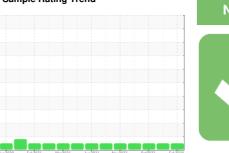


OIL ANALYSIS REPORT

Sample Rating Trend









823001-121

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

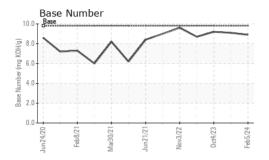
Fluid Condition

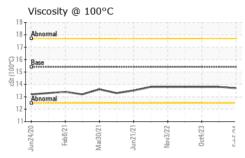
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Oil Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	hrs hrs	Client Info Client Info Client Info Client Info Client Info Client Info Method WC Method WC Method WC Method WC Method MC Method MSTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>5 >2 >2 >2 >20 >40	current GFL0108272 05 Feb 2024 27668 19913 Changed NORMAL current <1.0 NEG NEG current 22 <1 3 0 0 8 0 8 0	history1 GFL0098222 12 Dec 2023 27650 20100 N/A NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	history2 GFL008387 04 Oct 2023 27445 27445 N/A NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0 3
Sample Date Machine Age Oil Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info Client Info Client Info MC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	05 Feb 2024 27668 19913 Changed NORMAL	12 Dec 2023 27650 20100 N/A NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0	04 Oct 2023 27445 27445 N/A NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0
Machine Age Oil Age Oil Age Oil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info Client Info method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	27668 19913 Changed NORMAL current <1.0 NEG NEG current 22 <1 3 0 0 8 0	27650 20100 N/A NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	27445 27445 N/A NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0
Oil Age Oil Changed Sample Status CONTAMINATION Fuel Water Glycol WEAR METALS Fron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Client Info Client Info Client Info method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	19913 Changed NORMAL current <1.0 NEG NEG current 22 <1 3 0 0 8 0	20100 N/A NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	27445 N/A NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0 3
Dil Changed Sample Status CONTAMINATIO Fuel Water Glycol WEAR METALS fron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method WC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	Changed NORMAL current <1.0 NEG NEG current 22 <1 3 0 0 8 0	N/A NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	N/A NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0 3
CONTAMINATION Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method WC Method WC Method WC Method WC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	verified as a contract of the	NORMAL history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	NORMAL history2 <1.0 NEG NEG history2 6 <1 <1 <1 0 3
CONTAMINATIO Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method WC Method MC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	current <1.0 NEG NEG current 22 <1 3 0 0 8 0	history1 <1.0 NEG NEG history1 18 <1 2 0 0 7	history2 <1.0 NEG NEG history2 6 <1 <1 <1 0 3
Fuel Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method WC Method MC Method ASTM D5185m	>3.0 >0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	<1.0 NEG NEG Current 22 <1 3 0 0 8 0	<1.0 NEG NEG history1 18 <1 2 0 0 7	<1.0 NEG NEG history2 6 <1 <1 <1 0 3
Water Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	WC Method WC Method method ASTM D5185m	>0.2 limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	NEG NEG current 22 <1 3 0 0 8	NEG NEG history1 18 <1 2 0 0	NEG NEG history2 6 <1 <1 <1 0
Glycol WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	MC Method method ASTM D5185m	limit/base >120 >20 >5 >2 >2 >2 >2 >40 >330	verified to the second	NEG history1 18 <1 2 0 7	NEG history2 6 <1 <1 <1 0 3
WEAR METALS Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	>120 >20 >5 >2 >2 >2 >2 >20 >40 >330	current 22 <1 3 0 0 8 0	history1 18 <1 2 0 7	history2 6 <1 <1 <1 0 3
Iron Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>120 >20 >5 >2 >2 >2 >2 >20 >40 >330	22 <1 3 0 0 8	18 <1 2 0 0 7	6 <1 <1 <1 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0 <0
Chromium Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >5 >2 >2 >2 >20 >40 >330	<1 3 0 0 8 0	<1 2 0 0 7	<1 <1 <1 0
Nickel Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>5 >2 >2 >2 >20 >40 >330	3 0 0 8 0	2 0 0 7	<1 <1 0 3
Titanium Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2 >2 >20 >40 >330	0 0 8 0	0 0 7	<1 0 3
Silver Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>2 >20 >40 >330	0 8 0	0 7	0
Aluminum Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >40 >330	8 0	7	3
Lead Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>40 >330	0		
Copper Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm	ASTM D5185m ASTM D5185m	>330	-	0	0
Tin Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm	ASTM D5185m				0
Vanadium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm		>15	<1	0	<1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur		ASTM D5185m		<1	<1	<1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm			0	0	<1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur		ASTM D5185m		0	0	0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur		method	limit/base	current	history1	history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185m	0	15	15	9
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185m	0	0	0	0
Magnesium Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185m	60	56	55	55
Calcium Phosphorus Zinc Sulfur	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus Zinc Sulfur	ppm	ASTM D5185m	1010	876	903	935
Zinc Sulfur	ppm	ASTM D5185m	1070	950	1042	1016
Sulfur	ppm	ASTM D5185m	1150	989	1030	1000
	ppm	ASTM D5185m	1270	1188	1251	1223
CONTAMINANT	ppm	ASTM D5185m	2060	2953	3217	3067
CONTAININAIN	ΓS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	11	10	8
Sodium	ppm	ASTM D5185m		2	0	1
Potassium	ppm	ASTM D5185m	>20	4	4	5
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>4	0.5	0.4	0.1
Nitration		*ASTM D7624	>20	6.2	6.1	4.9
Sulfation	Abs/cm	*ASTM D7415	>30	17.9	17.5	16.7
FLUID DEGRADA	Abs/cm Abs/.1mm				history1	history2
Oxidation	Abs/.1mm	method	limit/base	current	HISTOLAL	,
Base Number (BN)	Abs/.1mm	method *ASTM D7414	limit/base >25	current 13.1	13.1	12.5



OIL ANALYSIS REPORT

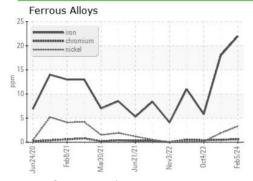


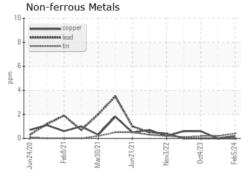


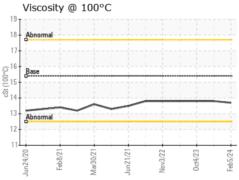
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

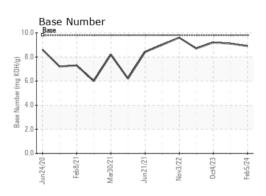
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.8	13.8

GRAPHS













Certificate L2367

Laboratory Sample No.

Test Package : FLEET

: GFL0108272 Lab Number : 06083027 Unique Number : 10870472

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 07 Feb 2024 **Tested** : 08 Feb 2024

Diagnosed : 08 Feb 2024 - Wes Davis

GFL Environmental - 652 - Fredericksburg Hauling

10954 Houser Drive Fredericksburg, VA US 22408

Contact: WILLIAM MILO wmilo@gflenv.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: