

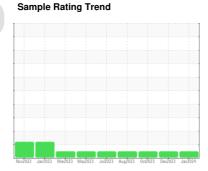
OIL ANALYSIS REPORT



(8AA0HYN) 427062-402074

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

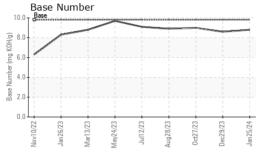
Fluid Condition

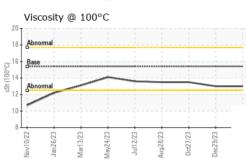
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 25 Jan 2024 29 Dec 2023 27 Oct 202	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 30047 30018 29866 Oil Age hrs Client Info 839 810 658 Oil Changed Client Info Not Changd N/A Not Changd Sample Status NorMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		GFL0110993	GFL0103485	GFL0094810
Oil Age hrs Client Info 839 810 658 Oil Changed Client Info Not Changd NA Not Changd Sample Status Client Info NoRMAL <	Sample Date		Client Info		25 Jan 2024	29 Dec 2023	27 Oct 2023
Oil Changed Sample Status Client Info Sample Status Not Change NORMAL NORMAL NORMA	Machine Age	hrs	Client Info		30047	30018	29866
Sample Status	Oil Age	hrs	Client Info		839	810	658
CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 <1 3 0 Chromium ppm ASTM D5185m >20 0 <1 <1 0 Nickel ppm ASTM D5185m >2 0 <1 <1 0 Silver ppm ASTM D5185m >20 2 2 2 1 <1 0 0 0 0 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0	Oil Changed		Client Info		Not Changd	N/A	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 <1 3 0 Chromium ppm ASTM D5185m >20 0 <1 <1 0 Nickel ppm ASTM D5185m >20 0 <1 0 0 <1 0	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 <1 <1 0 Titanium ppm ASTM D5185m >2 0 <1	Iron	ppm	ASTM D5185m	>120	<1	3	0
Titanium ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history ADDITIVES method limit/base current history1 history ADDITIVES method limit/base current history1 history ADDITIVES me	Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 0 <1 0 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 <1 0 Vanadium ppm ASTM D5185m 0 0 <1 0 Cadmium ppm ASTM D5185m 0 7 6 9 Boron ppm ASTM D5185m 0 7 6 9 Barium ppm ASTM D5185m 0 0 0 0 Molydenum ppm ASTM D5185m 0 4 1 0 Manganesium ppm ASTM D5185m 1010 893 900 9	Titanium	ppm	ASTM D5185m	>2	0	<1	0
Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >40 <1	Silver		ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 0 <1 0 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 7 6 9 Boron ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 0 0 976 65 Magnesium ppm ASTM D5185m 1070 978 1021 1067 10	Aluminum	ppm	ASTM D5185m	>20	2	2	1
Copper ppm ASTM D5185m >330 0 <1 0 Tin ppm ASTM D5185m >15 0 <1	Lead			>40	<1	<1	0
Tin	Copper		ASTM D5185m	>330	0	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 7 6 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 60 59 65 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 893 900 976 Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current hi					0	<1	0
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 7 6 9 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 59 65 Manganese ppm ASTM D5185m 0 <1	Vanadium	• •	ASTM D5185m			0	0
Boron	Cadmium				0		0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 59 65 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 893 900 976 Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m 1 0 <1 Potassium ppm ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 60 59 65 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	7	6	9
Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 893 900 976 Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 893 900 976 Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m >20 1 3 1 Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D74	Molybdenum	ppm	ASTM D5185m	60	60	59	65
Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m >20 1 0 <1	Manganese	• •	ASTM D5185m	0	<1	<1	0
Calcium ppm ASTM D5185m 1070 978 1021 1067 Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m >20 1 3 1 Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history Soot % "ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm "ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION "ASTM D7414 >2	Magnesium	ppm	ASTM D5185m	1010	893	900	976
Phosphorus ppm ASTM D5185m 1150 975 884 1062 Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m >20 1 3 1 Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method </td <th>-</th> <td></td> <td>ASTM D5185m</td> <td>1070</td> <th>978</th> <td>1021</td> <td>1067</td>	-		ASTM D5185m	1070	978	1021	1067
Zinc ppm ASTM D5185m 1270 1206 1154 1329 Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m 1 0 <1	Phosphorus		ASTM D5185m	1150	975	884	1062
Sulfur ppm ASTM D5185m 2060 2968 3311 3323 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m 1 0 <1			ASTM D5185m	1270	1206	1154	1329
Silicon ppm ASTM D5185m >25 2 3 2 Sodium ppm ASTM D5185m 1 0 <1 Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	Sulfur		ASTM D5185m	2060	2968	3311	3323
Sodium ppm ASTM D5185m 1 0 <1 Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 1 0 <1	Silicon	ppm	ASTM D5185m	>25	2	3	2
Potassium ppm ASTM D5185m >20 1 3 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2		• •					
Soot % % *ASTM D7844 >4 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	Potassium	ppm	ASTM D5185m	>20	1	3	1
Nitration Abs/cm *ASTM D7624 >20 5.4 5.2 5.1 Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	Soot %	%	*ASTM D7844	>4	0.1	0.1	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 17.1 17.2 17.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	Nitration	Abs/cm	*ASTM D7624	>20	5.4	5.2	5.1
Oxidation Abs/.1mm *ASTM D7414 >25 13.0 12.9 13.2	Sulfation		*ASTM D7415	>30			
	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	12.9	13.2
	Base Number (BN)	mg KOH/g			8.8	8.6	9.0



OIL ANALYSIS REPORT

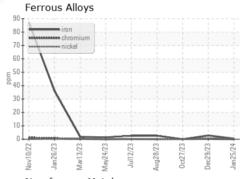


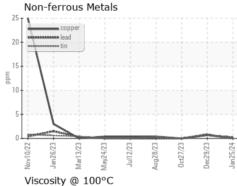


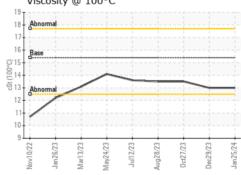
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

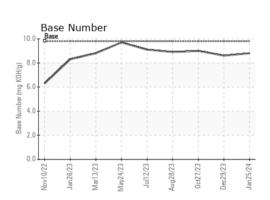
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	13.0	13.5

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10856482

: GFL0110993 : 06074391 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 30 Jan 2024 : 31 Jan 2024

Diagnosed Diagnostician : Wes Davis 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)

Report Id: GFL868 [WUSCAR] 06074391 (Generated: 01/31/2024 13:44:54) Rev: 1

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