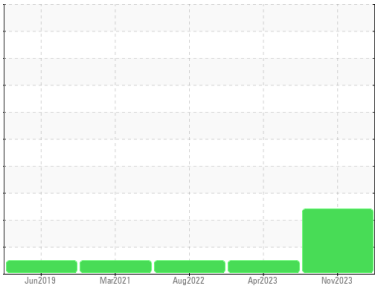
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
298266
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
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. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0099702**	PCA0091384	PCA0077021
Sample Date		Client Info		**14 Nov 2023**	01 Apr 2023	18 Aug 2022
Machine Age	mls	Client Info		**287988**	263175	228233
Oil Age	mls	Client Info		**20000**	20000	15000
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0
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	**18**	67	25
Chromium	ppm	ASTM D5185m	>20	**1**	2	<1
Nickel	ppm	ASTM D5185m	>4	**2**	<1	0
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ **8**	10	4
Lead	ppm	ASTM D5185m	>40	**6**	34	4
Copper	ppm	ASTM D5185m	>330	**22**	5	2
Tin	ppm	ASTM D5185m	>15	**2**	4	2
Antimony	ppm	ASTM D5185m		**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	**336**	9	8
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	50	**113**	117	76
Manganese	ppm	ASTM D5185m	0	**1**	2	<1
Magnesium	ppm	ASTM D5185m	950	**622**	1462	837
Calcium	ppm	ASTM D5185m	1050	**1532**	2195	1279
Phosphorus	ppm	ASTM D5185m	995	**800**	1693	1017
Zinc	ppm	ASTM D5185m	1180	**923**	2158	1222
Sulfur	ppm	ASTM D5185m	2600	**3003**	4813	3416

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **26**	12	5
Sodium	ppm	ASTM D5185m		**1**	15	6
Potassium	ppm	ASTM D5185m	>20	**4**	6	5

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**1.6**	2.6	1.9
Nitration	Abs/cm	*ASTM D7624	>20	**12.4**	16.8	15.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.4**	31.8	26.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**20.3**	31.0	23.7
Base Number (BN)	mg KOH/g	ASTM D2896		**6.8**	6.7	8.9

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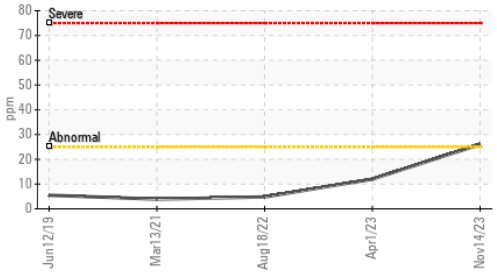
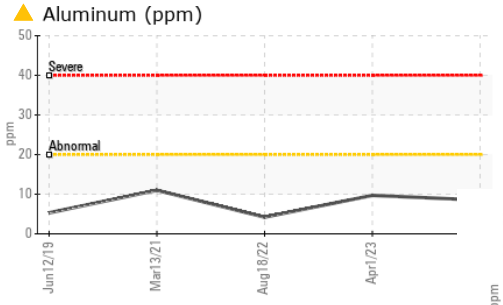
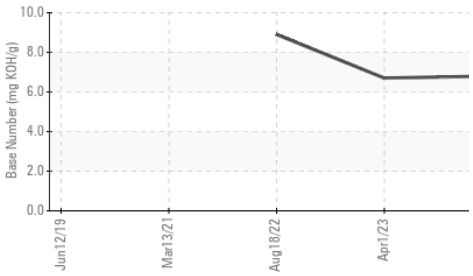
Silicon (ppm)



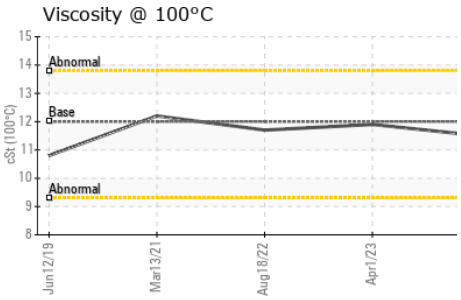
Aluminum (ppm)



Base Number



Viscosity @ 100°C

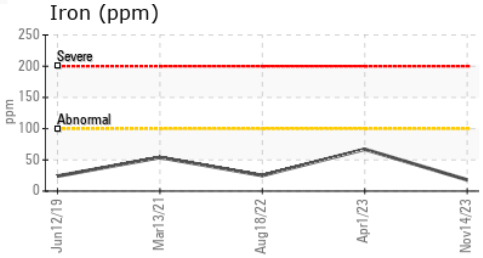


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

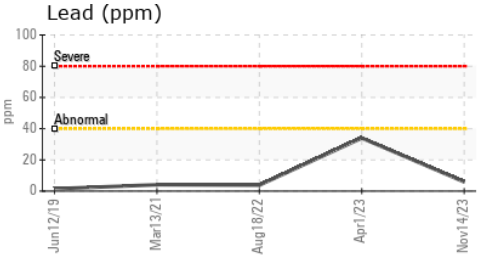
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	**11.5**	11.9	11.7

GRAPHS

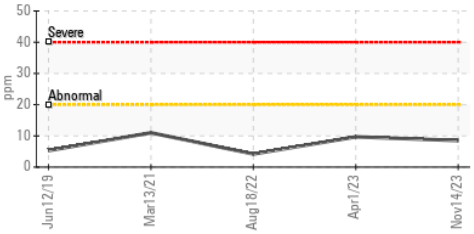
Iron (ppm)



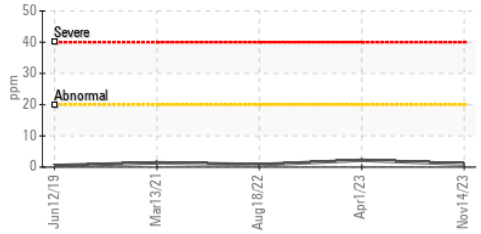
Lead (ppm)



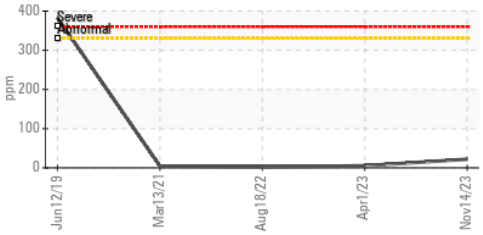
Aluminum (ppm)



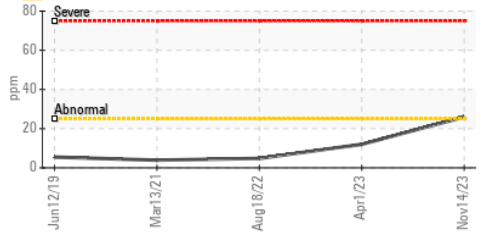
Chromium (ppm)



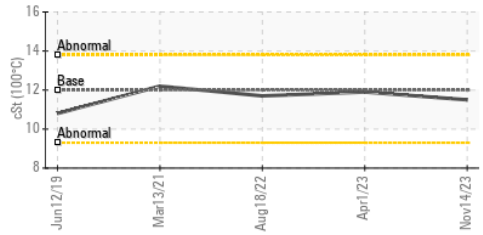
Copper (ppm)



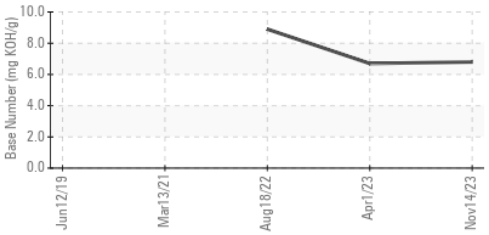
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0099702 **Received** : 07 Dec 2023
Lab Number : 06027328 **Diagnosed** : 11 Dec 2023
Unique Number : 10777119 **Diagnostician** : Jonathan Hester
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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