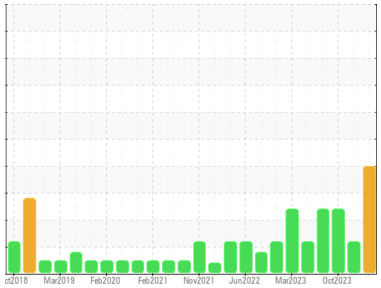
OIL ANALYSIS REPORT

OIL DIAGNOSTICS

Area
N.E.R./Off-Road
Machine Id
L821
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



FUEL

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. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

▲ Contamination
Elemental level of silicon (Si) above normal indicating ingress of seal material. There is a high amount of fuel present in the oil.

▲ Fluid Condition
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		**PCA0110061**	PCA0109816	PCA0104583
Sample Date		Client Info		**12 Mar 2024**	07 Nov 2023	18 Oct 2023
Machine Age	hrs	Client Info		**17186**	17186	17078
Oil Age	hrs	Client Info		**13782**	13890	14078
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	ABNORMAL	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**8**	<1	6
Chromium	ppm	ASTM D5185m	>20	**<1**	0	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	0	<1
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**2**	<1	2
Lead	ppm	ASTM D5185m	>40	**2**	0	1
Copper	ppm	ASTM D5185m	>330	**<1**	0	<1
Tin	ppm	ASTM D5185m	>15	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**2**	6	3
Barium	ppm	ASTM D5185m	0	**0**	2	0
Molybdenum	ppm	ASTM D5185m	60	**48**	53	58
Manganese	ppm	ASTM D5185m	0	**<1**	0	0
Magnesium	ppm	ASTM D5185m	1010	**700**	803	856
Calcium	ppm	ASTM D5185m	1070	**871**	870	1033
Phosphorus	ppm	ASTM D5185m	1150	**807**	951	1049
Zinc	ppm	ASTM D5185m	1270	**972**	1118	1178
Sulfur	ppm	ASTM D5185m	2060	**2523**	2744	3446

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **25**	3	4
Sodium	ppm	ASTM D5185m		**0**	<1	0
Potassium	ppm	ASTM D5185m	>20	**2**	<1	1
Fuel	%	ASTM D3524	>5	▲ **18.7**	▲ 6.4	▲ 10.3

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.3**	0.2	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**8.6**	5.8	7.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**18.6**	18.5	19.9

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.2**	15.3	18.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**7.69**	9.42	9.19

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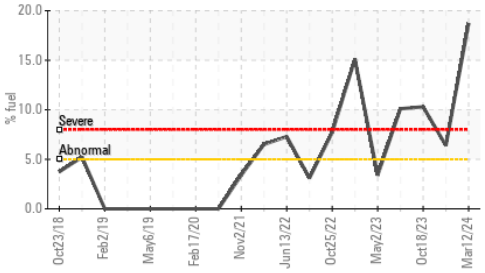
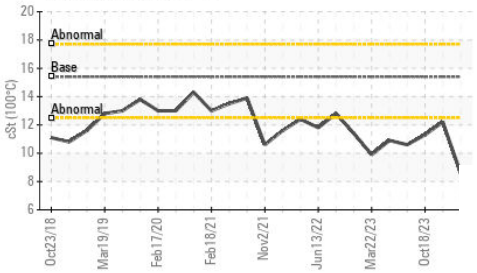
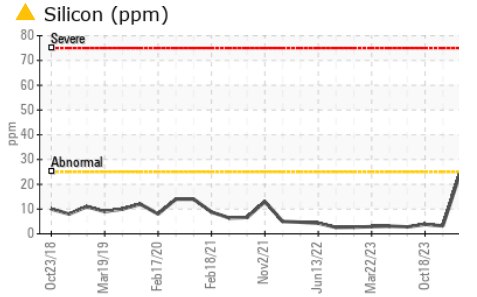
Fuel Dilution



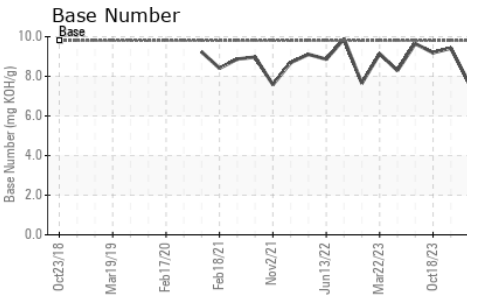
Viscosity @ 100°C



Silicon (ppm)



Base Number

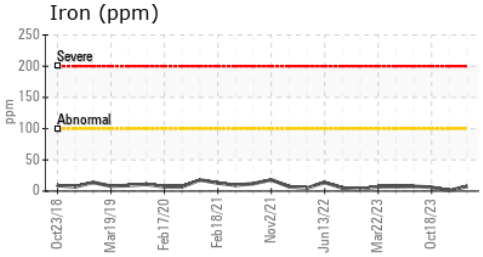


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

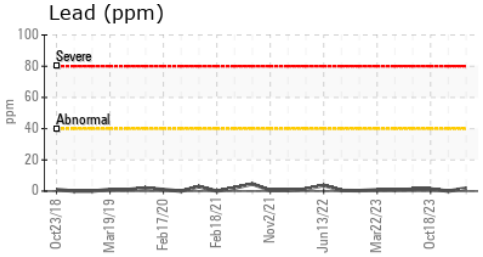
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **8.6**	▲ 12.2	▲ 11.3

GRAPHS

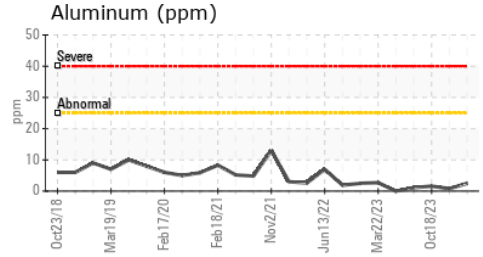
Iron (ppm)



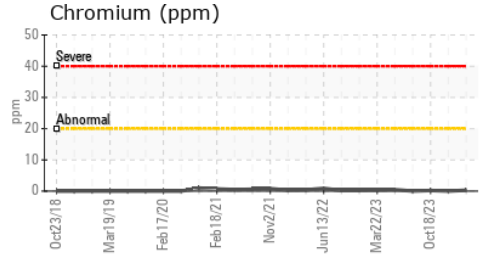
Lead (ppm)



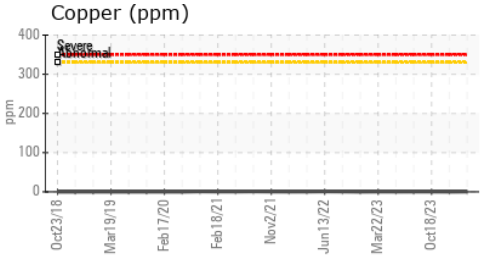
Aluminum (ppm)



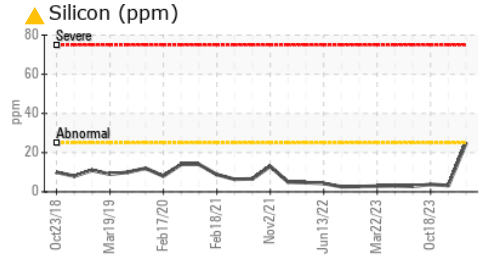
Chromium (ppm)



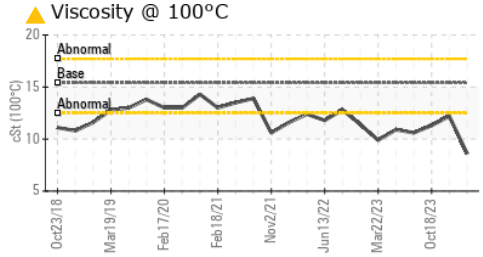
Copper (ppm)



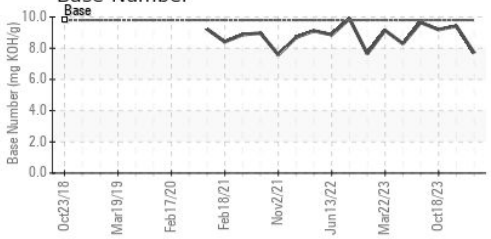
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0110061
Lab Number : 06118475
Unique Number : 10927308
Test Package : MOB 2 (Additional Tests: PercentFuel)

Received : 14 Mar 2024
Tested : 15 Mar 2024
Diagnosed : 18 Mar 2024 - Sean Felton

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: GLOTAU [WUSCAR] 06118475 (Generated: 03/18/2024 11:14:30) Rev: 1

Submitted By: MATT MANOLI