

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 911018-1377

Component Diesel Engine

Fluid 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.

		Apr2021	Sep2021 Feb2022	Jul2022 Jan2023	Aug2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0090500	GFL0083939	GFL0071404
Sample Date		Client Info		14 Aug 2023	01 Jun 2023	17 Jan 2023
Machine Age	hrs	Client Info		8024	7430	5817
Oil Age	hrs	Client Info		600	588	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	10	17	7
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	1	<1
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current 3	history1 3	history2 0
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	3	3	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	3 2	3 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 2 65	3 0 62	0 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 2 65 <1	3 0 62 0	0 0 60 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 2 65 <1 934	3 0 62 0 963	0 0 60 <1 889
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	3 2 65 <1 934 1103	3 0 62 0 963 1172	0 0 60 <1 889 1042
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	0 0 60 0 1010 1070 1150	3 2 65 <1 934 1103 999	3 0 62 0 963 1172 995	0 0 60 <1 889 1042 925
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	0 0 60 0 1010 1070 1150 1270	3 2 65 <1 934 1103 999 1199	3 0 62 0 963 1172 995 1275	0 0 60 <1 889 1042 925 1135
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	3 2 65 <1 934 1103 999 1199 3029	3 0 62 0 963 1172 995 1275 3475	0 0 60 <1 889 1042 925 1135 3275
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 2 65 <1 934 1103 999 1199 3029 current	3 0 62 0 963 1172 995 1275 3475 history1	0 0 60 <1 889 1042 925 1135 3275 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 1010 1070 1150 1270 2060 imit/base >25	3 2 65 <1 934 1103 999 1199 3029 current 3	3 0 62 0 963 1172 995 1275 3475 history1 2	0 0 60 <1 889 1042 925 1135 3275 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	3 2 65 <1 934 1103 999 1199 3029 current 3 2	3 0 62 0 963 1172 995 1275 3475 history1 2 3	0 0 60 <1 889 1042 925 1135 3275 history2 2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	3 2 65 <1 934 1103 999 1199 3029 current 3 2 2	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25	3 2 65 <1 934 1103 999 1199 3029 current 3 2 2 2	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2 3 2 history1	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 0 0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	3 2 65 <1 934 1103 999 1199 3029 <u>current</u> 3 2 2 2 <u>current</u> 0.8	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2 3 2 history1 1.5	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 0 history2 1.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	3 2 65 <1 934 1103 999 1199 3029 current 3 2 2 2 current 0.8 7.8	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2 3 2 history1 1.5 9.5	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 0 history2 1.1 8.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	3 2 65 <1 934 1103 999 1199 3029 <u>current</u> 3 2 2 2 <u>current</u> 0.8 7.8 19.9	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2 3 2 history1 1.5 9.5 22.3	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 0 <i>history2</i> 1.1 8.4 20.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	3 2 65 <1 934 1103 999 1199 3029 current 3 2 2 2 current 0.8 7.8 19.9 current	3 0 62 0 963 1172 995 1275 3475 history1 2 3 2 history1 1.5 9.5 22.3 history1	0 0 60 <1 889 1042 925 1135 3275 history2 2 1 1 0 history2 1.1 8.4 20.2 history2

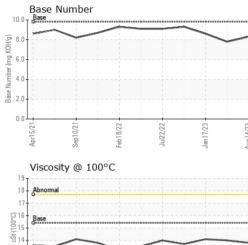


13 Abnorma 12 11 IZ/SIJudy

Sep10/21.

OIL ANALYSIS REPORT

VISUAL



Feb18/22

Jan17/23

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	history
Visc @ 100°C	cSt	ASTM D445	15.4	13.8	14.0	14.1
GRAPHS						
Ferrous Alloys						
5 - iron						
0 - mickel						
5						
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5	~	_ /				
5-		\sim				
0 hastered and the second to t		ر م	~			
Apr15/21 Sep10/21 Feb18/22	Jul22/22	Jan 17/23	Aug14/23			
∞ س Non-ferrous Metal		Ļ	Aı			
O copper						
8 - copper						
6-						
4						
2-						
0	AND IN COLUMN	Translation of the local division of the loc	10000100			
Apr15/21. Sep10/21-	Jul22/22 -	Jan 17/23 -	Aug14/23 -			
Apr Sep	Jul2	Jan 1	Aug1			
Viscosity @ 100°C				Base Number		
			10.0	Base		
				\sim		
8 - Abnormal 7-						
8 - Abnormal						

Base

Aug14/23 -

: 28 Aug 2023

: 29 Aug 2023

2 (

0.0

Apr15/21.

Sep10/21

Feb18/22



 Certificate 12367
 Test Package
 : FLEET

 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)

Feb18/22

Jul22/22 .

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

Received

Diagnosed

Jan17/23 -

Diagnostician : Wes Davis

13

12.

Laboratory

Sample No.

Lab Number

Unique Number : 10621796

Apr15/21.

Abnormal

: GFL0090500

: 05936525

Sep10/21

Aug14/23 -

Submitted By: TECHNICIAN ACCOUNT

GFL Environmental - 622 - Traverse City Hauling

Jan17/23 -

160 Hughes Dr

US 49686

Traverse City, MI

Contact: GARY BREWER

T: F: