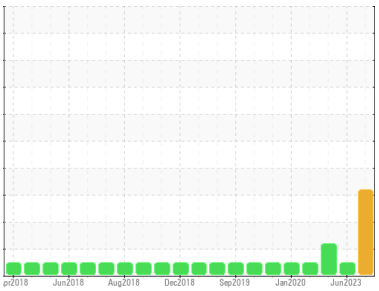
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Area
Plymouth & Brockton
Machine Id
11406
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (39 QTS)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Light concentration of carbon/soot present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0098696**	PCA0013371	PCA0083296
Sample Date		Client Info		**21 Sep 2023**	15 Jun 2023	07 Mar 2023
Machine Age	mls	Client Info		**239103**	228078	667837
Oil Age	mls	Client Info		**12000**	12000	12000
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**SEVERE**	NORMAL	ATTENTION

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	**64**	64	45
Chromium	ppm	ASTM D5185m	>10	**2**	2	1
Nickel	ppm	ASTM D5185m	>4	**0**	0	0
Titanium	ppm	ASTM D5185m	>2	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>30	**7**	11	12
Lead	ppm	ASTM D5185m	>30	**21**	11	<1
Copper	ppm	ASTM D5185m	>30	**2**	2	<1
Tin	ppm	ASTM D5185m	>4	**<1**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**4**	4	12
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**50**	60	55
Manganese	ppm	ASTM D5185m	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**824**	930	818
Calcium	ppm	ASTM D5185m	1070	**923**	1080	1032
Phosphorus	ppm	ASTM D5185m	1150	**872**	972	954
Zinc	ppm	ASTM D5185m	1270	**1070**	1221	1124
Sulfur	ppm	ASTM D5185m	2060	**2477**	3354	2990

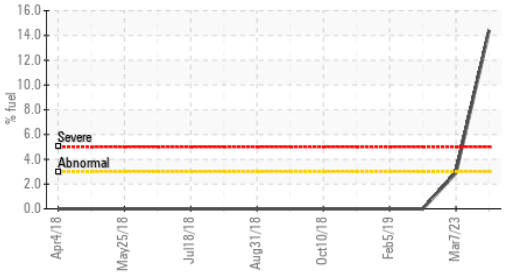
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	**13**	6	8
Sodium	ppm	ASTM D5185m		**5**	7	8
Potassium	ppm	ASTM D5185m	>20	**0**	2	1
Fuel	%	ASTM D3524	>3.0	**14.4**	<1.0	2.9

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**3.4**	2.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	**14.6**	13.1	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**32.3**	26.5	18.1

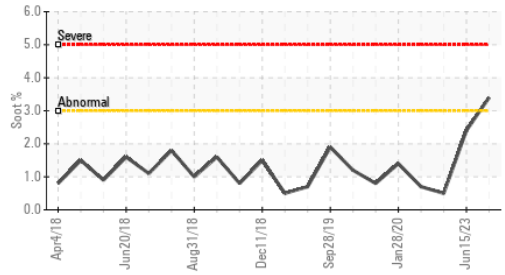
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**28.5**	21.0	14.0
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**6.79**	11.01	9.64

OIL ANALYSIS REPORT

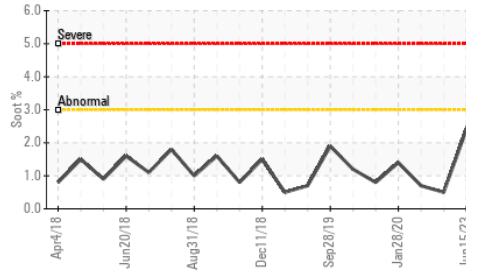
Fuel Dilution



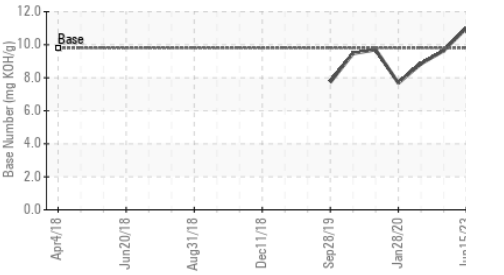
Soot %



Soot %



Base Number

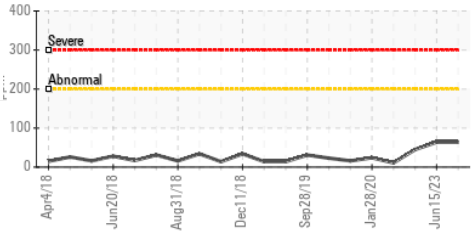


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

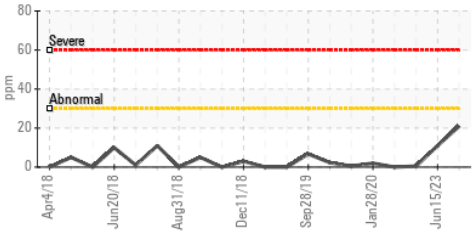
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **11.0**	13.3	▲ 12.3

GRAPHS

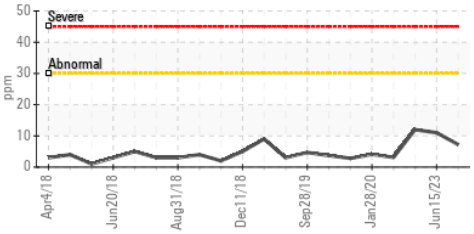
Iron (ppm)



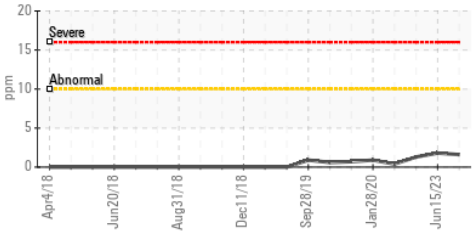
Lead (ppm)



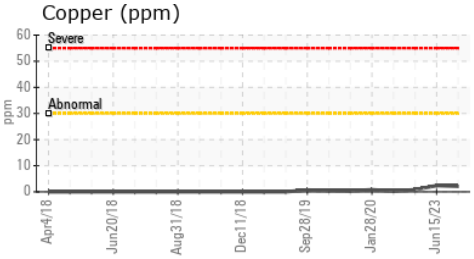
Aluminum (ppm)



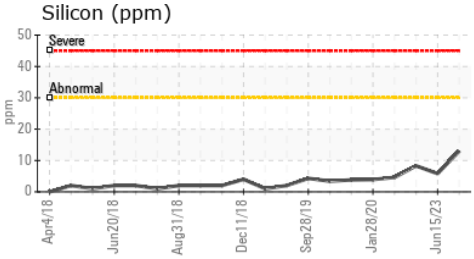
Chromium (ppm)



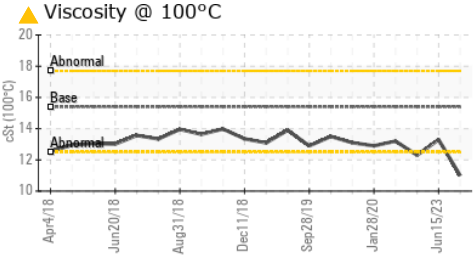
Copper (ppm)



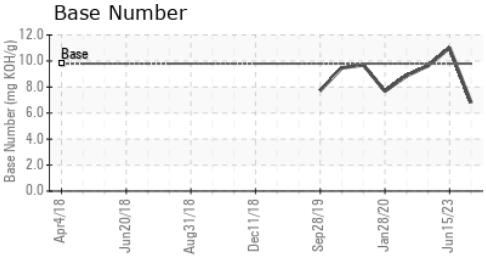
Silicon (ppm)



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0098696 **Received** : 05 Oct 2023
Lab Number : 05970517 **Diagnosed** : 09 Oct 2023
Unique Number : 10682467 **Diagnostician** : Angela Borella
Test Package : MOB 2 (Additional Tests: FuelDilution, 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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