


		NTSB ID: LAX97LA150		Aircraft Registration Number: N13118	
		Occurrence Date: 04/16/1997		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place LIHUE, KAUAI		State HI	Zip Code 96703	Local Time 1424	Time Zone HST
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility: 9			
Aircraft Information Summary					
Aircraft Manufacturer Duff		Model/Series MINI-500 /MINI-500		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>On April 16, 1997, at 1424 hours Hawaiian standard time, a single-place Duff Mini-500 homebuilt experimental helicopter, N13118, was destroyed when it impacted the ground in the vicinity of Lihue, Kauai, Hawaii. The student pilot was fatally injured. The flight departed from the pilot's Anahole residence for an unknown destination. No flight plan was filed for the personal flight and no en route communications were received by any Federal Aviation Administration (FAA) facility.</p> <p>An eyewitness, who was approximately 1/4 mile from the crash location, stated that the aircraft appeared to be about 500 feet agl, and that the engine did not sound as if it was maintaining a steady rpm. The aircraft was then observed to start yawing to the left and right, which was followed by a left roll to an inverted attitude, from which it descended nose down to the ground. At the time the final roll began, the tail rotor and gear box were observed to separate from the tail boom. The witness also stated that he heard a "tick-tick-tick" sound emanating from the aircraft at the time that it appeared to be in trouble.</p> <p>The helicopter was examined by an FAA airworthiness inspector from the Honolulu, Hawaii, Flight Standards District Office, with the technical assistance of the aircraft kit manufacturer's safety investigator. According to their report, which is appended to this report, the fuel system was intact and without obstructions. The system was equipped with a motorcycle fuel filter, but no debris or obstructions were found in the filter and there was no evidence of a fuel problem. All control system linkage breaks that were found appeared to have resulted from fracture and not fatigue, and all rod ends that were broken had first been bent. The engine exhaust manifold bolts and head bolts were found to be finger tight. The internal parts of the engine were in new condition and correctly assembled. One manufacturer's bulletin on the carburetor, which specified a change in jets, had not been complied with; however, the inspector stated that the engine had been running rich so the noncompliance was not considered significant. The electronic engine ignition system was intact and functional. The engine contained coolant and oil, and no evidence was found that would indicate an engine problem.</p> <p>The main transmission and tail rotor gear box contained lubricant. The tail rotor gear box was severed in half but the internal gears were in new condition. The tail rotor blades were bent and one main rotor blade had separated from the rotor head and was found 30 feet away from the aircraft. Black paint, the color of the tail boom, was evident on the leading edge of both main rotor blades, and four impact dents were found on the tail boom moving progressively towards the cockpit. The upper right-hand windshield was separated from the airframe with a smear of paint transfer identical to the main rotor blade color.</p> <p>The FAA inspector stated that the student pilot's records indicated that he had received 12 hours of helicopter flight instruction in 1991, of which a total of only 1 hour was logged for both autorotation and pattern flight. Five years later, and without any known additional instruction, the pilot obtained and assembled a Mini-500 helicopter and proceeded to train himself to fly it</p>					
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Narrative (Continued)

after a flight instructor endorsement for solo flights that the FAA stated was in violation of FAR's 61.59, 61.87, 61.189, and 61.195.

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Landing Facility/Approach Information					
Airport Name LIHUE	Airport ID: LIH	Airport Elevation Ft. MSL	Runway Used 0	Runway Length	Runway Width
Runway Surface Type:					
Runway Surface Condition:					
Approach/Arrival Flown: NONE					
VFR Approach/Landing: None					
Aircraft Information					
Aircraft Manufacturer Duff		Model/Series MINI-500 /MINI-500		Serial Number	
Airworthiness Certificate(s): Experimental (Special)					
Landing Gear Type: Skid					
Amateur Built Acft? Yes	Number of Seats: 1	Certified Max Gross Wt. 815 LBS		Number of Engines: 1	
Engine Type: Reciprocating		Engine Manufacturer: Rotax		Model/Series: 582	
				Rated Power: 67 HP	
- Aircraft Inspection Information					
Type of Last Inspection Annual		Date of Last Inspection 02/1997	Time Since Last Inspection 9 Hours		Airframe Total Time 9 Hours
- Emergency Locator Transmitter (ELT) Information					
ELT Installed?/Type No		ELT Operated?	ELT Aided in Locating Accident Site?		
Owner/Operator Information					
Registered Aircraft Owner DOUGLAS G. DUFF		Street Address P.O. BOX 172			
		City ANAHOLA, KAUAI		State HI	Zip Code 96703
Operator of Aircraft DOUGLAS G. DUFF		Street Address P.O. BOX 172			
		City ANAHOLA, KAUAI		State HI	Zip Code 96703
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Personal					

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First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 44
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Sex: M	Seat Occupied: Center	Occupational Pilot? Business	Certificate Number: On File
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Certificate(s): Student

Airplane Rating(s): None

Rotorcraft/Glider/LTA: None

Instrument Rating(s): None

Instructor Rating(s): None

Current Biennial Flight Review?

Medical Cert.: Class 3	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 11/1996
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	21	9						21		
Pilot In Command(PIC)	9	9						9		
Instructor										
Instruction Received										
Last 90 Days	9	9						9		
Last 30 Days	2	2						2		
Last 24 Hours	1	1						1		

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? Yes	Second Pilot? No
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Flight Plan/Itinerary

Type of Flight Plan Filed: None

Departure Point ANAHOLA	State HI	Airport Identifier	Departure Time 1520	Time Zone HST
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Destination Local Flight	State	Airport Identifier	
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Type of Clearance: None

Type of Airspace: Class G

Weather Information

Source of Wx Information:

No record of briefing

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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
	0000		0 Ft. MSL	0 NM	0 Deg. Mag.

Sky/Lowest Cloud Condition: Scattered	2500 Ft. AGL	Condition of Light: Day
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Lowest Ceiling: None	0 Ft. AGL	Visibility: 15	SM	Altimeter: 30.00	"Hg
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Temperature: 25 °C	Dew Point: °C	Weather Conditions at Accident Site: Visual Conditions
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Wind Direction:	Wind Speed:	Wind Gusts:
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Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	
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Precip and/or Obscuration:

Accident Information

Aircraft Damage: Destroyed	Aircraft Fire: None	Aircraft Explosion: None
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- 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	0	0	0		0
- GRAND TOTAL -	1	0	0		1

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Administrative Information

Investigator-In-Charge (IIC)
WELDON T. ARMSTRONG

Additional Persons Participating in This Accident/Incident Investigation:

LANCE DALE
HONOLULU, HI