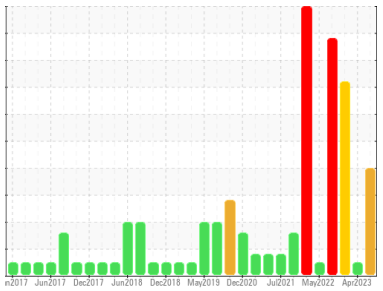
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
Off-Road
Machine Id
E032
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend you service the filters on this component. Resample at the next service interval to monitor.

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

Contamination
There is an abnormal amount of solids and carbon present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0090495**	PCA0083070	PCA0083317
Sample Date		Client Info		**20 Sep 2023**	05 Apr 2023	30 Nov 2022
Machine Age	hrs	Client Info		**133016**	133016	12746
Oil Age	hrs	Client Info		**10420**	130690	10420
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	NORMAL	SEVERE

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	▲ **97**	59	▲ 77
Chromium	ppm	ASTM D5185m	>11	**2**	<1	3
Nickel	ppm	ASTM D5185m	>5	**2**	<1	3
Titanium	ppm	ASTM D5185m		**0**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>31	▲ **5**	5	▲ 8
Lead	ppm	ASTM D5185m	>26	**3**	2	4
Copper	ppm	ASTM D5185m	>26	**3**	1	2
Tin	ppm	ASTM D5185m	>4	**<1**	0	<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	0	**6**	10	1
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**77**	67	79
Manganese	ppm	ASTM D5185m	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**1165**	993	1123
Calcium	ppm	ASTM D5185m	1070	**1366**	1143	1286
Phosphorus	ppm	ASTM D5185m	1150	**1137**	972	1082
Zinc	ppm	ASTM D5185m	1270	**1526**	1225	1412
Sulfur	ppm	ASTM D5185m	2060	**3526**	2823	3432

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	▲ **28**	15	⬢ 117
Sodium	ppm	ASTM D5185m	>31	**5**	4	3
Potassium	ppm	ASTM D5185m	>20	**4**	0	0

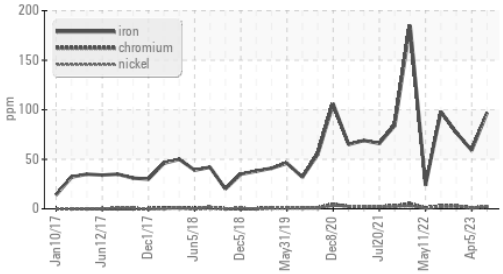
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ **3**	1.7	▲ 3.2
Nitration	Abs/cm	*ASTM D7624	>20	**13.8**	11.2	12.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**30.4**	26.3	28.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**27.2**	23.6	22.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.71**	10.07	7.52

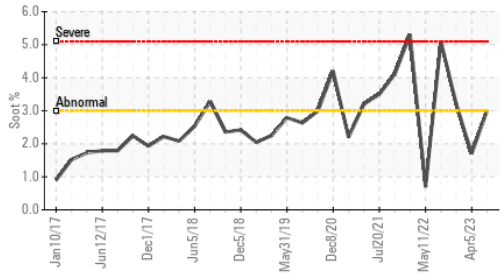
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

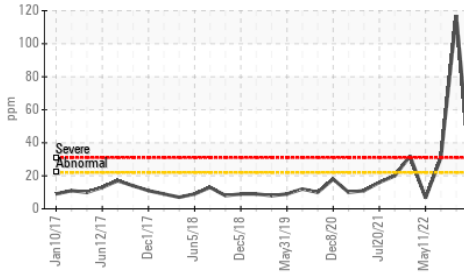
Ferrous Alloys



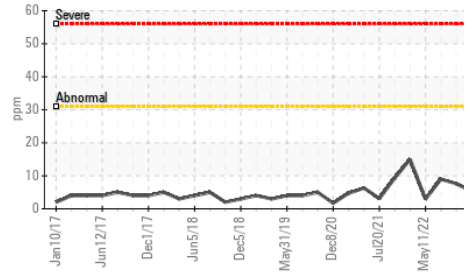
Soot %



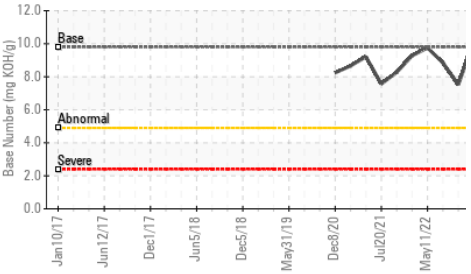
Silicon (ppm)



Aluminum (ppm)



Base Number

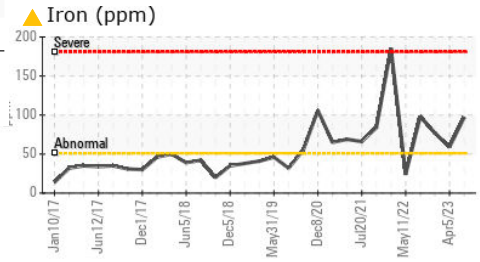


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

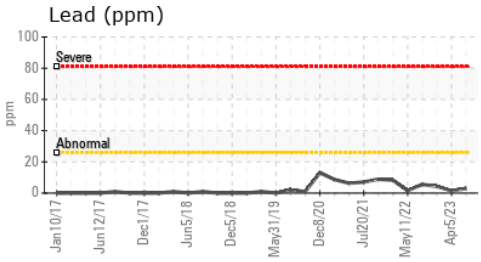
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**16.3**	15.4	16.0

GRAPHS

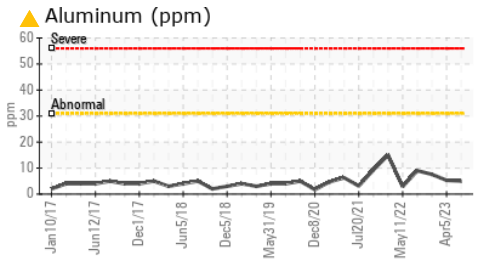
Iron (ppm)



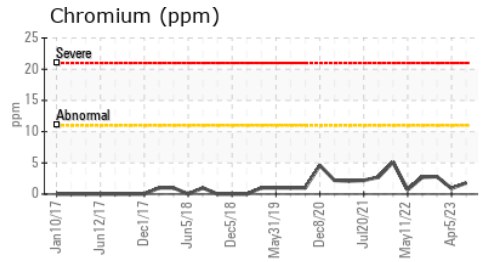
Lead (ppm)



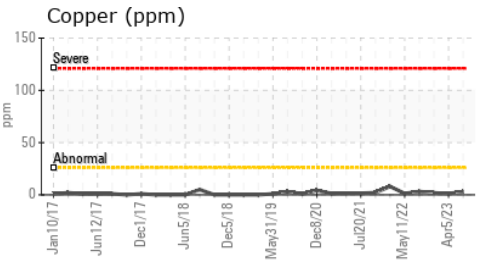
Aluminum (ppm)



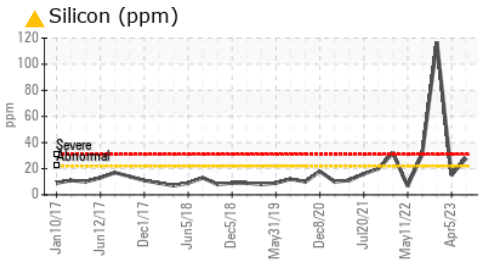
Chromium (ppm)



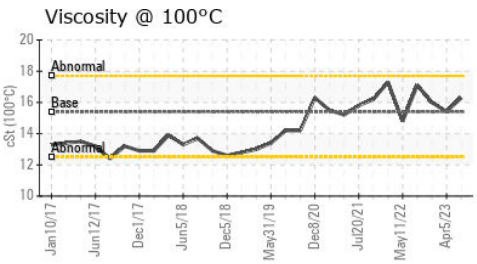
Copper (ppm)



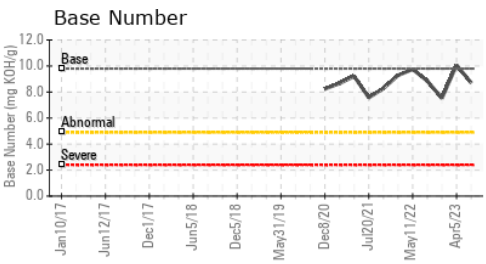
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0090495
Lab Number : 05958737
Unique Number : 10659950
Test Package : MOB 2

Received : 22 Sep 2023
Diagnosed : 25 Sep 2023
Diagnostician : Don Baldridge

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: WINTAU [WUSCAR] 05958737 (Generated: 09/26/2023 08:08:20) Rev: 1

Submitted By: MATT MANOLI