

PROBLEM SUMMARY

Sample Rating Trend

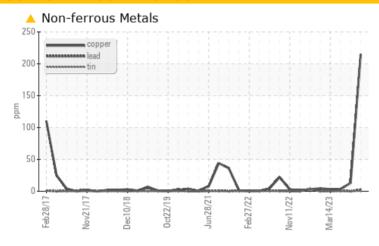
WEAR

Machine Id 10714 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (28 GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

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

PROBLEMATION	C TEST	RESULT	S			
Sample Status				ABNORMAL	NORMAL	NORMAL
Copper	ppm	ASTM D5185m	>100	<u> </u>	13	3

Customer Id: GFL010 Sample No.: GFL0088700 Lab Number: 05926999 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:

Don Baldridge +1 don.b505@comcast.net

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

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

20 Jul 2023 Diag: Sean Felton

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.



12 Apr 2023 Diag: Jonathan Hester

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.



14 Mar 2023 Diag: Wes Davis

NORMAL



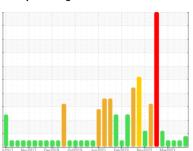
Resample at the next service interval to monitor. All component wear rates are normal. Test for glycol is negative. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further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





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id 10714 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (28 GAL)

DIAGNOSIS

Recommendation

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

Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

Contamination

There is no indication of any contamination in the

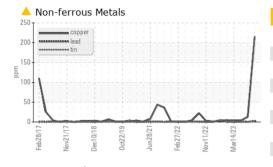
Fluid Condition

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

,		b2017 Nov20	117 Dec2018 Oct2019	Jun2021 Feb2022 Nov2022	Mar2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0088700	GFL0086117	GFL0076679
Sample Date		Client Info		16 Aug 2023	20 Jul 2023	12 Apr 2023
Machine Age	hrs	Client Info		728	17738	17388
Oil Age	hrs	Client Info		530	835	485
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>75	43	22	36
Chromium	ppm	ASTM D5185m	>5	1	<1	2
Nickel	ppm	ASTM D5185m	>4	<1	<1	1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	5	3	3
Lead	ppm	ASTM D5185m	>25	2	0	<1
Copper	ppm	ASTM D5185m	>100	<u>^</u> 215	13	3
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	<1	1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m		current 25	history1 45	history2
	ppm ppm		0			
Boron		ASTM D5185m	0	25	45	15
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	25 0	45 0	15 0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	25 0 63	45 0 65	15 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	25 0 63 2	45 0 65 1	15 0 63 2
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	25 0 63 2 776	45 0 65 1 770	15 0 63 2 722
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	25 0 63 2 776 1217	45 0 65 1 770 1212	15 0 63 2 722 1018
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 ASTM D5185m	0 0 60 0 1010 1070 1150	25 0 63 2 776 1217 728	45 0 65 1 770 1212 696	15 0 63 2 722 1018 833
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	0 0 60 0 1010 1070 1150	25 0 63 2 776 1217 728 905	45 0 65 1 770 1212 696 859	15 0 63 2 722 1018 833 1070
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	25 0 63 2 776 1217 728 905 2684	45 0 65 1 770 1212 696 859 2800	15 0 63 2 722 1018 833 1070 2864
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	25 0 63 2 776 1217 728 905 2684 current	45 0 65 1 770 1212 696 859 2800 history1	15 0 63 2 722 1018 833 1070 2864 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	25 0 63 2 776 1217 728 905 2684 current 14	45 0 65 1 770 1212 696 859 2800 history1 13	15 0 63 2 722 1018 833 1070 2864 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base >25	25 0 63 2 776 1217 728 905 2684 current 14 16	45 0 65 1 770 1212 696 859 2800 history1 13	15 0 63 2 722 1018 833 1070 2864 history2 14 113
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	25 0 63 2 776 1217 728 905 2684 current 14 16 8	45 0 65 1 770 1212 696 859 2800 history1 13 14	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12
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 >20 limit/base	25 0 63 2 776 1217 728 905 2684 current 14 16 8	45 0 65 1 770 1212 696 859 2800 history1 13 14 5	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12 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 ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	25 0 63 2 776 1217 728 905 2684 current 14 16 8 current 1.3	45 0 65 1 770 1212 696 859 2800 history1 13 14 5 history1 0.8	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12 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 *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >6 >20	25 0 63 2 776 1217 728 905 2684 current 14 16 8 current 1.3 9.3	45 0 65 1 770 1212 696 859 2800 history1 13 14 5 history1 0.8 8.0	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12 history2 1.2 8.2
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 D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30	25 0 63 2 776 1217 728 905 2684 current 14 16 8 current 1.3 9.3 20.4	45 0 65 1 770 1212 696 859 2800 history1 13 14 5 history1 0.8 8.0 20.1	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12 history2 1.2 8.2 19.6
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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m METHOD *ASTM D7844 *ASTM D7624 *ASTM D7415 METHOD	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base	25 0 63 2 776 1217 728 905 2684 current 14 16 8 current 1.3 9.3 20.4 current	45 0 65 1 770 1212 696 859 2800 history1 13 14 5 history1 0.8 8.0 20.1 history1	15 0 63 2 722 1018 833 1070 2864 history2 14 113 12 history2 1.2 8.2 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

limit/base

ASTM D445 15.4

current

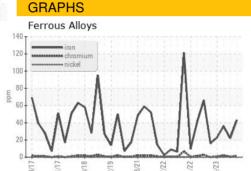
13.1

13.5

history2

12.6

Base No	umber					
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Ē 20 0						
2 20.0					- 1	1
8 30.0 V (Md KOH/6)						
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0.0	$\overline{}$	-			Y	
		6	21		. 2	23
28/1	5	177	28/	7/2	1/2	4/2
Feb28/17	Dec10/18	0ct22/19	Jun28/	Feb27/7	Nov1	Mar14/23
		_	,		~	~

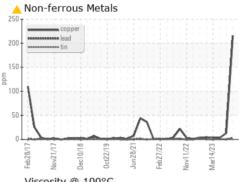


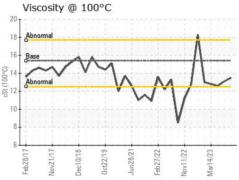
FLUID PROPERTIES method

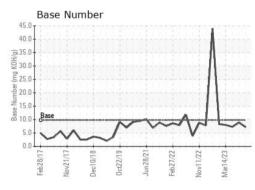
cSt

Visc @ 100°C

8 - Abnormal					1
6 - Base 4 - Abnormal		4		. 1	1
2 -	1	V	W'	1/	
8				V	











Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10606946 Test Package : FLEET

: GFL0088700 : 05926999

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 17 Aug 2023 Diagnosed : 18 Aug 2023 Diagnostician : Don Baldridge

GFL Environmental - 010 - Stockbridge 1280 Rum Creek Parkway

Stockbridge, GA US 30281

Contact: JOSHUA TINKER joshuatinker@gflenv.com

Submitted By: JOSHUA TINKER

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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F: