

OIL ANALYSIS REPORT

GFL035 3792

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (38 QTS)

Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Test for glycol is negative. There is no indication of any contamination in the oil.

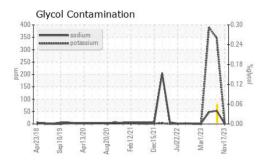
Fluid Condition

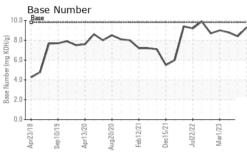
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

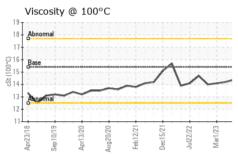
1/2016 Seg2019 Apr2020 Aug 2020 Feb 2021 Der2021 Jul2022 Mar 2023 Nov20.						
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0102292	GFL0071614	GFL0071556
Sample Date		Client Info		17 Nov 2023	30 Aug 2023	29 Jun 2023
Machine Age	hrs	Client Info		7176	7176	7176
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ABNORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	5	22	18
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	2	2
Lead	ppm	ASTM D5185m	>150	<1	4	5
Copper	ppm	ASTM D5185m	>90	<1	<1	1
Tin	ppm	ASTM D5185m	>5	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		and the second	12 24 //			h:ataw.0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		current 4	history1 4	3
	ppm		0			
Boron		ASTM D5185m	0	4	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	4 0	3 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 62	4 0 66	3 2 74
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 62 0	4 0 66 <1	3 2 74 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 62 0 920	4 0 66 <1 944	3 2 74 <1 952
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	4 0 62 0 920 1087	4 0 66 <1 944 1146	3 2 74 <1 952 1208
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	4 0 62 0 920 1087 991	4 0 66 <1 944 1146 1059	3 2 74 <1 952 1208 1119
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 1270	4 0 62 0 920 1087 991 1209	4 0 66 <1 944 1146 1059	3 2 74 <1 952 1208 1119 1287
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	4 0 62 0 920 1087 991 1209 3297	4 0 66 <1 944 1146 1059 1261 3015	3 2 74 <1 952 1208 1119 1287 3456
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	4 0 62 0 920 1087 991 1209 3297	4 0 66 <1 944 1146 1059 1261 3015 history1	3 2 74 <1 952 1208 1119 1287 3456 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	4 0 62 0 920 1087 991 1209 3297 current	4 0 66 <1 944 1146 1059 1261 3015 history1	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37
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 limit/base	4 0 62 0 920 1087 991 1209 3297 current 6 2	4 0 66 <1 944 1146 1059 1261 3015 history1 19	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48
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	4 0 62 0 920 1087 991 1209 3297 current 6 2 9	4 0 66 <1 944 1146 1059 1261 3015 history1 19 53 347	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48 ▲ 390
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0	4 0 66 <1 944 1146 1059 1261 3015 history1 19 53 347 0.06	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48 ▲ 390 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D2982	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0	4 0 66 <1 944 1146 1059 1261 3015 history1 19 ▲ 53 ▲ 347 ▲ 0.06 history1	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48 ▲ 390 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m *ASTM D7844	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0 current 0.2	4 0 66 <1 944 1146 1059 1261 3015 history1 19 ▲ 53 ▲ 347 ▲ 0.06 history1 0.9	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48 ▲ 390 NEG history2 0.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0 current 0.2 5.5	4 0 66 <1 944 1146 1059 1261 3015 history1 19 ▲ 53 ▲ 347 ▲ 0.06 history1 0.9 12.1	3 2 74 <1 952 1208 1119 1287 3456 history2 △ 37 △ 48 △ 390 NEG history2 0.9 11.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0 current 0.2 5.5 18.6	4 0 66 <1 944 1146 1059 1261 3015 history1 19 ▲ 53 ▲ 347 ▲ 0.06 history1 0.9 12.1 25.5	3 2 74 <1 952 1208 1119 1287 3456 history2 ▲ 37 ▲ 48 ▲ 390 NEG history2 0.9 11.5 25.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 *Method	0 0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30 limit/base	4 0 62 0 920 1087 991 1209 3297 current 6 2 9 0.0 current 0.2 5.5 18.6 current	4 0 66 <1 944 1146 1059 1261 3015 history1 19 ▲ 53 ▲ 347 ▲ 0.06 history1 0.9 12.1 25.5 history1	3 2 74 <1 952 1208 1119 1287 3456 history2 △ 37 △ 48 △ 390 NEG history2 0.9 11.5 25.8 history2



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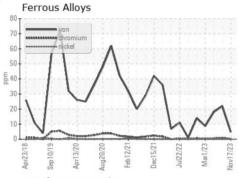


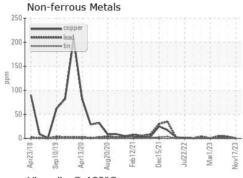


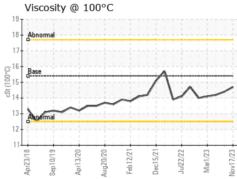
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

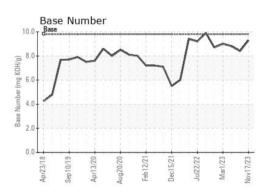
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.7	14.4	14.2

GRAPHS













Certificate L2367

Laboratory

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

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0102292 : 06012180 : 10751324

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Received Diagnosed

: 20 Nov 2023 : 21 Nov 2023 Diagnostician : Wes Davis

GFL Environmental - 035 - Greensboro

1236 Elon Place High Point, NC US 27263

Contact: JORGE COSTA jorge.costa@gflenv.com T: (336)668-3712

* - 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: GFL035 [WUSCAR] 06012180 (Generated: 11/21/2023 13:34:32) Rev: 1

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