



Continental Motors

ENGINE EXAMINATION REPORT

ENGINE MODEL	GTSI520L(4)B
ENGINE SERIAL NUMBER	292022
AIRCRAFT MAKE & MODEL	Cessna 421C
AIRCRAFT SERIAL NUMBER	4210871
AIRCRAFT REGISTRATION	N51RX
FILE NUMBER	14-177

NAME	SIGNATURE	DATE
Phillip Grice		10/09/2014

ENGINE EXAMINATION REPORT

FILE NUMBER:	14-177	ENGINE S/N:	292022	PAGE 2 of 14
--------------	--------	-------------	--------	--------------

GENERAL INFORMATION

EXAMINATION		ACCIDENT DATA	
DATE	10/09/2014	NTSB ACCIDENT #	CEN14FA462
FACILITY	Continental Motors Inc.	NTSB INVESTIGATOR	Tom Latson
ADDRESS	████ S Broad St Mobile, AL 36615	FAA INVESTIGATOR	John R DeWitt
		ACCIDENT DATE	August 27, 2014
		ACCIDENT LOCATION	Las Cruces, NM.

ENGINE INFORMATION

ENGINE POSITION	Right
TOTAL TIME	5390.2 – as of 8/24/2014
TIME SOH	190.7 – as of 8/24/2014
TYPE & TIME SLI	33.7
BUILD DATE	03-29-1994
IN SERVICE DATE	Not reported

Significant logbook information:

This engine was modified per STC SE8338SW-D and overhauled by Ram Aircraft 6/26/2013 using "TCM nicked cylinders by ECI" This engine was installed on N51RX by El Paso Aero, Inc. at airframe Hobbs 756.5 hours.

Report Summary:

Search Code(s):	15-12-29, 43-05-40
-----------------	--------------------

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:

Engine was returned to Air Transport Phoenix Az. 10/10/2014 On Shipper AD00743

ENGINE EXAMINATION REPORT**FILE NUMBER:**

14-177

ENGINE S/N:

292022

PAGE 3 of 14**INSPECTION WITNESSES**

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

ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 4 of 14

EXTERNAL INSPECTION OF ENGINE

The engine exhibited fire and impact damage. The oil cooler, intercooler and induction system was partially melted by the post-crash fire. The fuel manifold valve was fire damaged. All of the engine accessories were impact and thermally damaged. Both magnetos cases were melted and only the rotating magnet remained attached to the engine. 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.



ENGINE EXAMINATION REPORT

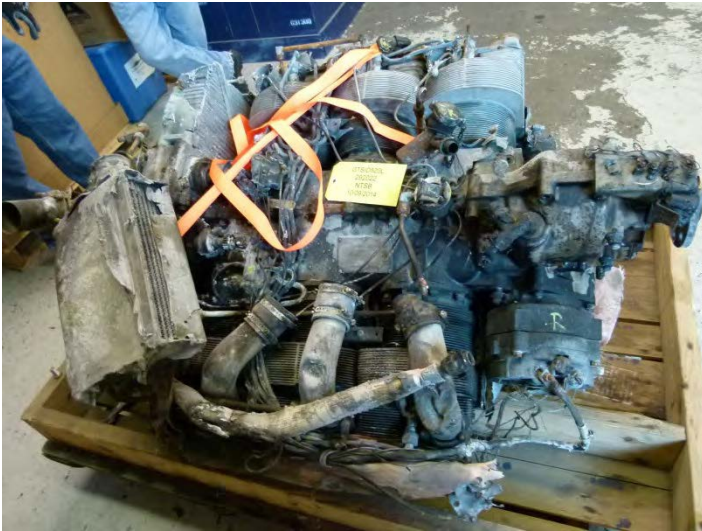
FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 5 of 14



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 6 of 14



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 7 of 14

INTERNAL INSPECTION OF ENGINE

The internal components of the engine were thermally damaged by the post-crash fire. All of the internal components show no signs of lubrication distress. The cylinders exhibited heat damage and detonation signatures. All pistons exhibited scuffing and heat signatures on the skirt. Pistons one, two, and five 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 normal operating signatures. The crankcase exhibited normal operating signatures along with impact and thermal damage. The fuel system components were impact and fire damaged with portions melted away. 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.



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 8 of 14



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 9 of 14



ENGINE EXAMINATION REPORT

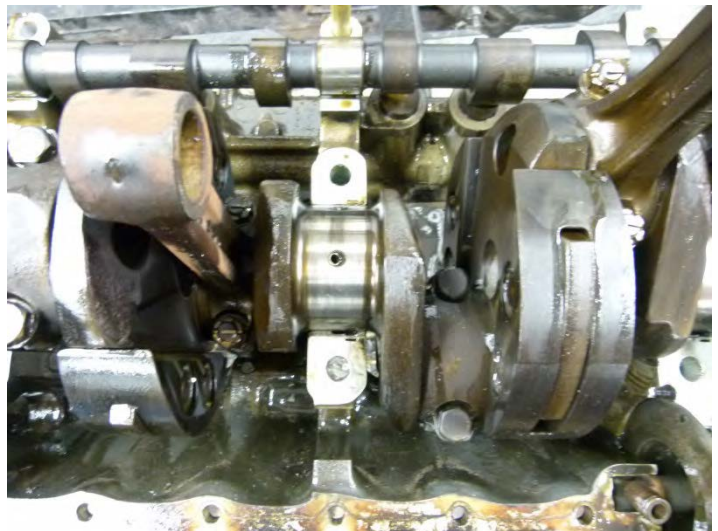
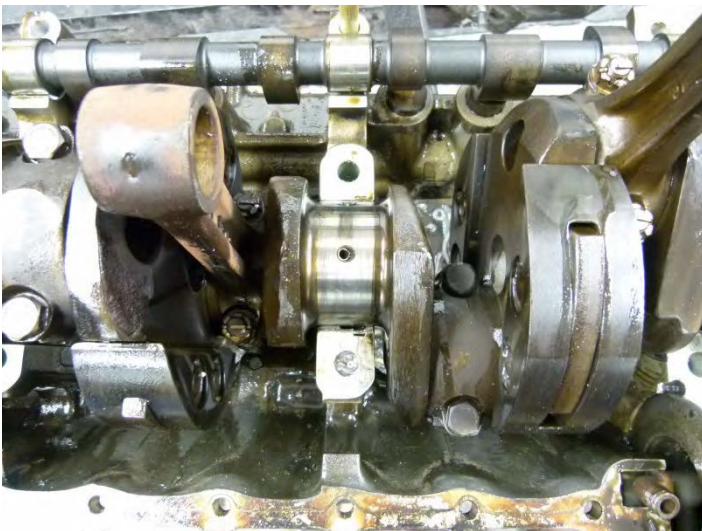
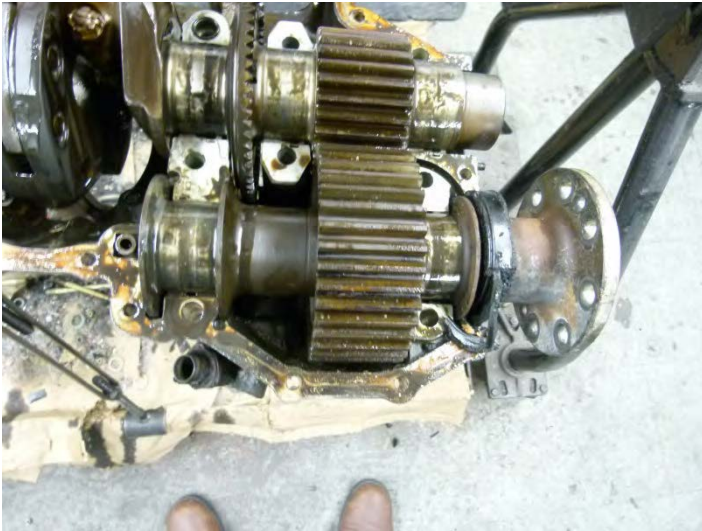
FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 10 of 14



ENGINE EXAMINATION REPORT

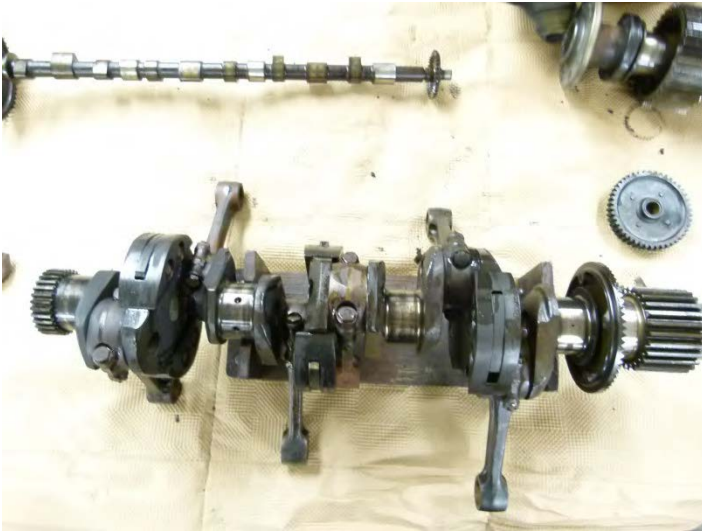
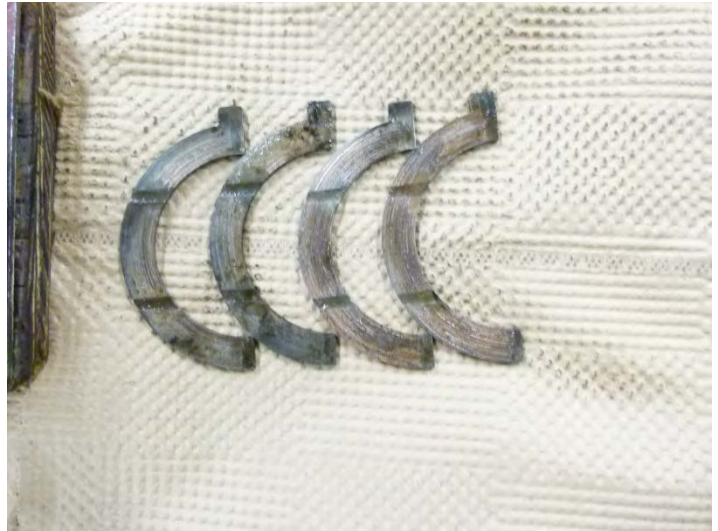
FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 11 of 14



ENGINE EXAMINATION REPORT

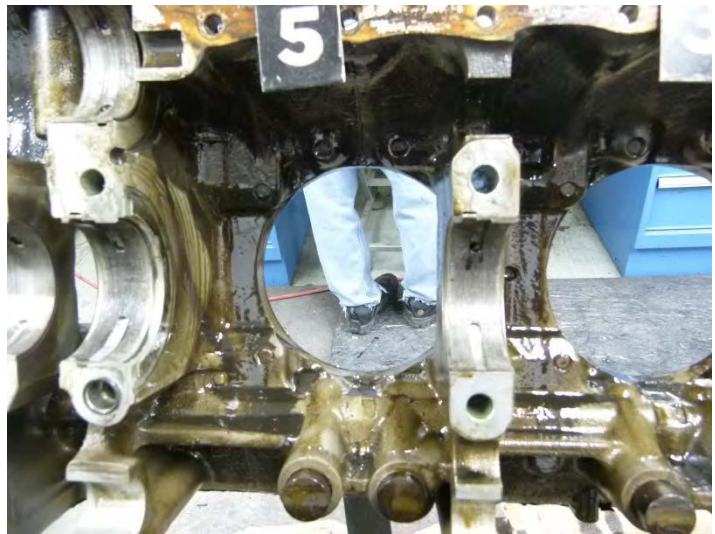
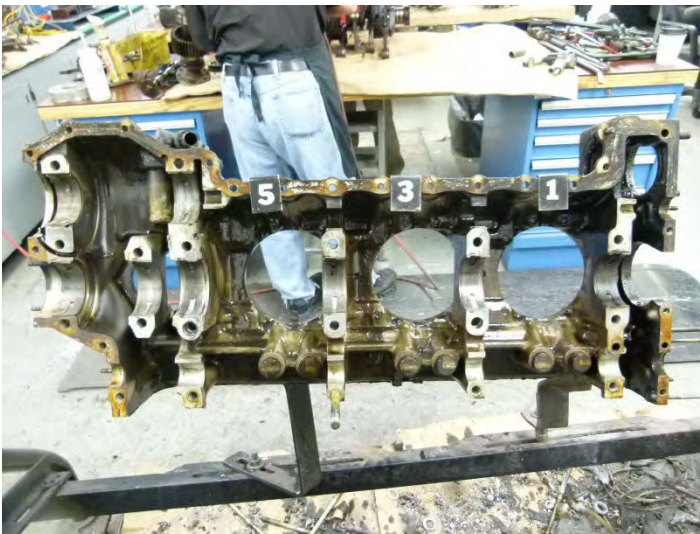
FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 12 of 14



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 13 of 14



ENGINE EXAMINATION REPORT

FILE NUMBER:

14-177

ENGINE S/N:

292022

PAGE 14 of 14

