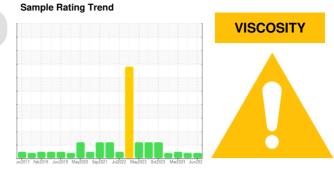


OIL ANALYSIS REPORT



JO Com Die Fluid JOH

[AMERICAN MATERIALS] JOHN DEERE 824K 1DW824KXPHF679619 Diesel Engine

JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (11 GAL)

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		JR0197080	JR0197209	JR0183263
Sample Date		Client Info		19 Jun 2024	16 Apr 2024	12 Mar 2024
Machine Age	hrs	Client Info		14259	13976	13777
Oil Age	hrs	Client Info		250	500	250
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				MARGINAL	MARGINAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	9	8	5
Chromium	ppm	ASTM D5185m	>11	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	3	2	2
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>31	4	4	5
Lead	ppm	ASTM D5185m	>26	2	2	0
Copper	ppm	ASTM D5185m	>26	3	5	4
Tin	ppm	ASTM D5185m	>4	<1	2	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		261	202	235
Barium	ppm	ASTM D5185m		1	<1	0
Molybdenum	ppm	ASTM D5185m		252	244	240
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		784	796	769
				704		103
Calcium	ppm	ASTM D5185m		1371	1419	1267
Calcium Phosphorus	ppm ppm	ASTM D5185m ASTM D5185m		-	1419 870	
				1371		1267
Phosphorus	ppm	ASTM D5185m		1371 916	870	1267 873
Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base	1371 916 1055	870 993	1267 873 986 3170
Phosphorus Zinc Sulfur	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1371 916 1055 3078	870 993 3379	1267 873 986 3170
Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m method	>22	1371 916 1055 3078 current	870 993 3379 history1	1267 873 986 3170 history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	>22 >31	1371 916 1055 3078 current 8	870 993 3379 history1 6	1267 873 986 3170 history2 6
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	>22 >31 >20	1371 916 1055 3078 <u>current</u> 8 1	870 993 3379 history1 6 4	1267 873 986 3170 history2 6 3
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m	>22 >31 >20	1371 916 1055 3078 <u>current</u> 8 1 3	870 993 3379 history1 6 4 <1	1267 873 986 3170 history2 6 3 0 <1.0
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>22 >31 >20 >2.1	1371 916 1055 3078 <u>current</u> 8 1 3 <1.0	870 993 3379 history1 6 4 <1 2.5	1267 873 986 3170 history2 6 3 0 <1.0
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524	>22 >31 >20 >2.1 limit/base >3	1371 916 1055 3078 current 8 1 3 <1.0 current	870 993 3379 history1 6 4 <1 2.5 history1	1267 873 986 3170 history2 6 3 0 <1.0 history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524	>22 >31 >20 >2.1 limit/base >3 >20	1371 916 1055 3078 current 8 1 3 <1.0 current 0.2	870 993 3379 history1 6 4 <1 2.5 history1 0.2	1267 873 986 3170 history2 6 3 0 <1.0 history2 0.1
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 method *ASTM D7844	>22 >31 >20 >2.1 limit/base >3 >20	1371 916 1055 3078 <u>current</u> 8 1 3 <1.0 <u>current</u> 0.2 7.9	870 993 3379 history1 6 4 <1 2.5 history1 0.2 8.0	1267 873 986 3170 history2 6 3 0 <1.0 history2 0.1 7.8 20.6
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 *ASTM D7844 *ASTM D7624	>22 >31 >20 >2.1 limit/base >3 >20 >30 limit/base	1371 916 1055 3078 current 8 1 3 <1.0 current 0.2 7.9 20.8	870 993 3379 history1 6 4 <1 2.5 history1 0.2 8.0 21.8	1267 873 986 3170 history2 6 3 0 <1.0 history2 0.1 7.8

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Area

Wear

All component wear rates are normal.

Contamination

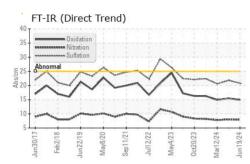
There is no indication of any contamination in the oil.

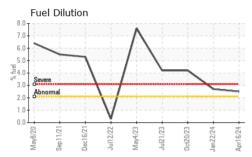
Fluid Condition

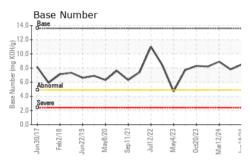
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

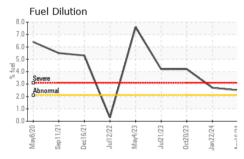


OIL ANALYSIS REPORT

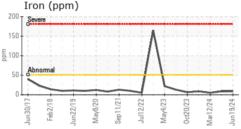


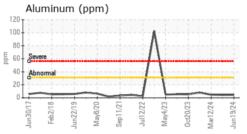


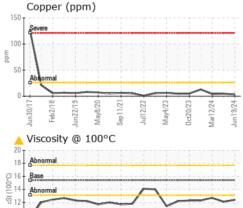




VISUAL		method	limit/base	current	history1	history2		
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.21	NEG	NEG	NEG		
Free Water	scalar	*Visual		NEG	NEG	NEG		
FLUID PROPERT	IES	method	limit/base	current	history1	history2		
Visc @ 100°C	cSt	ASTM D445	15.4	12.4	▲ 12.1	12.7		
GRAPHS								
Iron (ppm)	Lead (ppm)							







10

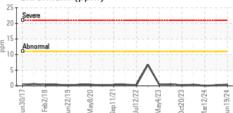
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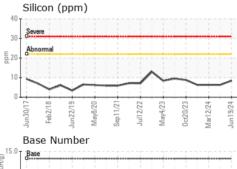
Jun30/17

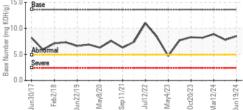
Feb2/18

mag (ppm) mag (ppm) mag (provided by the provided by the provi

Chromium (ppm)







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 JRE - HOPE MILLS/FAYETTEVILLE : JR0197080 Sample No. Received : 20 Jun 2024 5039 HWY 301 SOUTH Lab Number : 06215476 Tested : 21 Jun 2024 HOPE MILLS, NC Unique Number : 11088340 Diagnosed : 21 Jun 2024 - Don Baldridge US 28348 Test Package : MOBCE (Additional Tests: FuelDilution, TBN) Contact: FAYETTEVILLE SHOP Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. stephen.mullis@jamesriverequipment.com;canastasio@wearcheck.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Sep11/21

Aav8/20

ul12/22 Aav4/23 Jun19/24 -

Mar12/24

Report Id: RWMFAY [WUSCAR] 06215476 (Generated: 06/24/2024 14:04:02) Rev: 1

Submitted By: Justin Jackson Page 2 of 2