



ENGINE EXAMINATION REPORT

ENGINE MODEL	O-200-A
ENGINE SERIAL NUMBER	295145-R
AIRCRAFT MAKE & MODEL	Cessna 150G
AIRCRAFT SERIAL NUMBER	15065095
AIRCRAFT REGISTRATION	N3795J
FILE NUMBER	18-381

NAME	SIGNATURE	DATE
Kurt Gibson		07/08/2019

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GENERAL INFORMATION

EXAMINATION		ACCIDENT DATA	
DATE	07/02/2019	NTSB ACCIDENT #	ERA19LA151
FACILITY	Oswego County Airport	NTSB INVESTIGATOR	Doug Brazy
ADDRESS	40 Airport Dr Fulton, NY 13069	FAA INVESTIGATOR	Thomas McCormick
		ACCIDENT DATE	04/11/2019
		ACCIDENT LOCATION	07/02/2019

ENGINE INFORMATION

ENGINE POSITION	Front (single engine)
TOTAL TIME	1215.58
TIME SOH	N/A
TYPE & TIME SLI	1.79 since the last annual inspection
BUILD DATE	08/10/1992
IN SERVICE DATE	08/31/1992

Significant logbook information:

The last annual inspection was performed on 10/28/2018 at a tachometer time of 3584.69.

Report Summary:

Search Code(s):

15-12-68

There were no anomalies observed that would have prevented normal operation or production of rated horsepower.

Disposition of engine following exam:

The engine remained outside at the Oswego County Airport.

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INSPECTION WITNESSES

NAME	Kurt Gibson	NAME	Henry Soderlund
ADDRESS	Mobile, Alabama	ADDRESS	Wichita, Kansas
ORGANIZATION	Continental Motors	ORGANIZATION	Textron Aviation
PHONE		PHO	
NAME	James Seymour	NAME	
ADDRESS	Rochester, NY	ADDRESS	
ORGANIZATION	FAA	ORGANIZATION	
PHONE		PHONE	
NAME		NAME	
ADDRESS		ADDRESS	
ORGANIZATION		ORGANIZATION	
PHONE		PHONE	

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The engine remained attached to the airframe through the engine mounts, wires, cables, and hoses. The engine displayed some impact damage signatures with most of the damage occurring to the right-side cylinders. The engine was removed from the firewall to facilitate further inspection. The crankcase remained intact and there were no signs of a catastrophic internal engine failure. The two blade, fixed pitched propeller remained attached to the crankshaft and displayed impact damage signatures. All four cylinders remained attached to their cylinder bays and displayed varying amounts of impact damage; the right-side cylinders displayed the most damage.

Both magnetos remained attached to their installation points and were undamaged. The ignition harness remained attached to both magnetos and to each spark plug; the ignition lead ends displayed minor impact damage to the #1 and the #3 top ignition lead ends. All of the spark plugs remained installed in their cylinders and the #1 top spark plug was noted to be loose and displayed impact damage.

The carburetor remained attached to its installation point and was undamaged; there were no signs of fuel leaks and the fuel line was secured to the carburetor inlet as well as the fuel strainer outlet fitting.

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ENGINE TEARDOWN AND COMPONENT EXAMINATION

EXHAUST SYSTEM

Condition:

The exhaust system remained attached to the engine and displayed minor impact damage to the tail pipes. The exhaust shrouds were removed from both exhaust mufflers and there were no signs of cracks or exhaust leaks. There were no signs of exhaust leaks or blockages with the exhaust system. The heat exchanger scat tubing for the carburetor heat was examined and there were no blockages noted.



INDUCTION SYSTEM

Condition:

The engine induction system was undamaged; it was noted that the induction air filter had been removed prior to the examination. There were no signs of induction leaks or blockages noted. Due to impact damage the operation of the carb heat cable could not be tested; however, the control arm on the induction air box worked normally.



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IGNITION SYSTEM

LEFT MAGNETO

Manufacturer: TCM

P/N: 10-51360-37

S/N: F109205D

Condition:

The magneto remained attached to its installation point and was undamaged. During crankshaft rotation it was noted that the impulse coupling would operate for the magneto. During impulse coupling operation it was noted that the magneto was capable of producing a spark to each lead end, in the correct firing order, and was in sync with the right magneto.



RIGHT MAGNETO

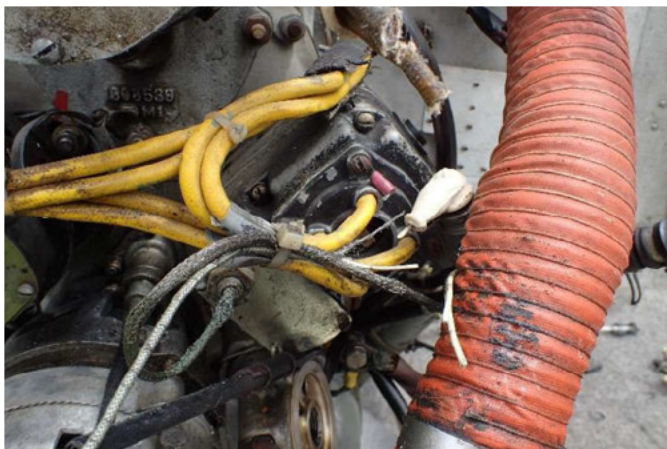
Manufacturer: TCM

P/N: 10-51360-37

S/N: F109223D

Condition:

The magneto remained attached to its installation point and was undamaged. During crankshaft rotation it was noted that the impulse coupling would operate for the magneto. During impulse coupling operation it was noted that the magneto was capable of producing a spark to each lead end, in the correct firing order, and was in sync with the left magneto.



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IGNITION HARNESS

Manufacturer: TCM

P/N: L: 10-821471-1
R: 10-821471-1

S/N: L: L3091--K
R: L3091--K

Condition:

The harness remained attached to both magnetos and to each spark plug and displayed some impact damage to the top #1 and top #3 ignition lead ends. During magneto impulse coupling operation all of the ignition leads were capable of conducting a spark to the lead ends. There were no anomalies noted.



SPARK PLUGS

Manufacturer: Champion

P/N: REM40E

Condition:

All of the spark plugs remained installed in their cylinders and the #1 top spark plug displayed impact damage signatures and was loose. The top spark plugs were removed and were visually inspected; the bottom spark plugs were inspected using a lighted borescope. It was noted that all of the right-side spark plugs were oil coated consistent with post-accident accumulation. The left side spark plugs were dry and were clear of any signs of combustion deposits. The spark plugs displayed normal wear signatures.



#1 Top Spark Plug



#1 Bottom Spark Plug

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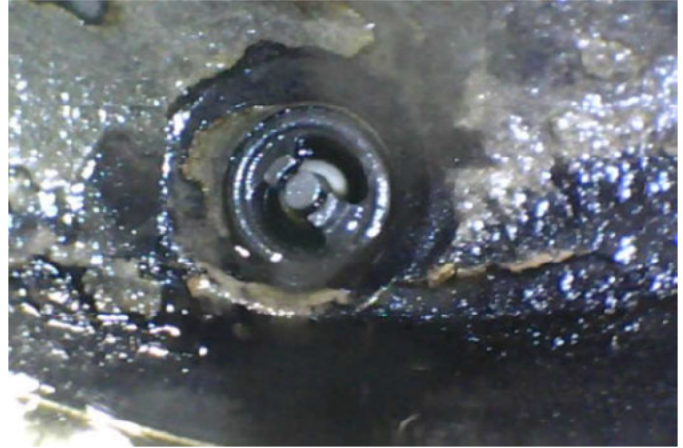
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#3 Top Spark Plug



#3 Bottom Spark Plug



#2 Top Spark Plug



#2 Bottom Spark Plug



#4 Top Spark Plug



#4 Bottom Spark Plug

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FUEL SYSTEM

CARBURETOR

Manufacturer: Precision

P/N: 10-4894

S/N: 75011705

Condition:

The carburetor remained attached to its installation point and was undamaged. The carburetor was removed and there were no blockages noted in the carburetor throttle body. The throttle and mixture control arms were capable of normal movement and the throttle valve operated normally. The carburetor was disassembled and the internal components were visually inspected; the floats, valve, jets, accelerator pump, and bowl displayed normal operating signatures. It was noted that there was no fuel remaining in the carburetor bowl. The inlet screen was removed and was clear of any contaminants. The screen was reinstalled, and air was blown into the carburetor inlet while actuating the floats and valve; the valve was capable of normal operation. The carburetor airbox was examined; the carburetor heat control arm operated normally and there were no obstructions noted within the airbox. There were no anomalies noted.



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LUBRICATION SYSTEM

OIL SUMP

Condition:

The oil sump remained attached to the engine and was undamaged. There were no anomalies noted.



OIL FILTER

Manufacturer: Champion

Condition:

The oil filter remained attached to the adapter and was undamaged. The filter was removed, and the housing was cut open. The filter pleats were visually inspected, and the pleats displayed normal operating signatures and there was no metallic material noted within the pleats.



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CYLINDERS

CYLINDERS

Condition:

The cylinders remained attached to their cylinder bays and displayed minor impact damage signatures. While removing the spark plugs it was noted that the #1 cylinder had a significant amount of oil within the cylinder which was consistent with post-accident accumulation. The oil was drained from the #1 cylinder and all of the cylinders were inspected using a lighted borescope. The cylinder bores, piston faces, and valve heads displayed normal operating and combustion signatures. The overhead components (valves, springs, and rocker arms) displayed normal operating and lubrications signatures. During crankshaft rotation all of the cylinders displayed good thumb compression and suction and the overhead components operated normally.



#1 Cylinder Overhead



#1 Cylinder Bore (lens partially obscured with oil)



#3 Cylinder Overhead



#3 Cylinder Bore

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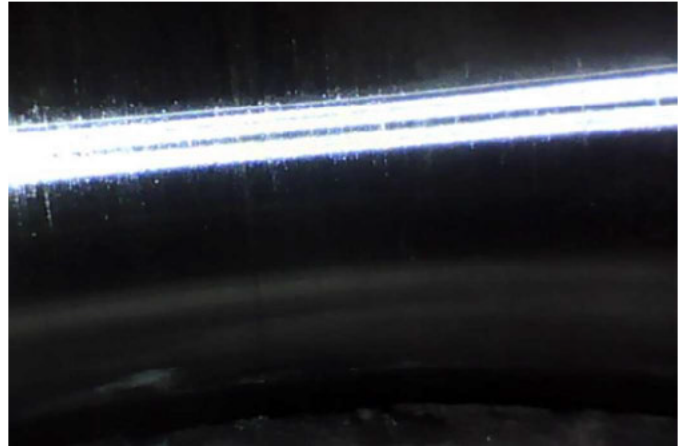
#2 Cylinder Overhead



#2 Cylinder Bore (lens partially obscured with oil)



#4 Cylinder Overhead



#4 Cylinder Bore

VALVES AND GUIDES

Condition:

The valve heads were inspected using a lighted borescope; the inspection revealed that all of the valve heads displayed normal operating and combustion signatures. During crankshaft rotation all of the valves operated normally. There were no anomalies noted.

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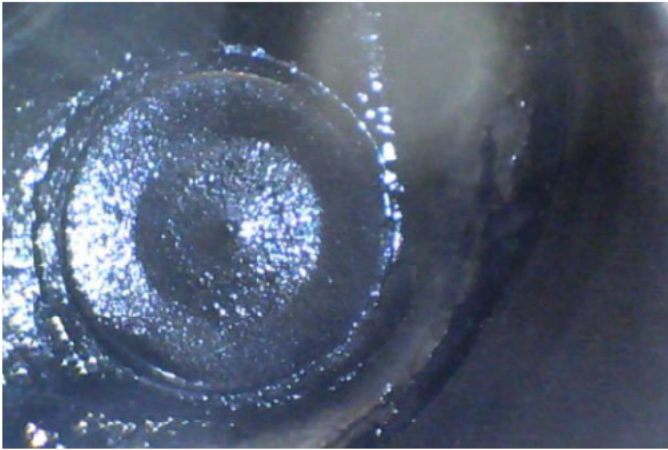
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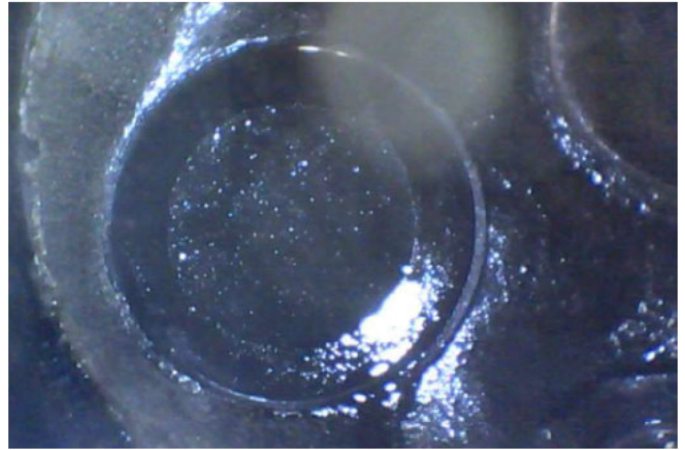
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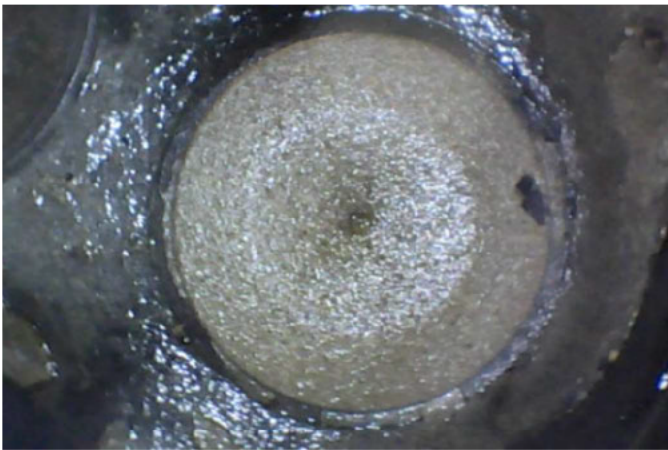
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#1 Exhaust Valve



#1 Intake Valve



#3 Exhaust Valve



#3 Intake Valve



#2 Exhaust Valve



#2 Intake Valve

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#4 Exhaust Valve



#4 Intake Valve

ROCKER ARMS AND SHAFTS

Condition:

All of the rocker arms remained attached to their installation points and were undamaged. The rocker arms displayed normal operating and lubrication signatures. During crankshaft rotation all of the rocker arms operated normally.



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PISTONS

Piston P/N: Not observed

Condition:

All of the pistons were inspected using a lighted borescope. The piston faces displayed normal operating and combustion signatures. During crankshaft rotation all of the pistons operated normally.



#1 Piston



#3 Piston



#2 Piston



#4 Piston

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CRANKCASE ASSEMBLY

CRANKCASE	Casting Number:	1-3-5: Not observed	2-4-6: Not observed	S/N: Not observed
Condition:	The crankcase remained intact and was undamaged. There were no signs indicating a catastrophic internal engine failure. There were no anomalies noted.			



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CRANKSHAFT ASSEMBLY

CRANKSHAFT	Forging Number: Inaccessible	S/N: Not observed	Heat code: Inaccessible
Condition:	The propeller flange remained attached to the rest of the crankshaft and displayed minor impact damage in the form of bending. The crankshaft was rotated using a hand tool and continuity was established between the crankshaft, camshaft, connecting rods, and associated components. There were no anomalies noted.		



Note: Crankshaft propeller nuts removed to facilitate use of crankshaft turning bar

CONNECTING RODS	P/N: Inaccessible	Forging or Serial Number: Inaccessible
Condition:	Operation of the connecting rods was verified by rotating the crankshaft and observing piston movement. All of the connecting rods operated normally.	

CAMSHAFT

CAMSHAFT	P/N: Inaccessible	S/N: Inaccessible
Condition:	Operation of the camshaft was verified by rotating the crankshaft and observing rocker arm movement. The camshaft operated normally.	
ACCESSORY GEARS		
Condition:	Operation of the magneto drive gears was verified by rotating the crankshaft and observing magneto impulse coupling operation. The magneto drive gears operated normally. The vacuum pump drive gear was observed after removing the vacuum pump; the gear displayed normal operating signatures.	

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ACCESSORIES

STARTER

Manufacturer: Delco-Remy

P/N: 1109656

S/N: 48464

Condition:

The starter remained attached to its installation point and was undamaged. There were no anomalies observed.



ALTERNATOR

Manufacturer: TCM

P/N: 633661

S/N: D-209210

Condition:

The alternator remained attached to its installation point and was undamaged. There were no anomalies observed.



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VACUUM
PUMP

Manufacturer: Rapco

P/N: 211CC

S/N: 162259

Condition:

The vacuum pump remained attached to its installation point and was undamaged. The vacuum pump was removed, and it was noted that the drive coupling was intact. The vacuum pump was disassembled and the internal components displayed normal operating signatures. There were no anomalies observed.



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PROPELLER

PROPELLER

Manufacturer: McCauley

P/N: MCM6950

S/N: 48210

Condition:

The two blade, fixed pitch propeller remained attached to the crankshaft and displayed impact damage signatures. One of the propeller blades displayed significant aft bending, some chordwise scratches, and a small portion of the blade tip had sheared from the rest of the blade. The other propeller blade was undamaged.

