



Continental Motors

ENGINE EXAMINATION REPORT

ENGINE MODEL	GTSIO-520-L 4B
ENGINE SERIAL NUMBER	292408
AIRCRAFT MAKE & MODEL	Cessna 421C
AIRCRAFT SERIAL NUMBER	421C0871
AIRCRAFT REGISTRATION	N51RX
FILE NUMBER	14-177

NAME	SIGNATURE	DATE
Phillip Grice		10/08/2014

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GENERAL INFORMATION

EXAMINATION		ACCIDENT DATA	
DATE	October 8, 2014	NTSB ACCIDENT #	CEN14FA462
FACILITY	Continental Motors, Inc.	NTSB INVESTIGATOR	Tom Latson
ADDRESS	[REDACTED] South Broad Street Mobile, Alabama	FAA INVESTIGATOR	John R. DeWitt
		ACCIDENT DATE	8-27-2014
		ACCIDENT LOCATION	Los Cruces, NM

ENGINE INFORMATION

ENGINE POSITION	Left
TOTAL TIME	2840.8 – as of 8/24/2014
TIME SOH	1146.3 – as of 8/24/2014
TYPE & TIME SLI	33.7
BUILD DATE	9-20-1999
IN SERVICE DATE	Undetermined

Significant logbook information:

This engine was overhauled by Ram Aircraft with 1728.2 total hours in service. The applicable engine maintenance entry for this overhaul using ECI cylinders was dated 9/24/2010. This engine was installed on N51RX by Trade Wind Aircraft Services 1/19/2011 at airframe Hobbs time 312.7 hours.

This engine was disassembled to facilitate a crankcase exchange by Ram Aircraft 10/17/2012 at TSMOH 541.7 and reinstalled on the airplane by El Paso Aero, Inc. at Aircraft Hobbs 589.6 hours.

Report Summary:

Search Code(s):	15-12-29, 43-05-40
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The aircraft was reported to have been miss-fueled with Jet-A instead of 100LL. The damage to the internal components of the engine, in particular the cylinders and pistons were consistent with detonation. A mixture of jet fuel and 100LL will reduce the octane rating for the fuel and lead to detonation. The remainder of the engine components exhibited normal operating signatures with thermal damage from the post-crash fire.

Disposition of engine following exam: The engine was released by the NTSB IIC and returned to Air Transport Phoenix Az. 10/10/2014. See Shipper AD00743.

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NAME	Phillip Grice	NAME	Greg Eastburn
ADDRESS	Mobile, Alabama	ADDRESS	Mobile, Alabama
ORGANIZATION	Continental Motors	ORGANIZATION	Continental Motors
PHONE	██████████	PHONE	██████████
NAME	Johnnie Little	NAME	Mike Council
ADDRESS	Mobile, Alabama	ADDRESS	Mobile, Alabama
ORGANIZATION	Continental Motors	ORGANIZATION	Continental Motors
PHONE	██████████	PHONE	██████████
NAME	Rick Roper	NAME	Brian Webber
ADDRESS	Waco TX.	ADDRESS	Wichita, KS
ORGANIZATION	Ram Aircraft	ORGANIZATION	Textron Aviation
PHONE	██████████	PHONE	██████████

NAME	Tom Latson	NAME	
ADDRESS	Houston TX.	ADDRESS	
ORGANIZATION	NTSB	ORGANIZATION	
PHONE	██████████	PHONE	

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EXTERNAL INSPECTION OF ENGINE

The engine exhibited fire and impact damage. The induction system and intercooler separated. All of the engine accessories were impact and thermally damaged. The right magneto case was melted exposing the internal components. The left magneto remained attached but exhibited thermal damage. The fuel pump was thermally damaged and remained attached to the engine, the drive coupling was intact. The alternator and propeller governor was thermally damaged and remained attached to the engine. The remainder of the external surfaces of the engine had varying degrees of impact and thermal damage.



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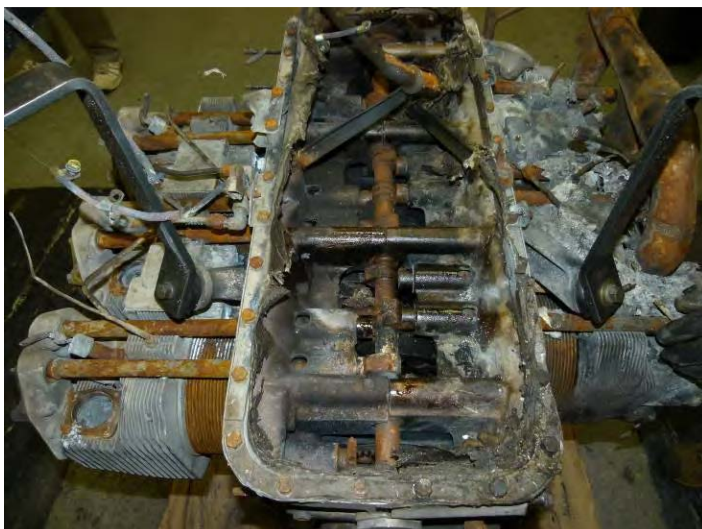
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INTERNAL INSPECTION OF ENGINE

Cylinder one exhibited signatures of thermal damage with the lower portion of the cylinder head melted away. The engine oil sump melted away due to an extensive post impact fire. The internal components of the engine were thermally damaged. All of the internal components show signs of thermal damage but no signs of lubrication distress. The cylinders exhibited heat damage and detonation signatures. All pistons exhibited scuffing and heat signatures on the skirt. Pistons two, five and six exhibited detonation signatures on the face of the piston with portions melted away on the outer edge. The main and rod bearings exhibited normal operating signatures with thermal heat signatures from the post-crash fire. The crankshaft, camshaft, gears, connecting rods and reduction gears all exhibited thermal damage but normal operating signatures. The crankcase exhibited normal operating signatures along with impact and thermal damage. The fuel system components were impact and fire damaged. The engine accessories were intact and exhibited thermal damage. Only portions of the induction system remained attached to the engine. The remainder was melted away by the post-crash fire.



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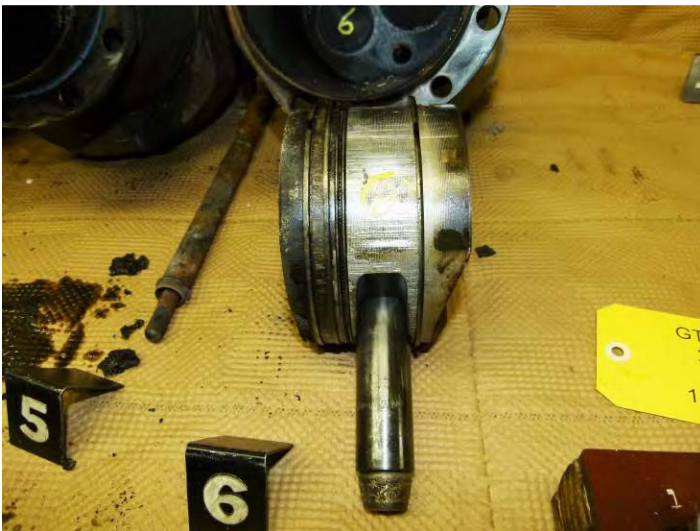
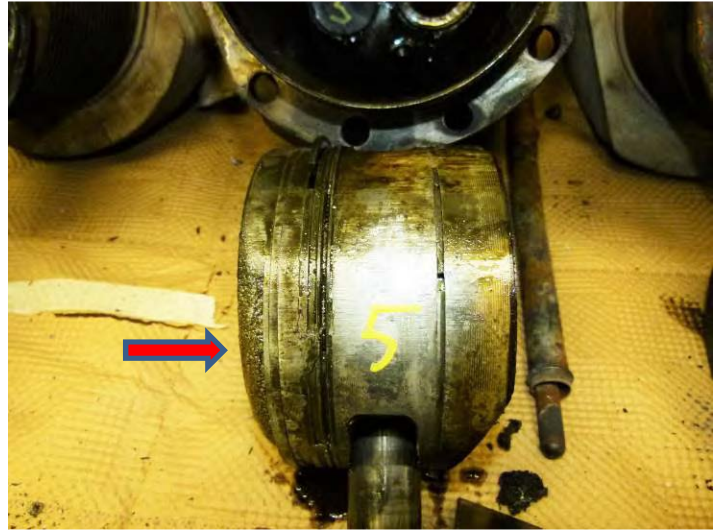
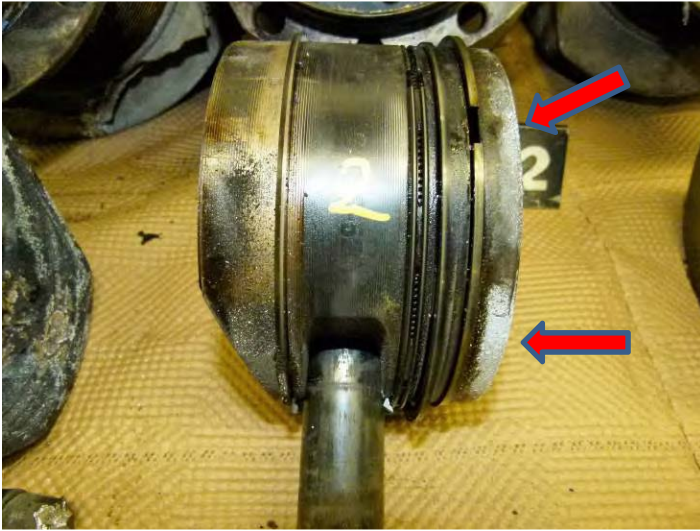
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