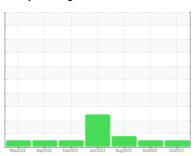


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
4626M
Component
Diesel Engine
Fluid

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

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil

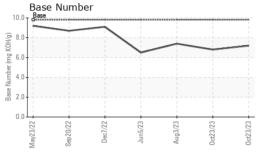
## **Fluid Condition**

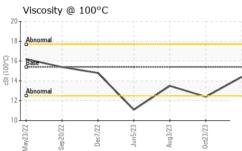
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
	VIATION		IIIIIIIIIII		•	,
Sample Number		Client Info		GFL0097711	GFL0097653	GFL0087327
Sample Date		Client Info		23 Oct 2023	23 Oct 2023	03 Aug 2023
Machine Age	hrs	Client Info		20173	20173	19493
Oil Age	hrs	Client Info		680	680	525
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL		ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<b>▲</b> 3.7
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	28	28	27
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	2
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	1	1	1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1	history2
	ppm					
Boron Barium		ASTM D5185m	0	<1	3	4
Boron	ppm	ASTM D5185m ASTM D5185m	0	<1 0	3	4
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 62	3 0 51	4 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 62 <1	3 0 51 <1	4 0 55 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 0 62 <1 1034	3 0 51 <1 839	4 0 55 1 891
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 0 62 <1 1034 1158	3 0 51 <1 839 990	4 0 55 1 891 1168
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	<1 0 62 <1 1034 1158 1069	3 0 51 <1 839 990 917	4 0 55 1 891 1168 942
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	0 0 60 0 1010 1070 1150	<1 0 62 <1 1034 1158 1069	3 0 51 <1 839 990 917 1143	4 0 55 1 891 1168 942 1243
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 62 <1 1034 1158 1069 1363 2970	3 0 51 <1 839 990 917 1143 2549	4 0 55 1 891 1168 942 1243 3277
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	<1 0 62 <1 1034 1158 1069 1363 2970	3 0 51 <1 839 990 917 1143 2549 history1	4 0 55 1 891 1168 942 1243 3277 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970 current	3 0 51 <1 839 990 917 1143 2549 history1	4 0 55 1 891 1168 942 1243 3277 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970 current 5	3 0 51 <1 839 990 917 1143 2549 history1 6 5	4 0 55 1 891 1168 942 1243 3277 history2 8 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 0 62 <1 1034 1158 1069 1363 2970 current 5 8 0	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m  Method  *ASTM D5185m  ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970 current 5 8 0 current	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6 history1 0.8	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970 current 5 8 0 current 0.9 10.3	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6 history1 0.8 10.6	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1 history2 0.6 9.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	<1 0 62 <1 1034 1158 1069 1363 2970	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6 history1 0.8 10.6 21.5	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1 history2 0.6 9.9 20.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m  Method  ASTM D5185m  Method  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970 current 5 8 0 current 0.9 10.3 22.1 current	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6 history1 0.8 10.6 21.5 history1	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1 history2 0.6 9.9 20.5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	<1 0 62 <1 1034 1158 1069 1363 2970	3 0 51 <1 839 990 917 1143 2549 history1 6 5 6 history1 0.8 10.6 21.5	4 0 55 1 891 1168 942 1243 3277 history2 8 10 1 history2 0.6 9.9 20.5



## **OIL ANALYSIS REPORT**

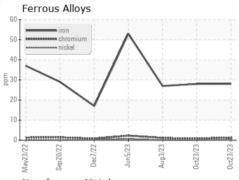


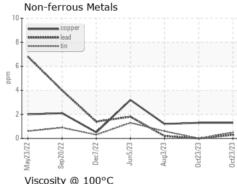


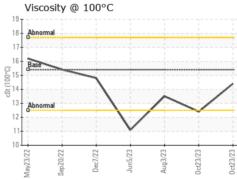
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

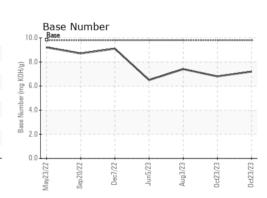
FLUID PROPE	EKIIES	method	ilmivbase		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	12.4	13.5

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10743121

: GFL0097711 : 06009359

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 16 Nov 2023 Diagnosed : 16 Nov 2023 Diagnostician : Wes Davis

GFL Environmental - 405 - Arbor Hills

7400 Napier Rd NORTHVILLE, MI US 48168 Contact: John Nahal

jnahal@gflenv.com

T: F:

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)