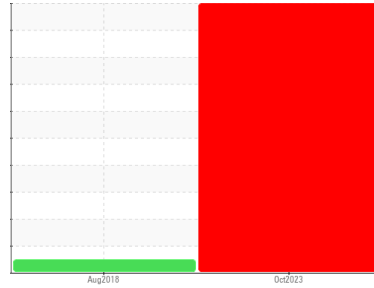


OIL ANALYSIS REPORT

Area
FUEL
Machine Id
331
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- GAL)

Sample Rating Trend



GLYCOL



DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

Aluminum ppm levels are severe. Piston wear is indicated.

Contamination

Test for glycol is positive. There is a high concentration of glycol present in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PCA0104665	PCA81118356	---
Sample Date	Client Info	27 Oct 2023	15 Aug 2018	---
Machine Age	mls	Client Info	90010	---
Oil Age	mls	Client Info	90010	---
Oil Changed	Client Info	N/A	N/A	---
Sample Status		SEVERE	NORMAL	---

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<1.0	<1.0	---

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >65	56	21	---
Chromium	ppm ASTM D5185m >5	3	1	---
Nickel	ppm ASTM D5185m >3	<1	0	---
Titanium	ppm ASTM D5185m >5	<1	---	---
Silver	ppm ASTM D5185m >2	0	0	---
Aluminum	ppm ASTM D5185m >35	69	14	---
Lead	ppm ASTM D5185m >10	0	0	---
Copper	ppm ASTM D5185m >180	4	18	---
Tin	ppm ASTM D5185m >8	<1	0	---
Antimony	ppm ASTM D5185m >35	---	0	---
Vanadium	ppm ASTM D5185m	<1	---	---
Cadmium	ppm ASTM D5185m	<1	0	---

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 2	4	3	---
Barium	ppm ASTM D5185m 0	1	0	---
Molybdenum	ppm ASTM D5185m 50	251	59	---
Manganese	ppm ASTM D5185m 0	<1	---	---
Magnesium	ppm ASTM D5185m 950	1420	893	---
Calcium	ppm ASTM D5185m 1050	1515	1088	---
Phosphorus	ppm ASTM D5185m 995	1530	968	---
Zinc	ppm ASTM D5185m 1180	1881	1146	---
Sulfur	ppm ASTM D5185m 2600	5249	2601	---

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >15	11	1	---
Sodium	ppm ASTM D5185m	2024	1	---
Potassium	ppm ASTM D5185m >20	2265	22	---
Glycol	% *ASTM D2982	0.20	NEG	---

INFRA-RED

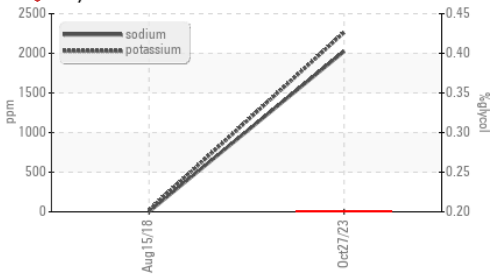
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	1.1	0.8	---
Nitration	Abs/cm *ASTM D7624 >20	15.3	---	---
Sulfation	Abs/.1mm *ASTM D7415 >30	23.3	---	---

FLUID DEGRADATION

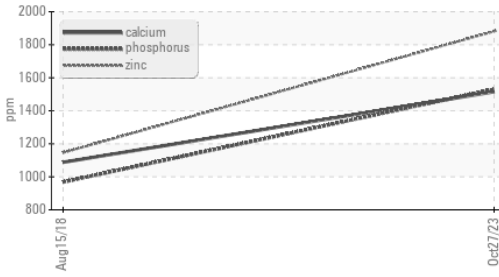
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	16.3	---	---
Base Number (BN)	mg KOH/g ASTM D2896	15.85	---	---

OIL ANALYSIS REPORT

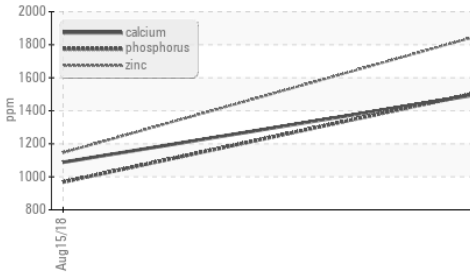
Glycol Contamination



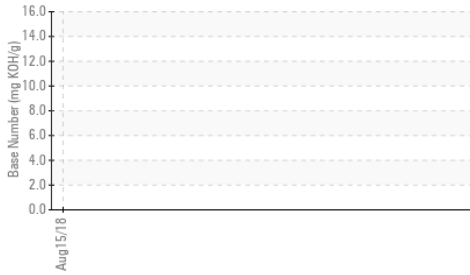
Additives



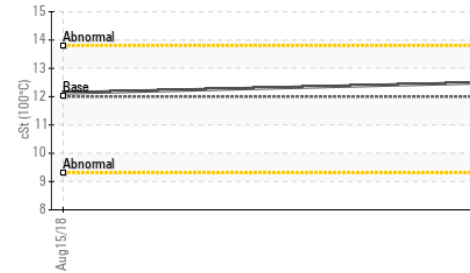
Additives



Base Number



Viscosity @ 100°C

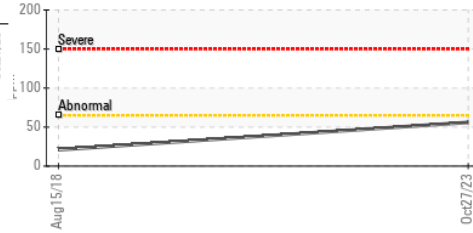


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar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

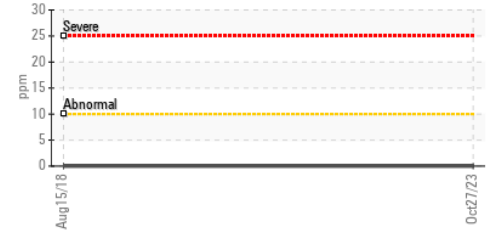
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	12.5	12.13

GRAPHS

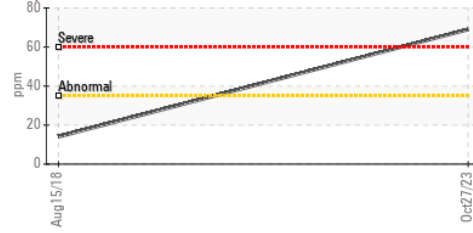
Iron (ppm)



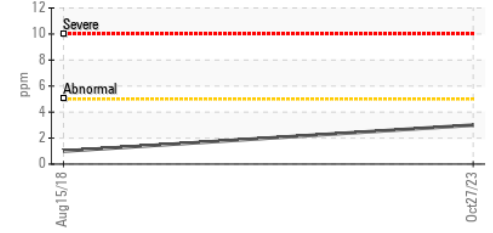
Lead (ppm)



Aluminum (ppm)



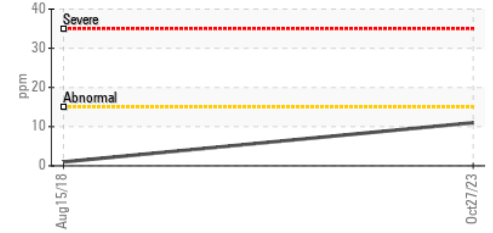
Chromium (ppm)



Copper (ppm)



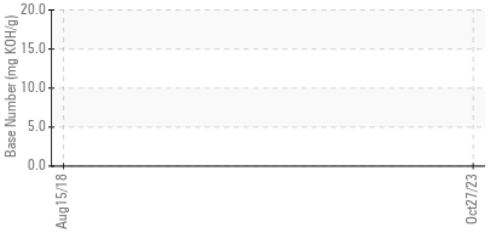
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0104665 **Received** : 01 Nov 2023
Lab Number : 05995875 **Diagnosed** : 03 Nov 2023
Unique Number : 10724235 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: Glycol)

DENNIS K BURKE INC - INTERNAL SAMPLES
 555 CONSTITUTION DR
 TAUNTON, MA
 US 02780
 Contact: GREG DUNKER

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)

T:
F: (617)889-6422