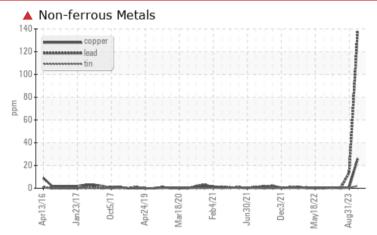


PROBLEM SUMMARY

Machine Id **2630C PETERBILT 567**

Natural Gas Engine Fluid PETRO CANADA DURON GEO LD 15W40 (48 QTS)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS						
Sample Status				SEVERE	NORMAL	NORMAL
Lead	ppm	ASTM D5185m	>30	1 39	14	<1
Copper	ppm	ASTM D5185m	>35	4 26	<1	<1
Base Number (BN)	mg KOH/g	ASTM D2896	10.2	<u> </u>	3.1	5.8

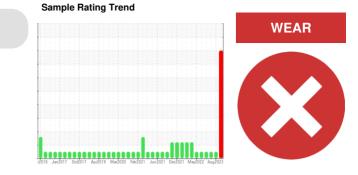
Customer Id: GFL001 Sample No.: GFL0117482 Lab Number: 06176514 Test Package: FLEET



To discuss the diagnosis or test data:

Sean Felton +1 919-379-4092 sfelton@wearcheckusa.com

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



RECOMMENDED ACTIONS

Action	Status	Date	Done By
Inspect Wear Source			?
Change Fluid			?
Resample			?

Description

We advise that you inspect for the source(s) of wear.

We recommend that you drain the oil from the component if this has not already been done.

We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS



31 Aug 2023 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.



view report



28 Mar 2023 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.



05 Oct 2022 Diag: Aaron Black

NORMAL



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

WEAR

Machine Id

2630C PETERBILT 567

Natural Gas Engine Fluid PETRO CANADA DURON GEO LD 15W40 (48 QTS)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

A Wear

Bearing and/or bushing wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

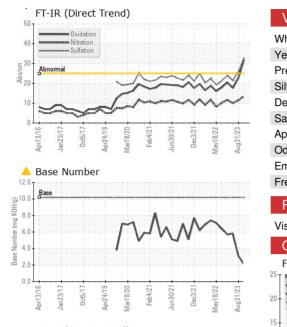
The BN level is low. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

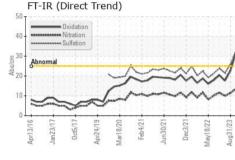


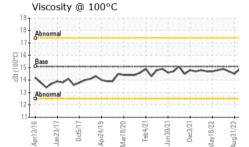
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117482	GFL0089277	GFL0056621
Sample Date		Client Info		12 May 2024	31 Aug 2023	28 Mar 2023
Machine Age	hrs	Client Info		19498	18464	1702
Oil Age	hrs	Client Info		1034	2148	1141
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				SEVERE	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	22	7	5
Chromium	ppm	ASTM D5185m	>4	2	1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	3	3	2
Lead	ppm	ASTM D5185m	>30	1 39	14	<1
Copper	ppm	ASTM D5185m	>35	<u> </u>	<1	<1
Tin	ppm	ASTM D5185m	>4	2	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVEO		method	11111/0430	Current	matory	motory
Boron	ppm	ASTM D5185m	50	17	16	21
	ppm ppm					
Boron		ASTM D5185m	50	17	16	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5 50	17 2	16 0	21 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	17 2 63	16 0 54	21 0 50
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	17 2 63 2	16 0 54 <1 583 1672	21 0 50 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	17 2 63 2 662	16 0 54 <1 583	21 0 50 <1 495 1570 677
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	17 2 63 2 662 1887	16 0 54 <1 583 1672	21 0 50 <1 495 1570
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780	17 2 63 2 662 1887 943	16 0 54 <1 583 1672 685	21 0 50 <1 495 1570 677
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	50 5 50 0 560 1510 780 870	17 2 63 2 662 1887 943 1110	16 0 54 <1 583 1672 685 949	21 0 50 <1 495 1570 677 952
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	50 5 50 0 560 1510 780 870 2040	17 2 63 2 662 1887 943 1110 2867	16 0 54 <1 583 1672 685 949 2811	21 0 50 <1 495 1570 677 952 2503
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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	17 2 63 2 662 1887 943 1110 2867 current	16 0 54 <1 583 1672 685 949 2811 history1	21 0 50 <1 495 1570 677 952 2503 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 ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base	17 2 63 2 662 1887 943 1110 2867 <u>current</u> 15	16 0 54 <1 583 1672 685 949 2811 history1 17	21 0 50 <1 495 1570 677 952 2503 history2 39
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 ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	17 2 63 2 662 1887 943 1110 2867 <u>current</u> 15 28 28 4	16 0 54 <1 583 1672 685 949 2811 history1 17 18	21 0 50 <1 495 1570 677 952 2503 history2 39 12
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	50 5 50 0 560 1510 780 870 2040 limit/base >+100	17 2 63 2 662 1887 943 1110 2867 <u>current</u> 15 28 28 4	16 0 54 <1 583 1672 685 949 2811 history1 17 18 1	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2
Boron 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 ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base	17 2 63 2 662 1887 943 1110 2867 current 15 28 4 4	16 0 54 <1 583 1672 685 949 2811 history1 17 18 1 1 history1	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2 2
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	50 5 50 0 560 1510 780 870 2040 limit/base >20 limit/base	17 2 63 2 662 1887 943 1110 2867 current 15 28 4 4 current	16 0 54 <1 583 1672 685 949 2811 <u>history1</u> 17 18 1 1 18 1 <u>history1</u> 0.1	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2 2 39 12 2 2 39
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 limit/base	17 2 63 2 662 1887 943 1110 2867 <u>current</u> 15 28 4 <u>current</u> 0.1 13.4 32.5	16 0 54 <1 583 1672 685 949 2811 history1 17 18 1 17 18 1 history1 0.1 0.1 11.4	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2 2 39 12 2 2 39 12 2 2 39
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 50 50 150 780 870 2040 Iimit/base >+100 220 Iimit/base >20	17 2 63 2 662 1887 943 1110 2867 <u>current</u> 15 28 4 <u>current</u> 0.1 13.4 32.5	16 0 54 <1 583 1672 685 949 2811 history1 17 18 1 1 history1 0.1 11.4 25.7	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2 2 39 12 2 2 0.1 9.9 21.5
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 D7624	50 5 50 0 560 1510 780 870 2040 Iimit/base >+100 iimit/base >20 >20 30	17 2 63 2 662 1887 943 1110 2867 Current 15 28 4 Current 0.1 13.4 32.5 Current	16 0 54 <1 583 1672 685 949 2811 history1 17 18 1 17 18 1 1 0.1 11.4 25.7 history1	21 0 50 <1 495 1570 677 952 2503 history2 39 12 2 39 12 2 2 history2 0.1 9.9 21.5 history2



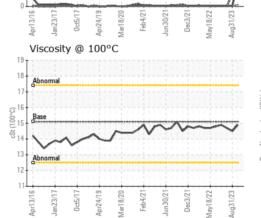
OIL ANALYSIS REPORT







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	>0.1	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	15.1	14.9	14.5	14.7
GRAPHS						
Ferrous Alloys						
5 _T						
iron			10.11			
20 - chromium						
nickel						
15-	dina in the second s					
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Apr13/16 Jan23/17 Oct5/17 Apr24/19	Mar18/20 Feb4/21	Jun30/21 Dec3/21 May18/22	Aug31/23			
◄ ¬ ◄ Non-ferrous Meta		r v	Au			
	13 130001311					
0 - copper						
10 -						
0						
20						



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

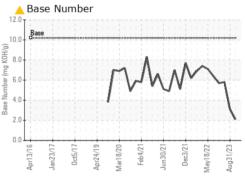
Received

Diagnosed

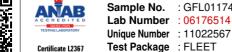
Tested

: 10 May 2024

: 17 May 2024



GFL Environmental - 001 - Raleigh(CNG) 3741 Conquest Drive Garner, NC : 17 May 2024 - Sean Felton US 27529 Contact: Craig Johnson craig.johnson@gflenv.com T: (919)662-7100 F: (919)662-7130



Laboratory

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)

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Report Id: GFL001 [WUSCAR] 06176514 (Generated: 05/17/2024 15:51:20) Rev: 2

Submitted By: Craig Johnson

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