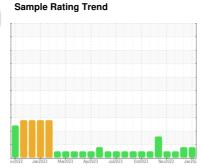


OIL ANALYSIS REPORT



Machine Id 413028 Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

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

Valve wear is indicated. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

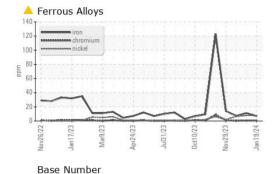
Fluid Condition

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 GFL0111001 GFL0103469 GFL0103469 GFL0103469 Machine Age hrs Client Info 19 Jan 2024 19 Jen 202	N SHP 15W40 (- GAL)	ov2022 Jan	2023 Mar2023 Apr202	3 Jul2023 Oct2023 Nov2	023 Jan202	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info	Sample Number		Client Info		GFL0111001	GFL0103469	GFL0103488
Dit Age	Sample Date		Client Info		19 Jan 2024	10 Jan 2024	19 Dec 2023
Client Info N/A N/A ABNORMAL ABNO	Machine Age	hrs	Client Info		2943	2875	2743
ABNORMAL NORMAL CONTAMINATION method fimit/base current history1 history2 history3 history3 history3 history4 history4 history4 history4 history4 history4 history5 histor	Dil Age	hrs	Client Info		287	264	132
CONTAMINATION	Oil Changed		Client Info		N/A	N/A	Not Changd
Fuel	Sample Status				ABNORMAL	ABNORMAL	NORMAL
Water Gilycol WC Method >0.2 NEG	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	-uel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Nater		WC Method	>0.2	NEG	NEG	NEG
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20	WEAR METAL	S	method	limit/base	current	history1	history2
Strickel	ron	ppm	ASTM D5185m	>120	7	11	7
Distribution	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<u>^</u> 8	<u> 8</u>	6
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 5 5 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	4	3	2
Tin	Lead	ppm	ASTM D5185m	>40	<1	0	0
Property Property	Copper	ppm	ASTM D5185m	>330	5	5	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history3 Boron ppm ASTM D5185m 0 3 4 3 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 893 976 899 Calcium ppm ASTM D5185m 1070 990 1074 1029 Phosphorus ppm ASTM D5185m 1150 1002 1014 899 Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base	Γin	ppm	ASTM D5185m	>15	<1	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 63 62 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	3	4	3
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 893 976 899 Calcium ppm ASTM D5185m 1070 990 1074 1029 Phosphorus ppm ASTM D5185m 1150 1002 1014 899 Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m >20 4 5 4 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	0	<1	0	0
Magnesium ppm ASTM D5185m 1010 893 976 899 Calcium ppm ASTM D5185m 1070 990 1074 1029 Phosphorus ppm ASTM D5185m 1150 1002 1014 899 Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m >20 4 5 4 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624	Molybdenum	ppm	ASTM D5185m	60	61	63	62
Calcium ppm ASTM D5185m 1070 990 1074 1029 Phosphorus ppm ASTM D5185m 1150 1002 1014 899 Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/b	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1002 1014 899 Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 6 6 4 Godium ppm ASTM D5185m >20 4 5 4 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history1 Dxidation Abs/.1mm *ASTM D7	Magnesium	ppm	ASTM D5185m	1010	893	976	899
Zinc ppm ASTM D5185m 1270 1169 1258 1160 Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	990	1074	1029
Sulfur ppm ASTM D5185m 2060 2772 3113 3191 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 14.1 13.9	Phosphorus	ppm	ASTM D5185m	1150	1002	1014	899
CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 14.1 13.9	Zinc	ppm	ASTM D5185m	1270	1169	1258	1160
Silicon ppm ASTM D5185m >25 6 6 4 Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 14.1 13.9	Sulfur	ppm	ASTM D5185m	2060	2772	3113	3191
Sodium ppm ASTM D5185m 0 2 1 Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 5 4 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	Silicon	ppm	ASTM D5185m	>25	6	6	4
INFRA-RED	Sodium	ppm	ASTM D5185m		0	2	1
Soot % % *ASTM D7844 >4 0.2 0.2 0.2 Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	Potassium	ppm	ASTM D5185m	>20	4	5	4
Nitration Abs/cm *ASTM D7624 >20 6.9 6.4 5.8 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	Soot %	%	*ASTM D7844	>4	0.2	0.2	0.2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 18.0 17.6 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 14.1 14.1 13.9	Nitration	Abs/cm	*ASTM D7624	>20		6.4	5.8
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.2		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.1	14.1	13.9
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.1 8.0 8.7	Base Number (BN)	mg KOH/q		9.8	8.1	8.0	



OIL ANALYSIS REPORT

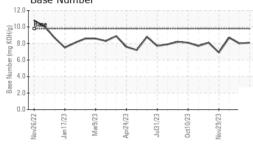


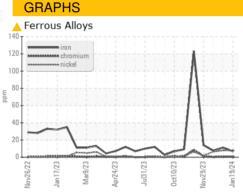
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

13.4

13.6

13.8





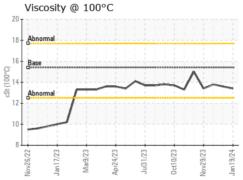
cSt

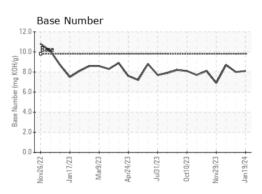
ASTM D445 15.4

Visc @ 100°C

Visco	osity @	0 100°	С			
18 Abnor	mal					
16 - Base	mal			~	~	<u></u>
10-						
Nov26/22	Jan17/23 -	Mar9/23	Apr24/23	Jul31/23	Oct10/23	Nov29/23

Non-ferrous Metals 200 퉖 150









Certificate L2367

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

: GFL0111001 : 06070218 : 10846895

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 25 Jan 2024 Diagnosed : 26 Jan 2024 Diagnostician : Don Baldridge

GFL Environmental - 868 - Childersburg Fines Hauling (Alpine) 13737 Plant Rd

Childersburg, AL US 35044

Contact: JONATHAN WILLIAMS jonathan.williams@gflenv.com

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: