

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 723025-305163

Component Diesel Engine Fluid

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

DIAGNOSIS	
Recommendation	

Resample at the next service interval to monitor. (Customer Sample Comment: OIL SAMPLE) $% \left({\left({{\rm{SAMPLE}}} \right)} \right)$

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

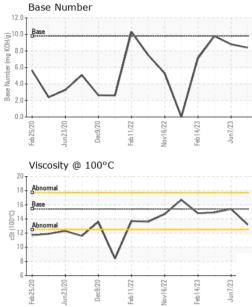
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

,				.2022 Nov2022 Feb2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092073	GFL0078176	GFL0073686
Sample Date		Client Info		02 Dec 2023	07 Jun 2023	23 Mar 2023
Machine Age	mls	Client Info		302439	302439	299282
Oil Age	mls	Client Info		299282	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	ABNORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	0.12
WEAR METAL	S .	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	11	54	1 17
Chromium	ppm	ASTM D5185m	>5	<1	2	<u> </u>
Nickel	ppm	ASTM D5185m	>2	0	<1	<u> </u>
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	1	4	9
Lead	ppm	ASTM D5185m	>30	0	<1	9
Copper	ppm	ASTM D5185m	>150	1	29	67
Tin	ppm	ASTM D5185m	>5	0	<1	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	7	2	10
Barium	ppm	ASTM D5185m	0	2	0	0
Molybdenum	ppm	ASTM D5185m	60	58	69	96
Manganese			0	0		3
	ppm	ASTM D5185m	0	U	<1	3
Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	1010	739	<1 966	905
Magnesium Calcium						
e e	ppm	ASTM D5185m	1010	739	966	905
Calcium	ppm ppm	ASTM D5185m ASTM D5185m	1010 1070	739 1146	966 1065	905 1039
Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150	739 1146 847	966 1065 1041	905 1039 946
Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270	739 1146 847 1017 2848	966 1065 1041 1299	905 1039 946 1182
Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060	739 1146 847 1017 2848	966 1065 1041 1299 3557	905 1039 946 1182 3145
Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060 limit/base	739 1146 847 1017 2848 current	966 1065 1041 1299 3557 history1	905 1039 946 1182 3145 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base	739 1146 847 1017 2848 current 6	966 1065 1041 1299 3557 history1 10	905 1039 946 1182 3145 history2 16
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >20	739 1146 847 1017 2848 current 6 39 38	966 1065 1041 1299 3557 history1 10 ▲ 216	905 1039 946 1182 3145 history2 16 ▲ 1041
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >20	739 1146 847 1017 2848 current 6 39 38	966 1065 1041 1299 3557 history1 10 ▲ 216 34	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >20 limit/base	739 1146 847 1017 2848 current 6 39 38 current	966 1065 1041 1299 3557 history1 10 ▲ 216 34 history1	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >20 limit/base >3	739 1146 847 1017 2848 <u>current</u> 6 39 38 <u>current</u> 0.2	966 1065 1041 1299 3557 history1 10 ▲ 216 34 history1 ▲ 3.1	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83 history2 ▲ 3.4
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm 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 ASTM D7844 *ASTM D7824	1010 1070 1150 1270 2060 limit/base >20 limit/base >3 >20	739 1146 847 1017 2848 <u>current</u> 6 39 38 <u>current</u> 0.2 6.8 18.0	966 1065 1041 1299 3557 history1 10 ▲ 216 34 history1 ▲ 3.1 11.5	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83 history2 ▲ 3.4 17.3
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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7824	1010 1070 1150 22060 Imit/base >20 S S S S S S S S S S S S S S S S S	739 1146 847 1017 2848 <u>current</u> 6 39 38 <u>current</u> 0.2 6.8 18.0	966 1065 1041 1299 3557 history1 10 ▲ 216 34 bistory1 ▲ 3.1 11.5 26.1	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83 history2 ▲ 3.4 17.3 28.0
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm Abs/cm Abs/cm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20 s30 imit/base	739 1146 847 1017 2848 current 6 39 38 current 0.2 6.8 18.0 current	966 1065 1041 1299 3557 history1 10 ▲ 216 34 bistory1 ▲ 3.1 11.5 26.1 history1	905 1039 946 1182 3145 history2 16 ▲ 1041 ▲ 83 history2 ▲ 3.4 17.3 28.0 history2



OIL ANALYSIS REPORT

VISUAL



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Debris scalar Visual NONE NONE NONE NONE NONE NONE Sandblint scalar Visual NORMU NO	$1 \rightarrow 1$			al NONE		NONE	
SandDirt scalar Visual NONE NONE NORM NORM NORM NORM NORM NORM NORM NORM		Debris					
Appearance scalar 'Visual NORML NORM	V						
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Emulsified Water scalar 'Visual >0.2 NEG NEG NEG Free Water scalar 'Visual >0.2 NEG	Feb11 Feb14	Odor					
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EUUD PROPERTIES method limitbase ournett history1 history2 Visc @ 100°C cSt ASTM D445 15.4 13.2 15.4 14.9 GRAPHS Ferrous Alloys Output Non-ferrous Metals Output Output Viscolity @ 100°C Output Viscolity @ 100°C Output Output Viscolity @ 100°C Output <t< th=""><th>'C</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	'C						
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GRAPHS Ferrous Alloys Ferrous Alloys Ferrou	$ \land $						
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Image: symplex in the symplex in th	\backslash						
Image: symplex construction							
Viscosity @ 100°C Viscosity @ 1	Feb11/22 Nov16/22 Feb14/23	500 400 400 000 200 000 000 000 0		\square			
Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : GFL0092073 Received : 05 Dec 2023 Lab Number : 06025594 Diagnosed : 07 Dec 2023 Lab Number : 10770094 Diagnostician : Sean Felton 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.		4 7		an lui			
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Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 856 - Houston South Sample No. : GFL0092073 Received : 05 Dec 2023 Lab Number : 06025594 Diagnosed : 07 Dec 2023 Unique Number : 10770094 Diagnostician : Sean Felton 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. Contact: Apolinar Zacarias			/	Base			
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Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 856 - Houston South Sample No. : GFL0092073 Received : 05 Dec 2023 Lab Number : 06025594 Diagnosed : 07 Dec 2023 Unique Number : 10770094 Diagnostician : Sean Felton Certificate 12367 Test Package : FLEET Contact: Apolinar Zacarias 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. T:		Feb25, Jun23, Dec9/	Feb11, Nov16,	Jun 7,	Feb25, Jun23, Dec9,	Feb11, Nov16,	Feb14, Jun7/
	Certificate L2367 To discuss this sample re	ry : WearCheck USA - lo. : GFL0092073 ber : 06025594 mber : 10770094 kage : FLEET port, contact Customer Ser	501 Madison Av Received Diagnosed Diagnostician vice at 1-800-23	re., Cary, NC 2751 : 05 Dec 2023 : 07 Dec 2023 : Sean Felton <i>7-1369.</i>		onmental - 856 - 8515 Hig Contact: Apo	hway 6 South Houston, TX US 77083 Ilinar Zacarias
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Submitted By: Apolinar Zacarias Page 2 of 2

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