

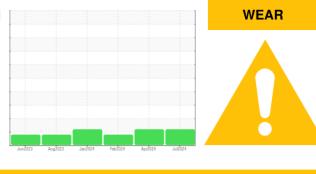
OIL ANALYSIS REPORT

Sample Rating Trend



JOHN DEERE 644K LDR009

Hydraulic System



DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 2 test kits, this testkit includes Particle Count to determine the ISO cleanliness of the fluid.

📥 Wear

Chromium ppm levels are abnormal. Ring wear is indicated.

Contamination

There is no indication of any contamination in the component(unconfirmed).

Fluid Condition

Viscosity of sample indicates oil is within SAE 75W80 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sample NumberClient InfoWC0925819WC0920176WC0904281Sample DateIClient InfoI1 Jul 202411 Apr 202410 Feb 2024Machine AgehrsClient InfoI30811265712116Oil AgehrsClient InfoOOOOil ChangedKClient InfoNot ChangdNot ChangdNot ChangdSample StatusIImit AssoABNORMALABNORMALABNORMALCONTAMINATIONmethodImit AssoCurrenthistory1history2WaterWC Method>0.075NEGNEGNEGWEAR METALSmethodImit AssoCurrenthistory1history2IronppmASTM 05186(m)>71313433ChromiumppmASTM 05186(m)>11444LeadppmASTM 05186(m)>11444LeadppmASTM 05186(m)>11444LeadppmASTM 05186(m)>212222TinppmASTM 05186(m)>550000VanadiumppmASTM 05186(m)>10000VanadiumppmASTM 05186(m)>21222334AluminumppmASTM 05186(m)<10000VanadiumppmASTM 05186(m)<1000CopperppmASTM 05186(m)<1	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 13081 12657 12116 Oil Age hrs Client Info Not Changd Not Changd Not Changd Sample Status Image Client Info Not Changd Not Changd Not Changd CONTAMINATION method Imit/base current history1 history2 Water WC Method >0.075 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185(m) >11 A 15 17 17 Nickel ppm ASTM D5185(m) >11 4 4 4 17 Nickel ppm ASTM D5185(m) >13 0 0 1 1 Aluminum ppm ASTM D5185(m) >13 0 0 1 Lead ppm ASTM D5185(m) >5 0 0 0 Cadmium ppm ASTM D5185(m)	Sample Number		Client Info		WC0925819	WC0920176	WC0904234	
Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info Not Changd Not Changd ABNORMAL ABNORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.075 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM05185(m) >71 31 34 33 Chromium ppm ASTM05185(m) >6 <1 0 <1 Nickel ppm ASTM05185(m) >6 <1 0 <1 Aluminum ppm ASTM05185(m) >11 4 4 4 Lead ppm ASTM05185(m) >13 0 0 <1 Atminum ppm ASTM05185(m) >10 0 0 0 Vanadium ppm ASTM05185(m) >10	Sample Date		Client Info		01 Jul 2024	11 Apr 2024	10 Feb 2024	
Oli Changed Sample Status Client Info Not Changd ABNORMAL Water WC. Method >0.075 NEG NEG NEG Wear ppm ASTMD5185(m) >71 31 34 33 Chromium ppm ASTMD5185(m) >71 31 34 33 Chromium ppm ASTMD5185(m) >61 0 0 1 Nickel ppm ASTMD5185(m) >11 4 4 4 2 2 2 2 1 1 0 0 1 0 1 0 1 0 1 0 1 0 0	Machine Age	hrs	Client Info		13081	12657	12116	
Sample Status Imathod Imit/base current ABNORMAL ABNORMAL ABNORMAL CONTAMINATION method limit/base current history1 /history2 Water WC Method >0.075 NEG NEG NEG WEAR METALS method limit/base current history1 /history2 Iron ppm ASTM D5185m >11 Å 15 17 Å Nickel ppm ASTM D5185m >6 <1 0 <1 15 Nickel ppm ASTM D5185m >6 <1 0 <1 14 Itanium ppm ASTM D5185m >13 0 <1 14 Lead ppm ASTM D5185m >21 2 2 2 15 Inimony ppm ASTM D5185m >21 2 2 2 2 15 Inimony ppm ASTM D5185m 0 0 0 0 0 <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Oil Age	hrs	Client Info		0	0	0	
CONTAMINATION method imit/base current history1 history2 Water WC Method >0.075 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >71 31 34 33 Chromium ppm ASTM D5185(m) >11 15 17 17 Nickel ppm ASTM D5185(m) >6 <1 0 <1 Aluminum ppm ASTM D5185(m) >6 <1 0 <1 Aluminum ppm ASTM D5185(m) >13 0 <1 4 Lead ppm ASTM D5185(m) >21 2 2 2 Tin ppm ASTM D5185(m) >6 0 0 0 AstM D5185(m) >21 2 2 2 2 Tin ppm ASTM D5185(m) 0 0 0 <	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd	
Water WC Method >0.075 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >71 31 34 33 Chromium ppm ASTM D5185(m) >11 15 17 17 Nickel ppm ASTM D5185(m) >6 <1 0 <1 Nickel ppm ASTM D5185(m) >11 4 4 4 Lead ppm ASTM D5185(m) >13 0 0 <1 Copper ppm ASTM D5185(m) >13 0 0 0 Antimony ppm ASTM D5185(m) >10 0 0 0 Addium ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL	
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Chromium ppm ASTM D5185(m) >11 ▲ 15 ▲ 17 ▲ 17 Nickel ppm ASTM D5185(m) >6 <1 0 <1 Titanium ppm ASTM D5185(m) >6 <1 0 <1 Aluminum ppm ASTM D5185(m) >11 4 4 4 Lead ppm ASTM D5185(m) >13 0 0 <1 Copper ppm ASTM D5185(m) >2 0 0 0 Antimony ppm ASTM D5185(m) >5 0 0 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Antimony ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDTIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 10 1	WEAR METALS		method	limit/base	current	history1	history2	
Nickel ppm ASTM D5185(m) >6 <1 0 <1 Titanium ppm ASTM D5185(m) <1	Iron	ppm	ASTM D5185(m)	>71	31	34	33	
Titanium ppm ASTM D5185(m) 0 0 0 Silver ppm ASTM D5185(m) <1	Chromium	ppm	ASTM D5185(m)	>11	🔺 15	1 7	1 7	
Silver ppm ASTM D5185(m) <1 4 4 4 Aluminum ppm ASTM D5185(m) >11 4 4 4 Lead ppm ASTM D5185(m) >13 0 0 <11 Copper ppm ASTM D5185(m) >21 2 2 2 2 Tin ppm ASTM D5185(m) >5 0 0 0 0 Antimony ppm ASTM D5185(m) >5 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 10 10 11 Magnaese	Nickel	ppm	ASTM D5185(m)	>6	<1	0		
Aluminum ppm ASTM D5185(m) >11 4 4 4 Lead ppm ASTM D5185(m) >13 0 0 <1	Titanium	ppm	ASTM D5185(m)		0	0	0	
Lead ppm ASTM D5185(m) >13 0 0 <1 Copper ppm ASTM D5185(m) >21 2 2 2 Tin ppm ASTM D5185(m) >5 0 0 0 Antimony ppm ASTM D5185(m) >5 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) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 37 32 34 Barium ppm ASTM D5185(m) 10 10 11 Manganese ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 2609 2399 2270 Lintum <td>Silver</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td></td> <th><1</th> <td>0</td> <td><1</td>	Silver	ppm	ASTM D5185(m)		<1	0	<1	
CopperppmASTM D5185(m)>21222TinppmASTM D5185(m)>5000AntimonyppmASTM D5185(m)0000VanadiumppmASTM D5185(m)0000BerylliumppmASTM D5185(m)0000CadmiumppmASTM D5185(m)0000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)373234BariumppmASTM D5185(m)101011ManganeseppmASTM D5185(m)101011ManganeseppmASTM D5185(m)137146157CalciumppmASTM D5185(m)748728745PhosphorusppmASTM D5185(m)915909886SulfurppmASTM D5185(m)260923992270LithiumppmASTM D5185(m)<	Aluminum	ppm	ASTM D5185(m)	>11	4	4	4	
Tin ppm ASTM D5185(m) >5 0 0 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) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 37 32 34 Barium ppm ASTM D5185(m) 10 0 0 Molybdenum ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm	Lead	ppm	ASTM D5185(m)	>13	0	0	<1	
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Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 37 32 34 Barium ppm ASTM D5185(m) 10 10 11 Manganese ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) 2	Tin	ppm	ASTM D5185(m)	>5	0	0	0	
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CadmiumppmASTM D5185(m)000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)373234BariumppmASTM D5185(m)<1	Vanadium	ppm	ASTM D5185(m)		0	0		
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)373234BariumppmASTM D5185(m)<1	Beryllium	ppm	ASTM D5185(m)		0	0	0	
Boron ppm ASTM D5185(m) 37 32 34 Barium ppm ASTM D5185(m) <1	Cadmium	ppm	ASTM D5185(m)		0	0	0	
Barium ppm ASTM D5185(m) <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185(m) 10 10 11 Manganese ppm ASTM D5185(m) <1 <1 0 Magnesium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 1500 1356 1176 Phosphorus ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) < <th><th< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185(m)</td><td></td><th>37</th><td>32</td><td>34</td></th<></th>	<th< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185(m)</td><td></td><th>37</th><td>32</td><td>34</td></th<>	Boron	ppm	ASTM D5185(m)		37	32	34
Manganese ppm ASTM D5185(m) <1 <1 0 Magnesium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 1500 1356 1176 Phosphorus ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) <1	Barium	ppm	ASTM D5185(m)		<1	0	0	
Magnesium ppm ASTM D5185(m) 137 146 157 Calcium ppm ASTM D5185(m) 1500 1356 1176 Phosphorus ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m)	Molybdenum	ppm	ASTM D5185(m)		10	10	11	
Calcium ppm ASTM D5185(m) 1500 1356 1176 Phosphorus ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) <1	Manganese	ppm	ASTM D5185(m)		<1	<1	0	
Phosphorus ppm ASTM D5185(m) 748 728 745 Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) current history1 history2 Silicon ppm ASTM D5185(m) >24 7 7 6 Sodium ppm ASTM D5185(m) >21 6 9 6	Magnesium	ppm	ASTM D5185(m)		137	146	157	
Zinc ppm ASTM D5185(m) 915 909 886 Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) <1	Calcium	ppm	ASTM D5185(m)		1500	1356	1176	
Sulfur ppm ASTM D5185(m) 2609 2399 2270 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >24 7 7 6 Sodium ppm ASTM D5185(m) >21 6 9 6	Phosphorus	ppm	ASTM D5185(m)		748	728	745	
Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >24 7 7 6 Sodium ppm ASTM D5185(m) >21 6 9 6	Zinc	ppm	ASTM D5185(m)		915	909	886	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >24 7 7 6 Sodium ppm ASTM D5185(m) >21 6 9 6	Sulfur	ppm			2609	2399		
Silicon ppm ASTM D5185(m) >24 7 7 6 Sodium ppm ASTM D5185(m) >21 6 9 6	Lithium	ppm	ASTM D5185(m)		<1	<1	<1	
Sodium ppm ASTM D5185(m) >21 6 9 6	CONTAMINANTS		method	limit/base	current	history1	history2	
Sodium ppm ASTM D5185(m) >21 6 9 6	Silicon	ppm	ASTM D5185(m)	>24	7	7	6	
Potassium ppm ASTM D5185(m) >20 4 2 3			ASTM D5185(m)	>21		9	6	
	Potassium	ppm	ASTM D5185(m)	>20	4	2	3	



Ferrous Alloys

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Aug20/23 .

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Jun10/23

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1600 1400

Additives

OIL ANALYSIS REPORT

	VISUAL		method	limit/base	current	history1	history	y 2
	White Metal	scalar	Visual*	NONE	VLITE	NONE	NONE	
	Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE	
*****	Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE	
and the second second	Silt	scalar	Visual*	NONE	NONE	NONE	NONE	
	Debris	scalar	Visual*	NONE	NONE	VLITE	NONE	
	Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE	
1/24	Appearance	scalar	Visual*	NORML	NORML	NORML	NORML	_
Apr1 Ju	Odor	scalar	Visual*	NORML	NORML	NORML	NORML	_
	Emulsified Water	scalar	Visual*	>0.075	NEG	NEG	NEG	
	Free Water	scalar	Visual*		NEG	NEG	NEG	
	FLUID PROPER	TIES	method	limit/base	current	history1	history	y2
	Visc @ 40°C	cSt	ASTM D7279(m)	43.1	48.2	48.2	48.5	
and the second states	SAMPLE IMAGE	S	method	limit/base	current	history1	history	y2
Apri 1/24 - Jul 1/24 -	Color							
	Bottom					0,05 KEN		
	PrtFilter				no image	no image	no image	e
11/24	GRAPHS							
Ap	Iron (ppm)			4	T ::			
	§ 100 - Abnormal			<u>6</u> 2	Severe			
								_
		24 -	24	. 54	3 3	24	52	
	Aug20/23	Jan8/24 - Feb10/24 -	Apr11/24 -	- 1/1/24	4ug20'23	Jan8/24 Feb10/24	Apr11/24	
	Aluminum (ppm)	_	Apr11/24	+2//hL	Chromium (p	_	Apr11/24	
	Aluminum (ppm)	_	Apr11/24	4	Chromium (p	_	Apr11/24	_
		_	Apr11/24		Chromium (p	_	Apr11/24	
	Aluminum (ppm)			4	Chromium (p	pm)		
	Aluminum (ppm)		Apr11/24	4 6_2	Chromium (p)	pm)	April24 - April24 -	
	Aluminum (ppm)			4 udd	Chromium (p)	pm)		
	Aluminum (ppm)	Jano 201	Apr1/24	4 udd 15/IPF	Chromium (p)	pm)		
	Aluminum (ppm)		Apr1/24	4 udd	Chromium (p)	pm)		
	Aluminum (ppm)	Jan 6 24 - Jan 7 - Jan 6 24 - Jan 7 -	Apr1/24	4 ud ud tz/Im tz/Im	Chromium (p)	pm)		
	Aluminum (ppm)	Jan 6 24 - Jan 7 - Jan 6 24 - Jan 7 -	Apr1/24	4 und 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Chromium (p)	pm)	Apr1124	
	Aluminum (ppm)	Jan 6 24 - Jan 7 - Jan 6 24 - Jan 7 -	Apr1/24	4 ud ud tz/Im tz/Im	Chromium (p)	pm)	Apr1124	
	Aprili24 April24 April	belling bel	Debris scalar Appearance scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar Visc @ 40°C cSt SAMPLE IMAGES Color Bottom PrtFilter GRAPHS Iron (ppm) Iron (ppm) 2010	Debris scalar Visual* Sand/Dirt scalar Visual* Appearance scalar Visual* Odor scalar Visual* Odor scalar Visual* Emulsified Water scalar Visual* Free Water scalar Visual* Free Water scalar Visual* Fluid PROPERTIES method Visc @ 40°C cSt ASTM D7279(m) SAMPLE IMAGES method Color Color PrtFilter GRAPHS Iron (ppm) Iron (ppm)	Debris scalar Visual* NONE Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* NORML Emulsified Water scalar Visual* >0.075 Free Water scalar Visual* >0.075 Free Water scalar Visual* >0.075 Free Water scalar Visual* >0.075 Visc @ 40°C cSt ASTM D7279(m) 43.1 SAMPLE IMAGES method limit/base Visc @ for Color Imit/base PrtFilter GRAPHS Imit/base Iron (ppm) Sees Sees Sees	Debris scalar Visual* NONE NONE Sand/Dirt scalar Visual* NONE NONE Appearance scalar Visual* NORML NORML Odor scalar Visual* NORML NORML Emulsified Water scalar Visual* >0.075 NEG Free Water scalar Visual* >0.075 NEG Free Water scalar Visual* NEG MEG Fullip PROPERTIES method limit/base current Visc @ 40°C cSt ASTM D7279(m) 43.1 48.2 SAMPLE IMAGES method limit/base current Bottom Image Image Image More GRAPHS Image Image Image Image Image Image	Debris scalar Visual* NONE NONE VLITE Sand/Dirt scalar Visual* NONE NONE NONE NONE Appearance scalar Visual* NORML NORML NORML NORML Odor scalar Visual* NORML NORML NORML NORML Odor scalar Visual* NORML NORML NORML NORML Odor scalar Visual* NORML NORML NORML NORML Emulsified Water scalar Visual* >0.075 NEG NEG Free Water scalar Visual* >0.075 NEG NEG Visc @ 40°C cSt ASTM D7279(m) 43.1 48.2 48.2 SAMPLE IMAGES method limit/base current history1 Color E form imit/base current history1 PrtFilter ro <inge< td=""> no image no image no image Iron (ppm) Lead (ppm) Ton (ppm) Ton (ppm) Lead (ppm)</inge<>	Debris scalar Visual* NONE NONE VLITE NONE Sand/Dirt scalar Visual* NONE NONE NONE NONE NONE Appearance scalar Visual* NORML

To discuss this sample report, contact Customer Service at 1-800-268-2131. AEM_KL_macassaoilsampleresults@agnicoeagle.com Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

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Contact/Location: Mitch Lamontagne - KIR370KIR

T: (705)567-5208

F: (705)567-5221