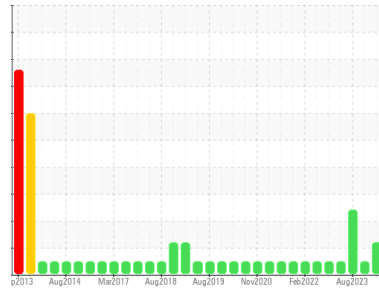


OIL ANALYSIS REPORT



Area
N.E.R./Off-Road
Machine Id
L86
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



FUEL



DIAGNOSIS

Recommendation

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

There is a moderate amount of fuel 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	PCA0122477	PCA0109654	PCA0098471
Sample Date	Client Info	18 Jun 2024	09 Jan 2024	07 Aug 2023
Machine Age	mls	106810	106810	16427
Oil Age	mls	14458	14458	14458
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	NORMAL	ABNORMAL

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	17	8	14
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>25	<1	2	0
Lead	ppm	ASTM D5185m	>40	0	2	9
Copper	ppm	ASTM D5185m	>330	21	38	33
Tin	ppm	ASTM D5185m	>15	0	0	1
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	0	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	59	59	70
Manganese	ppm	ASTM D5185m	0	<1	<1	2
Magnesium	ppm	ASTM D5185m	1010	957	959	819
Calcium	ppm	ASTM D5185m	1070	1130	1019	905
Phosphorus	ppm	ASTM D5185m	1150	1049	1042	914
Zinc	ppm	ASTM D5185m	1270	1278	1316	1134
Sulfur	ppm	ASTM D5185m	2060	3566	3285	3471

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>25	4	3	4
Sodium	ppm	ASTM D5185m		5	19	▲ 129
Potassium	ppm	ASTM D5185m	>20	3	20	▲ 147
Fuel	%	ASTM D3524	>5	▲ 5.5	<1.0	<1.0

INFRA-RED

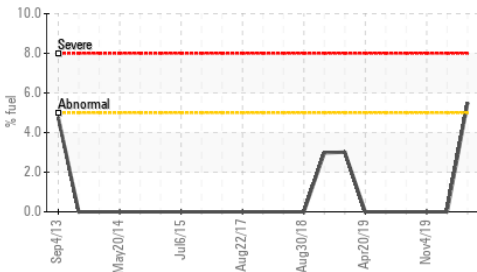
method	limit/base	current	history1	history2		
Soot %	%	*ASTM D7844	>3	0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	7.6	7.5	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.8	20.1	19.9

FLUID DEGRADATION

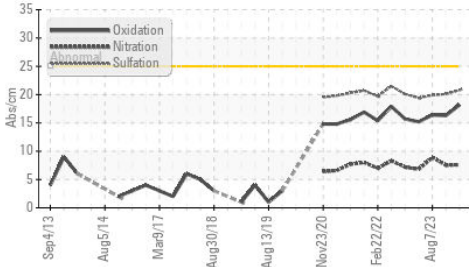
method	limit/base	current	history1	history2		
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.2	16.3	16.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.78	10.56	10.67

OIL ANALYSIS REPORT

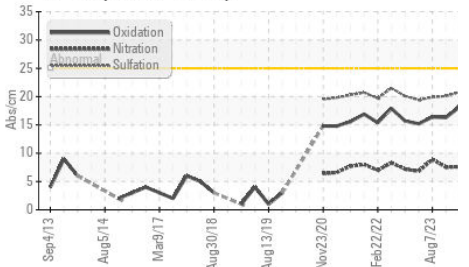
▲ Fuel Dilution



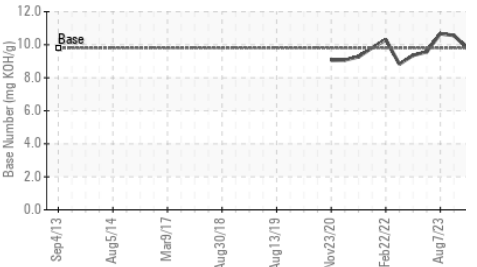
● FT-IR (Direct Trend)



● FT-IR (Direct Trend)



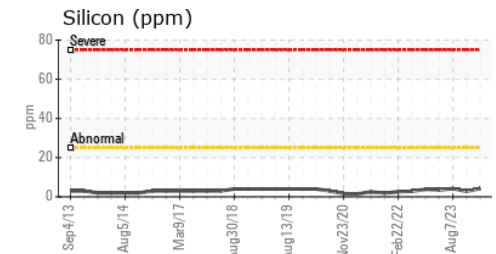
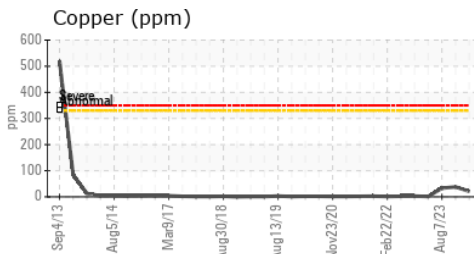
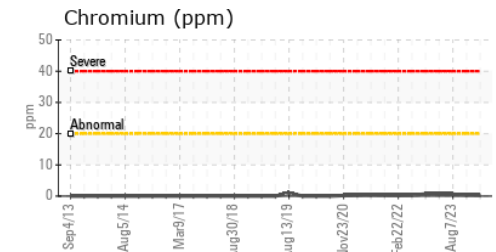
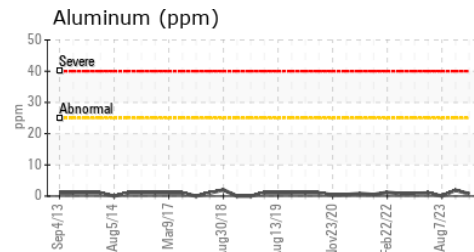
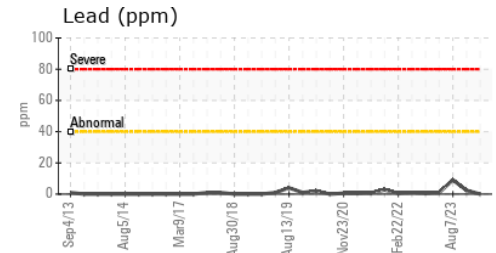
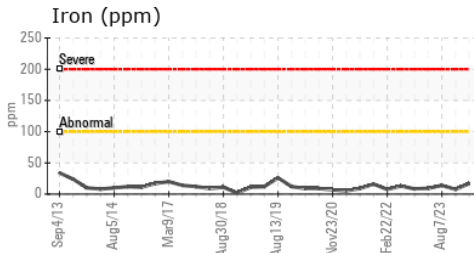
Base Number



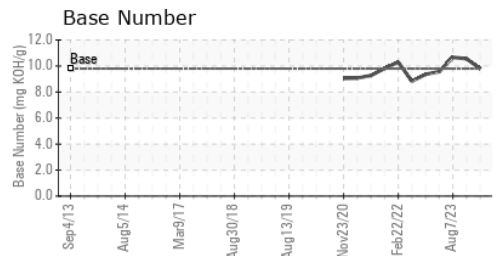
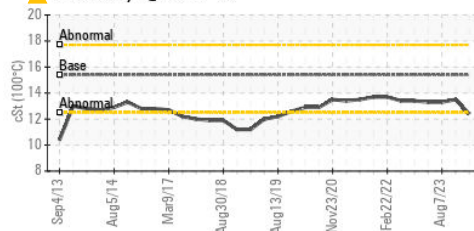
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4 ▲ 12.4	13.5	13.3

GRAPHS



▲ Viscosity @ 100°C



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0122477 **Received** : 20 Jun 2024
Lab Number : **06215930** **Tested** : 24 Jun 2024
Unique Number : 11088794 **Diagnosed** : 24 Jun 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

G LOPES CONSTRUCTION
 565 WINTHROP ST
 TAUNTON, MA
 US 02780
 Contact: BUTCH MCGRATH
 bmcgrath@glopes.com

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: