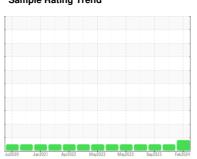


OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id **525013-7004**

Component

Diocol Engine

Diesel Engine

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

DIAGNOSIS

Recommendation

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

Wear

The lead level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

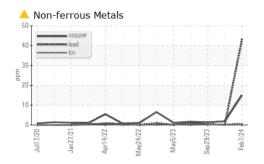
Fluid Condition

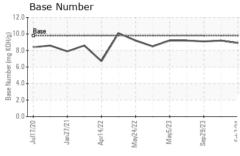
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

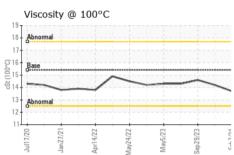
Sample Number Client Info GFL0103867 GFL010368 GFL008655 Sample Date Client Info O7 Feb 2024 20 Nov 2023 29 Sep 202 Machine Age hrs Client Info O	TR)		Jul2020	Jan2021 Apr2022	May2022 May2023 Sep2023	Feb 2024	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16359 16286 465348 Oil Age hrs Client Info 0 16286 465348 Oil Changed Client Info Not Changd N/A NORMAL Sample Status Client Info Not Changd N/A NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >5 <1.0	Sample Number		Client Info		GFL0103867	GFL0101368	GFL0086533
Oil Age	Sample Date		Client Info		07 Feb 2024	20 Nov 2023	29 Sep 2023
Cilient Info	Machine Age	hrs	Client Info		16359	16286	465348
CONTAMINATION	Oil Age	hrs	Client Info		0	16286	465348
CONTAMINATION method limit/base current history1 history1 Fuel WC Method >5 <1.0	Oil Changed		Client Info		Not Changd	Not Changd	N/A
Fuel	Sample Status				ABNORMAL	NORMAL	NORMAL
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >110 49 21 20 Chromium ppm ASTM D5185m >4 <1 2 2 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >25 0 6 1 Lead ppm ASTM D5185m >45 43 <1 <1 Copper ppm ASTM D5185m >4 <1 <1 <1 Antimony ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >110 49 21 20 Chromium ppm ASTM D5185m >4 <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Description	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 2 2 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 6 1 Lead ppm ASTM D5185m >2 0 6 1 Lead ppm ASTM D5185m >2 15 2 1 Copper ppm ASTM D5185m 985 15 2 1 -1 Antimony ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 0	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	lron	ppm	ASTM D5185m	>110			
Titanium ppm ASTM D5185m	Chromium	ppm	ASTM D5185m	>4	<1	2	2
Silver	Nickel	ppm	ASTM D5185m	>2	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>25	0	6	1
Tin	Lead	ppm	ASTM D5185m	>45	43	<1	<1
Antimony	Copper	ppm	ASTM D5185m	>85	15	2	1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history3 Boron ppm ASTM D5185m 0 11 3 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 1 <1 <1 Manganese ppm ASTM D5185m 0 1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 60 964 1021 Calcium ppm ASTM D5185m 1070 2993 1044 1086 Phosphorus ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current h	Γin	ppm	ASTM D5185m	>4	<1	<1	<1
Description	Antimony	ppm	ASTM D5185m		0		
ADDITIVES method limit/base current history1 history3 Boron ppm ASTM D5185m 0 11 3 4 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 2 59 61 Manganese ppm ASTM D5185m 0 1 <1	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 2 59 61 Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 1010 60 964 1021 Calcium ppm ASTM D5185m 1070 2993 1044 1086 Phosphorus ppm ASTM D5185m 1150 958 1063 1058 Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m >20 <1 5 2 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>11</th><td>3</td><td>4</td></t<>	Boron	ppm	ASTM D5185m	0	11	3	4
Manganese ppm ASTM D5185m 0 1 <1 <1 Magnesium ppm ASTM D5185m 1010 60 964 1021 Calcium ppm ASTM D5185m 1070 2993 1044 1086 Phosphorus ppm ASTM D5185m 1150 958 1063 1058 Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m >20 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 60 964 1021 Calcium ppm ASTM D5185m 1070 2993 1044 1086 Phosphorus ppm ASTM D5185m 1150 958 1063 1058 Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	60	2	59	61
Calcium ppm ASTM D5185m 1070 2993 1044 1086 Phosphorus ppm ASTM D5185m 1150 958 1063 1058 Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m >30 2 8 8 Potassium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0	1	<1	<1
Phosphorus ppm ASTM D5185m 1150 958 1063 1058 Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m >30 2 8 8 Potassium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	1010	60	964	1021
Zinc ppm ASTM D5185m 1270 1123 1259 1294 Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m 4 2 1 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	1070	2993	1044	1086
Sulfur ppm ASTM D5185m 2060 4543 3161 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m 4 2 1 Potassium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m	1150	958	1063	1058
CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m 4 2 1 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	1270	1123	1259	1294
Silicon ppm ASTM D5185m >30 2 8 8 Sodium ppm ASTM D5185m 4 2 1 Potassium ppm ASTM D5185m >20 <1 5 2 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >3 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 6.5 5.7 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.2 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	Sulfur	ppm	ASTM D5185m	2060	4543	3161	3323
Sodium ppm ASTM D5185m 4 2 1 Potassium ppm ASTM D5185m >20 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 5 2 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >3 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 6.5 5.7 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.2 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	Silicon	ppm	ASTM D5185m	>30	2	8	8
INFRA-RED	Sodium	ppm	ASTM D5185m		4	2	1
Soot % % *ASTM D7844 >3 0.2 0.2 0.1 Nitration Abs/cm *ASTM D7624 >20 6.5 5.7 5.2 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.2 17.6 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	Potassium	ppm	ASTM D5185m	>20	<1	5	2
Nitration Abs/cm *ASTM D7624 >20 6.5 5.7 5.2 Sulfation Abs/.1mm *ASTM D7615 >30 18.2 18.2 17.6 FLUID DEGRADATION method limit/base current history1 history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.2 17.6 FLUID DEGRADATION method limit/base current history1 history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	Soot %	%	*ASTM D7844	>3	0.2	0.2	0.1
FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.2 13.9 13.6	Nitration	Abs/cm	*ASTM D7624	>20	6.5	5.7	5.2
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.2	18.2	17.6
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.9 9.2 9.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.2	13.9	13.6
,	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.9	9.2	9.1



OIL ANALYSIS REPORT





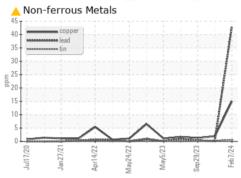


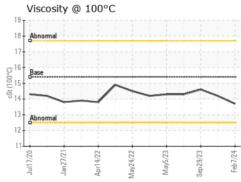
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

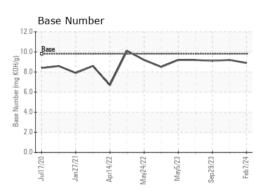
FLUID PROF	ELLIES	memod	IIIIII/Dase	Current	HISTORY	HISTORYZ
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.2	14.6

GRAPHS

Ferrous Alloys 20











Certificate L2367

Laboratory Sample No.

: GFL0103867 Lab Number : 06088023 Unique Number : 10875468

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 13 Feb 2024 **Tested** : 14 Feb 2024

Diagnosed : 15 Feb 2024 - Don Baldridge

GFL Environmental - 654 - Richmond Hauling

11800 Lewis Road Chester, VA US 23831

Contact: Jimmy Mayes jmayes@gflenv.com

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)

T:

F: