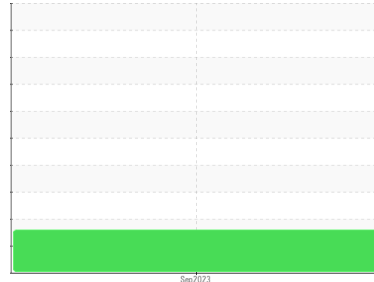


OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
735614

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

▲ Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear

The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. Elemental level of copper (Cu) probably due to leaching of copper from copper components (i.e. cooling core) by the oil additives. All other metal levels are typical for a new component breaking in.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components.

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		PCA0102914	---	---
Sample Date	Client Info		06 Sep 2023	---	---
Machine Age	mls	Client Info	76816	---	---
Oil Age	mls	Client Info	76816	---	---
Oil Changed	Client Info		Changed	---	---
Sample Status			ABNORMAL	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	---	---
Glycol	WC Method		NEG	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	▲ 211	---	---
Chromium	ppm	ASTM D5185m >20	13	---	---
Nickel	ppm	ASTM D5185m >4	4	---	---
Titanium	ppm	ASTM D5185m	<1	---	---
Silver	ppm	ASTM D5185m >3	0	---	---
Aluminum	ppm	ASTM D5185m >20	107	---	---
Lead	ppm	ASTM D5185m >40	<1	---	---
Copper	ppm	ASTM D5185m >330	▲ 421	---	---
Tin	ppm	ASTM D5185m >15	11	---	---
Vanadium	ppm	ASTM D5185m	<1	---	---
Cadmium	ppm	ASTM D5185m	0	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 2	26	---	---
Barium	ppm	ASTM D5185m 0	0	---	---
Molybdenum	ppm	ASTM D5185m 50	76	---	---
Manganese	ppm	ASTM D5185m 0	6	---	---
Magnesium	ppm	ASTM D5185m 950	757	---	---
Calcium	ppm	ASTM D5185m 1050	2868	---	---
Phosphorus	ppm	ASTM D5185m 995	1150	---	---
Zinc	ppm	ASTM D5185m 1180	1443	---	---
Sulfur	ppm	ASTM D5185m 2600	3279	---	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	17	---	---
Sodium	ppm	ASTM D5185m	10	---	---
Potassium	ppm	ASTM D5185m >20	284	---	---

INFRA-RED

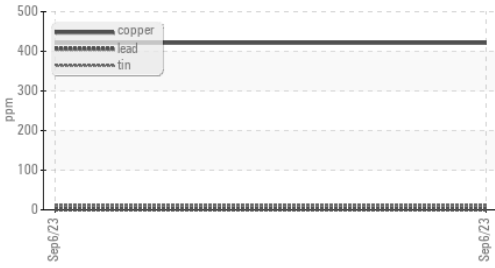
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	1.5	---	---
Nitration	Abs/cm	*ASTM D7624 >20	17.4	---	---
Sulfation	Abs./1mm	*ASTM D7415 >30	28.3	---	---

FLUID DEGRADATION

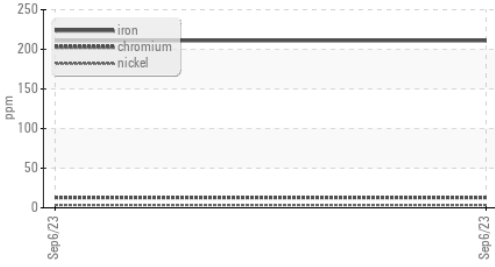
	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414 >25	36.4	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	4.5	---	---

OIL ANALYSIS REPORT

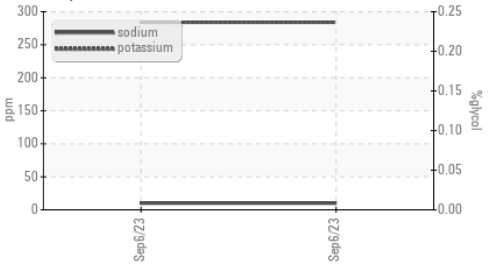
▲ Non-ferrous Metals



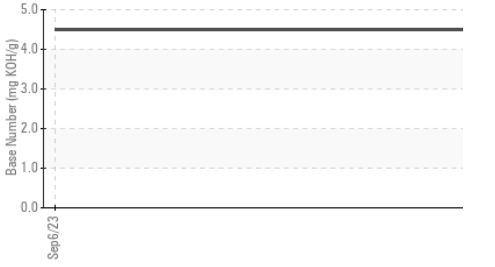
▲ Ferrous Alloys



Glycol Contamination



Base Number



Viscosity @ 100°C



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

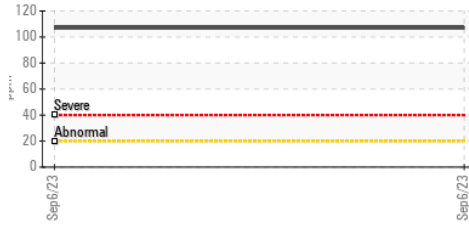
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.9	---

GRAPHS

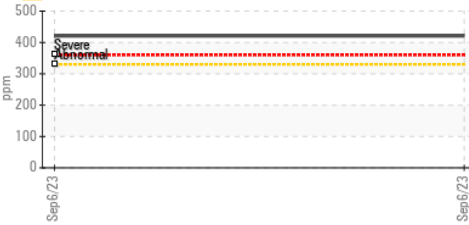
▲ Iron (ppm)



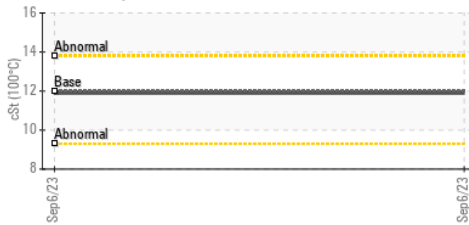
Aluminum (ppm)



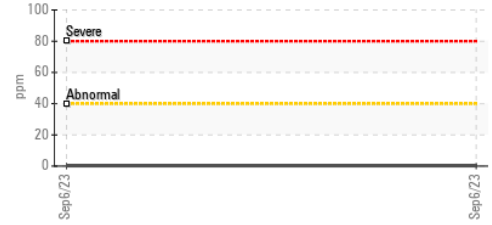
▲ Copper (ppm)



Viscosity @ 100°C



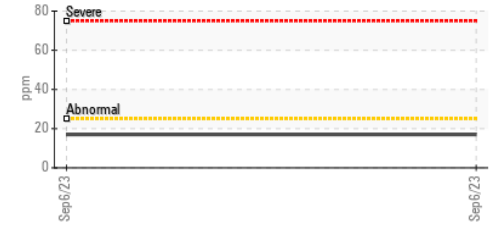
Lead (ppm)



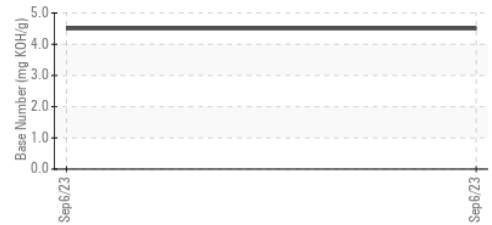
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0102914 **Received** : 19 Sep 2023
Lab Number : 05955159 **Diagnosed** : 21 Sep 2023
Unique Number : 10656372 **Diagnostician** : Don Baldrige
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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