



Continental Motors

ENGINE FIELD RUN REPORT

ENGINE MODEL	IO-240-B3B
ENGINE SERIAL NUMBER	650088
AIRCRAFT MAKE & MODEL	Diamond DA20-C1
AIRCRAFT SERIAL NUMBER	C0314
AIRCRAFT REGISTRATION	N979DC
FILE NUMBER	14-385

NAME	SIGNATURE	DATE
Kurt Gibson		02/06/2015

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GENERAL INFORMATION			
EXAMINATION		ACCIDENT DATA	
DATE	01/22/2015	NTSB ACCIDENT #	CEN15LA106
FACILITY	Goshen Municipal Airport	NTSB INVESTIGATOR	Joshua Lindberg
ADDRESS	17229 C.R. 42 Goshen, IN 46526	FAA INVESTIGATOR	Daniel Sedberry
		ACCIDENT DATE	01/19/2015
		ACCIDENT LOCATION	Shipshewana, IN
ENGINE INFORMATION			
ENGINE POSITION	Single Engine		
TOTAL TIME	Information not provided at the time of the investigation		
TIME SOH	Information not provided at the time of the investigation		
TYPE & TIME SLI	Information not provided at the time of the investigation		
BUILD DATE	12/19/2004		
IN SERVICE DATE	03/15/2005		
Significant logbook information: The logbooks were not provided to the investigator at the time of this report's writing.			
Report Summary: There was a large piece of ice that had formed on the aircraft's engine intake filter that covered approximately 75% of the intake. An engine run was performed and the engine was capable of operating normally. With the exception of the induction ice, there were no anomalies noted with the engine that would have prevented normal operation or production of rated horsepower.		Search Code(s):	15-12-68
Disposition of engine following exam: The engine remained in a hanger at the Goshen Municipal Airport.			

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INSPECTION WITNESSES			
NAME	Kurt Gibson	NAME	Daniel Sedberry
ADDRESS	Mobile, Alabama	ADDRESS	South Bend, Indiana
ORGANIZATION	Continental Motors	ORGANIZATION	FAA
PHONE		PHONE	
NAME		NAME	
ADDRESS		ADDRESS	
ORGANIZATION		ORGANIZATION	
PHONE		PHONE	
NAME		NAME	
ADDRESS		ADDRESS	
ORGANIZATION		ORGANIZATION	
PHONE		PHONE	

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EXTERNAL INSPECTION OF ENGINE

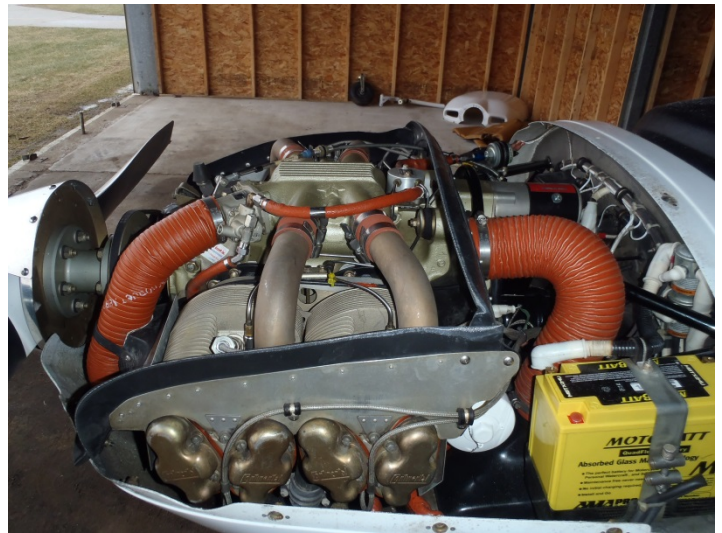
The engine remained attached to the airframe and sustained some impact damage to the exhaust system; the remaining engine components were undamaged. The two blade propeller remained attached to the crankshaft and displayed impact damage signatures; one of the blades displayed a crack near the root of the propeller blade.

The air intake filter was inspected and it was noted there was a very large piece of ice that covered approximately 75% of the air intake. It was also noted that there were several pieces of loose ice located in the bottom cowling. The alternate air door was inspected and it was noted that the door operated normally. There were no further anomalies noted with the intake system.

The exhaust system displayed impact damage signatures to the exhaust outflow pipe; the very end of the outflow pipe was crushed and had debris consistent with dirt and grass inside the outflow pipe. There were no anomalies noted with the exhaust system.

The throttle and mixture controls were operated inside the cockpit and it was noted that their corresponding components operated normally.

Magneto-to-Engine Timing (Specified):	Left Magneto:	Right Magneto:
26°BTDC	Not checked	Not checked



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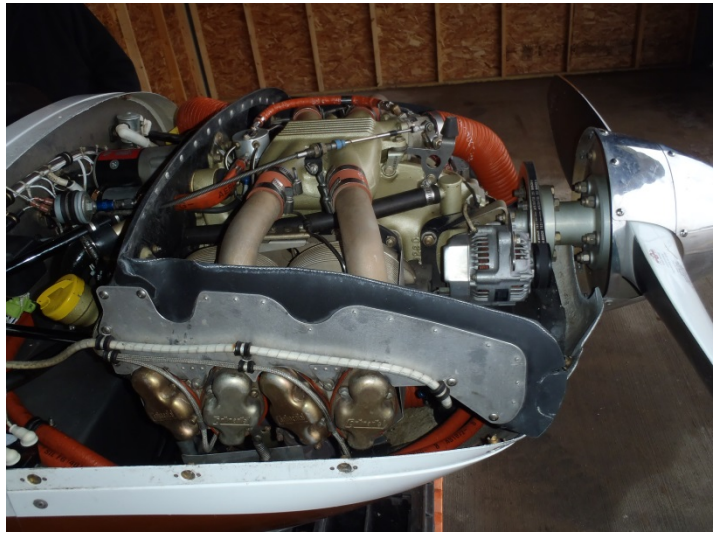
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ENGINE PREPARATION PRIOR TO RUN

The top and bottom cowling were removed from the aircraft. The top spark plugs were removed from their respective cylinders and each cylinder was inspected using a borescope; there were no anomalies noted with the borescope inspection. The crankshaft was rotated and all four cylinders displayed good thumb compression. The top spark plugs were visually inspected; the spark plugs displayed normal operating signatures when compared to Champion Aviation Service Manual AV6-R. The top spark plugs were reinstalled into their original cylinders.

A portion of the exhaust outflow pipe was cut off due to the impact damage to the end of the pipe. The aircraft was then secured using rope, chocks, a forklift, and shipping pallets. The original aircraft battery was reconnected to the aircraft electrical system.

DESCRIPTION OF RUN

The residual ice that remained attached to the air intake filter was not disturbed for the initial run. The engine started normally; the engine ran at 1200 RPM for approximately 15 minutes to allow the engine to warm to operating temperature. The engine was then operated at multiple RPM settings; the engine was capable of running at all tested RPM settings. The alternate air door was opened and the engine was operated at multiple RPM settings; there was no noticeable difference in engine performance with the alternate air door open or closed. The engine was shut down and the block of ice was removed from the air intake. The engine was operated at multiple RPM settings and it was noted that the engine was capable of running at all tested RPM settings. Due to the fact that the aircraft was equipped with a fixed pitch propeller the maximum RPM that the engine was able to achieve was 2200 RPM which is acceptable according to the DA20-C1 Flight Manual (minimum 2000 RPM for takeoff). The engine run was limited in time due to the impact damage to the propeller.

ENGINE RUN PARAMETERS								
Duration		RPM	MP (" Hg)	Oil		Fuel (PSI)	EGT	CHT
Reading	Minutes			°F	PSI			
1	15	1200	N/A	75	70	5	775	100
2	2	1500	N/A	80	40	6	1000	240
3	2	2000	N/A	90	60	9	1100	240
4	2	2200	N/A	90	60	11	1050	250
5	2	1000	N/A	80	30	5	950	240

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MAGNETO PERFORMANCE				
Engine RPM	Left Mag RPM	Left Mag RPM Drop	Right Mag RPM	Right Mag RPM Drop
1800	1725	75	1775	25



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With the exception of the excessive ice buildup on the engine intake system there were no anomalies noted that would have prevented the engine from normal operation or production of rated horsepower.