

Robinson Helicopter Company Accident Report

AIRCRAFT MODEL:	<u>R44 Raven II</u>
SERIAL NUMBER:	<u>10984</u>
REGISTRATION:	<u>N89LA</u>
ACCIDENT DATE:	<u>08 August 2020</u>
ACCIDENT LOCATION:	<u>Logan, Iowa</u>
NTSB IDENTIFICATION:	<u>CEN20LA330</u>

REPORT WRITTEN BY: Thom Webster

SIGNATURE: 

DATE: 19 August 2021

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Note: A digital disc (DVD) containing all photos taken by Robinson Helicopter Company is included at the end of this report.



National Transportation Safety Board Aviation Accident Preliminary Report

Location:	Logan, IA	Accident Number:	CEN20LA330
Date & Time:	August 8, 2020, 18:45 Local	Registration:	N89LA
Aircraft:	Robinson R44	Injuries:	1 Serious
Flight Conducted Under:	Part 137: Agricultural		

On August 8, 2020, about 1845 central daylight time, a Robinson R-44II helicopter, N89LA, sustained substantial damage when it was involved in an accident near Logan, Iowa. The commercial pilot sustained serious injuries. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 137 aerial application flight.

The pilot was assigned to spray a 380-acre cornfield. The pilot had just completed several spray runs and was turning to line up for another run, when he heard the engine emit a "pop" noise and the engine then accelerated. The pilot pulled pitch to slow the engine with no avail. The pilot reported he had control of the helicopter, but he did not have control of the engine speed. The pilot attempted to flare and land the helicopter; however, the helicopter impacted an area of rising terrain and came to rest on its right side.

The helicopter sustained substantial damage to the fuselage, the main rotor system, the tailboom, and the tail rotor system. The helicopter was recovered from the accident site for a future examination of the airframe and engine.

Aircraft and Owner/Operator Information

Aircraft Make:	Robinson	Registration:	N89LA
Model/Series:	R44 II	Aircraft Category:	Helicopter
Amateur Built:	No		
Operator:		Operating Certificate(s) Held:	Agricultural aircraft (137)
Operator Designator Code:			

Meteorological Information and Flight Plan

Conditions at Accident Site:	VMC	Condition of Light:	Day
Observation Facility, Elevation:	KTQE, 1028 ft msl	Observation Time:	22:54 Local
Distance from Accident Site:	19 Nautical Miles	Temperature/Dew Point:	29° C / 23° C
Lowest Cloud Condition:		Wind Speed/Gusts, Direction:	6 knots / , 180°
Lowest Ceiling:	Overcast / 3300 ft AGL	Visibility:	10 miles
Altimeter Setting:	29.92 inches Hg	Type of Flight Plan Filed:	None
Departure Point:	Logan, IA	Destination:	Logan, IA

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	41.643054, -95.789169 (est)

Administrative Information

Investigator In Charge (IIC):	Hodges, Michael
Additional Participating Persons:	Patrick Blaskovich; FAA Des Moines FSDO; Ankeny, IA
Note:	The NTSB did not travel to the scene of this accident.

GENERAL ACCIDENT DATA

Time and Location Data

Date of Accident: 08 August 2020 Time: 18:45 Central Daylight Time
Location: Logan, Iowa
GPS Coordinates: 41°37'53.79"N 95°47'36.65"W
Surface Elevation: 1091 Feet Above Sea Level
Accident Occurred During: While lining up for another spray run
Route of Flight: Agricultural spray pattern
Purpose of Flight: Spray a corn field
Last Fuel Point (Location; gal.): N/O
Date & Time: N/O

Helicopter Data

Model: R44 Raven II Serial No. 10984 Registration N89LA

Airworthiness Certificate

Type: Special Category: Restricted Issue Date: 06/15/2011

	<u>Aircraft</u>	<u>Engine</u>
Total Time:	<u>2017.2 Hours</u>	<u>2017.2 Hours</u>
Total Time Since Overhaul:	<u>N/A</u>	<u>N/A</u>

Annual Inspection

Date of Last Inspection:	<u>09 June 2020</u>	<u>21 May 2018</u>
Time Since Last Inspection:	<u>74.9 Hours</u>	<u>306.3 Hours</u>

100 Hour Inspection

Date of Last Inspection:	<u>09 June 2020</u>	<u>09 June 2020</u>
Time Since Last Inspection:	<u>74.9 Hours</u>	<u>74.9 Hours</u>

Owner (Name/Address):: Mills County Choppers Inc.
[REDACTED]
Red Oak, Iowa 51566-4417

Operator (Name/Address):: Same

N/A = Not Applicable

N/O - Not Obtained

Pilot in Command Data

Name:	Corey James Adcock		
Address:	[REDACTED] Victoria, Texas 77905-3775		
Pilot Certificate No.:	[REDACTED]		
Date of Birth:	[REDACTED]		
Citizenship:	United States of America		
Occupation:	Pilot		
Seat Occupied:	Right Front		
Degree of Injury:	Minor		

Certificates

☐ None	☐ Student	☐ Private	☒ Commercial	☐ Recreational
☐ ATP	☐ Flight Instructor	☐ Flight Engineer	☐ Mechanic	☐ Military
☐ Foreign				

Ratings

Airplane:	☐ None	☒ SE Land	☐ ME Land	☐ SE Sea	☐ ME Sea
Other A/C:	☐ None	☒ Helicopter	☐ Gyroplane	☐ Free Balloon	☐ Powered Lift
	☐ Airship	☐ Glider			
Instrument:	☐ None	☐ Airplane	☒ Helicopter	☐ Powered Lift	
Instructor:	☒ None	☐ SE Airplane	☐ ME Airplane	☐ Instr. Airplane	☐ Instr. Helicopter
	☐ Glider	☐ Helicopter	☐ Gyroplane	☐ Powered Lift	
Mechanic:	☒ None	☐ Airframe	☐ Powerplant	☐ Repairman	☐ Inspection Authorization

Medical Certificate

Date Issued: 5/2021 Class: Second

Limitations: THE CARRIAGE OF PASSENGERS FOR HIRE IN AIRPLANES ON CROSS-COUNTRY FLIGHTS IN EXCESS OF 50 NAUTICAL MILES OR AT NIGHT IS PROHIBITED.

Pilot Time

<u>Aircraft</u>	<u>Last 24 Hrs.</u>	<u>Last 90 Days</u>	<u>Total</u>	<u>Total PIC</u>
R22				
R44				
R66				
Total Helicopter				
Total Other				

Source of Pilot Time Data: N/O

N/A = Not Applicable

N/O - Not Obtained

Second Pilot or Passenger Data

Name: N/A

Address:

Pilot Certificate No.:

Date of Birth:

Citizenship:

Occupation:

Seat Occupied:

Degree of Injury:

Certificates

☐ None ☐ Student ☐ Private ☐ Commercial ☐ Recreational
☐ ATP ☐ Flight Instructor ☐ Flight Engineer ☐ Mechanic ☐ Military
☐ Foreign

Ratings

Airplane:	☐ None	☐ SE Land	☐ ME Land	☐ SE Sea	☐ ME Sea
Other A/C:	☐ None	☐ Helicopter	☐ Gyroplane	☐ Free Balloon	☐ Powered Lift
	☐ Airship	☐ Glider			
Instrument:	☐ None	☐ Airplane	☐ Helicopter	☐ Powered Lift	
Instructor:	☐ None	☐ SE Airplane	☐ ME Airplane	☐ Instr. Airplane	☐ Instr. Helicopter
	☐ Glider	☐ Helicopter	☐ Gyroplane	☐ Powered Lift	
Mechanic:	☐ None	☐ Airframe	☐ Powerplant	☐ Repair Station	☐ Inspection Authorization

Medical Certificate

Date Issued: _____ Class: _____
Limitations: _____

Pilot Time

<u>Aircraft</u>	<u>Last 24 Hrs.</u>	<u>Last 90 Days</u>	<u>Total</u>	<u>Total PIC</u>
R22				
R44				
R66				
Total Helicopter				
Total Other				

Source of Pilot Time Data:

N/A = Not Applicable

N/O - Not Obtained

Weight & Balance, R44

No data was provided.

Basic Empty Weight, Center of Gravity.

Basic Empty Weight 0 lb

Longitudinal CG 0 in

Longitudinal Moment 0 in-lb

Loading

		Location (in)	Moment (in- lb)
<u>Occupants</u>			
Right Front Seat	<u>0</u> lb	<u>49.5</u>	<u>0</u>
Left Front Seat	<u>0</u> lb	<u>49.5</u>	<u>0</u>
Right Rear Seat	<u>0</u> lb	<u>79.5</u>	<u>0</u>
Left Rear Seat	<u>0</u> lb	<u>79.5</u>	<u>0</u>

Cargo

Right Front Seat	<u>0</u> lb	<u>44</u>	<u>0</u>
Left Front Seat	<u>0</u> lb	<u>44</u>	<u>0</u>
Right Rear Seat	<u>0</u> lb	<u>79.5</u>	<u>0</u>
Left Rear Seat	<u>0</u> lb	<u>79.5</u>	<u>0</u>

Fuel at Takeoff

Main Fuel	<u>0</u> gallons @ 6 lb/gallon =	<u>0</u> lbs	<u>106</u>	<u>0</u>
Auxiliary Fuel	<u>0</u> gallons @ 6 lb/gallon =	<u>0</u> lbs	<u>102</u>	<u>0</u>

Fuel at Time of Accident

Main Fuel	<u>0</u> gallons @ 6 lb/gallon =	<u>0</u> lbs	<u>106</u>	<u>0</u>
Auxiliary Fuel	<u>0</u> gallons @ 6 lb/gallon =	<u>0</u> lbs	<u>102</u>	<u>0</u>

Total Weight, CG, Moment: Takeoff

Total Weight 0 lb

Longitudinal CG #DIV/0! in

Longitudinal Moment 0 in-lb

Total Weight, CG, Moment: Time of Accident

Total Weight 0 lb

Longitudinal CG #DIV/0! in

Longitudinal Moment 0 in-lb

Instrument and Cabin Data

<u>Instruments:</u>		<u>Switches:</u>	
Vertical Speed	75 fpm Descent	NAV Lights	On
Airspeed	Zero	Strobe	On
Engine/Rotor Tach.	Lower Pins	Clutch	Engaged
Altimeter	218' @ 29.68	Clutch Guard	Down
Manifold Pressure	29.9 inhg	Alternator	Damaged
CAT	N/A	Master	On
OAT	Inoperable	Ignition	Both
Amps	Zero	Landing Light	Off
Oil Pressure	Zero Pin	Hydraulics	On
Oil Temperature	Lower Pin	Map Light	Off
Cyl. Head Temp.	Lower Pin	Governor	On
Main Fuel	Empty Pin	Air Conditioner	N/A
Aux Fuel	Empty Pin	Intercom	Inoperable
Dimmer/Panel Lights	Full Bright	Spray Motor	On
Clock	09:23	Sprayer	On
Compass	Damaged	<u>Control Knobs:</u>	
Hour Meter	2017.2 Hours	Cabin Air	Open 1"
		Mixture	Full Rich
Transponder	N/A	Mixture Guard	Hanging Down
Comm/Nav Radios	N/A	Carburetor Heat	N/A
Attitude Indicator	Nose Down 25° Left bank 18°	Cabin Heat Valve	Off
GPS	N/A	Cyclic Friction	Off
Directional Gyro	95°	Collective Friction	Damaged
		Fuel Valve	On
		Restraint System	

Survey of Temperature Stickers

Main Rotor Gear Box	N/O	(220-270)
Tail Rotor Gear Box	All Silver	(140-190)
Top Belt Actuator Bearing	All Silver	(140-190)
Bottom Belt Actuator Bearing	All Silver	(140-190)
Hydraulic Pump	N/O	(220-270)

Circuit Breaker Information

All circuit breakers were “Down” or “In” except for GAGES, WARN LTS, ICS and one marked “INOP”, which were “Up” or “Out”.

Warning Light Information

<u>Description</u>	<u>Tight Coil</u>		<u>Stretched Coil</u>
Low Rotor RPM	X		
Low Fuel		Damaged	
TR Chip		Damaged	
Starter On		Damaged	
MR Chip	X		
MR Temp	X		
Clutch	X		
Alternator	X		
Oil Pressure - Engine	X		
Governor OFF	X	Broken	
Rotor Brake	X		
Carbon Monoxide	X		
Engine Fire	X		
Fuel Filter	X		
Aux Fuel Pump	X		

Weather at Time of Accident

Reporting Point Location	Eppley Airfield @1852 Central Daylight Time		
Distance from Accident Site	23 miles		
Direction From Accident Site	South		
Sky Cover	Mostly Cloudy		
Wind	8 mph from east southeast	Temperature	85°F
Visibility	10 Statute Miles	Dew Point	73°F
Turbulence	None reported	Altimeter Setting	28.87 inhg
Source of Weather	Internet – weatherunderground		

Reporting Point Location			
Distance from Accident Site			
Direction From Accident Site			
Sky Cover			
Wind	X Knots from XXX°	Temperature	
Visibility	Statute Miles	Dew Point	
Turbulence		Altimeter Setting	
Source of Weather			

Flight Plan: _____

Weather Brief: _____

Ground Conditions at Accident Site

Soft dirt berm running between rows of corn.

Ground Damage

A few corn stalks.

WITNESS INFORMATION AND STATEMENTS

Name: _____
Address: _____

Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____

Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____

Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____

Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

Name: _____
Address: _____

Phone No. _____ Age: _____
Email: _____
Signed Statement Taken: _____ Yes _____ No

CONTACTS

NTSB Investigator in Charge

Name: Michael Hodges
Title: Air Safety Investigator
Address: [REDACTED]
Denver, Colorado 80239-2793
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

FAA Investigator

Name: Patrick Blaskovich
Title: Principle Airworthiness Inspector
Address: [REDACTED]
Ankeny, Iowa 50021
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

Powerplant Air Safety Investigator

Name: _____
Title: _____
Address: _____
Tel: _____ Fax: _____ Email: _____

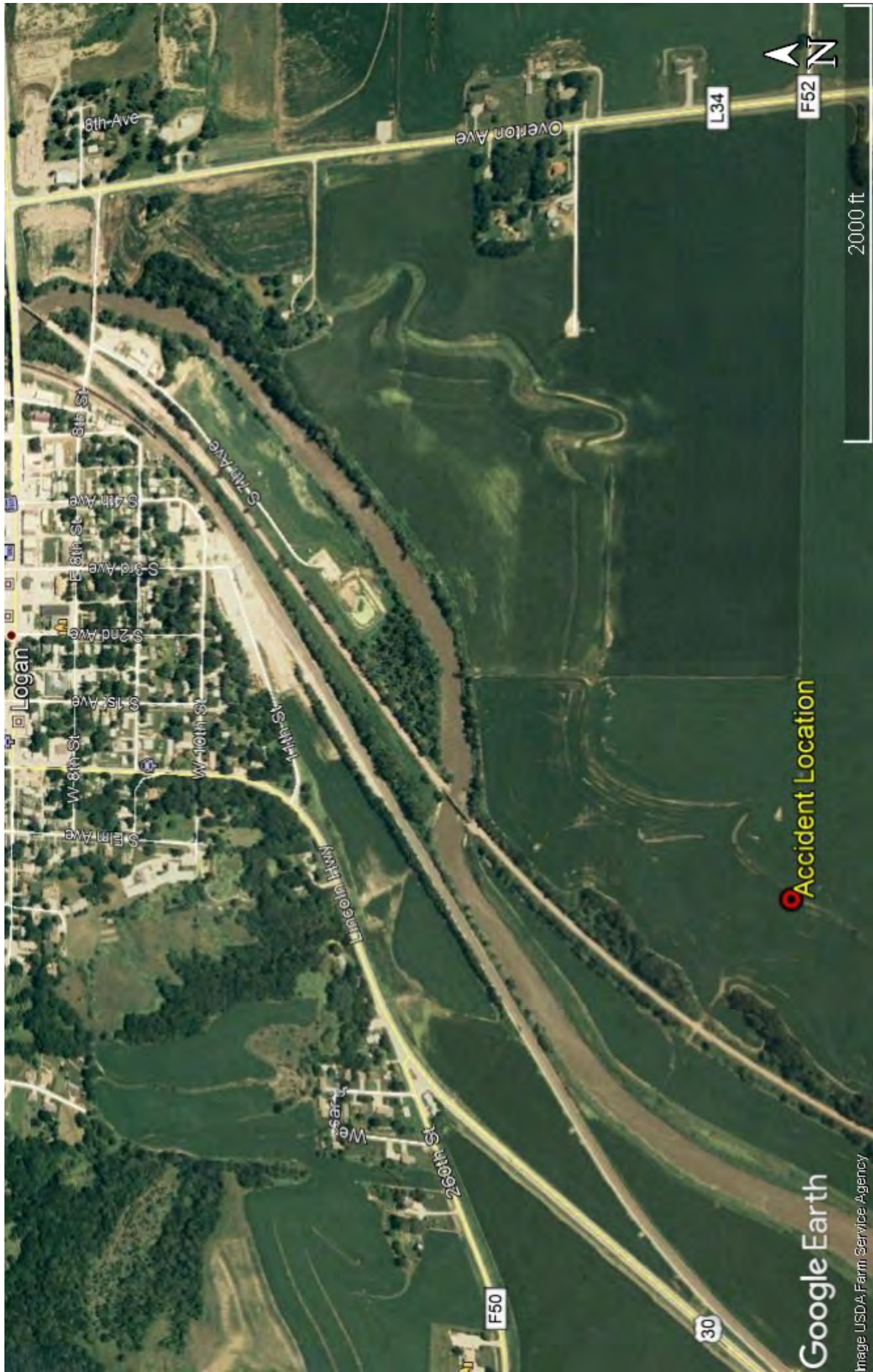
Recovery Company

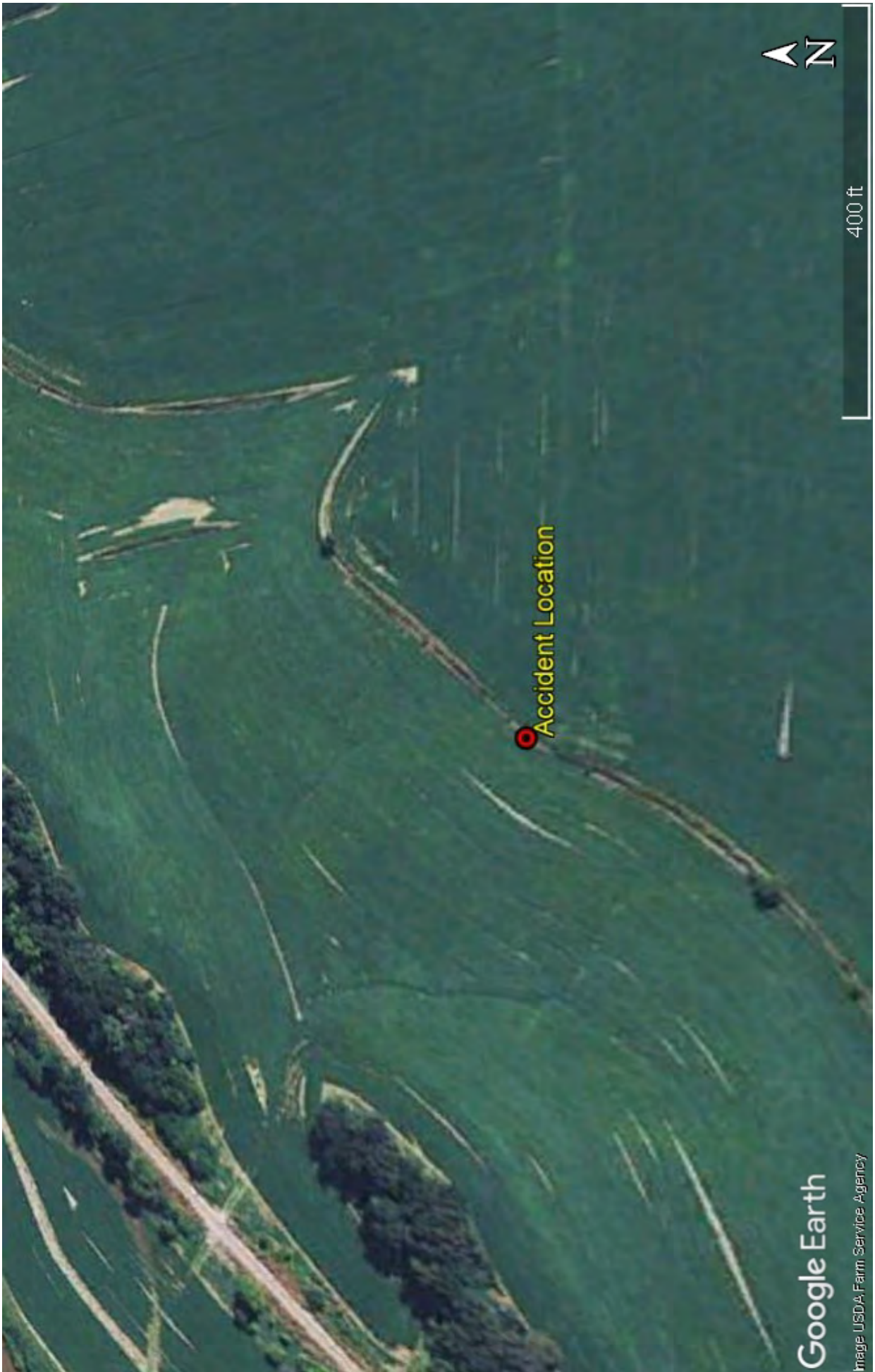
Name: Dawson's Aircraft Parts and Salvage
Address: [REDACTED]
Clinton, Arkansas
Tel: [REDACTED] Fax: [REDACTED] Email: [REDACTED]

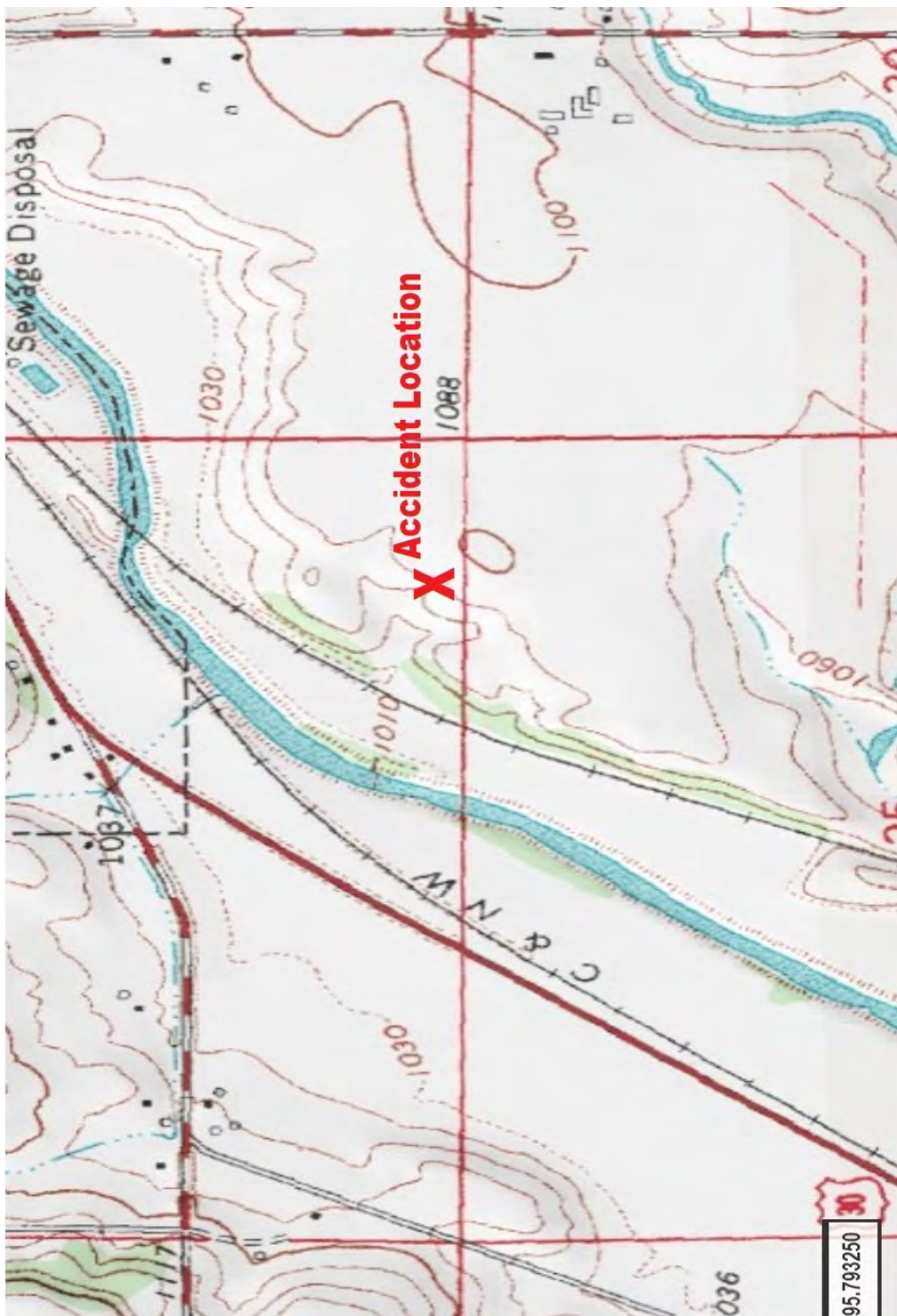
Local Law Enforcement

Name: _____
Address: _____
Tel: _____ Fax: _____ Email: _____

ACCIDENT LOCATION







WRECKAGE DISTRIBUTION LEGEND

No Wreckage mapping was performed.

<u>Item</u>	<u>Description</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Elevation (feet)</u>
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

WRECKAGE EXAMINATION - GENERAL

On 15 June, 2021, a detailed examination of the wreckage was performed at the new owners facility in Burlington, Vermont. Present for the examination was Leah Reed (NTSB) and Thom Webster (RHC). Details and photographs of the examination are in the following pages.



Above and below: Aircraft at accident location (Photos provided by NTSB).





Above and below: Aircraft prior to examination.





Above and below: Aircraft prior to examination.



COCKPIT AND CABIN

The forward portion of the cabin was separated from the rear portion just forward of the rear seat structures. The separation was partially impact damage and partially recovery cutting.

The upper instrument console was separated from the lower console and sustained impact damage.

The radios and avionics had been removed.

The right side pedals were positioned with the right pedal forward. The pedals, cyclic and collective were free to move as the control tubes had been cut during recovery. The removable controls were not present.

The collective friction hardware was bent and deformed with the friction hardware at the bottom of the slider. The collective friction knob was positioned below the collective stick.

The front right seat support was compressed and deformed. The front left seat support was deformed near the bottom. The rear seat supports were both slightly deformed.

The front right seat belt was buckled. The other three were not buckled. All of the seat belt inertia reels operated properly.



Above and below: Cabin.





Upper console.



Lower instrument cluster.



Avionics panel.



Auxiliary avionics bracket.



Right side pedals.



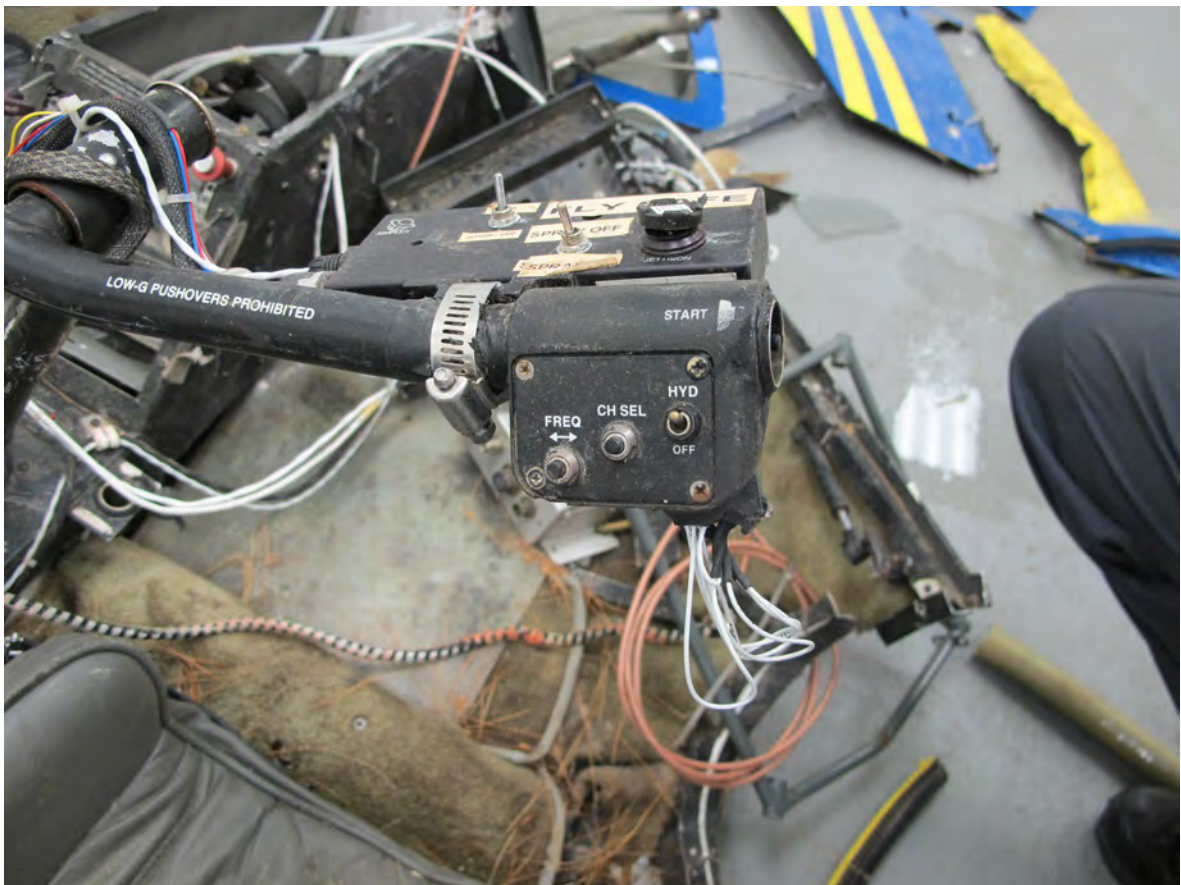
Left side pedal sockets.



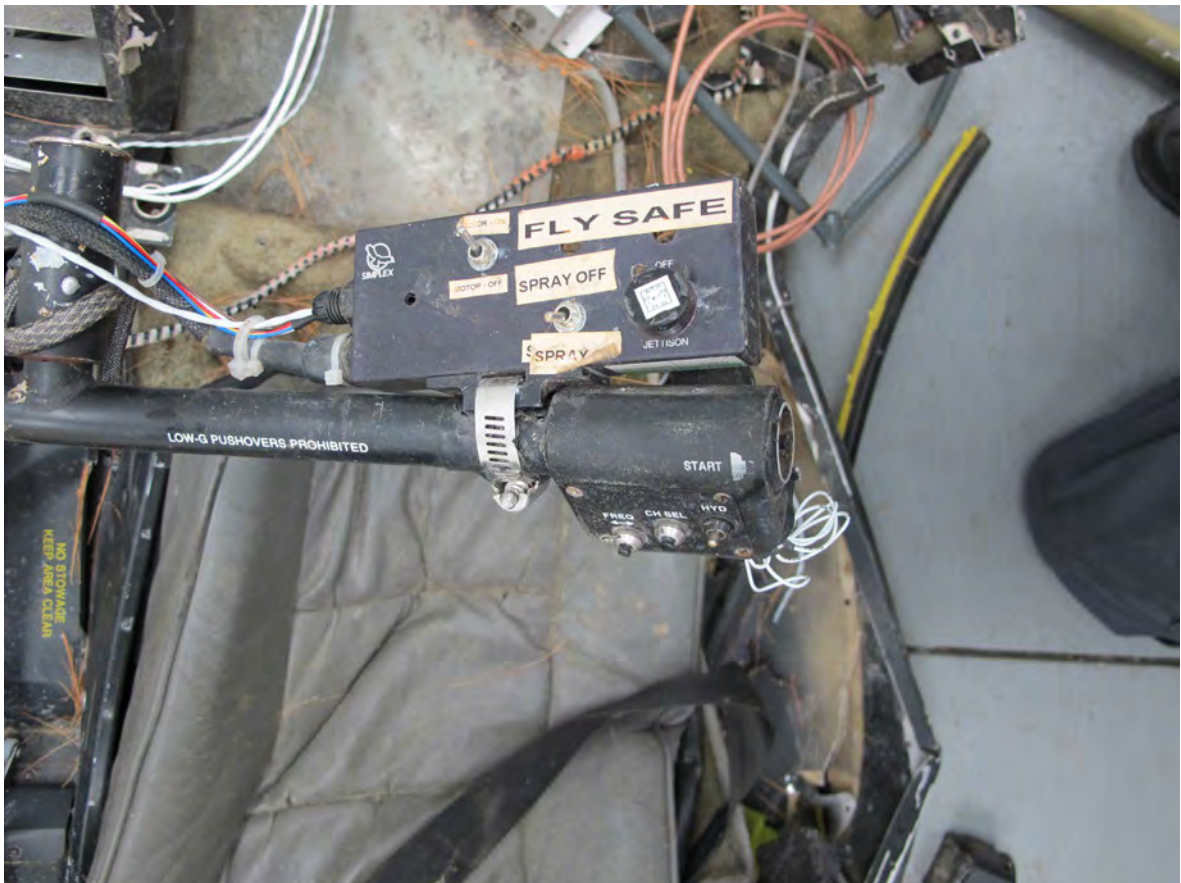
Circuit breaker panel.



Cyclic panel.



Above and below: Right side cyclic grip.





Governor switch.



Fuel valve knob.



Collective friction hardware.



Compass.



Front seats.



Front right seat support.



Front left seat support.



Rear seats.



Front right seat belt buckle and latch.



Front left seat belt buckle and latch.



Rear seat belt latches.

FUEL SYSTEM

The main fuel tank was dented. The bladder was intact. The finger strainer was clear of debris. The filler cap was secure on the filler neck. No fuel remained in the tank.

The auxiliary fuel tank was dented. The bladder was intact. The finger strainer was clear of debris. The filler cap was secure on the filler neck. No fuel remained in the tank.

The rollover valves were separated from the vent tubes. The ball action of the rollover valves could be heard and felt when inverting the valves. The vent tubes and hoses were clear when blown through.

The fitting between the gascolator and fuel pump was disconnected. The surface of the disconnect was angular and jagged.

The gascolator screen was partially blocked (approximately 5%). The gascolator bowl was dry with some small debris.



The main fuel tank.



The main fuel tank filler neck and cap.



The auxiliary fuel tank.



The auxiliary fuel tank filler neck and cap.



Fuel system vent hoses and tubes with auxiliary fuel tank rollover valve.



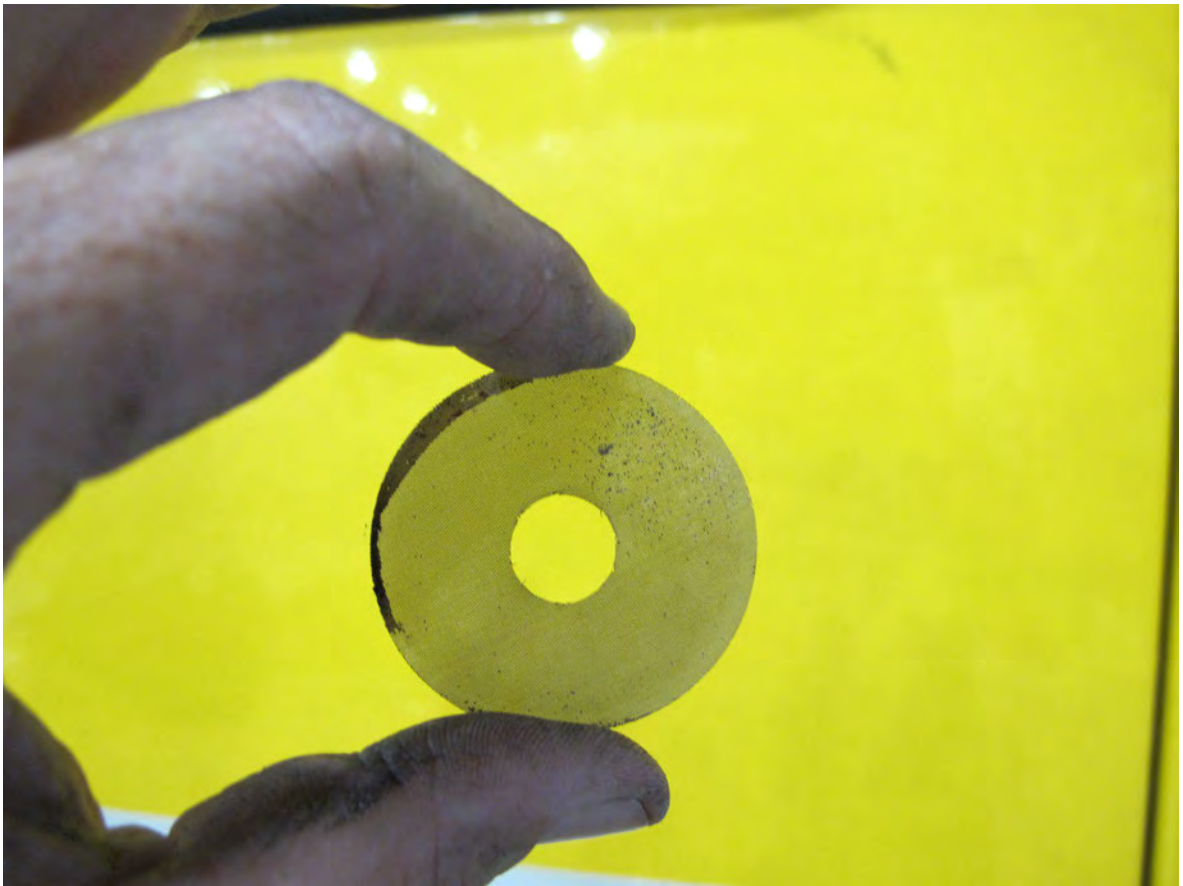
Main fuel tank fuel tank rollover valve.



Fuel system vent tubes.



Gascolator and disconnect in fuel fitting.



Gascolator screen.

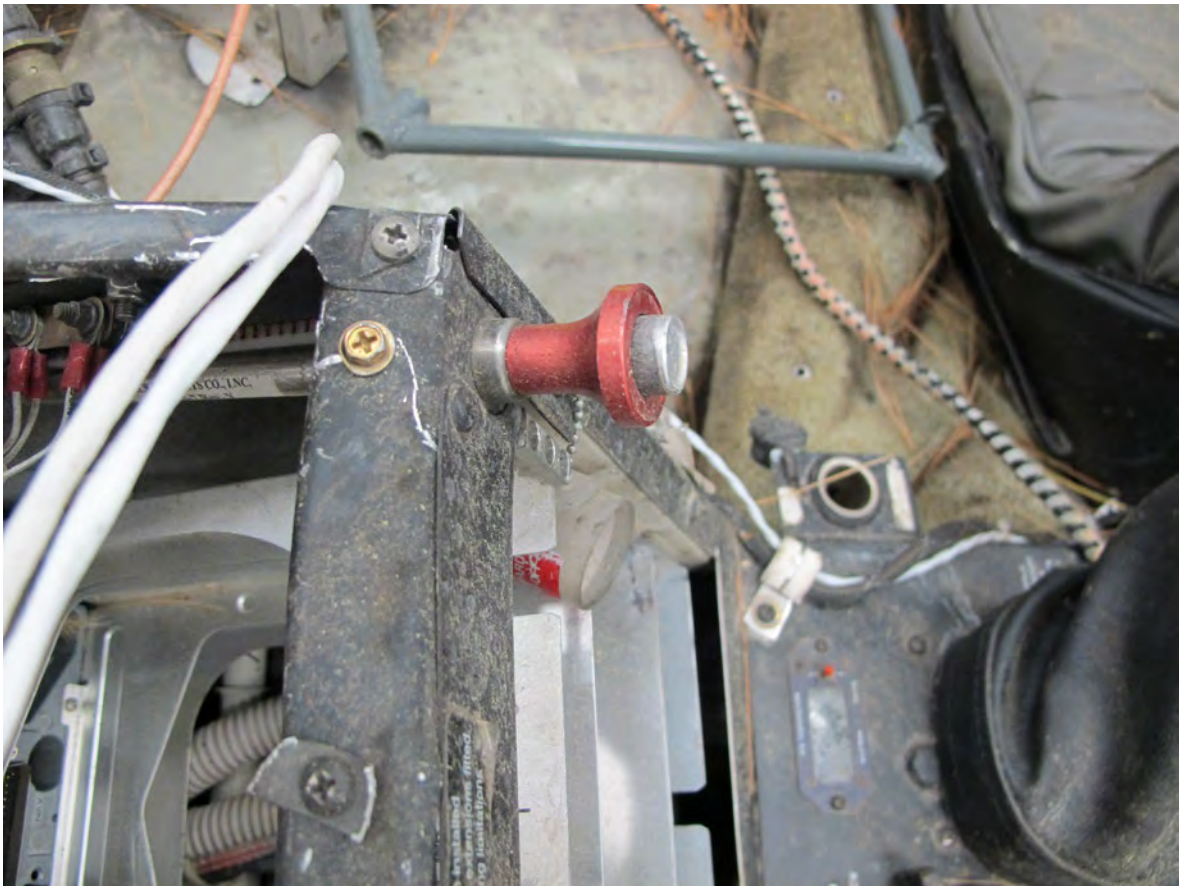


Gascolator bowl.

POWERPLANT CONTROLS

The fuel mixture control knob was in the full rich position. The mixture knob guard was hanging on its chain. The mixture control wire was cut during recovery. The fuel mixture control arm on the fuel control unit was in the full rich position. The mixture control wire and sheath were secure at the fuel control unit.

The throttle connecting rod was in the full open position. The throttle linkage was cut during recovery. The throttle linkage on the fuel control unit was not accessible due to airframe damage.



Fuel mixture control knob.



Fuel mixture control at fuel control unit.



Throttle position at left collective.

POWERPLANT

The engine sustained minor impact damage.

The cooling scroll was damaged by the intermediate flex coupling. The cooling fan appeared undamaged. The fan alignment marks were not aligned with the roll pin. The fan hub hardware was secure. Removing the fan revealed galling on the fan shaft and in the fan hub. The galling ran in the direction of rotation.

Magnetos were not accessible due to fuselage damage. Attempts to get a spark from the ignition leads while turning the fan by hand were unsuccessful.

The orange colored intake duct was severely damaged. There was no visible indication of delamination of the inner layer. A review of the airframe logbooks showed no compliance to SB-97 or AD 2020-18-08.

The lower spark plugs were removed and photographed. All were black in color and appeared to have normal wear. Three were oil soaked.

The valve covers were removed and the crankshaft was rotated by hand using the cooling fan with no anomalies. All of the rockers appeared to move smoothly through their entire travel and thumb suction and compression was present in all cylinders. The left side oil cooler had a deep score mark (running in the direction of rotation of the starter ring gear) adjacent to the starter ring gear. The ring gear did not contact the cooling panel on the right side.

The outside edge of the alternator cooling fan was distorted and had scoring around its circumference.

The aft face of the upper sheave did not contact the clutch centering strut nor the belt tension actuator. The forward face of the upper sheave had scoring around its circumference and the airframe tube adjacent to the face had deep scoring running in the direction of sheave rotation.



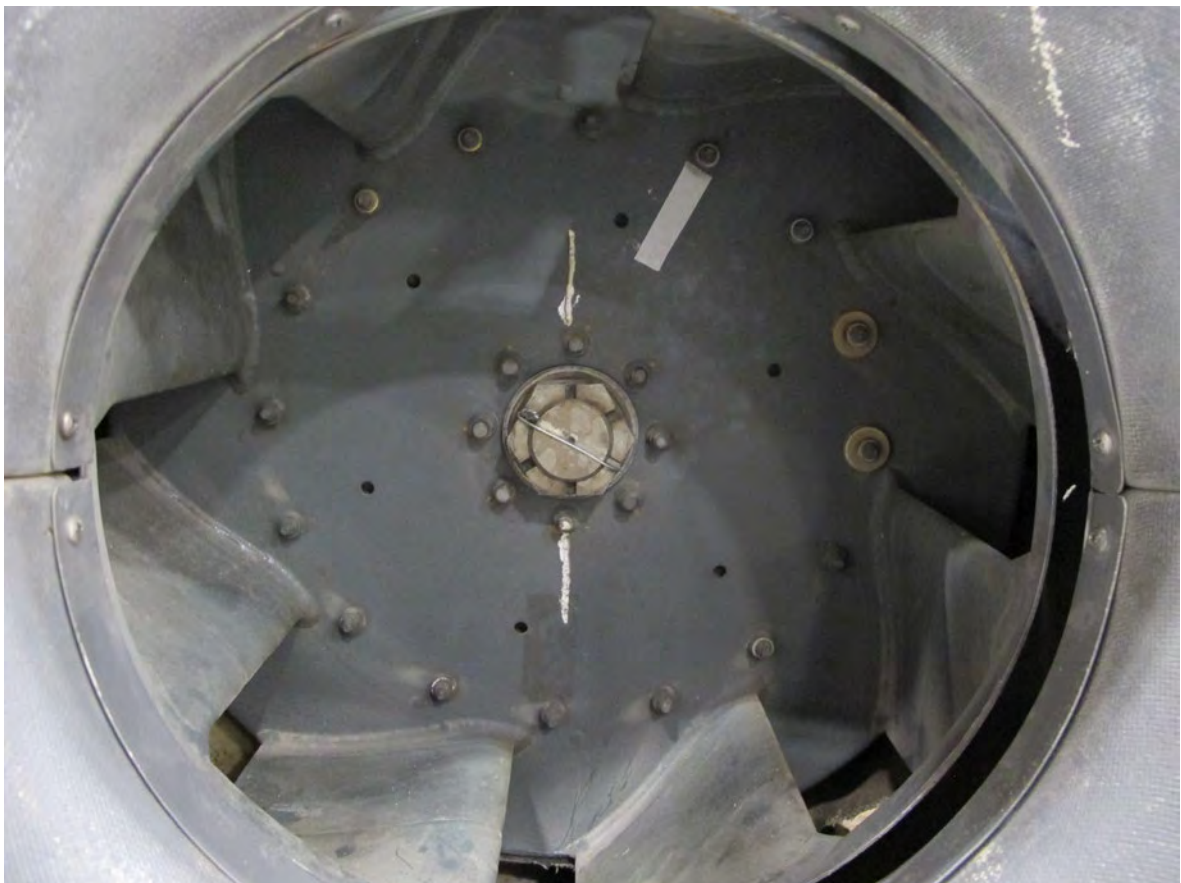
Right side of engine (left side of aircraft).



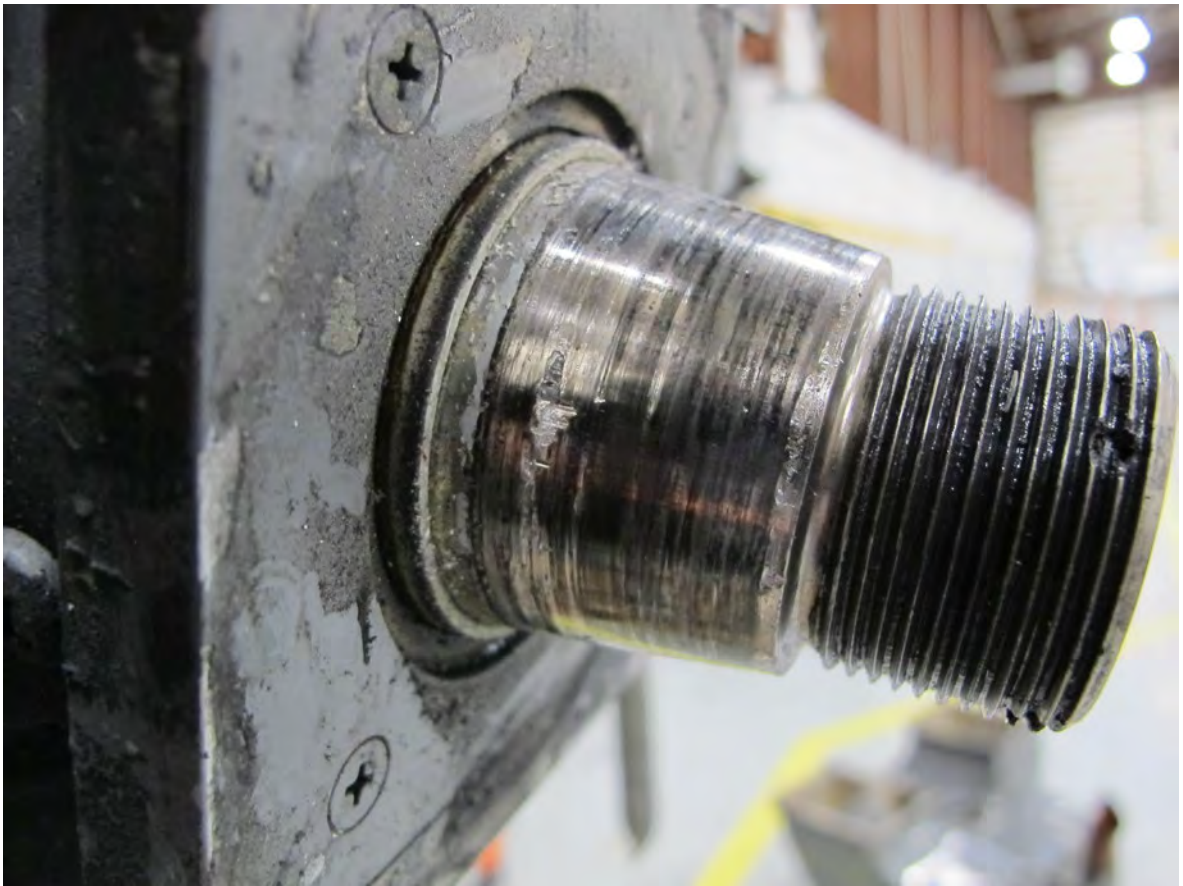
Left side of engine (right side of aircraft).



Cooling scroll.



Cooling fan. Note alignment marks are no longer aligned with roll pin.



Above and below: Galling on fan shaft and in fan hub after removal of fan.





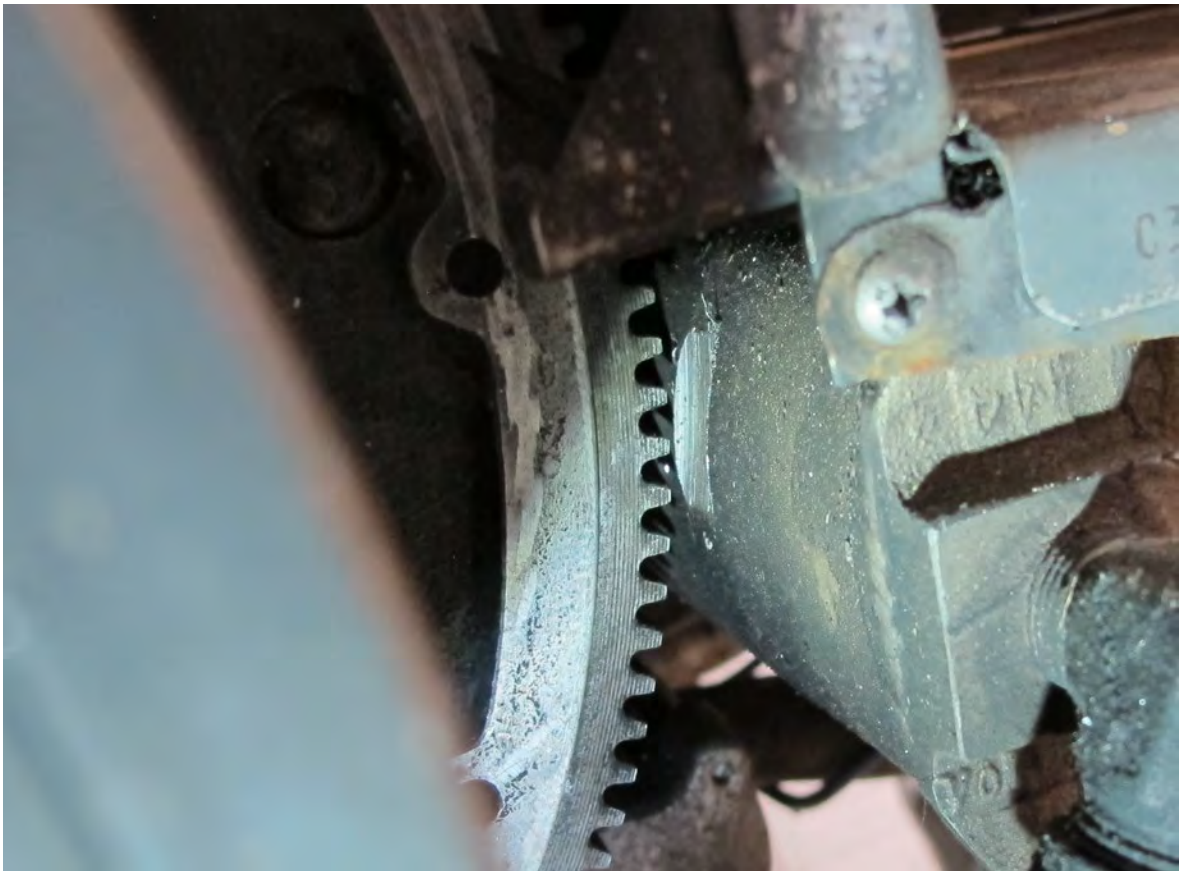
Fuel control unit. Note orange intake duct.



Lower spark plugs.



Lower spark plugs.



Scoring in left side oil cooler adjacent to starter ring gear.



No contact between starter ring gear and cooling panel on right side.



Damage to circumference of alternator cooling fan.

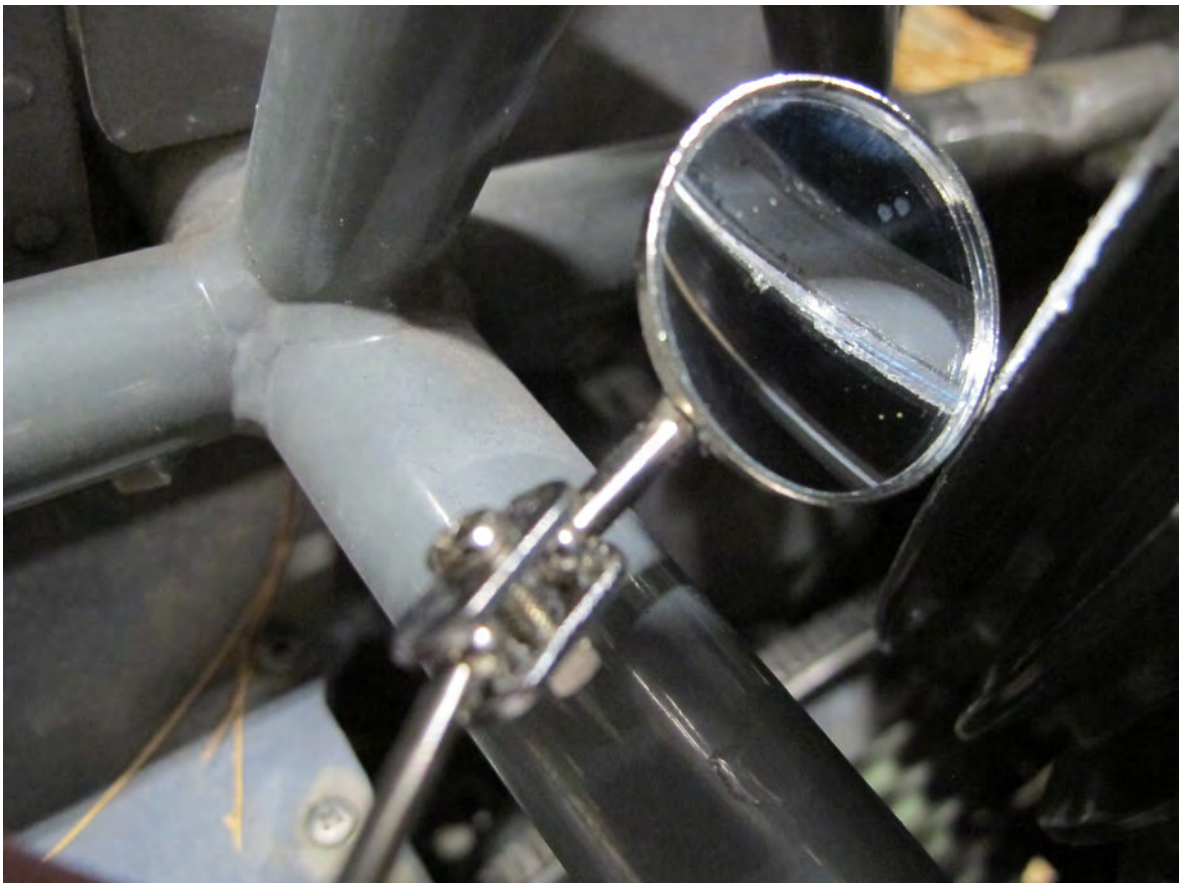


Above and below: No contact between the aft face of the upper sheave and the clutch centering strut.





Above and below: Scoring on airframe adjacent to the forward face of the upper sheave.





Engine data plate.

DRIVELINE

The lower sheave showed normal wear in the grooves. The upper sheave grooves were unremarkable. The upper sheave rotated smoothly on the clutch shaft when moved by hand in a clockwise direction (looking forward) and locked on the shaft when moved in a counterclockwise direction.

All four V-belts were displaced from their grooves. Small areas of damage were visible in one belt.

The lower and upper belt tension actuator support bearings rotated smoothly. The lower bearing brackets were separated from the scroll and the bearing had rotated out of position. The mating surface of the brackets and the scroll were polished smooth and the edges of the brackets had dug into the scroll. The attaching rivets were sheared flush with the mating surface of the brackets. The rivet holes in the scroll were elongated in the direction of engine rotation. The bracket backing plates were not present. Review of the logbooks showed no compliance with SB-94 nor SL-61A. The belt tension actuator was disconnected just below the gear housing. The surface of the disconnect was angular, jagged and matte gray in color. The extension distance was 1.5" measured between the scissor mounts.

The forward flex coupling was bent. The flex plate hardware was secure although all four palnuts were missing.

The main rotor gearbox oil level was not visible due to fuselage damage. The main rotor driveshaft was rotated more than 360° of the main rotor with no anomalies. The main rotor driveshaft and mast tube were straight.

Both elastomeric teeter stops were smashed across their centers. Both droop stops remained secure and appeared to have normal wear.

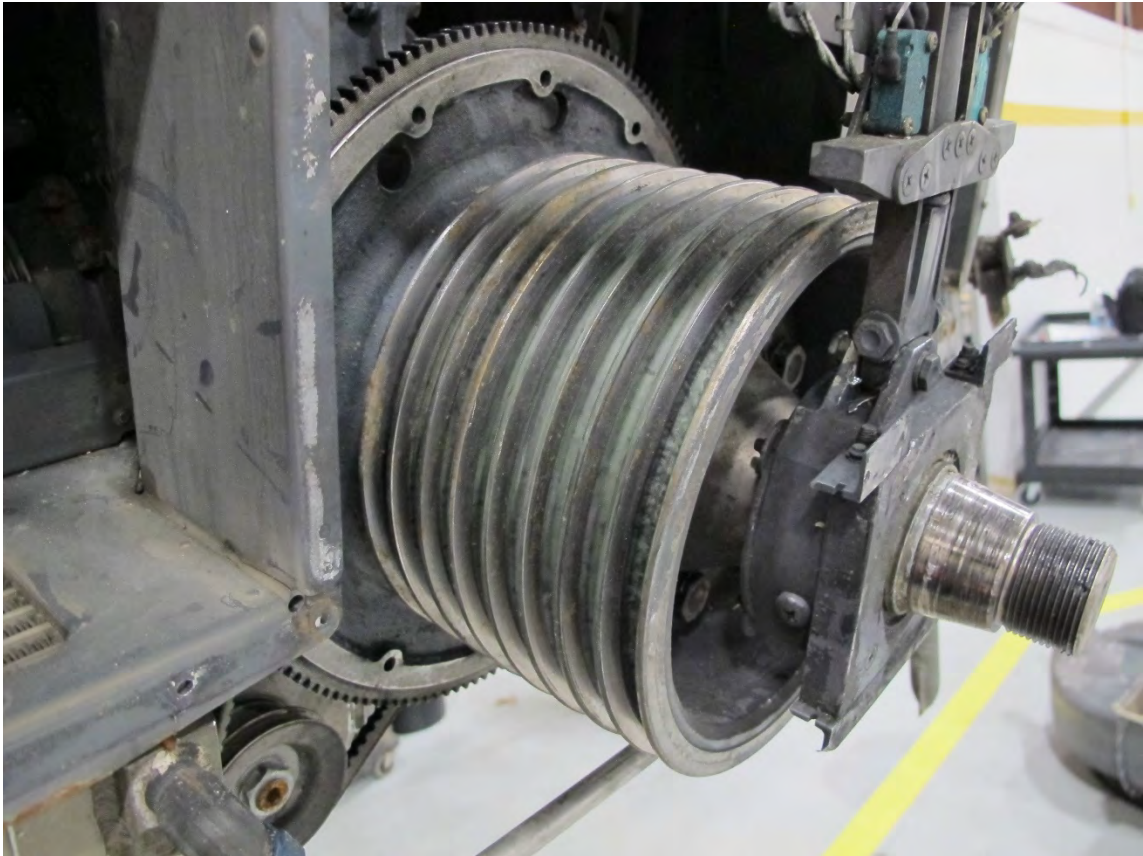
The main rotor hub teetered smoothly. The coning hinge bearings appeared undamaged. There were small arc shaped marks on the hub surfaces adjacent to the main rotor blade pitch boots.

The main rotor blades sustained very minor trailing edge damage and small dents in the lower skins.

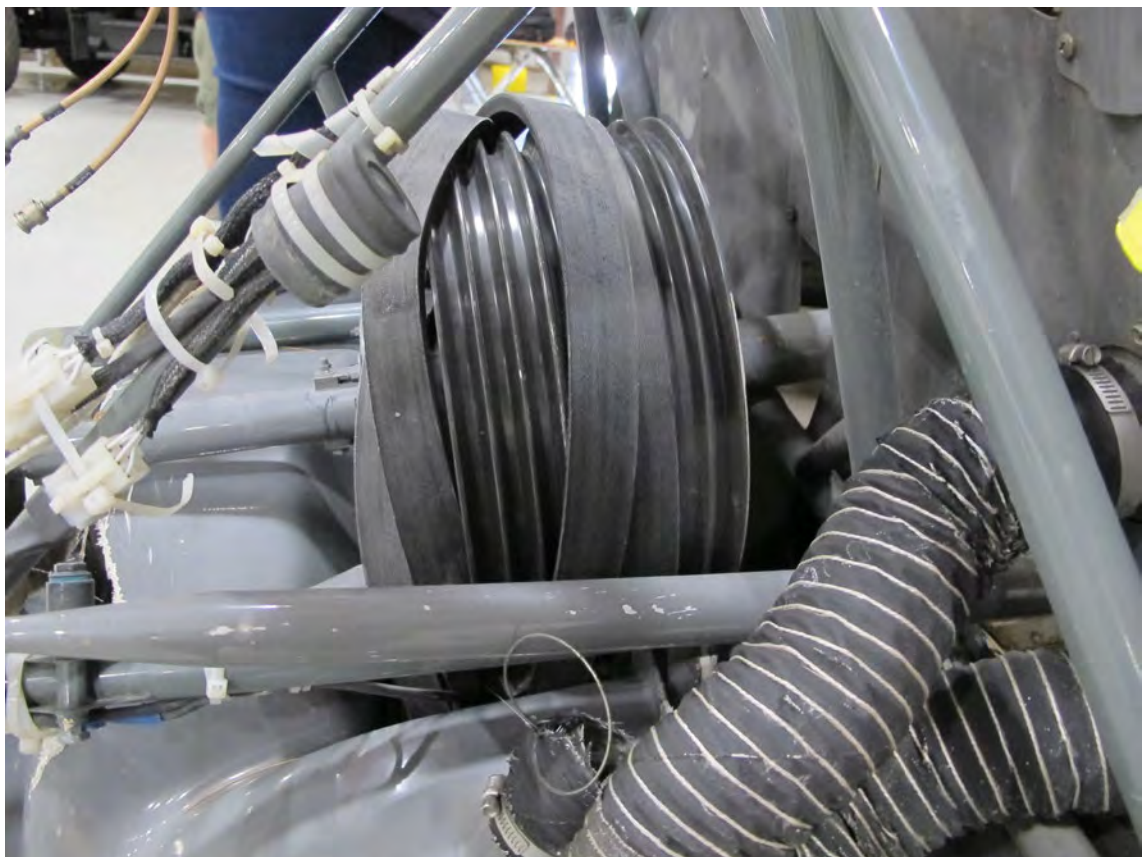
The intermediate and aft flex couplings were undamaged. The tail rotor driveshaft appeared undamaged. The tail rotor driveshaft damper bearing rotated smoothly by hand and the damper linkage moved smoothly with no abnormal drag.

The tail rotor gearbox was rotated by hand more than 360° of the tail rotor with no anomalies. Oil, blue in color, was visible in the sight gauge. The output shaft was straight.

The tail rotor blades appeared undamaged.



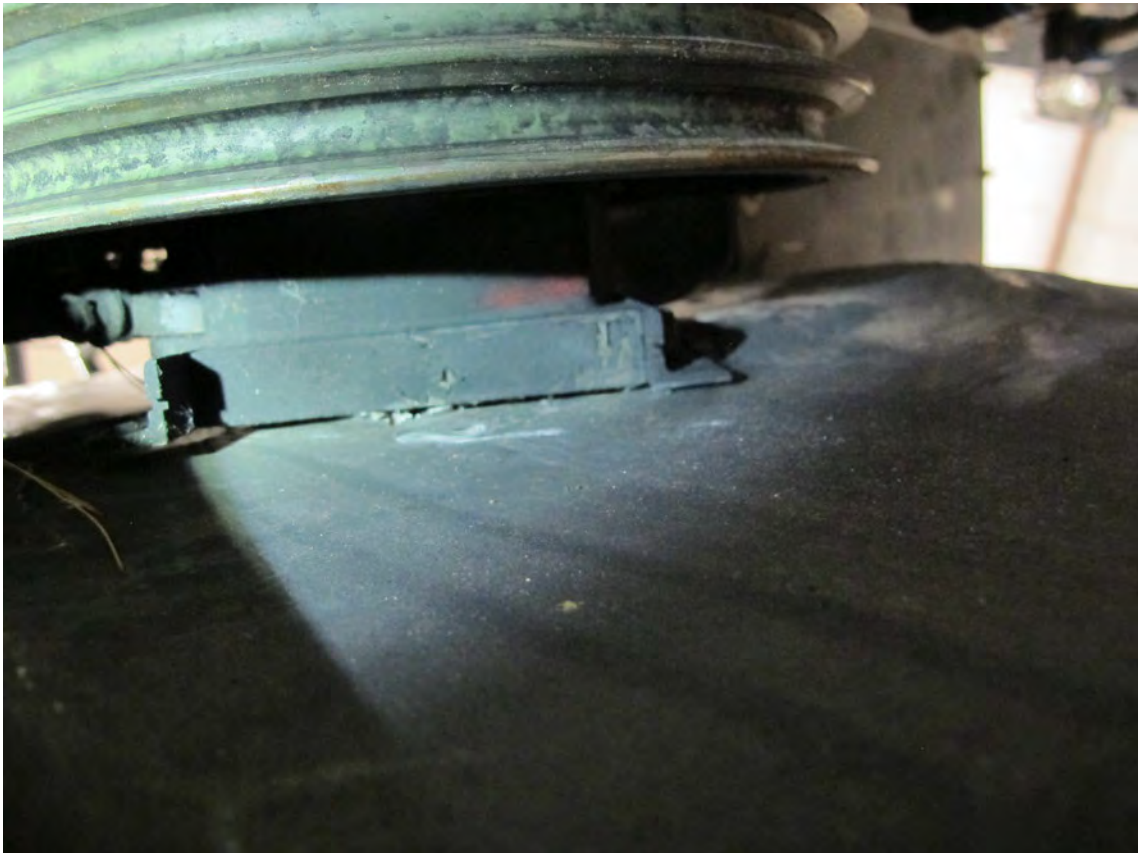
Lower sheave.



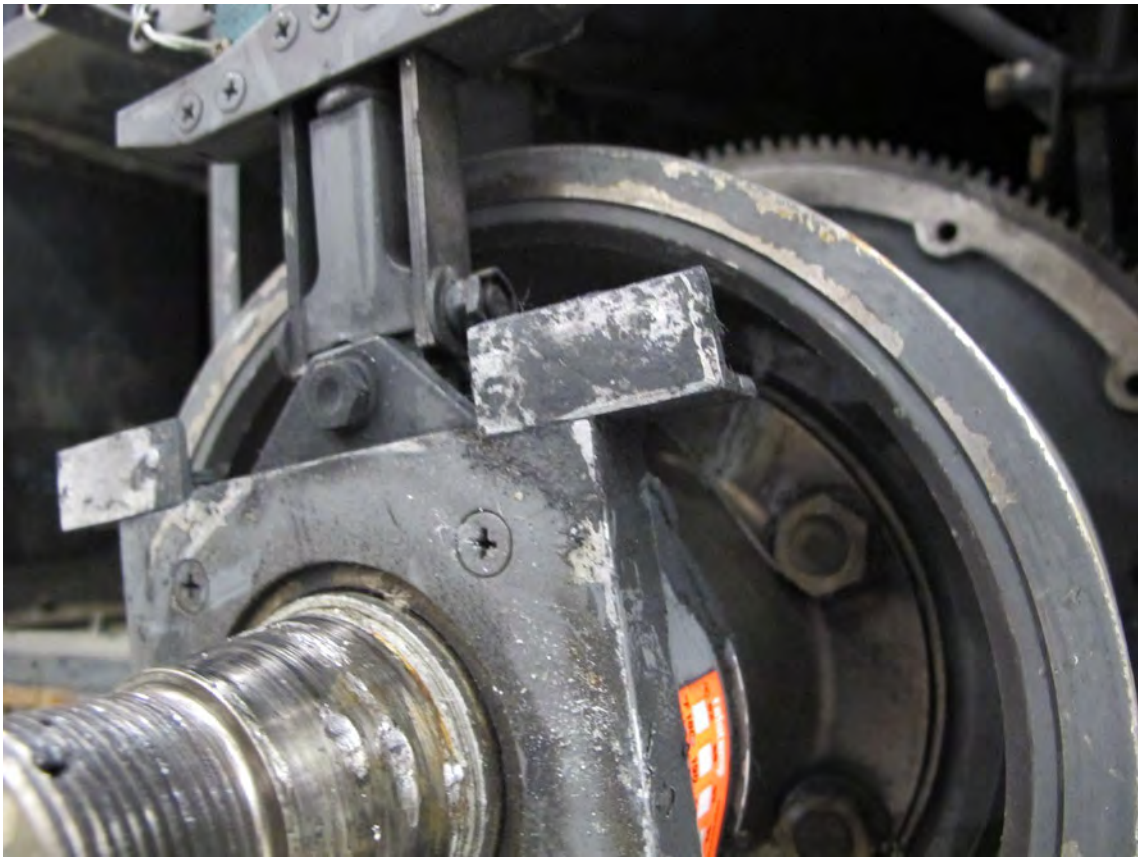
Upper sheave.



Upper belt tension actuator support bearing.



Lower belt tension actuator support bearing.



Upper brackets for lower belt tension actuator support bearing.



Lower bracket for lower belt tension actuator support bearing.



Above and below: Mounting area on scroll for upper brackets.





Above and below: Mounting area on scroll for lower bracket.

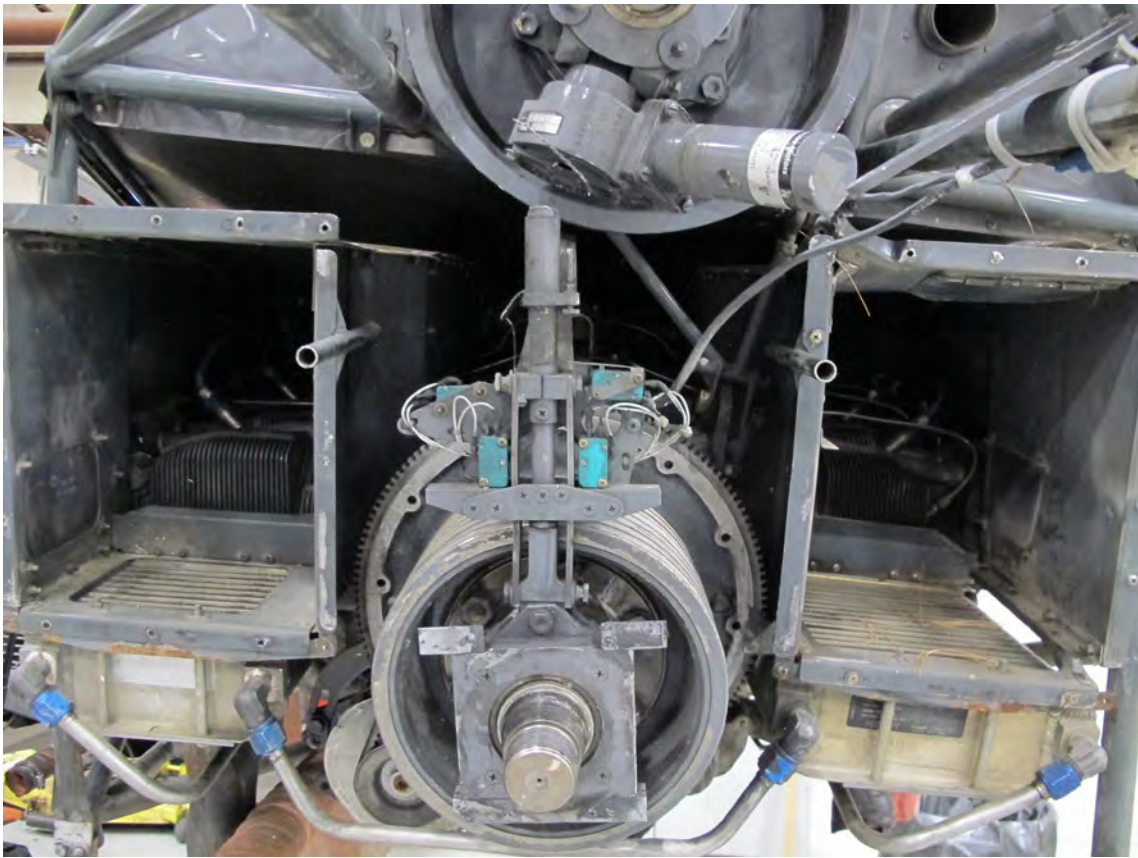




Mounting area on inside of scroll for upper brackets.



Mounting area on inside of scroll for lower bracket.



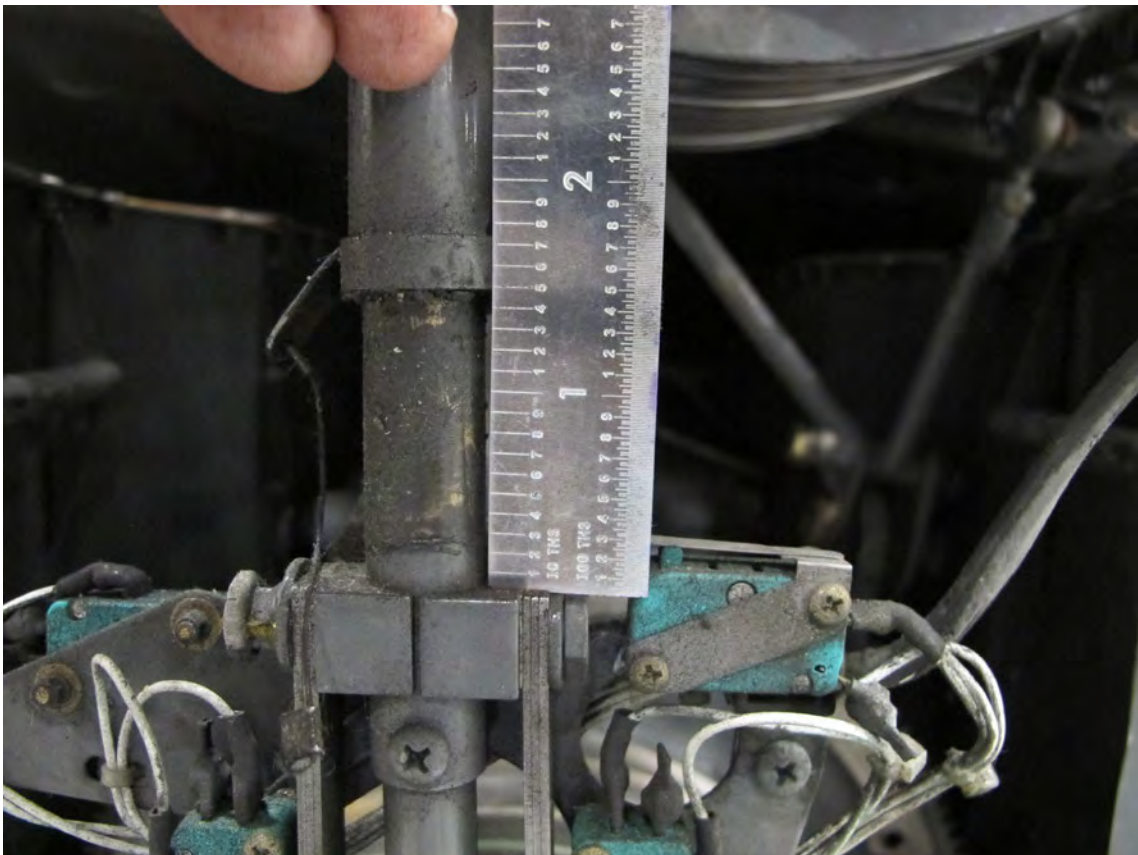
Belt tension actuator.



Disconnect in belt tension actuator.



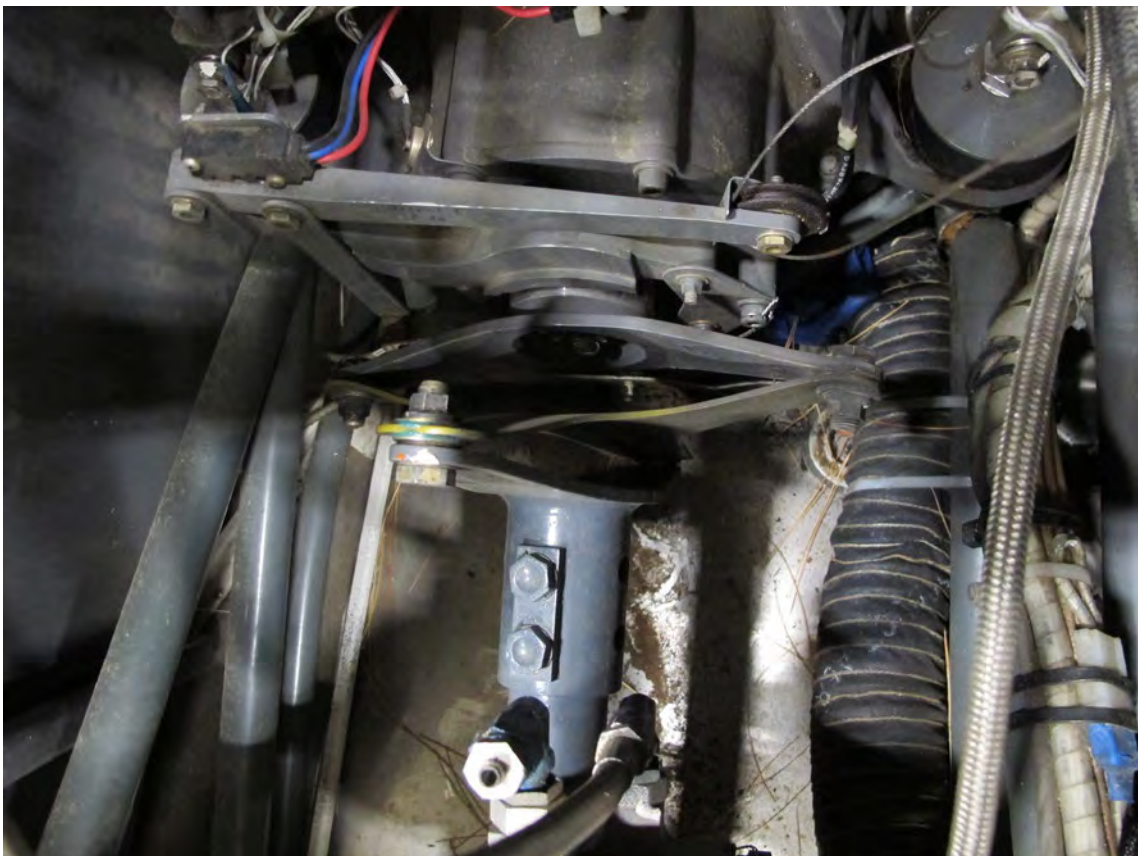
Surface of disconnect in belt tension actuator.



Extension distance of belt tension actuator.



Above and below: Forward flex coupling and main rotor gearbox.





Main rotor mast.



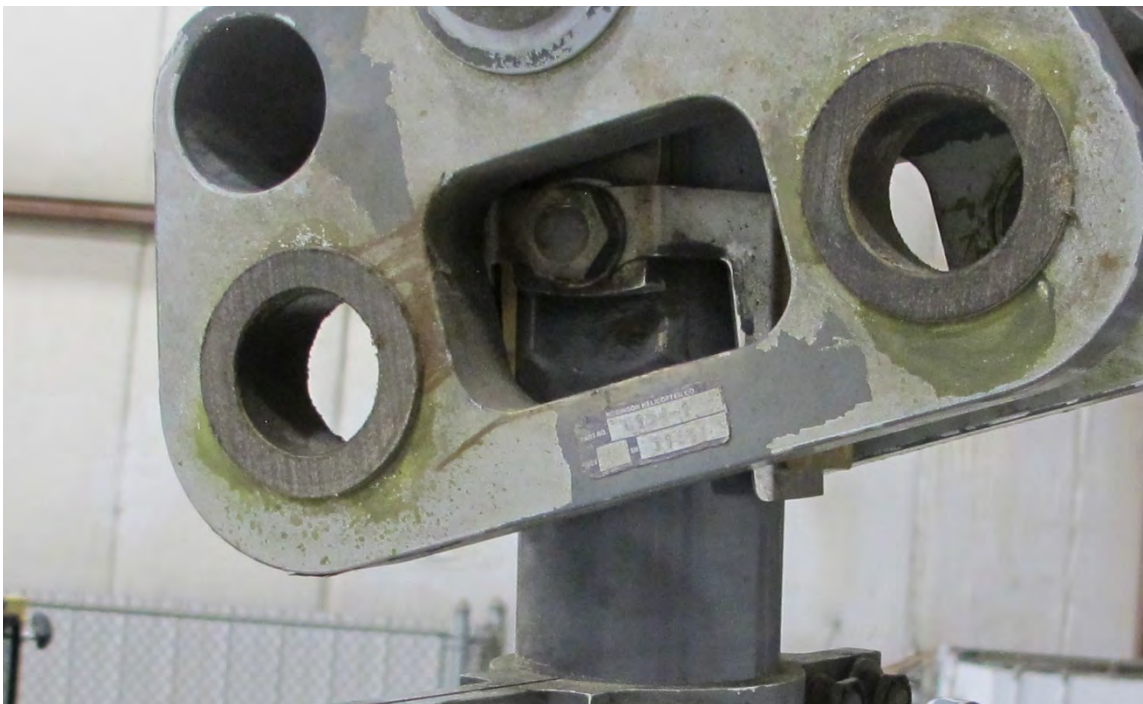
Teeter stop for main rotor blade SN 6643.



Teeter stop for main rotor blade SN 6318.



Droop stop for main rotor blade SN 6643.



Droop stop for main rotor blade SN 6318.



Hub surface adjacent to main rotor blade SN 6643.



Hub surface adjacent to main rotor blade SN 6318.



Above and below: Main rotor blades.





Above and below: Main rotor blades.





Above and below: Main rotor blade data plates.





Intermediate flex coupling.



Tail rotor driveshaft and damper bearing.



Tail rotor gearbox.



Tail rotor hub.



Above and below: Tail rotor blades.





Above and below: Tail rotor blade data plates.

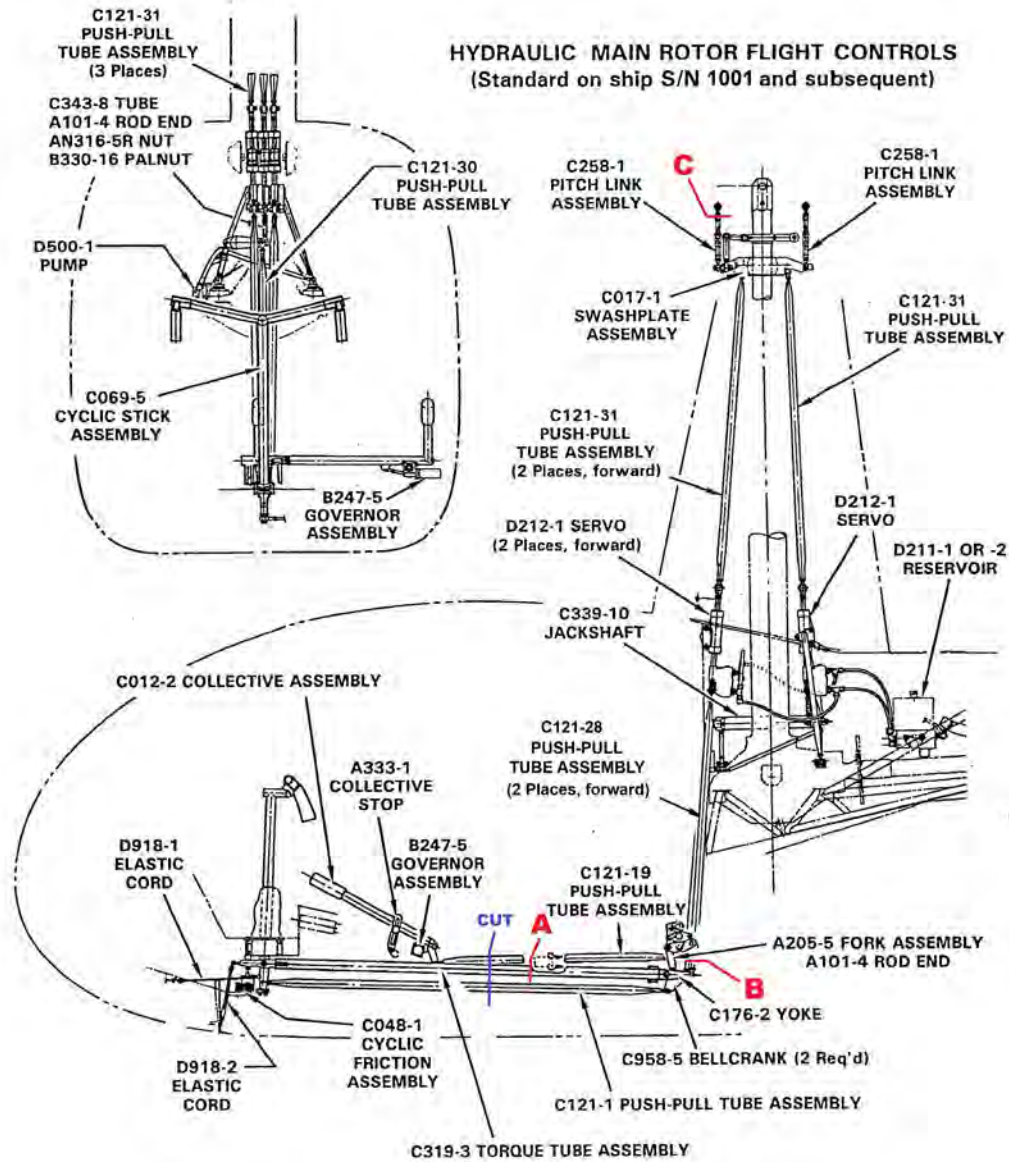


FLIGHT CONTROLS

The flight control system had discontinuities at the locations indicated on the diagrams on pages 12.2 and 12.6. The disconnects are shown individually in the photographs that follow. No evidence of pre-impact failures of the flight control system was found.

The hydraulic servos moved freely with inputs by hand.

The tail rotor pitch change slider was free to slide along the tail rotor gearbox output shaft.





Above and below: Flight control tubes cut during recovery.





Disconnect A in C319-3 torque tube.

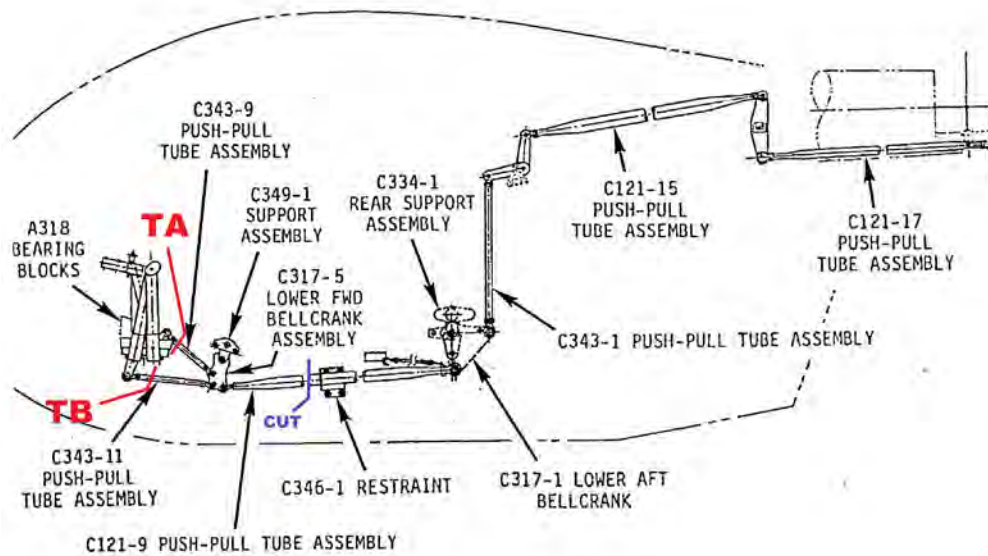
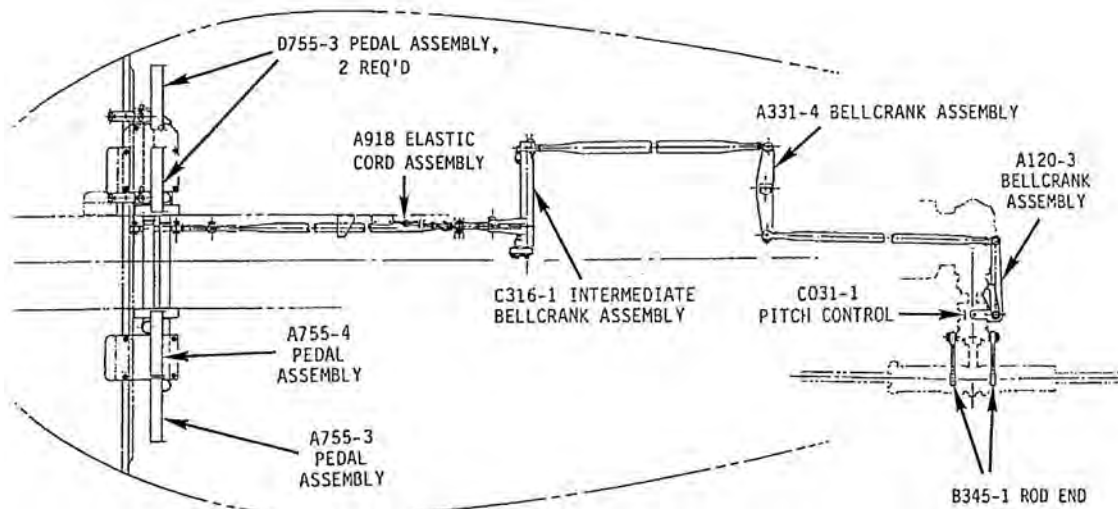


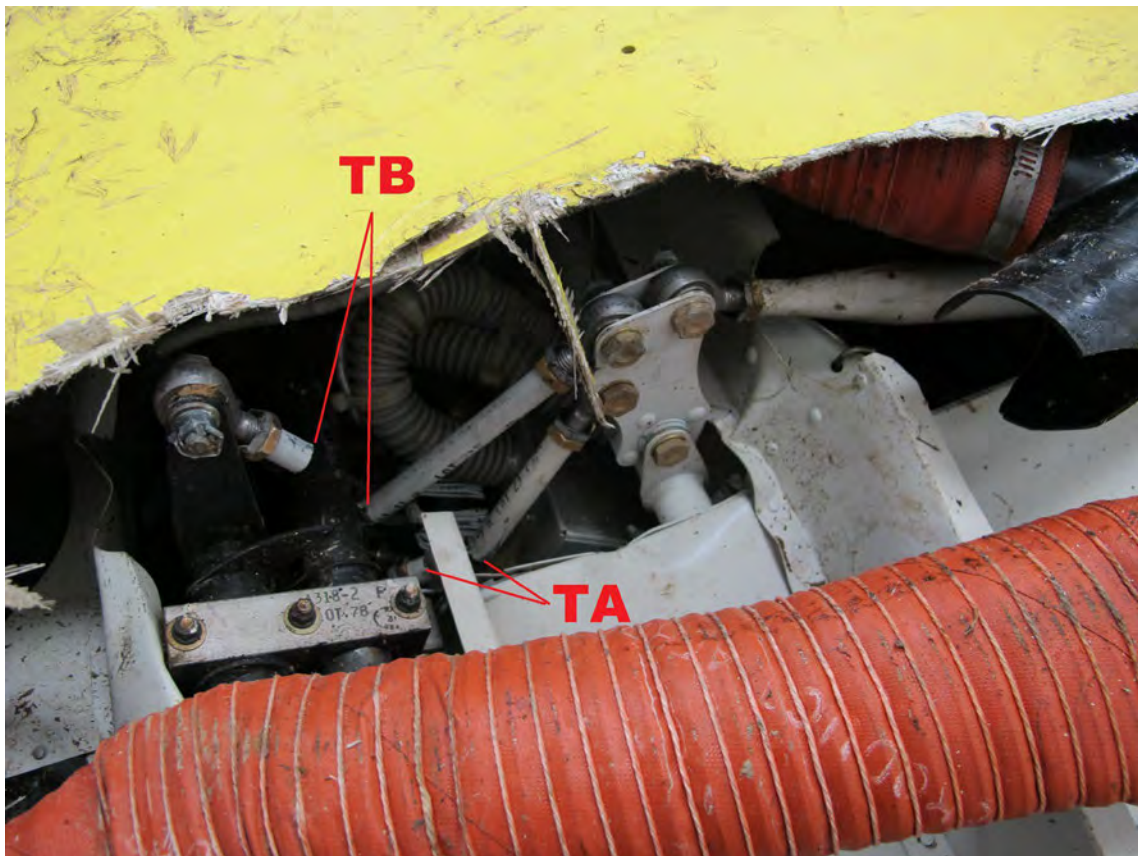
Disconnect B in left C121-28 push pull tube.



Above and below: Disconnect C in main rotor pitch link.







Disconnects TA in C343-9 push pull tube and TB in C343-11 push pull tube.



Disconnect TA at forward end of C343-9 push pull tube.



Disconnect TA in C343-9 push pull tube.



Disconnect TB in C343-11 push pull tube.

AIRFRAME

The airframe sustained significant impact damage. Some of the structure was cut during recovery. The lower right side and belly had more severe impact damage.

The cabin area was separated at the front of the rear seats, partially by impact, partially by cutting. The roof also sustained both types of separation.

Three cabin doors sustained broken windows. The front left door was fractured in several places.

The vertical firewall was crushed upward and back on the right side and had several dents and creases on the left side. The horizontal firewall was crushed upward on the right side and deformed overall.

The tailcone had been disassembled from the upper frame. The tailcone had several dents throughout.

The tail rotor guard remained intact and secure to the lower vertical stabilizer, but was separated from the tailcone.

The empennage was disassembled. The lower vertical stabilizer had impact damage to its lower edge and the tail skid was not present. The upper vertical stabilizer was undamaged. The horizontal stabilizer sustained impact damage to its lower surface and to the tip.

The spray equipment sustained significant impact damage



Above and below: Forward fuselage.





Windshield bow.



Cabin doors.



Above and below: Roof.





Right side of airframe.



Lower right frame.



Left side of airframe.



Lower left frame.



Mast fairing.



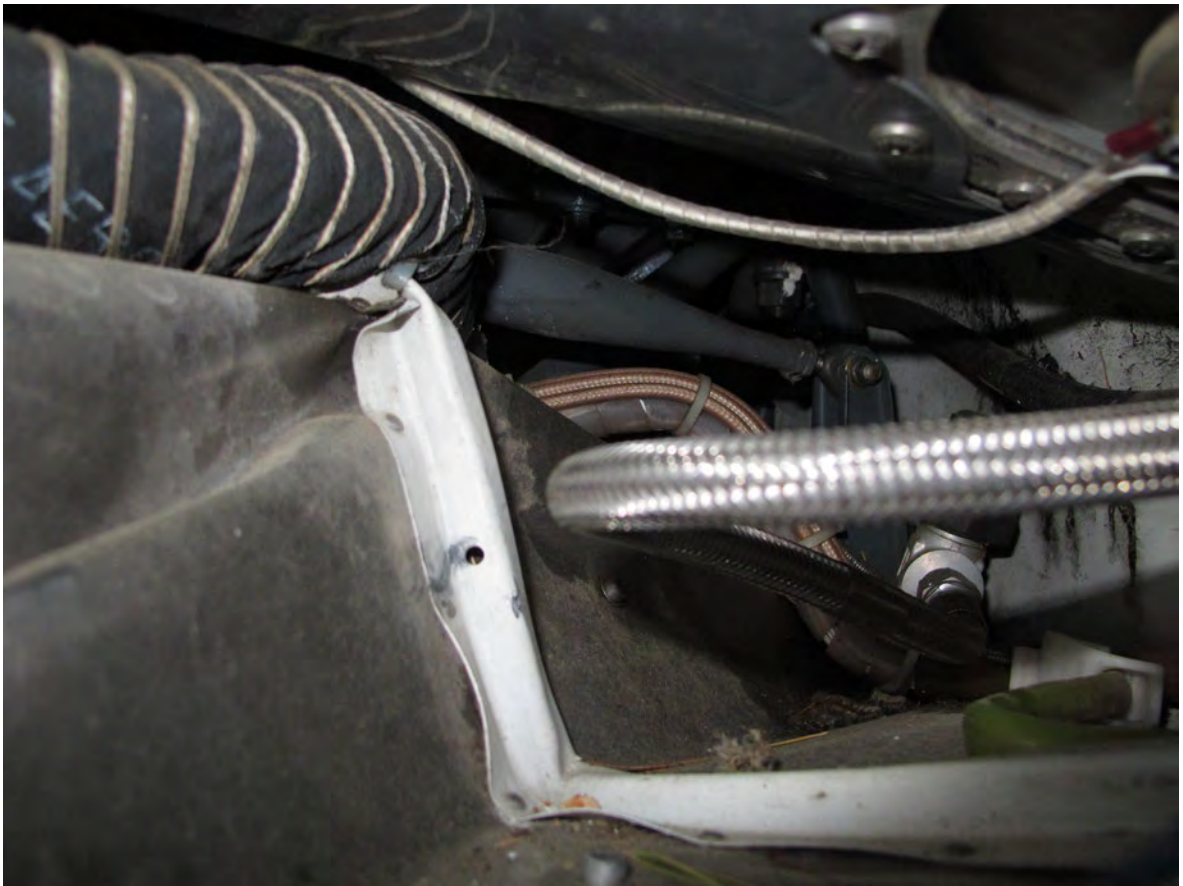
Belly of aft section.



Vertical firewall, right side.



Vertical firewall, left side.



Forward horizontal firewall.



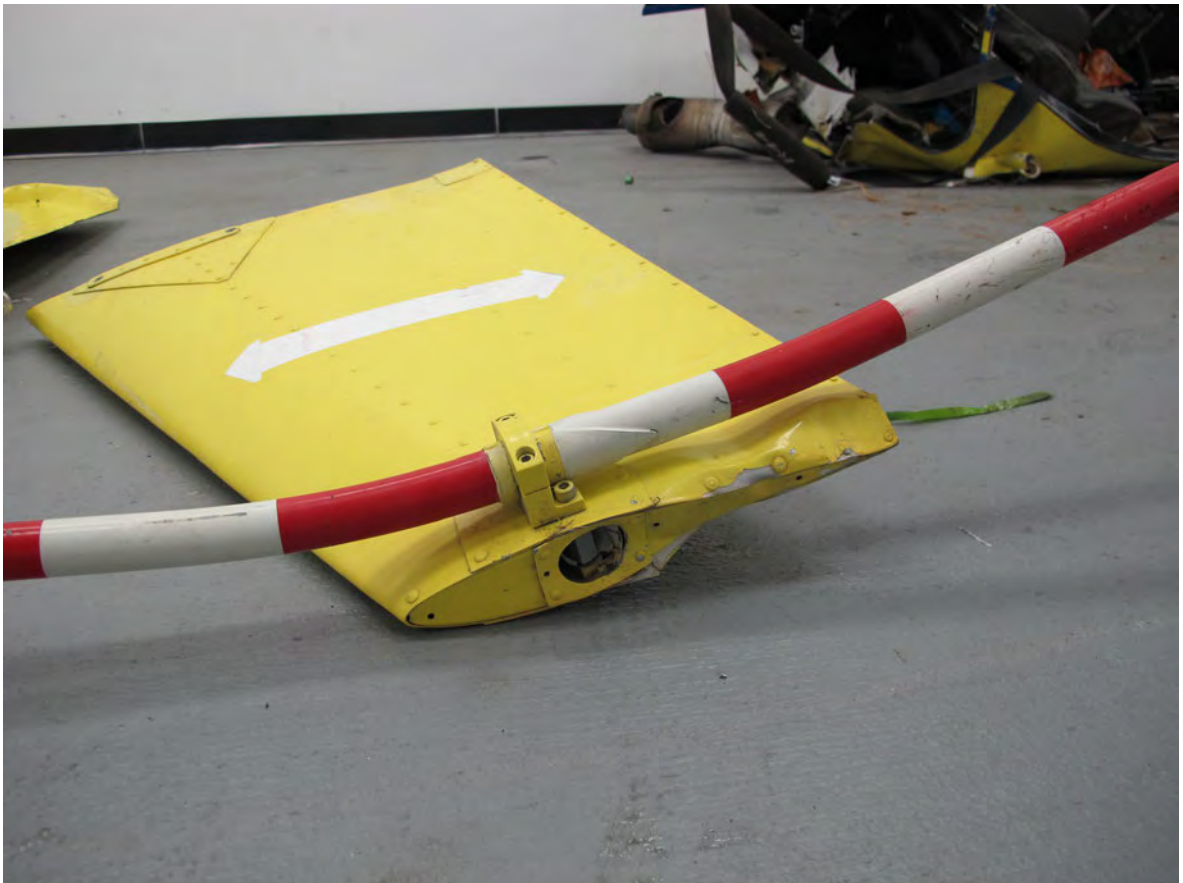
Aft horizontal firewall.



Upper frame.



Tailcone.



Lower vertical stabilizer.



Upper vertical stabilizer.



Horizontal stabilizer.



Spray equipment.

LANDING GEAR

The landing gear was separated from the airframe and had several disconnects. The surface of the disconnects were angular and jagged.

A portion of the spray equipment remained attached to the front right strut.

The right skid was disconnected at the front and aft strut mounts.

The aft right strut was not present.

The aft cross tube was separated from both elbows and bent downward just right of center. There were multi-directional scuff marks and a dent in the upper surface in the area of the bend.

The left skid was disconnected at the front and aft strut mounts.

The front cross tube was separated from the left elbow and had multi-directional scuff marks across the lower surface.



Front right strut and right skid toe.



Disconnects at right skid and front right strut.



Right skid.



Aft cross tube.



Damage to aft cross tube.



Aft left strut and left skid heel.



Disconnect at aft left strut and left skid.



Left skid.



Front left strut.



Disconnect at front left strut and left skid.



Front cross tube.

APPENDIX I – Weather Report



Temperature (° F)	Actual	Historic Avg.	Record	▲
High Temp	89	86	109	
Low Temp	74	66	52	
Day Average Temp	80.63	76	-	
Precipitation (Inches)	Actual	Historic Avg.	Record	▲
Precipitation (past 24 hours from 05:52:00)	0.00	0.12	-	
Dew Point (° F)	Actual	Historic Avg.	Record	▲
Dew Point	71.85	-	-	
High	74	-	-	
Low	69	-	-	
Average	71.85	-	-	
Wind (MPH)	Actual	Historic Avg.	Record	▲
Max Wind Speed	22	-	-	
Visibility	10	-	-	
Sea Level Pressure (Hg)	Actual	Historic Avg.	Record	▲
Sea Level Pressure	28.91	-	-	
Astronomy	Day Length	Rise	Set	▲
Actual Time	14h 5m	6:27 AM	8:33 PM	
Civil Twilight		5:57 AM	9:03 PM	
Nautical Twilight		5:20 AM	9:40 PM	
Astronomical Twilight		4:39 AM	10:21 PM	
Moon: waning gibbous		11:20 PM	11:13 AM	

Daily Observations

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
12:52 AM	77 °F	70 °F	79 %	S	15 mph	0 mph	28.89 in	0.0 in	Partly Cloudy
1:52 AM	76 °F	69 °F	79 %	S	14 mph	0 mph	28.88 in	0.0 in	Partly Cloudy
2:52 AM	76 °F	69 °F	79 %	S	13 mph	0 mph	28.88 in	0.0 in	Partly Cloudy
3:52 AM	75 °F	70 °F	84 %	S	14 mph	0 mph	28.86 in	0.0 in	Fair
4:52 AM	74 °F	70 °F	87 %	SSE	14 mph	0 mph	28.86 in	0.0 in	Fair
5:52 AM	74 °F	71 °F	91 %	SSE	13 mph	0 mph	28.87 in	0.0 in	Mostly Cloudy
6:52 AM	76 °F	71 °F	85 %	S	12 mph	0 mph	28.90 in	0.0 in	Cloudy
7:10 AM	76 °F	71 °F	85 %	S	16 mph	0 mph	28.90 in	0.0 in	Cloudy
7:52 AM	76 °F	72 °F	87 %	S	20 mph	29 mph	28.90 in	0.0 in	Cloudy
8:11 AM	77 °F	72 °F	84 %	S	17 mph	26 mph	28.91 in	0.0 in	Cloudy
8:52 AM	77 °F	72 °F	84 %	S	17 mph	29 mph	28.91 in	0.0 in	Cloudy
9:52 AM	78 °F	71 °F	79 %	S	22 mph	30 mph	28.91 in	0.0 in	Cloudy / Windy
10:52 AM	80 °F	71 °F	74 %	S	21 mph	31 mph	28.90 in	0.0 in	Cloudy / Windy
11:52 AM	82 °F	72 °F	71 %	S	16 mph	0 mph	28.90 in	0.0 in	Mostly Cloudy
12:52 PM	84 °F	72 °F	67 %	S	17 mph	24 mph	28.89 in	0.0 in	Mostly Cloudy
1:52 PM	86 °F	72 °F	63 %	SSE	15 mph	0 mph	28.87 in	0.0 in	Mostly Cloudy
2:17 PM	87 °F	72 °F	61 %	S	16 mph	25 mph	28.87 in	0.0 in	Mostly Cloudy
2:52 PM	88 °F	72 °F	59 %	S	17 mph	26 mph	28.86 in	0.0 in	Partly Cloudy
3:52 PM	89 °F	72 °F	57 %	S	21 mph	0 mph	28.85 in	0.0 in	Mostly Cloudy / Windy
4:52 PM	87 °F	73 °F	63 %	S	15 mph	0 mph	28.86 in	0.0 in	Mostly Cloudy
5:52 PM	86 °F	73 °F	65 %	SSE	12 mph	0 mph	28.86 in	0.0 in	Mostly Cloudy
6:52 PM	85 °F	73 °F	67 %	ESE	8 mph	0 mph	28.87 in	0.0 in	Mostly Cloudy
7:52 PM	84 °F	74 °F	72 %	ESE	10 mph	0 mph	28.87 in	0.0 in	Mostly Cloudy
8:52 PM	83 °F	74 °F	74 %	ESE	8 mph	0 mph	28.88 in	0.0 in	Mostly Cloudy
9:52 PM	82 °F	74 °F	76 %	ESE	10 mph	0 mph	28.90 in	0.0 in	Mostly Cloudy
10:52 PM	81 °F	74 °F	79 %	SE	12 mph	0 mph	28.90 in	0.0 in	Mostly Cloudy
11:52 PM	81 °F	74 °F	79 %	SE	16 mph	0 mph	28.89 in	0.0 in	Partly Cloudy

APPENDIX II – Airframe Logbook

AIRCRAFT LOG AF5-1

R44 H
SN: 10984

Additional Information Paint Specifications:

Base IMRON No.	<u>60126</u>
Trim IMRON No.	<u>63111</u>
Ignition Key	<u>PK 838</u>
R Door Key	<u>PK 838</u>
L Door Key	<u>PK 838</u>

Q. A. APPROVAL 22 DATE 11-17-05
AIRCRAFT DESCRIPTION

MANUFACTURER ROBINSON HELICOPTER COMPANY MODEL R44 II DATE OF MFG. 11-17-05
 SERIAL NUMBER 10984 REGISTRATION NUMBER N89LA

REGISTERED OWNER _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

OPERATOR _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

REGISTERED OWNER _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

OPERATOR _____

STREET ADDRESS _____

CITY, STATE, ZIP _____

Inspection Status
 (Check one)

☐ F.A.R. 91.409 ANNUAL/100 HOUR

☐ F.A.R. 91.409 PROGRESSIVE

☐ F.A.R. 135.419 A.T.C.O.

☐ OTHER _____

DATE ENTERED _____

MAINTENANCE RESPONSIBILITY _____

INSTALLED EQUIPMENT

ITEM	MANUFACTURER	MODEL	SERIAL NO.
ENGINE	TEXTRON LYCOMING	IO-540-AE1A5	L-30633-48A
INST. CLUSTER	ROCHESTER	B144-4	1079
OAT GAUGE	DAVTRON	307 FC	A09543
ALTIMETER	UNITED INSTRUMENTS	5934P-3	446216
VERTICAL SPEED	UNITED INSTRUMENTS	7000	313199
AIRSPED	UNITED INSTRUMENTS	8000	190284
MANIFOLD PRESS.	UNITED INSTRUMENTS	6111	190730
TACHOMETER	PHAOSTRON	C792-4	2575
GOVERNOR	ROBINSON HELICOTPER CO.	D278-2	1014
TRANSCIEVER	BENDIX/KING	KY196A	30208
VERT CARD COMPASS	PRECISION AVIATION	PAI-700	56683
ATTIT GYRO	BF GOODRICH	1100-14	25389
DIRECTIONAL GYRO	BF GOODRICH	205-1B	25721
TRANSPONDER	BENDIX/KING	KT76C	19014
BLIND ENCODER	UNITED INSTRUMENTS	SSD120-30A	A63656
AUDIO CONTROL	NAT	AA12S-002	1331
GPS/COM TRANSC	GARMIN	GNC420	97203240

LIFE LIMITED PARTS OR OVERHAUL REQUIREMENTS

NAME OF PART	PART NUMBER	SERIAL NUMBER	INSTALLATION DATE/HOURS	TIME ON PART AT INSTALL	LIFE LIMIT OR T.B.O.	REMOVAL DATE/HOURS	AGENCY CERT. NO.
MR Gearbox	C006-5	2962	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
MR Blade	C016-5	2156B	OCT 25 05	New	2200 HR or 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
MR Blade	C016-5	2160B	OCT 25 05	New	2200 HR or 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
MR Swashplate	C017-4	2754	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Frame Assy	C020-1	2806	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
TR Gearbox	C021-1	2690	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Tailcone Assy	C023-1	2808	OCT 25 05	New	4400 Life	1-2-2013 662.8	INTLD RHC PC#424WE
TR Blade	C029-2	2545E	OCT 25 05	New	2200 HR or 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
TR Blade	C029-2	2544D	OCT 25 05	New	2200 HR or 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
TR Hub Assy	D062-2	2274	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
TR Pitch Control	C031-1	3018	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Horiz Stab	C044-1	2838	OCT 25 05	New	4400 Life	1-2-2013 662.8	INTLD RHC PC#424WE
Actuator	C051-2	2851	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
MR Gearset	C146-5	3029	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
MR Hub	C154-1	2875	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
MR Spindle	C158-1	5878	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
MR Spindle	C158-1	5880	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
Clutch Shaft	C166-4	3424	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE

LIFE LIMITED PARTS OR OVERHAUL REQUIREMENTS

NAME OF PART	PART NUMBER	SERIAL NUMBER	INSTALLATION DATE/HOURS	TIME ON PART AT INSTALL	LIFE LIMIT OR T.B.O.	REMOVAL DATE/HOURS	AGENCY CERT. NO.
Bearing Assy	C181-3	3148	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Sprag Clutch	C188-3	4326	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
TR Driveshaft	D196-1	0932	OCT 25 05	New	4400 Life	1-2-2013 662.8	INTLD RHC PC#424WE
Lower Swashplate	C198-2	2943	OCT 25 05	New	4400 Life	1-2-2013 662.8	INTLD RHC PC#424WE
MR Driveshaft	C251-2	R3747	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
MRGB Sump	C263-2	0488	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
MRGB Housing	C264-1	2962	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
TR Gearset	C545-1	3213	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
TR Guard	D079-1	3066	OCT 25 05	New	2200 Life	1-2-2013 662.8	INTLD RHC PC#424WE
Hyd. Resv. Assy	D211-2	1919	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Hyd. Servo Assy	D212-1	5744	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Hyd. Servo Assy	D212-1	5745	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Hyd. Servo Assy	D212-1	5724	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
Hyd. Pump Assy	D500-1	2031	OCT 25 05	New	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
MR Gearbox	C006-6	1086	1-2-2013	Overhauled	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE
MR Blade	C016-7	254	1-2-2013	NEW	2200 HRS / 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
MR Blade	C016-7	255	1-2-2013	NEW	2200 HRS / 12 YEARS	1-2-2013 662.8	INTLD RHC PC#424WE
MR Swashplate	C017-6	1126	1-2-2013	NEW	2200 TBO	1-2-2013 662.8	INTLD RHC PC#424WE

LIFE LI

NAME OF PART	PART NUMBER
TR Gearbox	C021-1
TR Blade	C029-3
TR Blade	C029-3
TR Hub Assy	C008-9
TR Pitch Control	C031-1
Actuator	C051-2
MR Gearset	C146-5
MR Hub	C005-4
MR Spindle	C005-14
MR Spindle	C005-14
Clutch Shaft	C-166-4
Bearing Assy	C181-3
Sprag Clutch	C188-3
TR Driveshaft	D224-2
MR Driveshaft	C251-2
MRGB Sump	C263-2
MRGB Housing	C264-2
TR Gearset	C545-1

LIFE LIMITED PARTS OR OVERHAUL REQUIREMENTS

CY NO.	NAME OF PART	PART NUMBER	SERIAL NUMBER	INSTALLATION DATE/HOURS	TIME ON PART AT INSTALL	LIFE LIMIT OR T.B.O.	REMOVAL DATE/HOURS	AGENCY CERT. NO.
WE	TR Gearbox	C021-1	3077	1-2-2013 662.8	Overhauled	2200 TBO		
WE	TR Blade	C029-3	1366	1-2-2013 662.8	NEW	2200 TBO / 12 YEARS		
WE	TR Blade	C029-3	1369	1-2-2013 662.8	NEW	2200 TBO / 12 YEARS		
WE	TR Hub Assy	C008-9		1-2-2013 662.8				
WE	TR Pitch Control	C031-1	742.2	1-2-2013 662.8	NEW	2200 TBO		
WE	Actuator	C051-2	2470	1-2-2013 662.8	Overhauled	2200 TBO		
WE	MR Gearset	C146-5	6879	1-2-2013 662.8	Overhauled	LIFE 2200	4/20/20	1942.3
WE	MR Hub	C005-4	7183	1-2-2013 662.8	NEW	2200 LIFE		
WE	MR Spindle	C005-14	15259	1-2-2013 662.8	NEW	2200 LIFE		
WE	MR Spindle	C005-14	15261	1-2-2013 662.8	NEW	2200 LIFE		
WE	Clutch Shaft	C-166-4	8212	1-2-2013 662.8	Overhauled	2200 TBO		
WE	Bearing Assy	C181-3	1044	1-2-2013 662.8	Overhauled	2200 TBO		
WE	Sprag Clutch	C188-3	9036	1-2-2013 662.8	NEW	2200 TBO		
WE	TR Driveshaft	D224-2	5331	1-2-2013 662.8	Overhauled	2200		
	MR Driveshaft	C251-2	R2062	1-2-2013 662.8	Overhauled	2200 TBO		4/12/20
	MR GB Sump	C263-2	4702	1-2-2013 662.8	Overhauled	2200 Life		1942.3
	MR GB Housing	C264-2	7184	1-2-2013 662.8	Overhauled	2200 Life		4/12/20
	TR Gearset	C545-1	7532	1-2-2013 662.8	NEW	2200 Life		1942.3

LIFE LIMITED PARTS OR OVERHAUL REQUIREMENTS

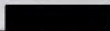
NAME OF PART	PART NUMBER	SERIAL NUMBER	INSTALLATION DATE/HOURS	TIME ON PART AT INSTALL	LIFE LIMIT OR T.B.O.	REMOVAL DATE/HOURS	AGENCY CERT. NO.
TR Guard			1-2-2013 662.8	NEW			
TR Hub Assy	G062-1	0958	1-2-2013 662.8	NEW			
Hyd. Servo Assy	D212-1	5450	25 May 19 1950.5	O/H	2200 TBO		
MR Gearset	C016-7	5220	1-2-2013	NEW	2200 TBO		
TR Gearbox	C021-1	3077	1-2-2013	Overhauled	2200 TBO		
MR Hub	C005-4	7183	1-2-2013	NEW	2200 LIFE		
MR Spindle	C005-14	15259	1-2-2013	NEW	2200 LIFE		
MR Spindle	C005-14	15261	1-2-2013	NEW	2200 LIFE		
Clutch Shaft	C-166-4	8212	1-2-2013	Overhauled	2200 TBO		
Bearing Assy	C181-3	1044	1-2-2013	Overhauled	2200 TBO		
Sprag Clutch	C188-3	9036	1-2-2013	NEW	2200 TBO		
TR Driveshaft	D224-2	5331	1-2-2013	Overhauled	2200		
MR Driveshaft	C251-2	R2062	1-2-2013	Overhauled	2200 TBO		
MR GB Sump	C263-2	4702	1-2-2013	Overhauled	2200 Life		
MR GB Housing	C264-2	7184	1-2-2013	Overhauled	2200 Life		
TR Gearset	C545-1	7532	1-2-2013	NEW	2200 Life		
MR Swashplate	C017-6	5276	4/12/20 1942.3	NEW	2200 TBO 12 YEARS		
MR Gearbox	C016-5	5912	4/12/20 1942.3	600.0	2200 TBO 12 YEARS		
MR Housing	C264-2	51912	4/12/20 1942.3	600.0	2200 TBO 12 YEARS		
MR Gearset	C116-5	5674	4/12/20 1942.3	600.0	2200 TBO 12 YEARS		
MR Blade	C016-7	5220	4/12/20 1942.3	672.0	2200 / 12Y	7/22/20 746.1	
MR Blade	C016-7	5229	4/12/20 1942.3	672.0	2200 / 12Y	7/22/20 746.1	
MR Blade	C016-7	6318	7/22/20 2018.4	2182.2	2200 / 12Y		
MR Blade	C016-7	6643	7/22/20 2018.4	2182.2	2200 / 12Y		

AIRWORTH

A.D./BULL NUMBER ITEM AFFECTED

Cedar
brook
1942
001

AIRWORTHINESS DIRECTIVE / FACTORY BULLETIN COMPLIANCE RECORD

ENCY T. NO.	A.D./BULL NUMBER	ITEM AFFECTED	DATE & HRS. AT COMP.	METHOD OF COMPLIANCE	TYPE OF A.D. 1 TIME/RECUR	NEXT COMP. DATE/HRS./CYCLE	AUTHORIZED SIGNATURE CERTIFICATE NO.
		<i>Cedar Ridge Aviation</i> <i>brok ownership @</i> <i>1942.3 MRS</i> <i>October 2019</i>				All Service Bulletins complied with through SB # <u>55</u> as applicable. All ADs complied with through biweekly Issue # <u>2005-22</u> during production. Authorized Signature  RHC PC 424WE NOV 17 05	

LANE AVIATION, INC.

AIRFRAME LOG ENTRY

REG#: N89LA
S/N : 10984

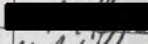
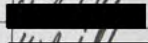
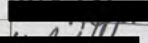
DATE: 8/29/2006
TT: 62.7

MODEL : Robinson R44 II
HOBBS : 62.7

Complied with Robinson Helicopter Company Service Bulletin SB-59 by inspecting the aft tab of p/n C046-18 tube for cracks; no indication at this time. Added a MS21919WDG8 clamp per installation instructions outlined in the KI-185 Frame Tube Clamp Installation Kit. Also complied with R.H.C. Service Bulletin SB-58 by replacing p/n D853-1 throttle link assembly with new, one-piece, link p/n B564-2. Work accomplished per compliance procedure outlined in the service bulletin; using R44 Maintenance Manual Section 10.150 as reference. System check o.k. This aircraft is approved for return to service.

Chris Weiche
AP 

AIRWORTHINESS DIRECTIVE / FACTORY BULLETIN COMPLIANCE RECORD

A.D./BULL NUMBER	ITEM AFFECTED	DATE & HRS. AT COMP.	METHOD OF COMPLIANCE	TYPE OF A.D. 1 TIME/RECUR	NEXT COMP. DATE/HRS./CYCLE	AUTHORIZED SIGNATURE CERTIFICATE NO.
SB-85	C791-1 Air Filter	1-2-13 662.8	WIK a/c	-	-	 AP
SB-89	Fuel Cnt Drain	1-2-13 662.8	Inspected/Replaced	-	-	 AP
SB-83	Throttle Link	1-2-13 662.8	Replaced per RHC	-	-	 AP
SB-82	Swivel Bracket	1-2-13 662.8	Replaced per RHC	-	-	 AP
SB-81	Swivel Bracket	1-2-13 662.8	Replaced per RHC	-	-	 AP
SB-80	Swivel Bracket	1-2-13 662.8	Replaced per RHC	-	-	 AP

CE RECORD

ALTIMETER & STATIC SYSTEM CHECKS F.A.R. 91.411

SIGNATURE DATE NO.	DATE	MANUFACTURER	MODEL	SERIAL NO.	LOCATION	MAX. ALT.	RECHECK REQUIRED	APPROVED BY: AGENCY CERT. NO.
	15 APR 05	United Instruments	5932P-3	446216	N/A	N/A	N/A	RHC PC 424WE
	21 OCT 05	RHC Pitot System Leak Check			N/A	N/A	N/A	RHC PC 424WE
	13 OCT 05	RHC Static System Leak Check			N/A	N/A	24 CAL MONTHS	RHC PC 424WE

THE ALTIMETER AND STATIC SYSTEM AND AUTOMATIC ALTITUDE REPORTING SYSTEM HAVE BEEN TESTED AND INSPECTED PER FAR 91.411 AND HAVE BEEN FOUND TO COMPLY WITH FAR PART 43, APPENDIX E. THE FOLLOWING EQUIPMENT HAS BEEN TESTED TO 16,000 FEET: (A804 AND C804 INSTAL. RECORDS ARE ON FILE AT RHC)

ALTIMETER S/N 446216 ENCODER/DIGITIZER S/N A63656

SIGNED [REDACTED] DATE 17 OCT 05
ROBINSON HELICOPTER COMPANY
PROD. CERT. NO. 424WE

RADIO & ELECTRONIC CHECKS

APPROVED BY: AGENCY CERT. NO.	DATE	TOTAL TIME	EQUIPMENT CHECKED	TYPE OF CHECK	ERROR OR RESULTS	NEXT CHECK DUE	CHECKED BY: SIGNATURE — CERT. NO.
	28-Oct-05	0	KY196A	FUNCTIONAL	PASS	N/A	[REDACTED] RHC PC424WE
	28-Oct-05	0	GNC420	FUNCTIONAL	PASS	N/A	[REDACTED] RHC PC424WE
	17-Oct-05	0	KT76C	FUNCTIONAL	PASS	24 CAL MONTHS	[REDACTED] RHC PC424WE
	17-Oct-05	0	SSD120-30A	FUNCTIONAL	PASS	24 CAL MONTHS	[REDACTED] RHC PC424WE
	28-Oct-05	0	AA12S-002	FUNCTIONAL	PASS	N/A	[REDACTED] RHC PC424WE

THE FOLLOWING TRANSPONDER HAS BEEN TESTED PER FAR 91.413 AND HAS BEEN FOUND TO COMPLY WITH FAR PART 43, APPENDIX F: (A804 AND C804 INSTAL. RECORDS ARE ON FILE AT RHC)

MFG: BENDIX / KING MODEL KT76C S/N 19014

SIGNED [REDACTED] DATE 17 OCT 05
ROBINSON HELICOPTER COMPANY
PROD. CERT. NO. 424WE

RADIO & ELECTRONIC CHECKS						
DATE	TOTAL TIME	EQUIPMENT CHECKED	TYPE OF CHECK	ERROR OR RESULTS	NEXT CHECK DUE	CHECKED BY: SIGNATURE — CERT NO.
				✈️		
				JONES AVIONICS FAA CRS # YVJR478Y Houston Southwest Airport Arcola, Texas 77583		N89LA
				Transponder Mfg. KT76C Model _____		
				Serial No. 19014 p/n 066-01156-0201		
				Encoder Mfg. SSD120-3AA Ser No. A63656		
				was tested & inspected and meets the requirements of FAA 14 CFR Part 91.413, 14 CFR Part 43 Appendix F, 14 CFR 91.217		
				Date: 8-26-10 Location: TSY		
				Inspector [Signature]	Work Order 112010-95	

CHECKED BY: SIGNATURE — CERT. NO.		DATE	TOTAL TIME	EQUIPMENT CHECKED	TYPE OF CHECK	ERROR OR RESULTS	NEXT CHECK DUE	CHECKED BY: SIGNATURE — CERT. NO.
N 89LA								
Model # KT 76C		Serial # 19014						
Aircraft N 89LA		Date: DEC 26 2012						
Transponder system tested in accordance with part 43, Appendix "F" and Appendix "E", Subpart (c) for compliance with FAR 91.413.								
Signature: [Redacted]		Work Order # 3109						
MUELLER AVIONICS, INC.				CRS # QYVR04J				
SPENCER AVIONICS 1979 330th Street, Spencer IA. 51301 FAA Repair Station #KU2R965K This is to certify that the ATC transponder below has been inspected and tested as required by FAR 91.413 and to be in compliance with appendix E and F of FAR 43								
Model # KT-76C		S/N # 19014						
W.O. # 7237		Date # SEP. 12, 2010						
Inspector [Redacted]		AV # [Redacted]						

MAINTENANCE RECORD		F.A.R. 43.9	
ED BY: CERT. NO.	DATE OF COMPLETION	Airframe Entry	
	September 09, 2009		
	Robinson R44 II		
	N89LA; S/N 10984		
	Hobbs reading		
	TTIS 215.6		
	Removed ships battery for calendar time and condition. Installed new Concord battery in accordance with Robinson MM. System tested and found ok for return to service.		
	Thomas Perrigue [REDACTED] A&P		
Airframe  DATE: May 30, 2010 IDENT: N89LA/S/N 10984 TACH: 260.0 TTAF: 280.0 ACFT: Robinson R44 II S/N 1-30633-484 TSN: 280.0 TSOH: N/A ENG: LYCOMING IO-540-AE1AS S/N L-30633-484 TSN: 280.0 TSOH: N/A COMPLD WITH SERVICE BULLETIN 55-72, NO CORROSION, SEPARATION, OR VOIDS DETECTED. COMPLD WITH SERVICE BULLETIN 55-77, CLUTCH PUS HOLDER WIRES PROPERLY. GRANTE LANE [REDACTED] A&P			

MAINTENANCE RECORD		F.A.R. 43.9	
DATE COMPL	NO. TO SERVICE	DATE OF COMPLETION	
Date: 06/15/2011 Total Time: 341.1 Hobbs: 341.1			
At this time installed Simplex R44 III Spray System IAW STC SRO0028680. 337 Filled at this time. Restricted Category Certificated and Operating Limitations issued this date and time.			
- Installed R44 III Spray System (SEE FMS for Additional W/B when using System) - Installed D703-1 Weldment 1.0 @ 21.2 - Installed HEMISPHERE CPU 8.58 @ 49.5 Longitudinal / 12.2 Lateral - Installed HEMISPHERE IntelliFlow 4.5 @ 49.5 Longitudinal / 12.2 Lateral - Installed HEMISPHERE 7" Touchscreen 1.35 @ 21.2 Longitudinal - Installed Light Bar 2.2 @ 21.2 Longitudinal - Installed Antenna 1.75 @ 21.2 Longitudinal - Installed Wiring 4.0 @ 49.5 Longitudinal / 12.2 Lateral - Installed Wiring 3.0 @ 21.2 Longitudinal			
337 Filled this date for installation of GPS Guidance System Weight and Balance Updated this date.			
Dominique J. Youakim [REDACTED] IA [REDACTED]			

F.A.R. 43.9

ed Category

F.A.R. 43.11-91.409

MARTIN P. SCHNEIDER

Authorized Signature & Number

AIRFRAME LOGBOOK ENTRY

02-15-07	N89LA	TACH	818	TT	81.8
----------	-------	------	-----	----	------

Completed 100 hr. inspection per Appendix D to Part 43. Replaced rotor brake spring, reinstalled and balanced tailwheel. This aircraft, airframe, aircraft engine, propeller or appliance identified above was repaired and inspected in accordance with current Regulations of the Federal Aviation Administration and is approved for return to service. Pertinent details of the repair are on file at this repair station under Work Order 15603. I certify that this aircraft has been inspected in accordance with a(n) annual inspection and I am qualified to be in an authority condition.

signed: [redacted]
signature of authorized representative

Rite-Way Aviation, Inc.
 Renair Station YWYR832L
 Spring, TX 77379

INSPECTION RECORD

F.A.R. 43.11-91.409

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
5-20-08	163.5	



JONES AVIONICS
FAA CRS # YVJR478Y
Wharton Regional Airport

Wharton, Texas 77488

Transponder Mfg. KT76C Model 1010
Serial No. 19014 p/n 066-08156-0201
was tested & inspected and meets the requirements of FAA 14
CFR Part 91.413, 14 CFR Part 43 Appendix F
and 14CFR 91.217

Date: 5-20-08 Location: T54 Rosenberg

Inspector [Redacted] Work Order 1151-49

DATE	AIRCRAFT TIME IN SERVICE
May 27, 2008	

Robinson R4
N89LA, S/N
Hobbs reading
TTIS 0163.5

Inspected airframe
Completed SB-61. Comp
seat buckle as
airfilter P/N C
certify that this
inspection and

Thomas Perrig

INSPECTION RECORD

F.A.R. 43.11-91.409

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

Airframe Entry

May 27, 2008

Robinson R44 II
N89LA, S/N 10984
Hobbs reading 0163.5
TTIS 0163.5

Inspected airframe using Robinson R44 Maintenance Manual, Sec. 2.300.
Completed SB-62, SB-64, and SB-66 Service Bulletins. Painted rotor blades per
SB-61. Complied with AD 2007-11-01 using SB-56 Service Bulletin installing
seat buckle assemblies. See AD compliance list dated 5.27.2008. Installed new
airfilter P/N C771-2. Changed main and tail gear box oil using A257-2 oil. I
certify that this helicopter has been inspected in accordance with a **ANNUAL**
inspection and found in airworthy condition.

Thomas Perrig

INSPECTION RECORD F.A.R. 43.11-91.409

DATE	AIRCRAFT IN SERVICE
------	------------------------

Airframe Entry

June 2, 2009

Robinson R44 II
N89LA, S/N 10984
Hobbs reading
TTIS 205.5

Inspected airframe using Robinson R44 Maintenance Manual, Sec. 2.300.
See AD Compliance Report dated 06/02/2009 for compliance.
I certify that this helicopter has been inspected in accordance with a ANNUAL
inspection and found in airworthy condition.

Thomas Perrigue [REDACTED] IA

ICE

DATE	AIRCRAFT TIME IN SERVICE
------	-----------------------------

June 15, 2011 N89

I find that the aircraft
airworthiness certificate

William Pobanz DART [REDACTED]

INSPECTION RECORD F.A.R. 43.11-91.409

DATE	AIRCRAFT TIME IN SERVICE
------	-----------------------------

AIRFRAME LOGBOOK ENTRY

09/10/2010 N89LA Tach: 289.8 TT: 289.8

AFT FOR SERVICE

Completed 100 hr. inspection per Appendix D to Part 43. Replaced forward door springs. Replaced TR
PC links with new. C/W SB-67 (fuel line supports) by installation of clamps. C/W SB-68 (rigid lines) by
installation of flexible fuel hose kit. C/W SB-69 (gascolator) by installation of new gascolator kit. C/W SB-
71 (throttle link) by replacement with new part. C/W SB-74 (MRGB input yoke) by inspection and torque
check. C/W AD 2007-26-12 (blade bond) by use of AMOC dated July 9, 2010 and complied with SB-72 by
inspection. See AD compliance report for recurrent requirements. Performed main rotor blade track and
balance. This aircraft, airframe, aircraft engine, propeller or appliance identified above was repaired and
inspected with current Regulations of the Federal Aviation Administration and is approved for return to
service. Pertinent details of the repair are on file at this repair station under Work Order 18025. I certify
that this rotorcraft has been inspected in accordance with a(n) annual inspection and was determined to be
in an airworthy condition.

Signed: [REDACTED]
signature of authorized representative

Rite-Way Aviation, Inc.
Repair Station YWYR832L
[REDACTED] Spring, TX 77379

June 15, 2011 N89LA S/N 10984 AFTT 289.8

I find that the aircraft meets the requirements for the certification requested and have issued a special
airworthiness certificate dated Dec 01, 2010. The next inspection is due 389.8 TT or Sept 2011

William Pobanz DART [REDACTED]

INSPECTION RECORD F.A.R. 43.11-91.409			
DATE	AIRCRAFT TIME IN SERVICE	KIND OF INSPECTION - STATUS & DISCREPANCY LIST SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISAPPROVING AIRCRAFT FOR SERVICE	
Date: 06/17/2011 Total Time: 341.1 Hobbs 341.1			
At this time inspected aircraft IAW Robinson Helicopter Maintenance Manual. Installed new Strobe Light and Tail Light. Installed new dimmer switch for panel. Main Rotor Blades Inspected IAW 2007-26-12 by use of AMOC dated 7/09/2010. Main Rotor Blades Painted. Tail Rotor Blades cleaned and painted. Tail Rotor Balanced to 11 IPS. AD's Checked thru 2011-12.			
I certify that this Aircraft has been inspected in accordance with an Annual inspection and was determined to be in an Airworthy Condition.			
Dominique J. Youakim [REDACTED] IA [REDACTED]			
MAKE: Robinson Helicopter MODEL: R44 II S/N: 10984 REG NO: N89LA WORK ORDER: 5649		Tennessee Aircraft Services, Inc. [REDACTED] DATE: 22 June, 2011 A/C TSN: 346.6 TACH: 346.6	
Airframe Entries Charged ship's battery for approximately one hour. Installed new main battery contactor pin B415-2 and ground checked satisfactory.			
DATE: 22 June, 2011		SIGNED: [REDACTED] Michael Cummings, A&P	
		Work Order: 5649 Printed by EBis 3 (datamedia.com)	

INSPECTION RECORD F.A.R. 43.11-91.409			
DATE	AIRCRAFT TIME IN SERVICE	KIND OF INSPECTION - STATUS & DISCREPANCY LIST SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISAPPROVING AIRCRAFT FOR SERVICE	
January 12, 2012	Hobbs 504.5 TTAF 1427.9	MDH Aviation Services, LLC Mountain View, AR 72560 N89LA SN 10984	
Helicopter opened and inspected in accordance with the scope and detail of FAR 43, Appendix D, Annual/100Hour Checklist and Robinson Maintenance Manual 100, 300 and 500 Hour Checklist. Lubed and inspected all flight controls. Drained all fuel strainers and screens. Complied with all current and recurring AD's. See list in aircraft records. Other routine maintenance and inspections performed. Corrected the following discrepancies noted during the course of the inspection using approved or acceptable data as applicable:			
1. Complied with 500 Hour Flush and Fill of MR and TR gearboxes 2. Complied with 300 Hour replacement of Hydraulic Filter. 3. Complied with rotor blade inspection in accordance with AD 2011-12-10. Due each 100 Hours. 4. Complied with 500 Hour/4 Year Inspection and Overhaul of Magneto by Quality Aircraft Accessories, Inc. See attached maintenance release tags. Reinstalled and times magnetos. 5. Replaced induction air filter element with new C771-2. 6. Complied with 300 lubrication of C181-3 Bearing. 7. Replaced tail rotor nav light bulb with new A508-28 bulb. 8. Complied with Track and Balance of MR and TR using Chadwich System to within manufacturers' specs. 9. Replaced fuel drain clamp with new D663-1 clamp.			
I certify this Helicopter has been inspected in accordance with an ANNUAL INSPECTION and was Found to be in AIRWORTHY condition at this time.			
[REDACTED] Michael D. Hunter [REDACTED] IA [REDACTED]			

INSPECTION RECORD F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

Date: 1/16/2012 Total Time 524.0 Hobbs 524.0

At this time removed GPS guidance system and Simplex R44 III Spray System

- Removed R44 III Spray System
- Removed D703-1 Weldment -1.0 @21.2
- Removed HEMISPHERE CPU -8.58 @ 49.5 Longitudinal/12.2 Lateral
- Removed HEMISPHERE IntelliFlow -4.5 @ 49.5 Longitudinal / 12.2 Lateral
- Removed HEMISPHERE 7" Touchscreen -1.35 @ 21.2 Longitudinal
- Removed Light Bar -2.2 @ 21.2 Longitudinal
- Removed Antenna -1.75 @ 21.2 Longitudinal
- Removed Wiring -4.0 @ 49.5 Longitudinal / 12.2 Lateral
- Removed Wiring -3.0 @ 21.2 Longitudinal

All work performed in accordance with manufacturer maintenance manuals and current FAA regulations.
Michael L. Walker AP [REDACTED]

January 2, 2013 Registratio
Aircraft Total Time: 662.8 A
L-30633-48A Engine Total T
Engine Date of Manufacture
Removed the following com
2 ea. M/R Blades, P/N C016-
Gearbox, P/N C021-1, S/N 26
Assembly, P/N D062-2, S/N 2
S/N 2851; M/R Hub, P/N C15
Shaft, P/N C166-4, S/N 3424;
4326; T/R Driveshaft, P/N D1
C251-2, S/N R3747; MRGB Su
Gear Set, P/N C545-1, S/N 321
total time 662.8; M/R Gearbo
Swashplate, P/N C017-6, S/N 1
1366, 1369; T/R Pitch Control,
P/N C146-5, S/N 6879; M/R Hu
Clutch Shaft, P/N C166-4, S/N E
S/N 9036; T/R Driveshaft, P/N C
P/N C263-2, S/N 4702; MRGB H
Hub Assembly, P/N G062-1, S/N
(Page 1 of 2). (Continued Next P

INSPECTION RECORD F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

January 2, 2013 Registration: N89LA Make/Model: Robinson R-44 Raven II Aircraft Serial No. 10984
Aircraft Total Time: 662.8 Aircraft Hobbs: 662.8 Engine Model No: IO-540-AE1A5 Engine Serial No:
L-30633-48A Engine Total Time Since New: 662.8 Aircraft Date of Manufacture: November 17, 2005
Engine Date of Manufacture: June 28, 2005

Removed the following components at aircraft total time 662.8: M/R Gearbox, P/N C006-5, S/N 2962;
2 ea. M/R Blades, P/N C016-5, S/N's 2156B, 2160B; M/R Swashplate, P/N C017-4, S/N 2754; T/R
Gearbox, P/N C021-1, S/N 2690; 2 ea. Tail Rotor Blades, P/N C029-2, S/N's 2544D, 2545E; T/R Hub
Assembly, P/N D062-2, S/N 2274; T/R Pitch Control, P/N C031-1, S/N 3018; Clutch Actuator, P/N C051-2,
S/N 2851; M/R Hub, P/N C154-1, S/N 2875; 2 ea. M/R Spindle, P/N C158-1, S/N's 5878, 5880; Clutch
Shaft, P/N C166-4, S/N 3424; Bearing Assembly, P/N C181-3, S/N 3148; Sprag Clutch, P/N C188-3, S/N
4326; T/R Driveshaft, P/N D196-1, S/N 0932; M/R Gear Set, P/N C146-5, S/N 3029; M/R Driveshaft, P/N
C251-2, S/N R3747; MRGB Sump, P/N C263-2, S/N 0488; MRGB Housing, P/N C264-1, S/N 2962; T/R
Gear Set, P/N C545-1, S/N 3213; (See Aircraft Logbook). Installed the following components at aircraft
total time 662.8: M/R Gearbox, P/N C006-5, S/N 1086; M/R Blades, P/N C016-7, S/N's 254, 255; M/R
Swashplate, P/N C017-6, S/N 1126; T/R Gearbox, P/N C021-1, S/N 3077; T/R Blades, P/N's C029-3, S/N's
1366, 1369; T/R Pitch Control, P/N C031-1, S/N 7422; Actuator, P/N C051-2, S/N 2470; M/R Gear Set,
P/N C146-5, S/N 6879; M/R Hub, P/N C005-4, S/N 7183; M/R Spindle, P/N C005-14, S/N's 15259, 15261;
Clutch Shaft, P/N C166-4, S/N 8212; Bearing Assembly, P/N C181-3, S/N 1044; Sprag Clutch, P/N C188-3,
S/N 9036; T/R Driveshaft, P/N D224-2, S/N 5331; M/R Driveshaft, P/N C251-2, S/N R2062; MRGB Sump,
P/N C263-2, S/N 4702; MRGB Housing, P/N C264-2, S/N 7184; T/R Gear Set, P/N 545-1, S/N 7532; T/R
Hub Assembly, P/N G062-1, S/N 0958; (See Aircraft Logbook). Installed the following new components:
(Page 1 of 2). (Continued Next Page).

INSPECTION RECORD
F.A.R. 43.11-91.409

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISAPPROVING AIRCRAFT FOR SERVICE
January 2, 2013		Registration: N891A Make/Model: Robinson R-44 Raven II Aircraft Serial No. 10984 Flex-Plate assemblies, P/N's C947-1, C947-2, C947-3; 2 ea. Pitch Link Assembly, P/N C258-1; T/R Push Pull Tube Assembly, P/N C121-17; T/R Bell Crank Assembly, P/N A120-3; Yoke, P/N C116-1; Fan Wheel Assembly, P/N D174-2; V-Belt Set, P/N A190-3; Fairing Assembly, P/N C082-3; Air Filter, P/N C771-2. All Drive Train assembly hardware replaced with new. Installed Robinson Helicopter Company Fuel Tank Retrofit Kit, P/N KI-196. Dynamically balanced Fan Wheel to .12 IPS, Tail Rotor Assembly to .1 IPS, Main Rotor Assembly to .2 IPS. AD Biweekly updates checked through 2012-26. AD 2003-04-05 no longer applicable due to Pitch Control Bearing, P/N C031-1, Rev J. installed. AD 2011-12-10 no longer applicable due to M/R Blade P/N C016-7 blades installed. Complied with Robinson Helicopter Company Service Bulletins; SB-85, SB-84, SB-83, SB-82, SB-81, SB-78B. Transponder system tested in accordance with FAR 43, Appendix F and E, Subpart C for compliance with FAR 91.413. Due Again December 2014. All work performed in accordance with Robinson Helicopter Company R44 Maintenance Manual and Instructions For Continued Airworthiness. Aircraft Test Run and Leak Checked with no discrepancies noted at this time. I certify that this aircraft has been inspected in accordance with ANNUAL inspection requirements per FAR 43, Appendix D and Robinson Helicopter Company Maintenance Manual and Instructions For Continued Airworthiness, Section 2, and found to be airworthy this date. END. (Page 2 of 2). William A. Hopper January 2, 2013

ROBINSON HELICOPTER COMPANY

P/N A190-3 V-BELT SET LOT NO. 249 REV. 844

5 HOUR BENCH TEST COMPLETED INSP. DATE 09/12/12

BY: [REDACTED] DATE 09/12/12

DATE: 8/24/12

BELT NO.: 18776

HOURS: 5

*****IMPORTANT*****

SEE CAUTION ON REVERSE SIDE REGARDING V-BELT INSTALLATION.

RF 177B Rev A

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISAPPROVING AIRCRAFT FOR SERVICE
January 2, 2013		Aircraft Serial No. 10984 ly, P/N C258-1; T/R Push- e, P/N C116-1; Fan Wheel e; Air Filter, P/N C771-2. All pter Company Fuel Tank or Assembly to .1 IPS, Main D 2003-04-05 no longer 1-12-10 no longer applicable pter Company Service 43, Appendix F and E, Subpart C for compliance with FAR 91.413. Due Again December 2014. All work performed in accordance with Robinson Helicopter Company R44 Maintenance Manual and Instructions For Continued Airworthiness. Aircraft Test Run and Leak Checked with no discrepancies noted at this time. I certify that this aircraft has been inspected in accordance with ANNUAL inspection requirements per FAR 43, Appendix D and Robinson Helicopter Company Maintenance Manual and Instructions For Continued Airworthiness, Section 2, and found to be airworthy this date. END. (Page 2 of 2). William A. Hopper January 2, 2013

INSPECTION RECORD

F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

January 2, 2013 Registration: N89LA Make/Model: Robinson R-44 Raven II Aircraft Serial No. 10984
Aircraft Total Time: 662.8 Aircraft Hobbs: 662.8 Engine Model No: IO-540-AE1A5 Engine Serial No:
L-30633-48A Engine Total Time Since New: 662.8 Aircraft Date of Manufacture: November 17, 2005
Engine Date of Manufacture: June 28, 2005
Addendum to Aircraft Logbook Entry, Dated January 2, 2013. Tailcone Assembly, P/N C023-1, S/N 2808,
removed for repair of damaged aft bay. Tailcone repaired per Robinson Helicopter Company, FAA Form
8130-3, dated November 8, 2012. This is a time-continued repair. Tailcone Assembly installed on aircraft
per Robinson Helicopter Company Maintenance Manual and Instructions For Continued Airworthiness.

William A. Hopper

January 2, 2013

INSPECTION RECORD

F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

8/21/13 784.6 N89LA 508/0984 Robinson Model R44 Raven II
MR GEARBOX SN: 1086 AND TR GEARBOX SN: 3077
Performed DRAIN & FLUSH ON MAIN ROTOR
GEARBOX AND TAIL ROTOR GEARBOX IN
ACCORDANCE WITH ROBINSON MAINTENANCE
MANUAL SECTIONS 1.120 + 1.130.
AIRCRAFT IS APPROVED FOR RETURN TO
SERVICE FOR WORK PERFORMED

AP [REDACTED] IA

ROBINSON N 89LA

Exhaust tail pipe was cutting into
vertical strut weldment. Remove ex-
haust pressure on rear mount. Remove w-
figure 6-1. Install new engine mount
yoke to comply with Robinson sheet
OK. Adjust scroll lip from .250 to
OK. Fabricate missing cover (P/N E-
and balance main rotor blades using
IPS, using ACES 2020 T&B equipment
service this date.

INSPECTION RECORD
F.A.R. 43.11-91.409

DATE: AIRCRAFT TIME IN SERVICE: KIND OF INSPECTION - STATUS & DISCREPANCY LIST: SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISAPPROVING AIRCRAFT FOR SERVICE:

RG DAVIS AVIATION CO. INC.
ROBINSON AIRFRAME LOG
MAINTENANCE RECORD

ROBINSON N 89LA R44 II SN 10884 HOBBS 841.8
TTSN 841.8 DATE 11/12/2013

Exhaust tail pipe was cutting into rear cowling due to sagging rear engine mount and wrong adjustment of rod end on the vertical strut weldment. Remove rear cowling, scroll, and fan to gain access to rear engine mount. Jack engine up to relieve pressure on rear mount. Remove vertical strut weldment (engine support assembly). Adjust rod end IAW Robinson MM 6.1.10 figure 6-1. Install new engine mount PN 653-1 on weldment. Install weldment, fan, and scroll. Install new C907-1 (SHORT) yoke to comply with Robinson sheave alignment. Adjust sheave alignment IAW Robinson MM Figure 7-6. Check fan balance. OK. Adjust scroll tip from .250 to .060. Install rear cowling. Run, and hover helicopter. Check exhaust tail pipe clearance. OK. Fabricate missing cover (PN D695-6) and installed. Fabricate broken heat shield stand off for tail pipe and install. Track and balance main rotor blades using ACES 2020 T&B equipment. Track .1 inches. Balance .15 IPS. Balance tail rotor to .09 IPS, using ACES 2020 T&B equipment. Helicopter was flown. OK. With respect to work completed this helicopter is returned to service this date.

Rick Davis AP

INSPECTION RECORD

RG DAVIS AVIATION CO. INC.
ROBINSON AIRFRAME LOG
INSPECTION RECORD

ROBINSON N 89LA R44 II SN 10984 HOBBS 841.8
TTSN 841.8 DATE 11/12/2013

Exhaust tail pipe was cutting into rear cowling due to sagging rear engine mount and wrong adjustment of rod end on the vertical strut weldment. Recheck exhaust tail pipe clearance after maintenance. OK. With respect to work completed this helicopter is returned to service this date.

Rick Davis AP

Make	Model	Serial Number	Registration
Robinson	R44 II	10984	N89LA
Total Time	TACH Time	Time Since O/H	Date
859.3	859.3	n/a	2/16/14

Performed annual inspection at this time. I certify this aircraft has been inspected in accordance with annual inspection requirements per Robinson Helicopter company maintenance manual and instructions for continued airworthiness, and found to be in airworthy condition.

Michael L. Walker AP

Make: Robinson
Serial #: 10984
Date: March 16, 2015

Performed inspection in accordance with 1297.0. Hydraulic filter replaced at this time. Drained and tightened main rotor spindle side, aft of no. 1 cylinder. All work was performed.

I certify that this aircraft has been inspected in airworthy condition at this time.

This aircraft is approved for return to service.

Michael Walker AP/IA

841.8
12/2013

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5/14

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ndition.

INSPECTION RECORD F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

Polson Aero
Jonesboro Ar 72401

Make: Robinson
Serial #: 10984
Date: March 16, 2015

Model: R44 II
Tach: 997.0

Reg: N89LA
TSN: 997.0

Performed inspection in accordance with Robinson helicopter maintenance manual at this time. C181.3 bearing lubed at this time, next due @ 1297.0. hydraulic filter replaced at this time, next due @ 1297.0. MR and TR gearboxes were drained and flushed @ 784.6, next due @ 1294.6. Drained and tightened main rotor spindle inner boot clamps, refilled and leak checked at this time. Repaired broken engine air baffling on left side, aft of no.1 cylinder. All work was performed in accordance with Robinson maintenance instructions and current FARs.

I certify that this aircraft has been inspected in accordance with an annual inspection requirement per Robinson Helicopter and found to be in airworthy condition at this time.

This aircraft is approved for return to service for work performed.

Michael Walker AP/IA

INSPECTION RECORD F.A.R. 43.11-91.409

DATE AIRCRAFT TIME IN SERVICE KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

COPTERS

N89LA ACTT: 1004.5 04/16/2015

Checked and adjusted fan balance to .089 IPS. Checked T/R balance, .081 IPS

Checked and adjusted M/R track to .120 IPS @ cruise. All work done in accordance RHC R44 maintenance manual and Microvibe II user guide.

Jeffery Dean Houseman A&P

Polson Aero
Jonesboro Ar 72401

Make: Lycoming
Serial #: L-30633-48A
Date: August 11, 2015

Model: IO-540-AE1A5
Tach: 1024

Reg: N89LA
TSN: 1024

Installed new flywheel ring gear and overhauled starter at this time.

All work done in accordance with Lycoming and Robinson service manuals.

Michael I. Walker AP

DATE AIRCRAFT TIME IN SERVICE

Make: Robinson
Serial #: 10984
Date: March 7, 2016

Performed Annual inspection in accordance with Robinson maintenance instructions for inspection, reinstalled upon completion.

I certify that this aircraft has been inspected in accordance with Robinson maintenance instructions and found to be in airworthy condition at this time.

This aircraft is approved for return to service for work performed.

Michael Walker AP/IA

INSPECTION RECORD F.A.R. 43.11-91.409

KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

DATE AIRCRAFT TIME
IN SERVICE

Poison Aero
[REDACTED] onesboro Ar 72401

Model: R44 II
Tach: 1095.8

Reg: N89LA
TSN: 1095.8

Make: Robinson
Serial #: 10984
Date: March 7, 2016

Performed Annual inspection in accordance with Robinson helicopter maintenance manual at this time. Removed panels and inspection covers for inspection, reinstalled upon completion of inspection. No new or reoccurring AD's due at this time. All work was performed in accordance with Robinson maintenance instructions.

I certify that this aircraft has been inspected in accordance with an annual inspection requirement per Robinson Helicopter and found to be in airworthy condition at this time.

This aircraft is approved for return to service for work performed.

Michael Walker AP/IA [REDACTED]

INSPECTION RECORD F.A.R. 43.11-91.409

KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

DATE AIRCRAFT TIME
IN SERVICE



N89LA ACTT: 1111.4 05/27/2016

Removed fan for facilitation of maintenance, removed flywheel and replaced ring gear with new ring gear in accordance with SI-1141A. Replaced crankshaft seal LW-13792 and alternator belt B173-3. Reinstalled fan and checked balance (.15IPS). Removed left mag and inspected points and checked internal timing, reinstalled with new cushions 68H22624 and set timing to 20° BTC. Found starting booster inop, installed new Slick Start Booster SS1002. Installed new Teletemp indicator on upper sheave, serviced lower sheave bearing with Mobil 28 IAW RHC MM Ch 7. Engine run up, leak check and functional check complied with.

Jeffery Dean Houseman A&P [REDACTED]

ROBINSON R44II N89LA S/N 1134

Date 07-15-2016

Hobbs/TT 1134.3

Checked main rotor track and balance (.13 IPS at 3:35). Sheave alignment set to L .100 R .085.

Signed [REDACTED]

Danny Van Donselaar A/P [REDACTED]

DATE AIRCRAFT TIME
IN SERVICE

ROBINSON R44II
Date 11-21-2016

Complied with a 100 H
Checked sheave aliner
cracks and/or leaks (no
air filter. Installed new
GE4591 landing light
Signed [REDACTED]
Knoxville Aviation

AIRCRAFT LOG
ROBINSON R44II

Date 11-21-2016

I certify that this aircraft
and was determined to be
Signed [REDACTED]
Knoxville Aviation

INSPECTION RECORD

F.A.R. 43.11-91.409

KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

ROBINSON R44II N89LA S/N 10948

Date 11-21-2016 Hobbs/TT 1353.7

Complied with a 100 hour inspection in accordance with the Robinson R44 maintenance manual. Checked sheave alinement left (.105 and .085). Cleaned fuel screens. Checked exhaust for cracks and/or leaks (none found). Installed new D317-1 exhaust shield. Installed new C771-2 air filter. Installed new Q4591 landing light. Replaced B320-3 low rotor hom. Installed GE4591 landing light bulb.

Signed [REDACTED] Danny Van Donselaar A/P [REDACTED]
Knoxville Aviation 1545 Hwy 14 South Knoxville IA 50138

AIRCRAFT LOG

ROBINSON R44II N89LA S/N 10984

Date 11-21-2016 Hobbs/TT 1353.7

I certify that this aircraft has been inspected in accordance with a 100 hour/Annual inspection and was determined to be in airworthy condition.

Signed [REDACTED] Danny Van Donselaar A/P [REDACTED]
Knoxville Aviation 1545 Hwy 14 South Knoxville IA 50138

INSPECTION RECORD

F.A.R. 43.11-91.409

KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

Robinson R44 Raven II N89LA S/N 10984
DATE: 28AUG17 HOBBS 1706



Replaced motor mounts with C653-2(2ea) and C653-1. Upper and lower bearing serviced, next due @ 2006 hours. Sprag clutch serviced with A 257-4. Replaced (4) D174-3, (4) D173-2, (4) C115-1, (8) MS28778-14, AN6235-1A hydraulic filter, D380-10 panel. Adjusted sheave to L .064, R .045. Replaced (6) MS35489-2 and (12) B401-2. Replaced all exhaust HDWR. All work performed IAW RHC Maintenance Manual.

[REDACTED] Aaron Stenvers
A&P [REDACTED]
Red Oak, IA 51566. • www.redoakaviation.com

Robinson R44
DATE: 21MAY

Inspected airfr
and inspected.
set to L .079-R
new air filter P
Replaced tail p

Robinson R44
DATE: 21MAY

I certify that this air
determined to be in

INSPECTION RECORD

F.A.R. 43.11-91.409

KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
21MAY18	HOBBS 1710.9	Robinson R44 Raven II N89LA S/N 10984 Inspected airframe IAW Robinson Maintenance Manual Section 2.200. Opened exhaust shroud and inspected. Removed gascolator bowl, inspected screen, and reinstalled. Adjusted sheave and set to L .079-R .054. Replaced Hydraulic filter P/N6235-1A and O-ring P/N MS 2778-14. Installed new air filter P/N CA 6525. Replaced Battery with new Concord see attached FAA form 8130-3. Replaced tail position light with P/N 34-0428070-64. Aaron Stenvers A&P Red Oak, IA 51566 www.redoakaviation.com
21MAY18	HOBBS: 1710.9	Robinson R44 Raven II N89LA S/N 10984 I certify that this airframe has been inspected in accordance with a 100hr inspection and has been determined to be in airworthy condition. Aaron Stenvers A&P Red Oak, IA 51566 www.redoakaviation.com

INSPECTION RECORD

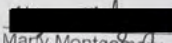
F.A.R. 43.11-91.409

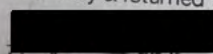
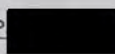
KIND OF INSPECTION - STATUS & DISCREPANCY LIST
SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
ROTORCRAFT LOG BOOK ENTRY		
N89LA	AIRFRAME	ENGINE
MAKE	ROBINSON	LYCOMING
MODEL	R44 RAVEN II	IO-540-AE1A5
SERIAL	10984	L-30633-48A
TTSN	1,710.9	1,710.9
TTSOH	1,710.9	N/A
HOBBS/TACH	TACH 1,710.9	DATE: 21 MAY 2018
1. Performed Annual inspection per manufactures inspection guides. I certify that this Rotorcraft has been inspected in accordance with an annual type inspection and was determined to be in airworthy condition.		
		 Charles K. Pamley, Jr. AP Reg. # Make: HMT: The following was per • Tested and Inspected system IAW Title 14 and Appendix F. • Encoder - Transponder I certify this aircraft has a detailed record is on file Signed:

INSPECTION RECORD F.A.R. 43.11-91.409			
DATE		AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
		Reg. # N89LA Make: ROBINSON HELICOPTERS HMT: 1930.5	Date: September 19, 2018 Model: R44 Work Order: W397A S/N: 10984
The following was performed by Duncan Aviation under work order W397A: - Tested and inspected the ATC transponder IAW Title 14 CFR Part 91.413 and automatic pressure altitude reporting system IAW Title 14 CFR Part 91.413(b) and was found to comply with Title 14 CFR Part 43, Appendix E paragraph (c) and Appendix F. - Encoder - Trans Cal Ind P/N SSD120-XXA S/N A 63656. - Transponder - Bendix/King KT-76C P/N 066-01156-0201 S/N 19014.			
I certify this aircraft has been inspected in accordance with Title 14 CFR 91.413 and is approved for return to service. A detailed record is on file under work order W397A.			
Signed: _____ For Duncan Aviation Repair Station JGVR194F Phone: _____			

INSPECTION RECORD F.A.R. 43.11-91.409			
DATE		AIRCRAFT TIME IN SERVICE	SIGNATURE - CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
		Robinson R44 Raven II 6/9/20 N89LA	Hobbs: 1842.3 S/N 10984
Inspected rotorcraft IAW RHCMM. Replaced AH6235-1A hydraulic filter b-173-3 alternator belt. Serviced upper and lower bearing assembly. Drained MROB. TRGB w/ 4257-2 oil. Replaced MROB mounts 2 each A653-2 2 each A653-3 2 each. MROB assembly C08-5 s/n 5812. Replaced blade bumpers D151-2, head bushings C648-1, C648-3, 3 each. NAS634-105 bolts, 3 each C189-15, A916-5. Replaced governor B047-5 driving bolts A190-3. I certify this aircraft has been inspected IAW a 100 hr inspection.			
I certify this rotorcraft has been inspected IAW an annual inspection and was determined to be in airworthy condition at this time.			

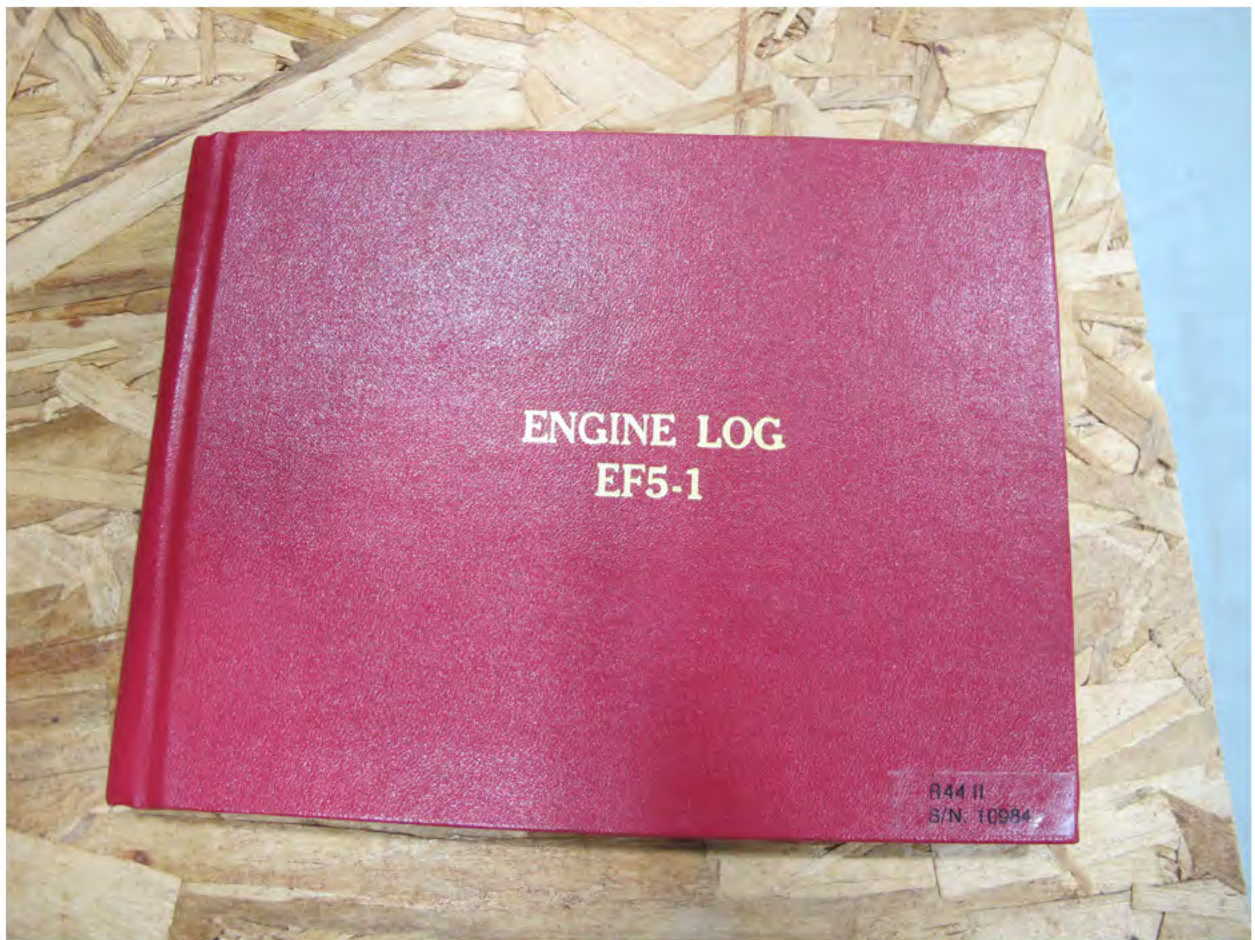
INSPECTION RECORD F.A.R. 43.11-91.409		
DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
		
6/9/20	Robinson R44 Raven II 89LA	Hobbs: 1942.3 S/N 10984
Removed MR blades C016-7, SN 254 & 255. Installed C016-7, SN 5220, 5229. Track & balanced. Returned to service.		
 Marty Montgomery		AP 

INSPECTION RECORD F.A.R. 43.11-91.409		
DATE	AIRCRAFT TIME IN SERVICE	SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE
		
7/22/20	Robinson R44 Raven II 89LA	Hobbs: 2010.4 S/N 10984
Inspected rotorcraft I/AW RHCMM. Removed MR blades C016-7, SN 5220, 5229 & replaced with C016-7 SN 6318 & 6643. Track & balanced. Rotorcraft was inspected per RHCMM 100 hour inspection & aircraft was deemed airworthy & returned to service.		
 Marty Montgomery		AP 

[illegible]

SIGNATURE — CERT. NO. OF PERSON APPROVING OR DISSAPPROVING AIRCRAFT FOR SERVICE

APPENDIX III – Engine Logbooks



NEW RECIPROCATING ENGINE CERTIFICATE

This is to certify that the engine as described hereinafter has been manufactured run-in and tested as prescribed by **LYCOMING** specifications and Federal Aviation Regulations. No further run-in is required. All applicable Federal Aviation Airworthiness Directives and Lycoming Service Bulletins have been complied with at time of Manufacture.

MODEL IO-540-AE1A5 SERIAL NO. L-30633-48A

DATE 6/28/05 [REDACTED]
(AUTHORIZED REPRESENTATIVE)

LYCOMING
A Textron Company

LYCOMING ENGINES
[REDACTED]
Williamsport, PA 17701 U.S.A.

Form No. 777-B (Rev. 3/03)

MANUFACTURER L
SERIAL NUMBER L
RATED BHP _____
FUEL REQUIRED OCTANE _____
REGISTERED OWNER _____
STREET & NO. _____
CITY, STATE, ZIP _____
REGISTERED OWNER _____
STREET & NO. _____
CITY, STATE, ZIP _____

ENGINE DESCRIPTION

MANUFACTURER LYCOMING MODEL IO-540-AE1A5
SERIAL NUMBER L-30633-48A DATE OF MANUFACTURE 28 JUN 2005
RATED BHP _____ RPM _____ MANIFOLD PRESSURE _____
FUEL REQUIRED OCTANE/PERFORMANCE 100LL
REGISTERED OWNER _____
STREET & NO. _____
CITY, STATE, ZIP _____
REGISTERED OWNER _____
STREET & NO. _____
CITY, STATE, ZIP _____

R44 II

ENGINE ACCESSORIES INSTALLED

OIL COOLER	STEWART WARNER	S/N	<u>2052</u>
OIL COOLER (SMALL)	STEWART WARNER	S/N	<u>5146</u>
RIGHT MAGNETO	TCM AIRCRAFT PRODUCTS DIV.	S/N	<u>E04IA341</u>
LEFT MAGNETO	TCM AIRCRAFT PRODUCTS DIV.	S/N	<u>E05DA018</u>
ALTERNATOR	KELLY AEROSPACE	S/N	<u>F032210</u>
STARTER	B & C SPECIALTY PRODUCTS	S/N	<u>0605240634</u>
FUEL CONTROL	PRECISION AIRMOTIVE	S/N	<u>70949806</u>

IP SBR

AIRPLANE

Robinson
R44 II

[illegible]

AGENCY CERT. NO.		AIRWORTHINESS DIRECTIVE / FACTORY BULLETIN COMPLIANCE RECORD					AUTHORIZED SIGNATURE CERTIFICATE NO.	
A.D./BULL NUMBER	ITEM AFFECTED	DATE & HRS. AT COMP.	METHOD OF COMPLIANCE	TYPE OF A.D. 1 TIME/RECUR.	NEXT COMP. DATE/HRS./CYCLE			
Lycorning SB 342	Injector Fuel Lines	NOV 17 05 0	New lines and clamps installed	Recur	100 or Annual	RHC PC424WE		
Lycorning SB 388	Valve Stem Clearance	NOV 17 05 0	New engine installed	Recur	3000	RHC PC424WE		
Lycorning SB 480	Oil Change	NOV 17 05 4.0	Changed oil	Recur	4 months or 29.0	RHC PC424WE		
R2 94-01-03	TCM Magnetos	NOV 17 05 0	N/A by Mag S/N	1 Time	N/A	RHC PC424WE		
94-06-09	TCM Magnetos	NOV 17 05 0	N/A by Mag S/N	1 Time	N/A	RHC PC424WE		
95-07-01	Connecting Rod Bolts	NOV 17 05 0	Mfg'd by Text-Lyc	1 Time	N/A	RHC PC424WE		
96-09-10	Sintered Iron Impeller	NOV 17 05 0	C/W by Mfr	1 Time	N/A	RHC PC424WE		
96-23-03	Fuel Pumps	NOV 17 05 0	N/A by D.O.M.	1 Time	N/A	RHC PC424WE		
98-18-12	Fuel Pumps	NOV 17 05 0	N/A by pump model	1 Time	N/A	RHC PC424WE		
2000-18 -53	Oil Filter Plate	NOV 17 05 0	Converter Plate not installed	1 Time	N/A	RHC PC424WE		
2002-26 -01	Injector Fuel Lines	NOV 17 05 0	New lines and clamps installed	Recur	100 or Annual	RHC PC424WE		
2004-05 -24	Crankshaft Gear Bolt	NOV 17 05 0	Complied with by Lycorning	1 Time	N/A	RHC PC424WE		
2004-10 -14	Crankshaft Gear	N/A 0	N/A	Recur	Sudden Stoppage, or Gear Train Repair	RHC PC424WE		
2005-12 -06	TCM Magnetos	NOV 17 05 0	N/A by Series	1 Time	N/A	RHC PC424WE		
2005-19 -11	Crankshaft	NOV 17 05 0	N/A per SB 566	1 Time	N/A	RHC PC424WE		
2006-00-09	Crankshaft	5-27-06 4.0	N/A per S/N	1	N/A			
2007-11-01	Seat Belt	5-29-06 163.5	Replaced	1	N/A		9/05	

INSPECTION & MAINTENANCE RECORD



LANE AVIATION, INC.

Roseburg, Texas 75471
PHONE: [REDACTED] WWW.LANEAVIATION.COM

ENANCE PERFORMED
IFICATE NO.

October 6, 2007

N89LA, S/N 10984

Hobbs - 01220 hrs.

Changed oil. Replaced oil filter with a CH48108-1 oil Filter. Serviced with 9 qts of Phillips XP 20W50 oil. System checked for leaks, none found, helicopter Found ok for return to service.

Grant E. Lane [REDACTED] A&P

May 27, 2008

Robinson R44 II
N89LA, S/N 10984
Lycoming IO-540-A
S/N L30633-48A
Hobbs reading 0163
TTIS 0163.5

Changed oil and filter. Spark plugs c
75/80, #3 75/80, #4
found. I certify that
hour inspection and

Thomas Perrigue [REDACTED]

INSPECTION & MAINTENANCE RECORD

Engine Entry

ANCE PERFORMED
ICATE NO.

May 27, 2008

Robinson R44 II
N89LA, S/N 10984
Lycoming IO-540-AE1A5
S/N L30633-48A
Hobbs reading 0163.5
TTIS 0163.5

Changed oil and filter. Serviced with 9 quarts XC20W50 oil and CH48108-1 filter. Spark plugs cleaned and gapped. Compression checked - #1 80/80, #2 75/80, #3 75/80, #4 75/80, #5 80/80, #6 80/80. Engine test run and no leaks found. I certify that the engine has been inspected in accordance with a 100 hour inspection and found to be in airworthy condition.

Thomas Perrigue [REDACTED] A&P

INSPECTION & MAINTENANCE RECORD

DATE



LANE AVIATION, INC.

May 15, 2009 ACFT: ROBINSON R44 II N NUMBER: N89LA S/N: 10984 TACH: 215.0 TTAF: 215.0
 ENG: IO-540-AE1A5 S/N L-30633-48A TSN 215.0

Oil changed. Used 9 quarts Phillips XC20W50. Changed filter. Replaced filter with Champion filter P/N 48109-1.
 Air filters checked ok. Engine test run, no leaks found, engine found ok for return to service.

Caterino Avila A&P

INSPECTION & MAINTENANCE RECORD

DATE

Engine Entry

June 2, 2009

Robinson R44 II
 N89LA, S/N 10984
 Lycoming IO-540-AE1A5
 S/N L30633-48A
 Hobbs reading - 205.5
 TTIS - 205.5

Spark plugs cleaned and gapped. Compression checked - #1 78/80, #2 76/80, #3 75/80, #4 76/80, #5 80/80, #6 79/80. Engine test run and no leaks found.
 See AD Compliance Report dated 06/02/2009 for compliance.
 I certify that the engine has been inspected in accordance with a 100 hour inspection and found to be in airworthy condition.

Grant E. Lane A&P

INSPECTION & MAINTENANCE RECORD

DATE TOTAL TIME INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.

Engine



LANE AVIATION, INC.

May 15, 2010 ACFT: ROBINSON R44 II N NUMBER: N89LA S/N: 10984 TACH: 265.3 TTAF: 265.3
ENG: 10-540-AE1A5 S/N L-30633-48A TSN 265.3

Oil changed. Used 9 quarts Phillips XC20W50. Changed filter. Replaced filter with Champion filter P/N 48109-1. Air filters checked ok. Engine test run, no leaks found, engine found ok for return to service.

Grant E. Lane [redacted] &P

ENGINE LOGBOOK ENTRY

09/13/2010 N89LA Tach: 289.8 TT: 289.8

Completed 100 hr. inspection per Appendix D to Part 43. Compressions as follows: #1-78/80, #2-78/80, #3-76/80, #4-78/80, #5-76/80, #6-78/80. Changed oil and filter. Serviced with 9 quarts Phillips XIC 20W50 and CH48108-1 filter. Washed, ran up and leak checked. Complied with AD 2008-14-07 (fuel injector lines) by visual inspection. See AD compliance report for recurrent requirements. This aircraft, airframe, aircraft engine, propeller or appliance identified above was repaired and inspected with current Regulations of the Federal Aviation Administration and is approved for return to service. Pertinent details of the repair are on file at this repair station under Work Order 18025. I certify that this engine has been inspected in accordance with a(n) 100 hour inspection and was determined to be in an airworthy condition.

Signed: [redacted]
Signature of Licensed Representative

Rite-Way Aviation, Inc.
Repair Station YWYR832L
Spring, TX 77379

Engine

March 16, 2011

Oil changed. Used 9 quarts
Air filters checked ok.

Grant E. Lane [redacted]

Total T

At this time performed
Compressions (1) 78/
No Trouble Found. In
Installed new C771-2
Exhaust Collector and
Airworthiness Direct

I certify that this Eng
Condition

Dominique J. Youakim

Engine



LANE AVIATION, INC.

March 16, 2011 ACFT: ROBINSON R44 II N NUMBER: N89LA S/N: 10984 TACH: 330.0 TTAF: 330.0
ENG: 10-540-AE1A5 S/N L-30633-48A TSN 330.0

Oil changed. Used 9 quarts Phillips XC20W50. Changed filter. Replaced filter with Champion filter P/N 48109-1. Air filters checked ok. Engine test run, no leaks found, engine found ok for return to service.

Grant E. Lane [redacted] &P

Total Time: 341.1 Hobbs: 341.1 Date: 06/17/2011

At this time performed 100 inspection IAW Robinson Helicopter Maintenance Manual and Lycoming Operator Manual. Compressions (1) 78 (2) 79 (3) 78 (4) 79 (5) 79 (6) 78. Complied with Lycoming SB480. Oil Filter Removed and Inspected. No Trouble Found. Installed new CH48108-1 Filter. Serviced with 8 Quarts Aeroshell 100W Plus. 2 Pints of AVBLEND. Installed new C771-2 Air Filter. Injectors Cleaned. Spark Plugs Cleaned Gapped and Rotated. Installed new Left Hand Exhaust Collector and Muffler. Balanced Fan to .1 IPS. C/W AD 2008-14-07 Fuel Injection Lines. Airworthiness Directives Checked thru 2011-12.

I certify that this Engine has been inspected in accordance with an Annual inspection and was determined to be in an Airworthy Condition

Dominique J. Youakim [redacted] IA

INSPECTION & MAINTENANCE RECORD

DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.
January 12, 2012		MDH Aviation Services, LLC Mountain View, AR
Hobbs 504.5		N89LA
TTAF 504.4		Lycoming IO540AE1A5 SN L-30633-48A
TTEN 504.5		

Engine cleaned and inspected in accordance with the scope and detail of FAR 43, Appendix D. Lubed and inspected all engine controls. Drained all fuel strainers and screens. Checked engine mount. Checked exhaust system. Complied with all current and recurring AD's. See list in aircraft records. Other routine maintenance and inspections performed. Corrected the following discrepancies noted during the course of the inspection:

1. Replaced worn out spark plugs with new UREM38E.
2. Ran compression check: #1 77 #2 78 #3 76 #4 75 #5 74 #6 78.
3. Drained oil, cleaned screens, changed filter and serviced with Aeroshell 100wPlus and new gasket AA48108-2.
4. Complied with 500 Hour/4 Year Overhaul of magnetos by Quality Aircraft Accessories, Inc.
5. Complied with 300 Hour Valve Train Inspection IAW Lycoming SB388C.

I certify this **ENGINE** has been inspected in
 Accordance with an **ANNUAL INSPECTION** and was
 Found to be in **AIRWORTHY** condition at this time

Michael D. Hunter

INSPECTION & MAINTENANCE RECORD

DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.
Date: August 8, 2012		
Registration: N89LA		
Serial Number: 10984		
Total Time: 661		

Oil changed. Used 9 quarts of Aeroshell 15W50. Replaced filter with Champion filter P/N 48108-1.

Replaced alternator with overhauled unit, P/N ALU-8521, Serial number H-M062363 at this time.

Ground ran and leak checked satisfactory at this time.

All work performed in accordance with manufacturer maintenance manuals and current FAA regulations.

Michael L Walker AP

FR 43.9 Return to Service

as that unless otherwise specified
 scribed in Block 13 was accompli
 al Regulations, part 43 and in res
 to service

Authorized Signature:

e (Typed or Printed)

TACY TOLLIVER

ilities

e authority to install the part/co

s authority different than the a
 components/assemblies from th

ance records must contain an

anical data.

DATE	TOTAL TIME
	Date: August
	Registration:
	Serial Number:
	Total Time:
	Oil changed:
	Replaced alternator:
	Ground ran:
	All work performed by:
	Michael L. W.

HARTZELL
ENGINE TECHNOLOGIES

ALT-98 Con

P/N: **ALU-852**

S/N: **H-M06**

Description: **24V, 70A**

This alternator has an external voltage regulator, SCME PARAMET

Test Results Table:

Maximum Alternator Output:
Maximum Output Power:
Leakage Current:
Ripple Current:
Alternator Turn On Speed:
Field Current:

Output Current Table:

Output Current at 3600 RPM
Output Current at 4000 RPM
Output Current at 5000 RPM
Output Current at 6000 RPM
Output Current at 7500 RPM
Output Current at 0 RPM
Output Current at 0 RPM
Output Current at 0 RPM

Output tested @ 25.6 V

Alternator Performance:

INSPECTION & MAINTENANCE RECORD

INSPECTION OR MAINTENANCE PERFORMED
AGENCY & CERTIFICATE NO.

DATE	TOTAL TIME
January 2, 2013	

Registration: **N89LA** Make/Model: **Robinson R-44 Raven II** Aircraft Serial No. **10984**
Aircraft Total Time: **662.8** Aircraft Hobbs: **662.8** Engine Model No: **IO-540-AE1A5** Engine Serial No:
L-30633-48A Engine Total Time Since New: **662.8** Aircraft Date of Manufacture: **November 17, 2005**
Engine Date of Manufacture: **June 28, 2005**
Drained Engine Oil. Removed Engine Oil Filter and Suction Screen. Inspected Oil Filter and Suction
Screen With No Defects or Contaminants Noted At This Time. Installed Suction Screen and New Engine
Oil Filter, Part No. AA48108-2. Engine Serviced With 9 Quarts of Aeroshell 15W-50. Installed 12 ea.
REM38E Spark Plugs. Removed, Inspected, Cleaned, Installed Fuel Strainer. No Defects Noted At This
Time. Leak Checked Fuel Strainer. No Leaks Noted At This Time. Installed New Ignition Harnesses.
Installed New Starter Ring Gear, P/N 72566. Performed Crankshaft Runout. Installed New Starter, P/N
BC135-100-4, S/N 11125923. Checked Magneto to Engine Timing. Compression Test: #1 **78/80** #2
76/80 #3 **76/80** #4 **76/80** #5 **74/80** #6 **76/80**. AD Bi-Weekly Updates Checked Through **2012-26**.
Complied With **AD 2011-26-04** By Visual Inspection of Fuel Injector Lines. AD 2011-26-04 Due Again at
762.8. Complied With Lycoming Service Bulletin SB388C and SB480E, Lycoming Service Instruction 1191
and Lycoming SL 173C. Engine Test Run and Leak Checked. No Deficiencies or Leaks Noted At This
Time. I Certify That This Engine Has Been Inspected In Accordance With 100 Hour Inspection
Requirements Per Lycoming Operators Manual, Pub #60297-16, Section 4, para 1-4 and FAR 43
Appendix D, And Found To Be Airworthy This Date. END.

William A. Honner
A&P
January 2, 2013

LYCOMING
N89LA

All lower spark plugs were packed
27 degree BTDC. Right mag was set
20 degrees BTDC. Perform comp.
PN SL13792. With respect to work

INSPECTION & MAINTENANCE RECORD			
DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.	
10984			
I No:			
005			
n			
Engine			
a.			
This			
P/N			
#2			
n at			
1191			
5			
RG DAVIS AVIATION CO. INC. ROBINSON ENGINE LOG MAINTENANCE & INSPECTION LYCOMING IO-540-AE1A5 HOBBS 841.8 SN L-30633-48A N89LA ENG TT 841.8 TSN 841.8 DATE 11/12/2013 All lower spark plugs were packed with carbon deposits. Clean, gap, test. Check magneto to engine timing. Left mag was set at 27 degree BTDC. Right mag was set at 24 degree BTDC. Install new cushions on left mag. Retimed mags to data plate timing of 20 degrees BTDC. Perform compression test over 80 #1-78, #2-75, #3-78, #4-70, #5-75, #6-72. Install new crankshaft seal PN SL13792. With respect to work completed this helicopter is returned to service this date. Ricci Davis AP [Redacted]			

INSPECTION & MAINTENANCE RECORD			
DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.	
		Make Robinson	Model R44 II
		Serial Number L-30633-48A	Registration N89LA
		Total Time 859.3	TACH Time 859.3
		Time Since O/H n/a	Date 2/16/14
Drained engine oil. Replaced filter element 48108-1. Checked oil screen (no metal found at this time). Serviced engine with 7 quarts of Aeroshell 15W-50. Removed, inspected, and cleaned spark plugs. Inspected and cleaned fuel strainer. Inspected exhaust system. Checked magneto to engine timing. Compression test #1 78/80, #2 76/80, #3 78/80, #4 72/80, #5 75/80, #6 71/80. Complied with AD 2011-26-04 by visual inspection. Due again 959.3 hours. Ground ran and leaked at this time satisfactory. I certify that this engine has been inspected in accordance with an 100 hour inspection requirement per Lycoming Operators manual and found to be in airworthy condition at this time. Michael L Walker AP [Redacted] IA [Redacted] Poison Aero Jonesboro Ar 72401 Make: Lycoming Serial #: L-30633-48A Date: May 20, 2014 Model: R44 II Tach: 906.1 Reg: N89LA TSN: 906.1 Drained engine oil. Changed filter element 48108-1. Checked oil screen (no metal found at this time). Serviced engine with 7 quarts of Aeroshell 15W-50. Removed panels, degreased engine. Removed spark plugs. Removed right magneto and replaced with overhauled magneto from Quality Aircraft Accessories. PN 10-600546-201 (S6LSC-204T) SN: E01EA002R. Rotated installation of plugs at this time. Timed mags to 20 degrees BTDC. Ground ran and leak checked satisfactorily at this time. This aircraft is approved for return to service for work performed. Michael Walker AP/IA [Redacted]			

INSPECTION & MAINTENANCE RECORD		
DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.
01/14		Robinson Aero Jonesboro Ar 72401 Make: Lycoming Serial #: L-30633-48A Date: March 16, 2015 Model: IO-540-AE1A5 Tach: 997.0 Reg: N89LA TSN: 997.0 Drained engine oil. Changed filter element 48108-1. Checked oil screen (no metal found at this time). Serviced engine with 7 quarts of Aeroshell 15W-50. Removed, inspected, and cleaned spark plugs. Inspected and cleaned fuel strainer. Inspected exhaust system. Checked magneto to engine timing. Engine compression tested #1 70/80, #2 72/80, #3 72/80, #4 74/80, #5 72/80, #6 74/80. Complied with AD 2011-2604 by visual inspection of fuel injector lines, recurring at 1097.0. Ground ran and leak checked satisfactorily at this time. I certify this engine has been inspected in accordance with Lycoming maintenance manual 100 hr inspection checklist and found to be in airworthy condition. This engine is approved for return to service for work performed. Michael Walker AP/IA [REDACTED]
01/14		Robinson Aero Jonesboro Ar 72401 Make: Lycoming Serial #: L-30633-48A Date: August 11, 2015 Model: IO-540-AE1A5 Tach: 1024 Reg: N89LA TSN: 1024 Installed new flywheel ring gear and overhauled starter at this time. All work done in accordance with Lycoming and Robinson service manuals. Michael L Walker AP [REDACTED]

INSPECTION & MAINTENANCE RECORD		
DATE	TOTAL TIME	INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.
01/21/2016	1085.6	CAPE COPTERS N89LA Robinson R44 II S/N 10984 Removed B&C Starter BC315-100-4 S/N 07115411X with 61.6 TSO Installed Starter BC315-100-4 S/N 1A50L3X54 with 0 TSN. Inspected ring gear engagement, checked voltage at blade terminal and power lead, both found to be 20vdc on initial engagement of starter. Functionally tested starter on multiple starts with no defects. J. Dean Houseman A&P [REDACTED]
02/13/2016	1086.4	CAPE COPTERS N89LA ACTT: 1086.4 Removed fan for facilitation of maintenance, removed flywheel and replaced ring gear with new ring gear in accordance with SI-1141A. Reinstalled fan and checked balance (.13IPS). Removed left mag, replaced points and condenser, reset internal timing and reinstalled on engine and timed to 20° BTC. Installed overhauled starter BC315-100-4. Installed Starter Time Delay Kit from RHC KI-209 in accordance with kit instructions. Engine run up, leak check and functional check complied with. Jeffery Dean Houseman A&P [REDACTED]

INSPECTION & MAINTENANCE RECORD

DATE TOTAL TIME INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.

Poison Aero
[Redacted] nesboro Ar 72401

Make: Lycoming
Serial #: L-30633-48A
Date: March 7, 2016

Model: IO-540-AE1A5
Tach: 1095.8

Reg: N89LA
TSN: 1095.8

Drained engine oil. Changed filter element 48108-1. Checked oil screen (no metal found at this time). Serviced engine with 7 quarts of Aeroshell 15W-50. Removed, inspected, and cleaned spark plugs. Inspected and cleaned fuel strainer. Inspected exhaust system, replaced muffler assembly with new unit pn: C169-32AWL (see form tracking number 2015-4967, Acorn Welding) Checked magneto to engine timing. Engine compression tested #1 74/80, #2 75/80, #3 72/80, #4 76/80, #5 72/80, #6 77/80. Complied with AD 2011-2604 by visual inspection of fuel injector lines, recurring at 1195.8 or next annual, no other new or reoccurring AD's due at this time. Ground ran and leak checked satisfactorily at this time.

I certify this engine has been inspected in accordance with Lycoming maintenance manual 100hr/annual inspection checklist and found to be in airworthy condition.

This engine is approved for return to service for work performed.

Michael Walker AP/IA [Redacted]

ENGINE LOG (N89LA)

Lycoming IO-540AE1A5 S/N L-314327 L-30633-48A

Date 07-15-2016 Hobbs/TT 1134.3 Engine TBO 1134.3

Complied with SB388C by reaming all exhaust valves. Installed all new valve cover gaskets. Installed new rubber engine mounts. Sheave alignment set to L .100 R .085. Installed new B173-3 alternator belt.

Signed [Redacted] Danny Van Donselaar A/P [Redacted]
Knoxville Aviation [Redacted] Knoxville IA 50138

1. Approving national aviation authority/country
TRANSPORT CANADA

AUTHORIZED RELEASE CERTIFICATE
FORM ONE

Form tracking no.
2015-4967



4. Approved organization name and address
**ACORN WELDING LTD. 10916-119TH ST. NW
EDMONTON, AB T5H 3P4**

Ph: 1-800-366-0003
Ph: 1-780-447-6956
Fax: 1-780-447-6950
www.acornwelding.com

SO: N/A
PO: N/A

6. Item	7. Description	8. Part Number	9. Eligibility	10. Qty	11. Serial Batch #	12. Status/Work
1	Muffler Assy Robinson R44	C169-32AWL		1	IP32 1-470	NEW

12. Remark
All New Material. Manufactured as per PDA00-1 Replacement for Robinson Part C169-32. Welded As Per AWS D17

EASA PART-145 Approved Repair Facility #EASA 145-7212

13a. Certifies that the items described above were manufactured in conformity to:
☒ Approved design data and are in condition for safe operation.
☐ Non approved design data specified in block 12.

☐ CAR 571.10 Maintenance Release
☐ Other regulations specified in block 12.

Certifies that, except where otherwise specified in block 12, the work identified in block 11 and described in block 8 was performed in accordance with CAR 571

13b. Authorized signature
13c. Approved Organization Number
13d. Date (dd/mm/yyyy)
Ian McGaffey 100-91 21-Aug-16

14b. Authorized signature
14c. Approved Organization Number
14d. Name
14e. Date (dd/mm/yyyy)

Installer must ensure check eligibility with approved data 1. This document does not constitute authority to install the part 2. Where the installer works in accordance with the national regulations or an airworthiness authority other than the Authority specified in block 1, the installer must ensure that the work is performed in accordance with the national regulations or the airworthiness authority specified in block 1. 3. Statements 13b and 13c do not constitute installation certification in and of itself. The aircraft's critical record must contain an installation certificate issued in accordance with the national regulations of the state of registry, before the aircraft may be flown.

Complied with SB388C by reaming all exhaust valves. Installed all new valve cover gaskets.

Installed new rubber engine mounts. Sheave alignment set to L .100 R .085. Installed new B173-3 alternator belt.

Signed [Redacted] Danny Van Donselaar A/P [Redacted]
Knoxville Aviation [Redacted] Knoxville IA 50138

[illegible]

ENGINE LOG (N89
Lycoming IO-540A
Date 11-21-2016
Serviced engine with
filter and screen (no
rotated all spark plu
seals and misc. eng
checks #1 75/80 #2
by inspection of fu
new ring gear 31M
8:45. Ran up engi
Signed [redacted]
Knoxville Aviation

ENGINE LOG
Lycoming IO-5
Date 11-21-2016
I certify that this
determined to be
Signed [Signature]
Knoxville Avia

ENGINE LOG (N89LA)
Lycoming IO-540AE1A5 S/N L-30633-48A
Date 11-21-2016 Hobbs/TT 1353.7
Serviced engine with 7 quarts Aeroshell W100 engine oil. Removed and inspected engine oil filter and screen (no metal found). Installed new AA48108-2 oil filter. Cleaned, gapped and rotated all spark plugs. Checked mag timing (no adjustment needed). Installed new push rod seals and misc. engine baffling panels. Installed new intake and exhaust gaskets. Compression checks #1 75/80 #2 70/80 #3 75/80 #4 78/80 #5 65/80 #6 75/80. Complied with AD 2015-19-07 by inspection of fuel injector lines (next due 1453.7). Installed new BC315-1000-4 and installed new ring gear 31M22972. Installed new B173-1 alternator belt. Balance scroll fan to .09IPS @ 8:45. Ran up engine and check for oil leaks and proper mag drops.
Signed [redacted] Danny Van Donselaar A/P [redacted]
Knoxville Aviation 1545 Hwy 14 South Knoxville IA 50138

ENGINE LOG (N89LA)
Lycoming IO-540AE1A5 S/N L-30633-48A
Date 11-21-2016 Hobbs/TT 1353.7
I certify that this engine has been inspected in accordance with a 100 hour inspection and was determined to be in airworthy condition.
Signed [redacted] Danny Van Donselaar A/P [redacted]
Knoxville Aviation 1545 Hwy 14 South Knoxville IA 50138

engine oil
e and check

ENGINE LOG (N89LA)
 Lycoming IO-540AE1A5 S/N L-30633-48A
 Date 11-21-2016 Hobbs/TT 1353.7
 Serviced engine with 7 quarts Aeroshell W100 engine oil. Removed and inspected engine oil filter and screen (no metal found). Installed new AA48108-2 oil filter. Cleaned, gapped and rotated all spark plugs. Checked mag timing (no adjustment needed). Installed new push rod seals and misle. engine baffling panels. Installed new intake and exhaust gaskets. Compression checks #1 75/80 #2 70/80 #3 75/80 #4 78/80 #5 65/80 #6 75/80. Complied with AD 2015-19-07 by inspection of fuel injector lines (next due 1453.7). Installed new BC315-1000-4 and installed new ring gear 31M22972. Installed new B173-1 alternator belt. Balance scroll fan to .091PS @ 8.45. Ran up engine and check for oil leaks and proper mag drops.
 Signed [redacted] Danny Van Donselaar A/P [redacted]
 Knoxville Aviation 1545 Hwy 14 South Knoxville IA 50138

ENGINE LOG (N89LA)
Lycoming 10-540AE1A5 S/N L-30633-48A
Date 11-21-2016 Hobbs/TT 1353.7
I certify that this engine has been inspected in accordance with a 100 hour inspection and was determined to be in airworthy condition.
Signed [REDACTED] Danny Van Donselaar A/P [REDACTED]
Knoxville Aviation 1545 Hwy 14 South Knoxville 1A 50138

INSPECTION & MAINTENANCE RECORD

Lycoming IO-540AE1A5 S/N L-30633-48A
DATE: 28AUG17 HOBBS: 1706



Inspected engine IAW Robinson Maintenance Manual and Lycoming Maintenance Manual. Removed cylinders and replaced with overhauled cylinders from Central Cylinder see attached 8130's. Serviced engine with 8 qts of Aeroshell 100. Removed filter, inspected and replaced with new CH48108. Injectors cleaned and inspected.

Aaron Stenvers
A&P

Red Oak, IA 51566 • www.redoakaviation.com

Lycoming IO-540AE
DATE: 21MAY18.

Inspected engine IAW Robinson Maintenance Manual and Lycoming Maintenance Manual. Removed cylinders and replaced with overhauled cylinders from Central Cylinder see attached 8130's. Serviced engine with 8 qts of Aeroshell 100. Removed filter, inspected and replaced with new CH48108. Injectors cleaned and inspected.

1674

Lycoming IO-540AE
DATE: 21MAY18.

I certify that this work was performed in accordance with the applicable maintenance manual and was determined to be satisfactory.

SERVICEABLE MAINTENANCE RELEASE

MAKE Lycoming S/N
MODEL 540 series UNIT NAME cylinder assy
☒ REPAIRED ☐ OVERHAULED ☐ TESTED ☐ CALIBRATED
THE COMPONENT IDENTIFIED ABOVE WAS REPAIRED AND INSPECTED IN ACCORDANCE WITH CURRENT FEDERAL AVIATION REGULATIONS AND WAS FOUND AIRWORTHY FOR THE RETURN TO SERVICE. PERTINENT DETAILS OF THE REPAIR ARE ON FILE AT THIS AGENCY UNDER WORK ORDER NO. 15707

INSPECTOR [REDACTED] DATE 7-24-13

CENTRAL CYLINDER SERVICE INC.
CERTIFIED REPAIR STATION MY2R022L
OMAHA, NEBRASKA 68104

Red Oak, IA 51566 • www.redoakaviation.com

Lycoming IO-540AE
DATE: 21MAY18.

Inspected engine IAW Robinson Maintenance Manual and Lycoming Maintenance Manual. Removed cylinders and replaced with overhauled cylinders from Central Cylinder see attached 8130's. Serviced engine with 8 qts of Aeroshell 100. Removed filter, inspected and replaced with new CH48108. Injectors cleaned and inspected.

1674

Lycoming IO-540AE
DATE: 21MAY18.

I certify that this work was performed in accordance with the applicable maintenance manual and was determined to be satisfactory.

INSPECTION & MAINTENANCE RECORD

DATE TOTAL INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.

Lycoming IO-540AE1A5 S/N L-30633-48A
DATE: 21MAY18. HOBBS: 1710.9



Inspected engine IAW Robinson Maintenance Manual and Lycoming Maintenance Manual. Serviced Engine with 8 qts of Aeroshell 100w. Removed and inspected oil filter and screen. Installed new CH48108 filter. Removed, cleaned, inspected, and reinstalled plugs. Removed magnetos, replaced main contact points in R/H magneto. Cleaned and set internal timing on both mags IAW Bendix Service Manual. Replaced both sets of Magneto rubber bumpers P/N 68H22624. Set magneto to engine timing to 20 degrees BTDC. Checked compression, #1 79/80 #2 79/80, #3 79/80, #4 79/80, #5 77/80, #6 79/80. Performed SB342F. replaced No 6 intake tube O-Ring P/N 07-03073.

Aaron Stenvers

A&P

Red Oak, IA 51566.

www.redoakaviation.com

Lycoming IO-540AE1A5 S/N L-30633-48A
DATE: 21MAY18. HOBBS: 1710.9



I certify that this engine has been inspected in accordance with a 100hr inspection and has been determined to be in airworthy condition.

Aaron Stenvers

A&P

Red Oak, IA 51566.

www.redoakaviation.com

INSPECTION & MAINTENANCE RECORD

DATE TOTAL INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.

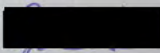
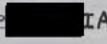
ENGINE LOG BOOK ENTRY

N89LA	AIRFRAME	ENGINE
MAKE	ROBINSON	LYCOMING
MODEL	R44 RAVEN II	IO-540-AE1A5
SERIAL	10984	L-30633-48A
TTSN	1,710.9	1,710.9
TTSOH	1,710.9	N/A
HOBBS/TACH	TACH 1,710.9	DATE: 21 MAY 2018

1. Performed Annual inspection IAW manufactures inspection guides.

I certify that this Engine has been inspected in accordance with an annual type inspection and was determined to be in airworthy condition.

Charles R. Palmley, Jr.
AP

INSPECTION & MAINTENANCE RECORD	
INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.	
DATE	TOTAL TIME
 Robinson R44 Raven II 6/9/20 N89LA S/N 10984 Hobbs:1942.3 Engine performed 100 hr inspection I/A/W FAR 43 "D". Compressions 1-6 all 70+/80. Checked mag timing. Cleaned, gapped, rotated plugs. Tested ignition leads. c/w lycoming S.B. 338. I certify this engine has been inspected I/A/W a 100 hr inspection and was determined to be in an airworthy condition at this time.  Jason Dickerson AP  IA	

INSPECTION & MAINTENANCE RECORD	
INSPECTION OR MAINTENANCE PERFORMED AGENCY & CERTIFICATE NO.	
DATE	TOTAL TIME
34	

