

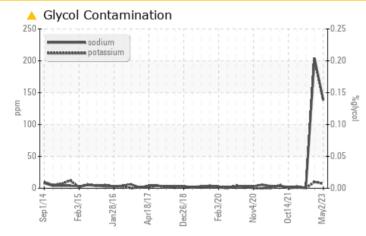
### **PROBLEM SUMMARY**

# FREIGHTLINER 10548

**Diesel Engine** 

Fluid PETRO CANADA DURON SHP 15W40 (6 GAL)

### COMPONENT CONDITION SUMMARY



#### RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS									
Sample Status				ATTENTION	ABNORMAL	NORMAL			
Sodium	ppm	ASTM D5185m		<u> </u>	<b>2</b> 04	1			

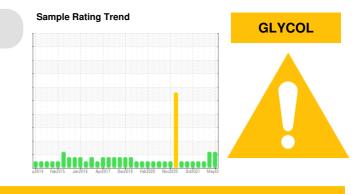
Customer Id: GFL331 Sample No.: GFL0071823 Lab Number: 05836337 Test Package: FLEET



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*To discuss the diagnosis or test data:* Jonathan Hester +1 919-379-4092 x4092 <u>jhester@wearcheckusa.com</u>

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>



RECOMMENDE	ACTION	S		
Action	Status	Date	Done By	Description
Other Action (see Note)	DONE	May 15 2023	?	No recommended actions

#### HISTORICAL DIAGNOSIS

### 13 Jan 2023 Diag: Jonathan Hester



We advise that you check for possible coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.All component wear rates are normal. Sodium and/or potassium levels are high. The BN result indicates that there is suitable alkalinity remaining in the oil.



view report

#### 26 Jul 2022 Diag: Wes Davis



Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

NORMAL



#### 26 Jan 2022 Diag: Wes Davis

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





### **OIL ANALYSIS REPORT**

Sample Rating Trend

GLYCOL

#### Machine Id FREIGHTLINER 10548 Component

**Diesel Engine** 

Fluid PETRO CANADA DURON SHP 15W40 (6 GAL)

#### DIAGNOSIS

#### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

Sodium and/or potassium levels are high. Test for glycol is negative.

#### Fluid Condition

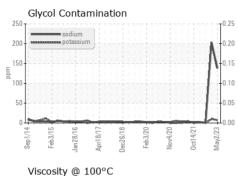
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

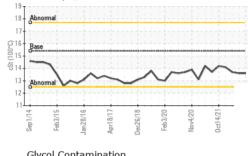
								.1
1.1								
						4.1		
1								
10.00								
1.1.1								
1000								

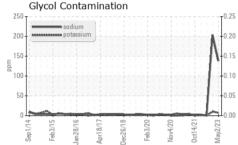
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0071823	GFL0052803	GFL0052770
Sample Date		Client Info		02 May 2023	13 Jan 2023	26 Jul 2022
Machine Age	hrs	Client Info		28227	28149	27652
Oil Age	hrs	Client Info		1093	1015	518
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				ATTENTION	ABNORMAL	NORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	11	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>50	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>50	4	4	3
Lead	ppm	ASTM D5185m	>40	0	3	1
Copper	ppm	ASTM D5185m	>330	2	3	1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 15	history1 14	history2 6
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	0	15	14	6
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	15 0	14 0	6 0
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	15 0 65	14 0 66	6 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	15 0 65 <1	14 0 66 <1	6 0 55 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	15 0 65 <1 939	14 0 66 <1 895	6 0 55 <1 848
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	15 0 65 <1 939 1135	14 0 66 <1 895 1134	6 0 55 <1 848 1096
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150	15 0 65 <1 939 1135 1083	14 0 66 <1 895 1134 983	6 0 55 <1 848 1096 927
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	15 0 65 <1 939 1135 1083 1339	14 0 66 <1 895 1134 983 1220	6 0 55 <1 848 1096 927 1159
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	15 0 65 <1 939 1135 1083 1339 3996	14 0 66 <1 895 1134 983 1220 3495	6 0 55 <1 848 1096 927 1159 3366
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	0 0 60 1010 1070 1150 1270 2060	15 0 65 <1 939 1135 1083 1339 3996 current 7	14 0 66 <1 895 1134 983 1220 3495 history1	6 0 55 <1 848 1096 927 1159 3366 history2
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	15 0 65 <1 939 1135 1083 1339 3996 current	14 0 66 <1 895 1134 983 1220 3495 history1 7	6 0 55 <1 848 1096 927 1159 3366 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 <b>method</b> ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base >25	15 0 65 <1 939 1135 1083 1339 3996 <u>current</u> 7 ∧ 138	14 0 66 <1 895 1134 983 1220 3495 history1 7 7 ▲ 204	6 0 55 <1 848 1096 927 1159 3366 history2 3 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 Iimit/base >25	15 0 65 <1 939 1135 1083 1339 3996 <u>current</u> 7 ∧ 138 7	14 0 66 <1 895 1134 983 1220 3495 history1 7 ^ 204 10	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	15 0 65 <1 939 1135 1083 1339 3996 current 7 138 7 138 7 NEG	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG history1	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAM Silicon Sodium Potassium Glycol INFRA-RED Soot %	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 ASTM D5185m *ASTM D5185m *ASTM D2982	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	15 0 65 <1 939 1135 1083 1339 3996 current 7 138 7 138 7 NEG current 0.3	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG history1 0.4	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3 >20	15 0 65 <1 939 1135 1083 1339 3996 current 7 138 7 138 7 NEG	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG history1	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAM Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	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 *ASTM D5185m *ASTM D2982 <b>nethod</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3 >20	15 0 65 <1 939 1135 1083 1339 3996 current 7 ▲ 138 7 NEG 0.3 6.0	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG NEG history1 0.4 7.1	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG NEG 0.4 7.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAM Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	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 ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 Iimit/base >25 >20 Iimit/base >3 >20 >30 Iimit/base	15 0 65 <1 939 1135 1083 1339 3996 current 7 ▲ 138 7 NEG 0.3 6.0 16.5 current	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG 0.4 7.1 18.1 18.1	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG NEG history2 0.4 7.0 19.4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	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 *ASTM D5185m *ASTM D2982 <b>nethod</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>Iimit/base</b> >25 >20 <b>Iimit/base</b> >3 >20 >30	15 0 65 <1 939 1135 1083 1339 3996 current 7 138 7 NEG 0.3 6.0 16.5	14 0 66 <1 895 1134 983 1220 3495 history1 7 204 10 NEG history1 0.4 7.1 18.1	6 0 55 <1 848 1096 927 1159 3366 history2 3 1 0 NEG history2 0.4 7.0 19.4



## **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	13.7
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

18

17

()-16 ()-00 15 14

12

: GFL0071823

: 05836337

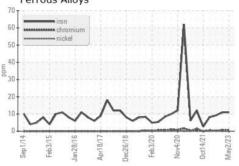
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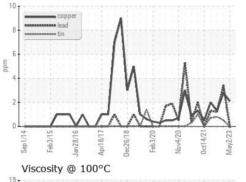
Laboratory

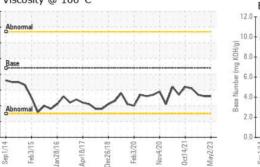
Sample No.

Lab Number

VIOLIA







Received

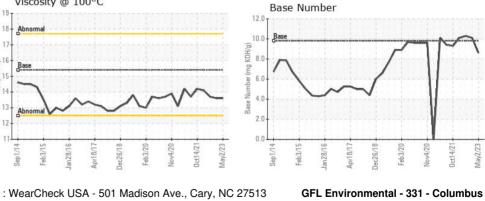
Diagnosed

Diagnostician

: 03 May 2023

: 04 May 2023

: Jonathan Hester



180 Ada Moore Rd Columbus, NC US 28722 Contact: Matt Segars matt.segars@gflenv.com T: (800)207-6618 F: (252)617-2494



Unique Number Test Package : FLEET (Additional Tests: Glycol) 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)

Report Id: GFL331 [WUSCAR] 05836337 (Generated: 08/02/2023 12:37:18) Rev: 1

Submitted By: Matt Segars

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