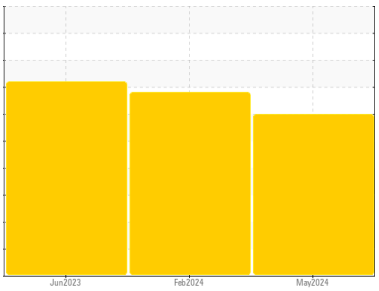
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
JOHN DEERE 700-201
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

▲ Recommendation
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear
The nickel level has decreased, but is still abnormal. Valve wear is indicated. All other component wear rates are normal.

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		**PCA0106881**	PCA0089605	PCA0082166
Sample Date		Client Info		**10 May 2024**	02 Feb 2024	20 Jun 2023
Machine Age	hrs	Client Info		**1505**	1050	544
Oil Age	hrs	Client Info		**500**	502	544
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	**<1.0**	<1.0	0.2
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	**39**	68	76
Chromium	ppm	ASTM D5185m	>11	**<1**	2	2
Nickel	ppm	ASTM D5185m	>5	▲ **19**	▲ 57	▲ 72
Titanium	ppm	ASTM D5185m		**0**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>31	**3**	4	6
Lead	ppm	ASTM D5185m	>26	**1**	1	4
Copper	ppm	ASTM D5185m	>26	**21**	▲ 116	▲ 202
Tin	ppm	ASTM D5185m	>4	**<1**	1	3
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**6**	10	148
Barium	ppm	ASTM D5185m	0	**<1**	<1	0
Molybdenum	ppm	ASTM D5185m	60	**61**	91	217
Manganese	ppm	ASTM D5185m	0	**1**	1	3
Magnesium	ppm	ASTM D5185m	1010	**934**	975	821
Calcium	ppm	ASTM D5185m	1070	**1054**	1157	1433
Phosphorus	ppm	ASTM D5185m	1150	**1017**	1066	847
Zinc	ppm	ASTM D5185m	1270	**1223**	1240	1074
Sulfur	ppm	ASTM D5185m	2060	**3167**	2761	3266

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	**6**	8	15
Sodium	ppm	ASTM D5185m	>31	**2**	<1	6
Potassium	ppm	ASTM D5185m	>20	**2**	3	9

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.5**	0.5	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**7.4**	8.0	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**18.7**	19.5	22.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**14.3**	15.2	17.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.5**	8.3	9.0

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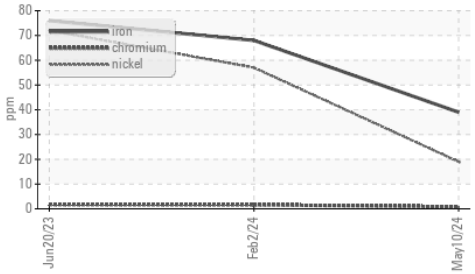
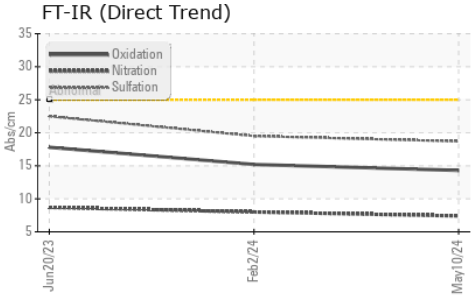
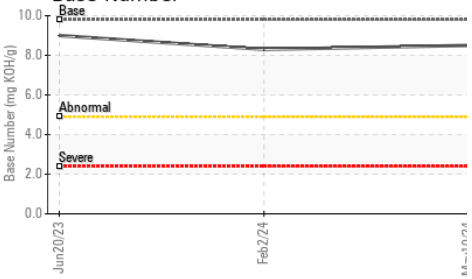
Ferrous Alloys



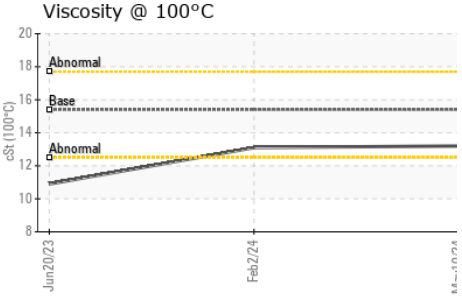
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

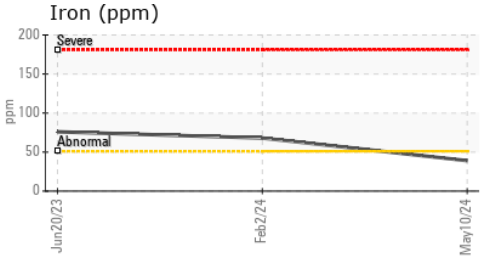


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

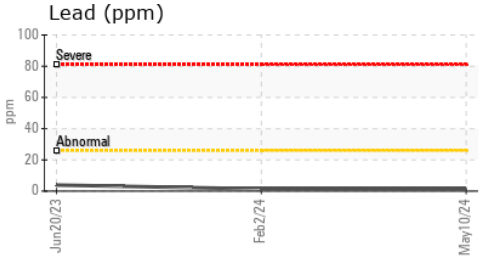
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**13.2**	13.1	10.9

GRAPHS

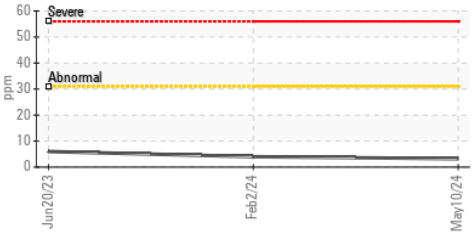
Iron (ppm)



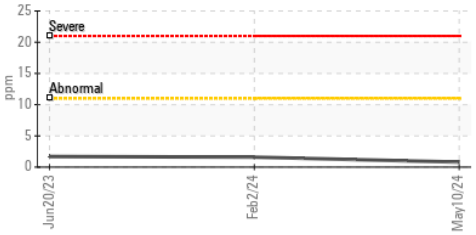
Lead (ppm)



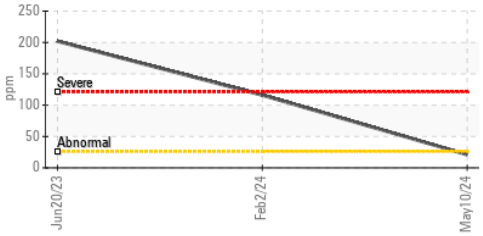
Aluminum (ppm)



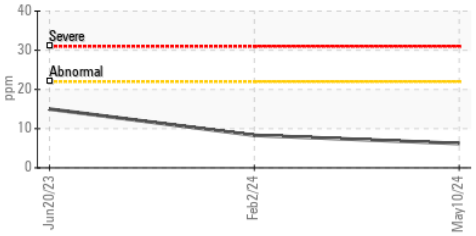
Chromium (ppm)



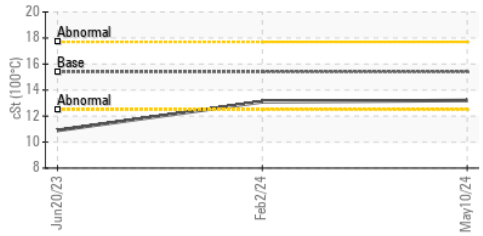
Copper (ppm)



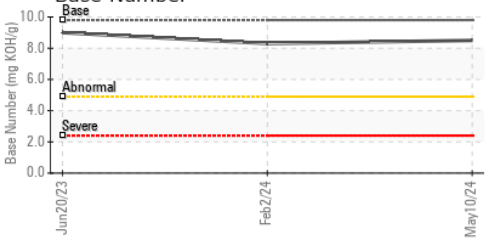
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0106881 **Received** : 06 Jun 2024
Lab Number : 06201175 **Tested** : 07 Jun 2024
Unique Number : 11063298 **Diagnosed** : 09 Jun 2024 - Don Baldridge
Test Package : MOB 1 (Additional Tests: TBN)

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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1351 JOLIET RD
VALPARAISO, IN
US 46385
Contact: MARK STEFFEL
mark.steffel@gemarshall.com
T:
F:

Report Id: GEMVAL [WUSCAR] 06201175 (Generated: 06/09/2024 10:17:18) Rev: 1

Contact/Location: MARK STEFFEL - GEMVAL