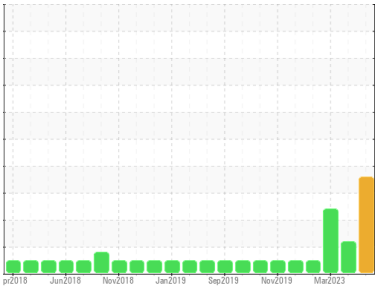
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Area
Plymouth & Brockton
Machine Id
11411
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (39 QTS)

DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

The lead level is abnormal. All other component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil. There is a high amount of fuel present in the oil.

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		**PCA0013383**	PCA0090507	PCA0083354
Sample Date		Client Info		**17 Aug 2023**	24 May 2023	11 Mar 2023
Machine Age	mls	Client Info		**598649**	587760	626729
Oil Age	mls	Client Info		**24000**	12000	24000
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**SEVERE**	ABNORMAL	ABNORMAL

CONTAMINATION	method	limit/base	current	history1	history2
Glycol	WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**141**	62	90
Chromium	ppm	ASTM D5185m	>10	**6**	1	3
Nickel	ppm	ASTM D5185m	>4	**2**	0	<1
Titanium	ppm	ASTM D5185m	>2	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>30	**10**	2	▲ 9
Lead	ppm	ASTM D5185m	>30	▲ **34**	9	5
Copper	ppm	ASTM D5185m	>30	**5**	4	8
Tin	ppm	ASTM D5185m	>4	**4**	2	2
Antimony	ppm	ASTM D5185m		**---**	---	---
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	**1**	3	11
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**58**	57	57
Manganese	ppm	ASTM D5185m	0	**1**	<1	1
Magnesium	ppm	ASTM D5185m	1010	**925**	809	838
Calcium	ppm	ASTM D5185m	1070	**1087**	1008	1124
Phosphorus	ppm	ASTM D5185m	1150	**947**	859	916
Zinc	ppm	ASTM D5185m	1270	**1202**	1023	1193
Sulfur	ppm	ASTM D5185m	2060	**3245**	2758	3490

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	**17**	12	▲ 32
Sodium	ppm	ASTM D5185m		**7**	12	6
Potassium	ppm	ASTM D5185m	>20	**1**	0	2
Fuel	%	ASTM D3524	>3.0	⬢ **8.3**	▲ 4.3	2.8

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ **5.5**	2.5	1.5
Nitration	Abs/cm	*ASTM D7624	>20	**20.5**	12.6	11.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**40.5**	27.5	21.6

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**36.2**	22.4	15.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**5.47**	9.47	8.92

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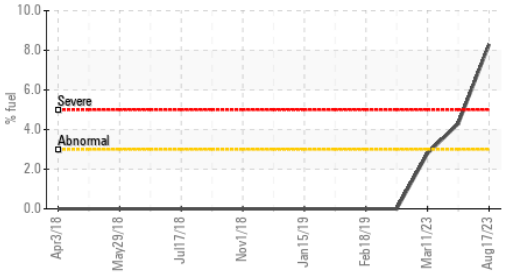
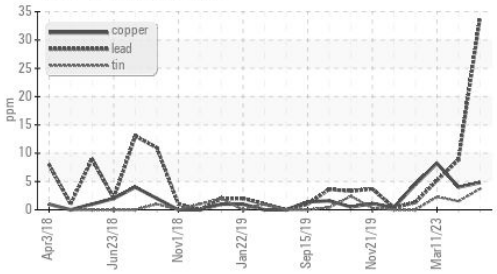
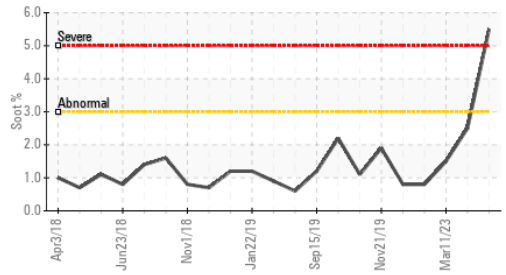
Fuel Dilution



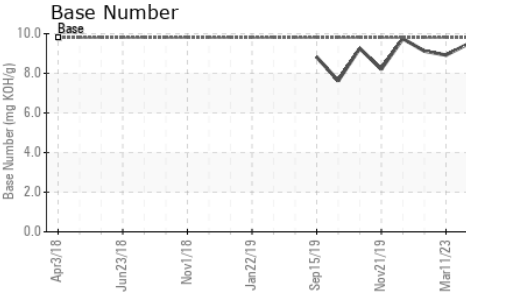
Non-ferrous Metals



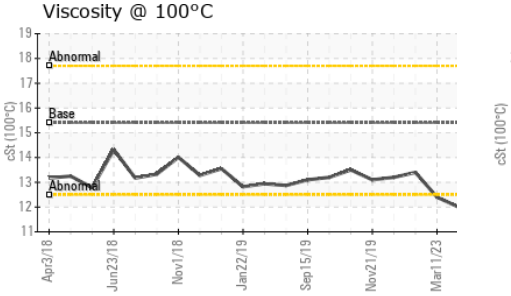
Soot %



Base Number



Viscosity @ 100°C

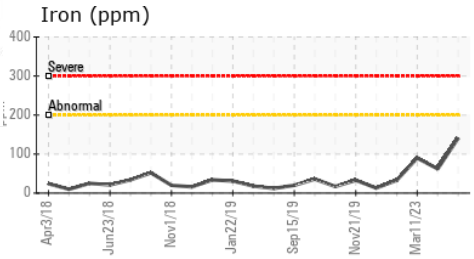


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

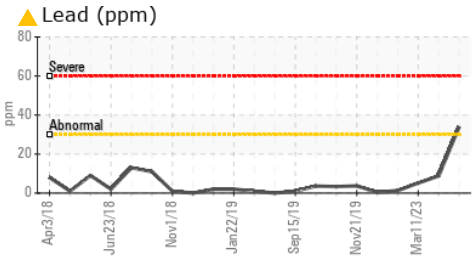
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**13.7**	▲ 12.0	12.4

GRAPHS

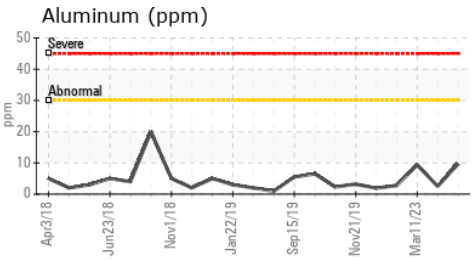
Iron (ppm)



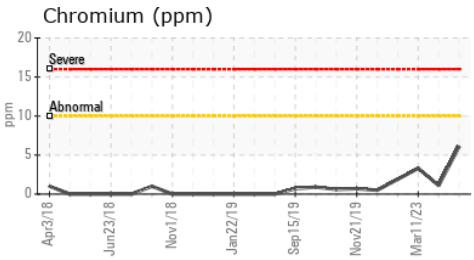
Lead (ppm)



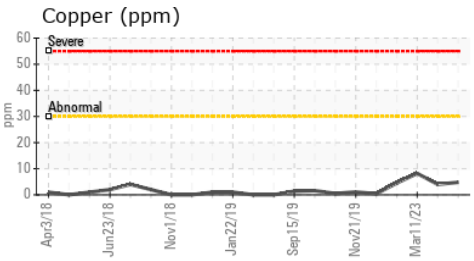
Aluminum (ppm)



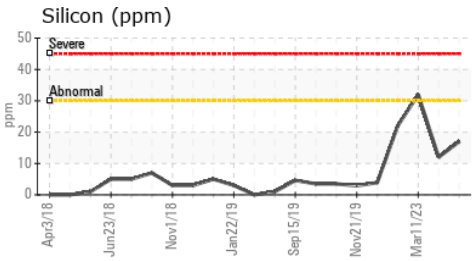
Chromium (ppm)



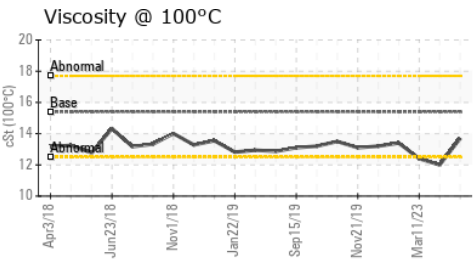
Copper (ppm)



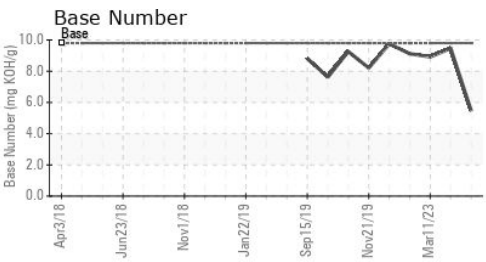
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: PCA0013383	**Received**	: 31 Aug 2023
Lab Number	: 05939838	**Diagnosed**	: 05 Sep 2023
Unique Number	: 10630450	**Diagnostician**	: Don Baldridge
Test Package	: MOB 2 (Additional Tests: PercentFuel)		

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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