

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 413006

Fluid

Component Diesel Engine

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

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.

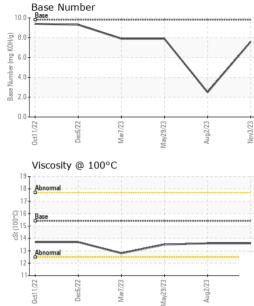
Fluid Condition

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

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SAMPLE INFORM	MATION		limit/base	current	history1	history2
Sample Number		Client Info		GFL0072180	GFL0072198	GFL0072201
Sample Date		Client Info		03 Nov 2023	02 Aug 2023	29 May 2023
Machine Age	hrs	Client Info		3049	2431	1950
Oil Age	hrs	Client Info		0	600	600
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	12	8	10
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	2
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	<1	<1
Aluminum	ppm	ASTM D5185m		3	4	6
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	59	3	6
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	5	7
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	0	<1 0	5 0	7 0
Barium	ppm					
	ppm ppm	ASTM D5185m ASTM D5185m	0 60	0	0	0
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m	0 60	0 65	0 61	0 62
Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 65 0	0 61 <1	0 62 <1
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 65 0 965	0 61 <1 942	0 62 <1 951
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 65 0 965 1100	0 61 <1 942 1106	0 62 <1 951 1092
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 65 0 965 1100 987	0 61 <1 942 1106 993	0 62 <1 951 1092 1059
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	0 60 0 1010 1070 1150 1270	0 65 0 965 1100 987 1255	0 61 <1 942 1106 993 1234	0 62 <1 951 1092 1059 1328
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	0 65 0 965 1100 987 1255 2882	0 61 <1 942 1106 993 1234 3408	0 62 <1 951 1092 1059 1328 3266
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base	0 65 0 965 1100 987 1255 2882 current	0 61 <1 942 1106 993 1234 3408 history1	0 62 <1 951 1092 1059 1328 3266 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 65 0 965 1100 987 1255 2882 current 6	0 61 <1 942 1106 993 1234 3408 history1 4	0 62 <1 951 1092 1059 1328 3266 history2 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 65 0 965 1100 987 1255 2882 <u>current</u> 6 <	0 61 <1 942 1106 993 1234 3408 history1 4 3 9	0 62 <1 951 1092 1059 1328 3266 history2 4 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 65 0 965 1100 987 1255 2882 current 6 <1 9 current	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4	0 65 0 965 1100 987 1255 2882 <u>current</u> 6 <1 9 <u>current</u> 0.4	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 11 history2 0.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm t t t ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	0 65 0 965 1100 987 1255 2882 <u>current</u> 6 <1 9 <u>current</u> 0.4 8.3	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2 4.8	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 history2 0.4 7.8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm t ppm ppm pp	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20 limit/base >20	0 65 0 965 1100 987 1255 2882 <u>current</u> 6 <1 9 <u>current</u> 0.4 8.3 19.9	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2 4.8 10.0	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 history2 0.4 7.8 19.6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 0 1010 1070 1150 1270 2060 limit/base >25 	0 65 0 965 1100 987 1255 2882 current 6 <1 9 current 0.4 8.3 19.9 current	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2 4.8 10.0 history1	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 history2 0.4 7.8 19.6 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm rts ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 1010 1070 1150 1270 2060 imit/base >25 	0 65 0 965 1100 987 1255 2882 <u>current</u> 6 <1 9 <u>current</u> 0.4 8.3 19.9 <u>current</u> 16.1	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2 4.8 10.0 history1 9.4	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 history2 0.4 7.8 19.6 history2 15.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 60 1010 1070 1150 1270 2060 imit/base >25 	0 65 0 965 1100 987 1255 2882 current 6 <1 9 current 0.4 8.3 19.9 current	0 61 <1 942 1106 993 1234 3408 history1 4 3 9 history1 0.2 4.8 10.0 history1	0 62 <1 951 1092 1059 1328 3266 history2 4 3 11 11 history2 0.4 7.8 19.6 history2



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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.6	13.5
GRAPHS Ferrous Alloys						
GRAPHS Ferrous Alloys		Aug2/23	Nova223			
GRAPHS Ferrous Alloys	≥					
GRAPHS Ferrous Alloys	≥					

Ig2/23

Aug2/23 -

Nov3/23

Nov3/23 -

: 08 Nov 2023

: 09 Nov 2023

10.0 Base

8. (mg KOH/g)

6 (

0.0

0ct11/22

umber 4 (Base

Base Number

Dec6/22



: 10735888 Unique Number Diagnostician : Wes Davis Test Package : FLEET Contact: WILLIAM FOSTER Certificate L2367 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)

Mar7/23 -

Mar7/23

Viscosity @ 100°C

Dec6/22 -

Aav29/23

May29/23

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received

Diagnosed

10

19

18 17

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13 Abnorma 12 11-

Laboratory Sample No.

Lab Number

B

0ct11/22

: GFL0072180

: 06002126

0ct11/22

T: (800)207-6618 F:

Mav29/23

GFL Environmental - 094 - Cedartown

Mar7/23 -

william.foster@gflenv.com

Aug2/23 -

Cedartown, GA

US 30125

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2097 Buchanan Highway

Nov3/23