

OIL ANALYSIS REPORT

Area (C-GODZ) Machine Id [C-GODZ] COMMANDER 114B L-26525-48A

Piston Aircraft Engine

SHELL AEROSHELL W 15W50 MGR (8 LTR)

DIAGNOSIS

Recommendation

We advise that you monitor for an abnormal oil pressure drop and noise. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

📥 Wear

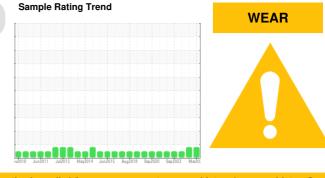
Copper ppm levels are abnormal. Bearing and/or bushing wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

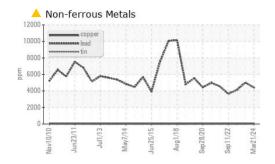
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

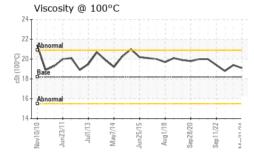


Sample Date Client Info 21 Mar 2024 12 Oct 2023 02 May 2023 TSN hrs Client Info 2000 197504 1903 TSO hrs Client Info 2500 1975 1903 Oil Age hrs Client Info 25 444 30 Oil Changed Client Info 25 444 30 CONTAMINATION method imit/base current history1 history2 Fuel WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185(m) >90 24 32 23 Chromium ppm ASTM 05185(m) >5 0 <1 0 Silver ppm ASTM 05185(m) >5 0 <1 0 Mickel ppm ASTM 05185(m) >25 5 7 4 122 Innom ppm </th <th>SAMPLE INFORM</th> <th>ATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2	
TSN hrs Client Info 2000 197504 1903 TSO hrs Client Info 25 44 30 Oil Age hrs Client Info 25 44 30 Oil Changed Client Info Changed Changed Changed Changed Sample Status method Imit/base current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185(m) >20 2 2 1 Nickel ppm ASTM 05185(m) >5 0 <1 0 Silver ppm ASTM 05185(m) >25 5 7 4 Lead ppm ASTM 05185(m) >25 37 4 2 Tin ppm	Sample Number		Client Info		WC0869631	WC0869630	WC0740375	
TSO hrs Client Info 2000 1975 1903 Oil Age hrs Client Info 25 44 30 Oil Changed Client Info 25 44 30 Sample Status method limit/base current history1 history2 Fuel WC Method >4.0.0 <1.0 <1.0 <1.0 Water WC Method >0.1 NEG NEG NEG Water WC Method >0.0 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >0 2 2 1 Nickel ppm ASTM D5185(m) >5 0 <1 0 Silver ppm ASTM D5185(m) >200 4406 5017 4122 Copper ppm ASTM D5185(m) >30 0 <1 0 Attimonum ppm ASTM	Sample Date		Client Info		21 Mar 2024	12 Oct 2023	02 May 2023	
Oil Age hrs Client Info 25 44 30 Oil Changed Client Info Changed Changed Changed Changed Sample Status Imit/base current history1 history2 Fuel WC Method >4.0 <1.0 <1.0 <1.0 Water WC Method >0.1 NEG NEG NEG Gilycol WC Method >0.1 NEG NEG NEG Vertam ppm ASTM D5185(m) >90 24 32 23 Chromium ppm ASTM D5185(m) >15 4 4 2 Nickel ppm ASTM D5185(m) >5 0 <1 0 Aluminum ppm ASTM D5185(m) >20 2 2 1 Nickel ppm ASTM D5185(m) >5 0 <1 0 Aluminum ppm ASTM D5185(m) >20 406 5017 4122 Copper ppm ASTM D5185(m) >20 0 0 0 Antimony ppm ASTM D5185(m) >30 0 <1 0 Antimony ppm ASTM D5185(m) >30 0	TSN	hrs	Client Info		2000	197504	1903	
Oil Changed Sample StatusClient Info ABNORMALChanged ABNORMALChanged ABNORMALChanged ABNORMALChanged NORMALCONTAMINATIONmethodimit/basecurrenthistory1history2FuelWC Method>0.1NEGNEGNEGWaterWC Method>0.1NEGNEGNEGGilycolWC Method>0.1NEGNEGNEGWEAR METALSmethodimit/basecurrenthistory1history2IronppmASTM D5185m>90243223ChromiumppmASTM D5185m>50<10NickelppmASTM D5185m>50<10SilverppmASTM D5185m>50<10AuminumppmASTM D5185m>5574LeadppmASTM D5185m>20000440650174122CopperppmASTM D5185m>20000410600AntimonyppmASTM D5185m>300<110AntimonyppmASTM D5185m>30000CadmiumppmASTM D5185m5<100AntimonyppmASTM D5185m0<100AntimonyppmASTM D5185m5<100CadmiumppmASTM D5185m5<100BariumppmASTM D5185m	TSO	hrs	Client Info		2000	1975	1903	
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Nickel ppm ASTM D5185(m) >15 4 4 2 Titanium ppm ASTM D5185(m) >5 0 <1 0 Silver ppm ASTM D5185(m) >5 0 <1 0 Aluminum ppm ASTM D5185(m) >25 5 7 4 Lead ppm ASTM D5185(m) >20000 4406 5017 4122 Copper ppm ASTM D5185(m) >20000 4406 5017 4122 Copper ppm ASTM D5185(m) >20 0 <1 0 Antimony ppm ASTM D5185(m) >30 0 <1 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) <1 <1 <1 <1 Barium ppm ASTM D5185(m) 5 <1 0 0 Molybdenum ppm ASTM D5185(m) 5	Chromium		ASTM D5185(m)	>20	2	2	1	
Titanium ppm ASTM D5185(m) 0 0 0 0 Silver ppm ASTM D5185(m) >5 0 <1 0 Aluminum ppm ASTM D5185(m) >25 5 7 4 Lead ppm ASTM D5185(m) >20000 4406 5017 4122 Copper ppm ASTM D5185(m) >20 0 <1 0 Antimony ppm ASTM D5185(m) >30 0 <11 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) <1 2 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 <th>Nickel</th> <td></td> <td></td> <td></td> <th>4</th> <td>4</td> <td>2</td>	Nickel				4	4	2	
Silver ppm ASTM D5185(m) >5 0 <1	Titanium		ASTM D5185(m)		0	0	0	
Aluminum ppm ASTM D5185(m) >255 5 7 4 Lead ppm ASTM D5185(m) >20000 4406 5017 4122 Copper ppm ASTM D5185(m) >25 A 37 A 42 21 Tin ppm ASTM D5185(m) >30 0 <1 0 Antimony ppm ASTM D5185(m) >30 0 <10 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) <1 2 2 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) <1 <1 <1 <1 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 10 24 21 22 Calcium ppm ASTM D5185(m) 100	Silver			>5	0	<1	0	
Copper ppm ASTM D5185(m) >25 A 37 A 42 21 Tin ppm ASTM D5185(m) >30 0 <1 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) <1 2 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) <1 <1 <1 <1 Barium ppm ASTM D5185(m) 0 <1 0 0 Molybdenum ppm ASTM D5185(m) 5 <1 0 0 Manganese ppm ASTM D5185(m) 10 24 21 22 Calcium ppm ASTM D5185(m) 10 13 17 <th>Aluminum</th> <th></th> <th>ASTM D5185(m)</th> <th>>25</th> <th>5</th> <th>7</th> <th>4</th>	Aluminum		ASTM D5185(m)	>25	5	7	4	
CopperppmASTM D5185(m)>25 \checkmark 37 \checkmark 4221TinppmASTM D5185(m)>300<10AntimonyppmASTM D5185(m)000VanadiumppmASTM D5185(m)000BerylliumppmASTM D5185(m)000CadmiumppmASTM D5185(m)<122ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)<1<1<1BariumppmASTM D5185(m)<100MolybdenumppmASTM D5185(m)000MagnesseppmASTM D5185(m)10242122CalciumppmASTM D5185(m)1054<1PhosphorusppmASTM D5185(m)10131712SulfurppmASTM D5185(m)10133113071150LithiumppmASTM D5185(m)15342SoliconppmASTM D5185(m)>15342SoliconppmASTM D5185(m)<13<1	Lead	ppm	ASTM D5185(m)	>20000	4406	5017	4122	
Antimony ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) <1 2 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) <1 <1 <1 <1 Barium ppm ASTM D5185(m) 0 <1 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Maganese ppm ASTM D5185(m) 10 24 21 22 Calcium ppm ASTM D5185(m) 10 5 4 <1 Phosphorus ppm ASTM D5185(m) 1280 1152 1221 1316 Zinc ppm ASTM D5185(m) 1800 1331 1307 1150	Copper	ppm	ASTM D5185(m)	>25	A 37	<u> </u>	21	
Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) c1 2 2 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) <1	Tin	ppm	ASTM D5185(m)	>30	0	<1	0	
Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) <1	Antimony	ppm	ASTM D5185(m)		0	0	0	
CadmiumppmASTM D5185(m)<1	<1	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) <1 <1 <1 <1 Barium ppm ASTM D5185(m) 0 <1 0 0 Molybdenum ppm ASTM D5185(m) 5 <1 0 0 0 Manganese ppm ASTM D5185(m) 5 <1 0 0 0 Magnesium ppm ASTM D5185(m) 10 24 21 22 22 Calcium ppm ASTM D5185(m) 10 5 4 <1 1316 Phosphorus ppm ASTM D5185(m) 1280 1152 1221 1316 Zinc ppm ASTM D5185(m) 10 13 17 12 Sulfur ppm ASTM D5185(m) 1800 1331 1307 1150 Lithium ppm ASTM D5185(m)	Beryllium	ppm	ASTM D5185(m)		0	0	0	
Boron ppm ASTM D5185(m) <1	Cadmium	ppm	ASTM D5185(m)		<1	2	2	
Barium ppm ASTM D5185(m) 0 <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185(m) 5 <1	Boron	ppm	ASTM D5185(m)		<1	<1	<1	
Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 10 24 21 22 Calcium ppm ASTM D5185(m) 10 5 4 <1	Barium	ppm	ASTM D5185(m)		0	<1	0	
Magnesium ppm ASTM D5185(m) 10 24 21 22 Calcium ppm ASTM D5185(m) 10 5 4 <1	Molybdenum	ppm	ASTM D5185(m)	5	<1	0	0	
Calcium ppm ASTM D5185(m) 10 5 4 <1	Manganese	ppm	ASTM D5185(m)		0	0	0	
Phosphorus ppm ASTM D5185(m) 1280 1152 1221 1316 Zinc ppm ASTM D5185(m) 10 13 17 12 Sulfur ppm ASTM D5185(m) 1800 1331 1307 1150 Lithium ppm ASTM D5185(m) current history1 history2 Silicon ppm ASTM D5185(m) >15 3 4 2 Sodium ppm ASTM D5185(m)	Magnesium	ppm	ASTM D5185(m)	10		21	22	
Zinc ppm ASTM D5185(m) 10 13 17 12 Sulfur ppm ASTM D5185(m) 1800 1331 1307 1150 Lithium ppm ASTM D5185(m) 1800 1331 1307 1150 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 3 4 2 Sodium ppm ASTM D5185(m) <1	Calcium	ppm	ASTM D5185(m)	10	5	4	<1	
Sulfur ppm ASTM D5185(m) 1800 1331 1307 1150 Lithium ppm ASTM D5185(m) 1800 1331 1307 1150 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 3 4 2 Sodium ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)	1280	1152	1221	1316	
Lithium ppm ASTM D5185(m) <1	Zinc	ppm		10	13	17	12	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >15 3 4 2 Sodium ppm ASTM D5185(m) <1 3 <1	Sulfur	ppm		1800	1331		1150	
Silicon ppm ASTM D5185(m) >15 3 4 2 Sodium ppm ASTM D5185(m) <1	Lithium	ppm	ASTM D5185(m)		<1	<1	<1	
Sodium ppm ASTM D5185(m) <1	CONTAMINANTS		method	limit/base	current	history1	history2	
	Silicon	ppm	ASTM D5185(m)	>15	3	4	2	
	Sodium	ppm	ASTM D5185(m)		<1	3	<1	
	Potassium			>20	<1	0	<1	

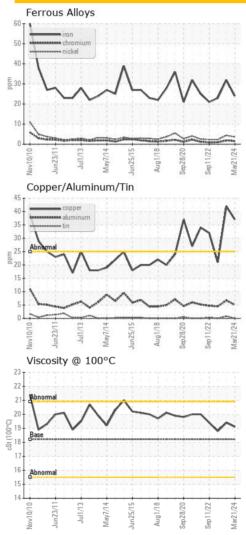


OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	VLITE	LIGHT	VLITE
Debris	scalar	Visual*	NONE	VLITE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	18.2	19.1	19.4	18.8
GRAPHS						



: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

Received

Diagnosed

Tested

: 01 Apr 2024

: 01 Apr 2024

2239351 ONTARIO INC 3-1136 CENTRE STREET SUIT # 252 THORNHILL, ON : 01 Apr 2024 - Kevin Marson CA L4J 3M8 Contact: Phil Lightstone plight@rogers.com T: (416)578-7445 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. F:



Report Id: 223THO [WCAMIS] 02625674 (Generated: 04/01/2024 14:48:00) Rev: 1

CALA

ISO 17025:2017 Accredited Laboratory

Laboratory

Sample No.

Lab Number : 02625674

Unique Number : 5750793

Test Package : AVI 1

: WC0869631

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Validity of results and interpretation are based on the sample and information as supplied.