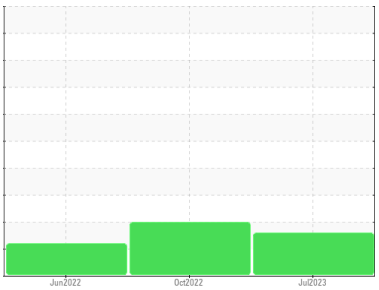
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
TRUCKHAUL
Machine Id
JOHN DEERE 310E 05-02060-022 (S/N 1DW310EXVHF680888)
Component
Diesel Engine
Fluid
PETRO CANADA 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Wear

Cylinder, crank, or cam shaft wear is indicated. Valve wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0661793**	WC0721554	WC0661459
Sample Date		Client Info		**07 Jul 2023**	27 Oct 2022	04 Jun 2022
Machine Age	hrs	Client Info		**7437**	6636	6000
Oil Age	hrs	Client Info		**1437**	0	663
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	**<1.0**	<1.0	0.2
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	▲ **92**	▲ 126	41
Chromium	ppm	ASTM D5185m	>11	**4**	10	1
Nickel	ppm	ASTM D5185m	>5	▲ **13**	▲ 43	▲ 33
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>31	**7**	7	4
Lead	ppm	ASTM D5185m	>26	**<1**	<1	<1
Copper	ppm	ASTM D5185m	>26	**2**	2	2
Tin	ppm	ASTM D5185m	>4	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**4**	15	21
Barium	ppm	ASTM D5185m		**0**	2	0
Molybdenum	ppm	ASTM D5185m		**63**	66	74
Manganese	ppm	ASTM D5185m		**1**	3	2
Magnesium	ppm	ASTM D5185m		**899**	749	887
Calcium	ppm	ASTM D5185m		**1164**	1290	1187
Phosphorus	ppm	ASTM D5185m		**1049**	989	1019
Zinc	ppm	ASTM D5185m		**1256**	1201	1262
Sulfur	ppm	ASTM D5185m		**3176**	3644	3216

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	**5**	6	4
Sodium	ppm	ASTM D5185m		**0**	<1	1
Potassium	ppm	ASTM D5185m	>20	**1**	2	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.2**	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**6.5**	7.9	6.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	**17.9**	19.6	17.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**13.8**	14.4	12.3
Base Number (BN)	mg KOH/g	ASTM D2896		**10.27**	9.04	8.78

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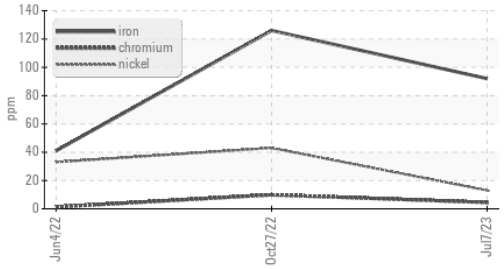
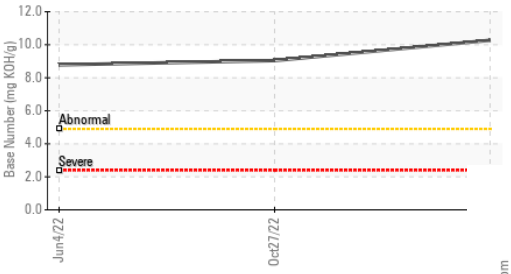
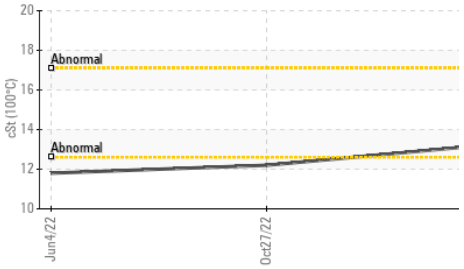
Ferrous Alloys



Base Number



Viscosity @ 100°C

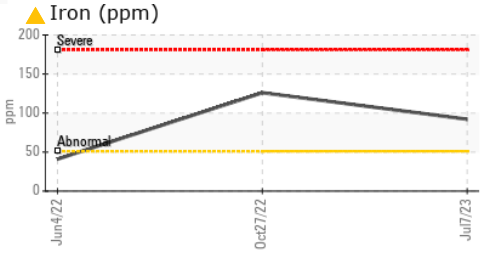


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

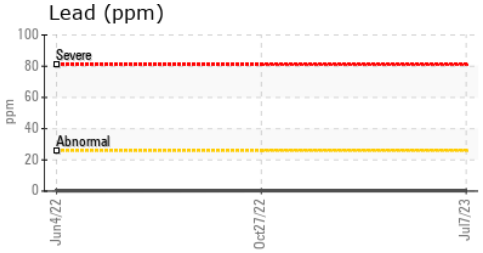
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**13.2**	▲ 12.2	▲ 11.8

GRAPHS

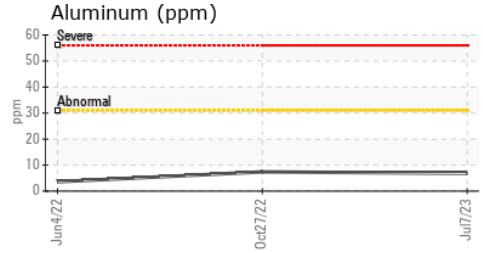
Iron (ppm)



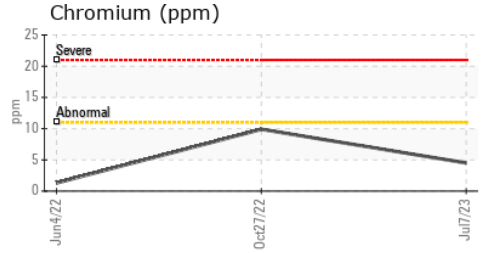
Lead (ppm)



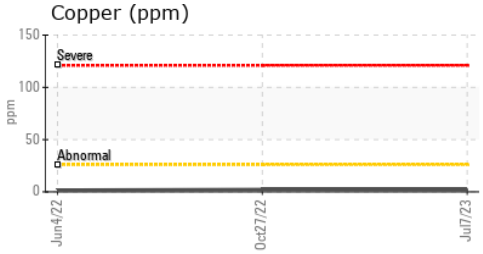
Aluminum (ppm)



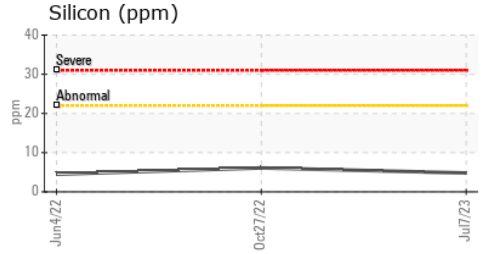
Chromium (ppm)



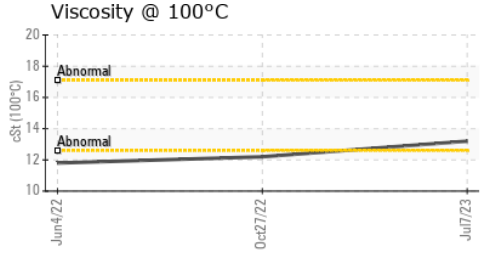
Copper (ppm)



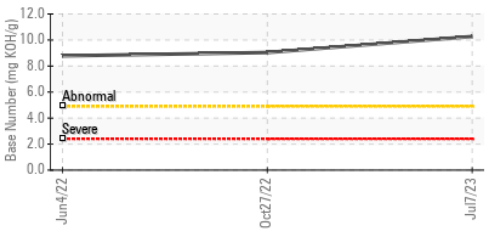
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0661793 **Received** : 18 Jul 2023
Lab Number : 05901960 **Diagnosed** : 20 Jul 2023
Unique Number : 10563316 **Diagnostician** : Don Baldridge
Test Package : MOB 2

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Report Id: HAYOXF [WUSCAR] 05901960 (Generated: 07/20/2023 14:16:13) Rev: 1

Submitted By: AMANDA BOWLEY