



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	FALL RIVER, MA	<b>Accident Number:</b>	BF093LA149
<b>Date &amp; Time:</b>	09/02/1993, 0830 EDT	<b>Registration:</b>	N8447
<b>Aircraft:</b>	LACH BENSEN B-8M	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Serious
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

AS THE PILOT WAS FLARING TO LAND, THE ROTOR CONTROL ARM (CONTROL STICK) FAILED AT A LOCATION JUST ABOVE THE PILOT'S HEAD. THE GYROCOPTER THEN ROLLED OVER AND CRASHED. A METALLURGICAL EXAMINATION REVEALED THE CONTROL ARM HAD FAILED FROM FATIGUE. THE FATIGUE ORIGINATED WHERE THE CONTROL ARM HAD BEEN CHAFED BY A LOOSE CLAMP.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FATIGUE FAILURE OF THE GYROCOPTER'S MAIN ROTOR CONTROL ARM. FACTORS RELATED TO THE ACCIDENT WERE: A LOOSE CLAMP ON THE ROTOR CONTROL ARM, DUE TO INADEQUATE MAINTENANCE OR INSPECTION, WHICH RESULTED IN CHAFING OF THE CONTROL ARM.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

1. (F) MAINTENANCE,INSPECTION - INADEQUATE - COMPANY/OPERATOR MANAGEMENT
2. (F) ROTORCRAFT FLIGHT CONTROL - LOOSE
3. (F) ROTORCRAFT FLIGHT CONTROL - CHAFED
4. (C) ROTORCRAFT FLIGHT CONTROL - FATIGUE

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Occurrence #2: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: LANDING

## Factual Information

On Thursday, September 2, 1993, at about 0830 EDT, a Lach Bensen B-8M, N8447, owned and operated by Walter Lach of Fall River, Massachusetts, rolled over and crashed during a landing at the Fall River Municipal Airport. The gyrocopter was substantially damaged. The pilot, who was the sole occupant, was seriously injured. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight was conducted in accordance with 14 CFR 91.

The pilot reported that as he was flaring to land, the rotor control arm (control stick) failed. The gyrocopter then went out of control, the engine RPM began increasing, and the gyrocopter rolled over and crashed. A post-accident examination of the gyrocopter revealed the control arm had failed in an area above the pilot's head. The fracture was 90 degrees to the longitudinal axis of the control arm.

An examination of the rotor control arm revealed that it had been manufactured from unalloyed aluminum tubing. The tubing was about one inch in diameter with a wall thickness of about 1/16 inch. Hardness of the tubing averaged 84.2 HRF, which was consistent with unalloyed aluminum.

Metallurgical examination of the rotor control arm revealed that it had failed from fatigue. Fatigue had originated in two areas on the outer diameter of the control arm, where it had been chafed by a loose clamp. Fatigue had progressed through the wall thickness of the control arm, then it continued circumferentially in both directions. The fatigue crack had progressed about half way around the tube before final overstress failure occurred.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	76, Male
<b>Airplane Rating(s):</b>	None	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	Gyroplane	<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 3 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	03/17/1992
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	617 hours (Total, all aircraft), 617 hours (Total, this make and model), 14 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

Aircraft Make:	LACH	Registration:	N8447
Model/Series:	BENSEN B-8M BENSEN B-8	Aircraft Category:	Gyroplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	1122
Landing Gear Type:	Tricycle	Seats:	1
Date/Type of Last Inspection:	03/09/1993, Annual	Certified Max Gross Wt.:	580 lbs
Time Since Last Inspection:	5 Hours	Engines:	1 Reciprocating
Airframe Total Time:	617 Hours	Engine Manufacturer:	CONTINENTAL
ELT:	Not installed	Engine Model/Series:	C-65
Registered Owner:	WALTER LACH	Rated Power:	65 hp
Operator:	WALTER LACH	Operating Certificate(s) Held:	None

## 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:	Clear / 0 ft agl	Visibility	100 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	/	Turbulence Type Forecast/Actual:	/
Wind Direction:	60°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	21 °C
Precipitation and Obscuration:			
Departure Point:		Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0000	Type of Airspace:	Class G

## Airport Information

Airport:	FALL RIVER MUNI (FLR)	Runway Surface Type:	Asphalt
Airport Elevation:	193 ft	Runway Surface Condition:	Dry
Runway Used:	6	IFR Approach:	None
Runway Length/Width:	3950 ft / 150 ft	VFR Approach/Landing:	Traffic Pattern

## Wreckage and Impact Information

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

## Administrative Information

<b>Investigator In Charge (IIC):</b>	JERRY JAMISON	<b>Report Date:</b>	06/30/1994
<b>Additional Participating Persons:</b>	ROBERT S LEE; BEDFORD, MA		
<b>Publish Date:</b>			
<b>Investigation Docket:</b>	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 <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.ntsbt.gov/pubdms/">http://dms.ntsbt.gov/pubdms/</a> .		

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