



Bradley Miller
Aviation Accident Investigator
AS-CEN

Date: September 2, 2025

Subject: CEN24FA212 - Engine Teardown Examination

On August 20, 2024, an engine teardown examination of the accident airplane's motor was conducted.

The No. 5 connecting rod separated from the crankshaft. The No. 5 connecting rod journal exhibited lubrication distress and thermal smearing of bearing material. The other connecting rod journals and main bearing journals showed varying degrees discoloration from heat and lubrication distress. See Figures 1-2.



Figure 1. Connecting rods.



Figure 2. No. 5 connecting rod journal.

Documentation, from Continental Aerospace Technologies, of the engine teardown examination are attached.



ANALYTICAL SIGN IN SHEET

DATE: 8/20/2024	AIRCRAFT # N150WR
ENGINE SERIAL # 242012-R	CMI-ASI FILE # 2024-023

PRINT NAME	Lisa Jessild	PRINT NAME	
SIGNATURE	[REDACTED]	SIGNATURE	
ORGANIZATION	CAT	ORGANIZATION	
PHONE		PHONE	
PRINT NAME	Ryan Roth	PRINT NAME	
SIGNATURE	[REDACTED]	SIGNATURE	
ORGANIZATION	Textron Aviation	ORGANAZAION	
PHONE	[REDACTED]	PHONE	
PRINT NAME	Rodney Doll	PRINT NAME	
SIGNATURE	[REDACTED]	SIGNATURE	
ORGANIZATION	FAA	ORGANIZATION	
PHONE	[REDACTED]	PHONE	
PRINT NAME	BANDY BRYANT	PRINT NAME	
SIGNATURE	[REDACTED]	SIGNATURE	
ORGANIZATION	CAT	ORGANIZATION	
PHONE		PHONE	
PRINT NAME		PRINT NAME	
SIGNATURE		SIGNATURE	
ORGANIZATION		ORGANIZATION	

Date	Engine Model	Engine Serial Number	Aircraft Registration	Page
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ENGINE COMPONENT INFORMATION

COMPONENT	MANUFACTURER / OVERHAULER	PART NUMBER	SERIAL NUMBER / DATE or HEAT CODES / WORK ORDER NUMBERS
Magneto LEFT	N/L	10-349220-5	H-X060333
Magneto RIGHT	N/L	10-349260-6	K-05053
Ignition Harness	N/L	N/L	N/L
Sparkplugs	Champion	RHB32S	N/A
Fuel Pump	TCM	649368-32A1	B05DA218R
Throttle Body Metering Unit	N/L	640564-2A1	A05DA196R
Fuel Manifold	N/L	631351A36	C05DA220R
Nozzles	GAM Injectors	1. 2. 3. 4. 5. 6.	1. GA231 2. GA231 3. GM216 4. GM216 5. GF206 6. GF206
Crankcase	TCM	LEFT - 646200 RIGHT - 646201	E149405 RPL
Crankshaft	TCM	(FG) 649878	N36058 E209405N
Camshaft	TCM	653058	134261

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ENGINE COMPONENT INFORMATION

COMPONENT	MANUFACTURER / OVERHAULER	PART NUMBER	SERIAL NUMBER / DATE or HEAT CODES / WORK ORDER NUMBERS
Lifters	N/L	INTAKE - 653888 EXHAUST - 653877	N/A
Main Bearings	N/L	634503 653547	1. 12/04 2. 12/04 3. 12/04 4. 6/04 5. 6/04
Connecting Rod Bearings	N/L	642398	1. 10/04 2. 10/04 3. 10/04 4. 10/04 5. 10/04 6. 10/04
Connecting Rods	N/L	646126-C	1. N/A 2. 3. 4. 5. 6.

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ENGINE COMPONENT INFORMATION

COMPONENT	MANUFACTURER / OVERHAULER	PART NUMBER	SERIAL NUMBER / DATE or HEAT CODES / WORK ORDER NUMBERS
Cylinders	Superior Air Parts	SA52006-A1	S/N H/D W/O 526-D11-8968 526-D11-8974 526-D11-8969 526-D11-8964 526-D11-8963 526-D11-8965
Pistons	Superior Air Parts	SA648044	- N/A 416H
Turbocharger	AirResearch Turbo	TE0659	406610 9004 NCRO473
Turbocharger Controller	Kelly Aerospace	481012-9002 481012-2	TERO262 LFR0262
Wastegate	Kelly Aerospace	470818-9002	KBR0109
Overboost Valve	N/A	N/A	N/A
Starter Motor	N/L	646238-2R	F013317
Starter Adapter	N/A	N/A	N/A
Alternator	Kelly Aerospace	ALX-952A	F030590

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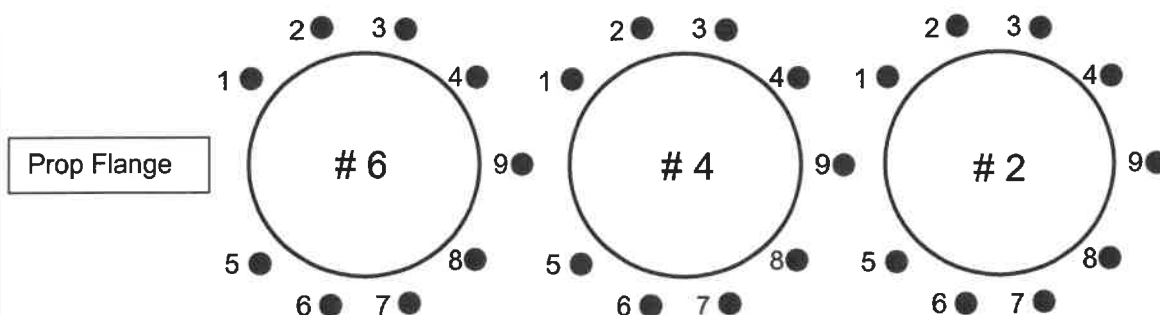
ENGINE COMPONENT INFORMATION

COMPONENT	MANUFACTURER / OVERHAULER	PART NUMBER	SERIAL NUMBER / DATE or HEAT CODES / WORK ORDER NUMBERS
Vacuum Pump	N/L Due to Fire Damage	N/L	N/L
Propeller Governor	AERO Technologies	PCU5000 ATD210760	10102490
Oil Cooler	Data Plate Missing FIRE Damage	N/L	N/L
Intercooler	N/A	N/A	N/A
Carburetor	N/A	N/A	N/A

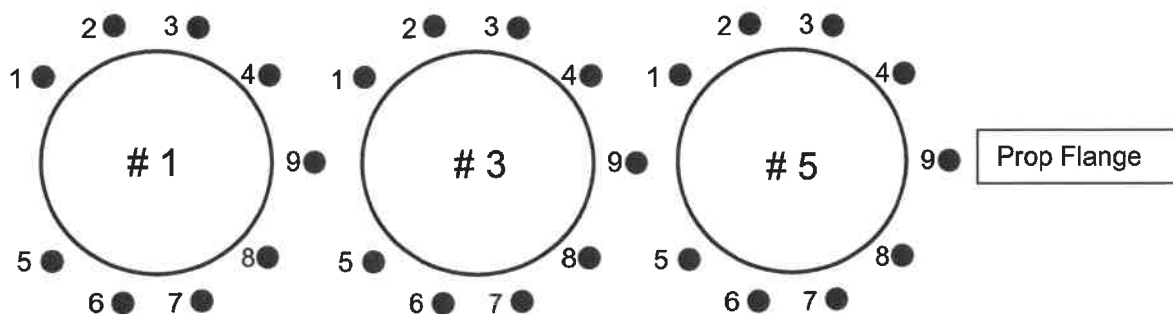
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Cylinder Through-Bolt and Deck Stud Break-Away (Tightening / Loosening) Torque Measurements (Inch-Pounds)
(Position numbers 1 and 5 are through-bolts)

12 Point Nuts on Through Bolts	Bolt 1	Stud 2	Stud 3	Stud 4	Bolt 5	Stud 6	Stud 7	Stud 8	Stud 9
	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose
Cylinder #2	1110 / 889	801 / 695	834 / 734	580 / 485	935 / 835	893 / 795	790 / 693	604 / 485	553 / 406
Cylinder #4	1230 / 980	940 / 820	614 / 480	841 / 757	1010 / 907	806 / 711	862 / 736	925 / 836	457 / 308
Cylinder #6	1177 / 977	869 / 767	790 / 651	883 / 757	1086 / 950	913 / 852	837 / 789	823 / 755	541 / 429



	Bolt 1	Stud 2	Stud 3	Stud 4	Bolt 5	Stud 6	Stud 7	Stud 8	Stud 9
	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose	Tight / Loose
Cylinder #1	1001 / 790	760 / 678	922 / 836	888 / 803	975 / 841	792 / 735	760 / 712	800 / 726	832 / 671
Cylinder #3	826 / 737	817 / 739	809 / 713	851 / 753	1013 / 1013	832 / 764	863 / 810	877 / 848	727 / 633
Cylinder #5	952 / 871	1004 / 881	994 / 888	571 / 434	1168 / 1076	884 / 835	801 / 756	712 / 678	561 / 475



ANALYTICAL ENGINE CHECK LIST & NOTES					
DATE	ENGINE MODEL	ENGINE SERIAL #	AIRCRAFT REGISTRATION	RMA / CASE #	FILE NUMBER
8/20/2024	TSIO520DB	242012-R	N150WR	N/A	2024-023

Engine Run		Engine Teardown	✓
Logbook Returned	Yes	No	

Put Identifying marks on mags before removal (L)(R)

Magneto-to-Engine Timing (Spec)	Right-	Left-
Crankshaft End-Play:	N/A	Gear inside the mags is melted from the fire.
Crankshaft Run-Out:	N/A	
Crankshaft Deflection:	N/A	
Check Internal Timing		

Cylinder Compression Check

Cold Compression					
#1- N/A	#2- N/A	#3- N/A	#4- N/A	#5- N/A	#6- N/A
Hot Compression					
#1- N/A	#2- N/A	#3- N/A	#4- N/A	#5- N/A	#6- N/A

CHECK THE FOLLOWING BOXES

Component	Picture Taken	Component Not Returned	Component Removed Prior to Inspection	Not Applicable	
Left Magneto	✓				
Right Magneto	✓				
Ignition Harness	✓				
Spark Plugs	✓				
Fuel Pump	✓				
Throttle Body – Metering Unit	✓				
Fuel Manifold	✓				
Nozzles	✓				
Crankcase	✓				
Crankshaft	✓				
Counterweights/Snap rings	✓				
Camshaft	✓				
Lifters	✓				
Main Bearings	✓				
Connecting Rod Bushings	✓				
Connecting Rod Bearings	✓				
Connecting Rods	✓				

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CHECK THE FOLLOWING BOXES					
Component	Picture Taken	Component Not Returned	Component Removed Prior to Inspection	Not Applicable	
Pistons	✓				
Piston Pins	✓				
Turbocharger	✓				
Turbocharger Controller	✓				
Wastegate	✓				
Overboost Valve	✓				
Starter Motor	✓				
Starter Adapter	✓				
Oil Pump	✓				
Oil Filter	✓				
Alternator	✓				
Vacuum Pump	✓				
Propeller Governor	✓				
Oil Cooler	✓				
Intercooler	N/A			✓	
Exhaust System	✓				
Induction System	✓				
Carburetor	N/A			✓	
Oil Sump	✓				
Oil Pick-up Tube & Screen	✓				
Cylinders	✓				
Accessory Gears	✓				

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Engine Tear Down/Run Note

- Gears inside the mags is melted so mag timing could not be checked.
- #6 Exhaust rocker shaft is stuck. Tried beating it out but it still wouldn't move.
- Fuel pump coupling in tach. Fuel pump will NOT rotate.
- #5 conn rod broke off the crankshaft, it was still attached to the piston pin.
- The idler gear bushing pin was loose and came out when the coupling was removed.
- Turbo inlet fitting had a bolt that was loose and one bolt was missing. (Found on site)



Continental Motors

Engine Component Information Sheet

Printed: 07/30/2024

Serial: 242012

Assembled: 02/15/2012

Spec: TSI0520DB1B

Shipped: 06/17/1994

New/Rebuilt: (REBUILT)

Notes: 123649

Packed: 02/22/2012

Shipper No.: M05436

Sales Order No.: 123649

Tested: 02/17/2012

Customer Name: CUSTOMER PICK UP

Shipping Address: RANDY GRAHAM

Component	Serial Number
CRANKSHAFT	E209405N
CRANKCASE	E149405RPL
L MAGNETO	E129401FR
R MAGNETO	E239401FR
FUEL PUMP	E279421BR
MANIFOLD VALVE	E279408CR
METERING UNIT	E279423AR
STARTER	D279436
ALTERNATOR	4050055
L. TURBO	XB000012
OIL COOLER	D941949111

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