
6. TERRAIN CONDITION - HIGH VEGETATION

Factual Information

On August 1, 1994, at 1345 central daylight time, a Hughes 269A helicopter, N9062G, was substantially damaged during a forced landing near Leander, Louisiana. The commercial pilot, sole occupant of the helicopter, was not injured. The helicopter, owned and operated by ARK-LA-TX Helicopters Inc., of Rodessa, Louisiana, was being operated under Title 14 CFR Part 137 at the time of the accident. Visual meteorological conditions prevailed for the aerial ignition fire control flight for which a flight plan was not filed. The flight originated from an airstrip near the accident site, approximately 15 minutes prior to the accident.

According to the operator, the helicopter was conducting aerial ignition fire control operations at altitudes below 100 feet AGL when the engine lost power without warning. The pilot stated that due to his low altitude, he lowered the collective and entered an autorotation as soon as he sensed the loss of power. The area that he was operating over was covered by stumps and downed trees, so he attempted to touchdown with minimal or no forward speed, and the helicopter landed hard.

Post accident examination of the wreckage by the operator and the FAA inspector revealed structural damage to the airframe, tailboom, and main rotor blades. Post accident examination of the Lycoming HIO-360-B1A engine revealed that both connecting rod bolts for the number one cylinder failed while the engine was operating at 2,900 RPM.

According to the records, the engine had accumulated a total of 3,307 hours since new, with one engine overhaul performed in 1970, 936 hours prior to the accident. The recommended operating hours between overhauls for this engine is 1,500; however, the engine manufacturer advises on their Service Instruction Letter dated July 1, 1992, that "all engines that do not accumulate the recommended time operating hours between overhauls in a twelve year period, must be overhauled during the twelfth year."

Examination of the failed engine components was conducted by the Board's Materials Laboratory in Washington, D.C. The failure of the "trail" connecting rod bolts from the number one cylinder was a result of preexisting fatigue crack that initiated in the head-to-shoulder fillet radius of the bolt. See the enclosed Metallurgist's Factual Report for details of the examination.

Pilot Information

Certificate:	Commercial	Age:	, Male
Airplane Rating(s):	None	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 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	11/30/1993
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	2500 hours (Total, all aircraft), 4 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Hughes	Registration:	N9062G
Model/Series:	269A 269A	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Restricted	Serial Number:	64-18149
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	Annual	Certified Max Gross Wt.:	2400 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	3307 Hours	Engine Manufacturer:	Lycoming
ELT:	Not installed	Engine Model/Series:	HIO-360-B1A
Registered Owner:	WARD, JAMES D.	Rated Power:	180 hp
Operator:	WARD, JAMES D.	Operating Certificate(s) Held:	
Operator Does Business As:	ARK-LA-TX HELICOPTERS INC.	Operator Designator Code:	A2XG

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 9500 ft agl	Visibility	7 Miles
Lowest Ceiling:	Broken / 15000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	28° C / 18° C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1330 CDT	Type of Airspace:	Class G

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	HECTOR R CASANOVA	Report Date:	03/06/1997
Additional Participating Persons:	JACKY L WEST; BATON ROUGE, LA		
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 pubinquiry@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](#).