

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



427092-402367

Component

Diesel Engine

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

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

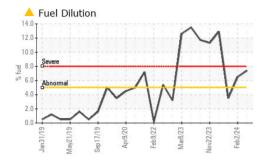
▲ Fluid Condition

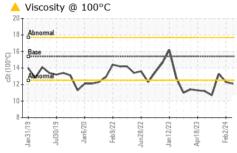
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

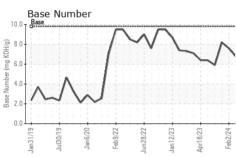
/			019 Jan 2020 Feb 2022	Jun2022 Jan2023 Apr202		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0109251	GFL0109268	GFL0093546
Sample Date		Client Info		28 Feb 2024	02 Feb 2024	11 Jan 2024
Machine Age	hrs	Client Info		18327	18168	18031
Oil Age	hrs	Client Info		424	265	128
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				ABNORMAL	ABNORMAL	MARGINAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	27	12	3
Chromium	ppm	ASTM D5185m	>20	1	0	0
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		27	17	16
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	2	1
Lead	ppm	ASTM D5185m	>40	1	0	<1
Copper	ppm	ASTM D5185m	>330	<1	0	<1
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	ourront	historyt	history2
ADDITIVEO		method	iiiiii/base	current	history1	1113tOly2
Boron	ppm		0	24	18	12
	ppm ppm		0			
Boron		ASTM D5185m	0	24	18	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	24 0	18	12 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	24 0 73	18 0 46	12 0 45
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	24 0 73 <1	18 0 46 0	12 0 45 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	24 0 73 <1 1321	18 0 46 0 871	12 0 45 <1 870
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	24 0 73 <1 1321 1738	18 0 46 0 871 1148	12 0 45 <1 870 1120
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	24 0 73 <1 1321 1738 1570	18 0 46 0 871 1148 1030	12 0 45 <1 870 1120 1027
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	24 0 73 <1 1321 1738 1570	18 0 46 0 871 1148 1030 1215	12 0 45 <1 870 1120 1027 1257
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	0 0 60 0 1010 1070 1150 1270 2060	24 0 73 <1 1321 1738 1570 1922 5262	18 0 46 0 871 1148 1030 1215 3212	12 0 45 <1 870 1120 1027 1257 3282
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	24 0 73 <1 1321 1738 1570 1922 5262 current	18 0 46 0 871 1148 1030 1215 3212 history1	12 0 45 <1 870 1120 1027 1257 3282 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	24 0 73 <1 1321 1738 1570 1922 5262 current 6	18 0 46 0 871 1148 1030 1215 3212 history1 6	12 0 45 <1 870 1120 1027 1257 3282 history2
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 >25	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8	18 0 46 0 871 1148 1030 1215 3212 history1 6 4	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1
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 >25	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3	18 0 46 0 871 1148 1030 1215 3212 history1 6 4	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 7.4	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >5	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 ▲ 7.4 current 0.4	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1 ▲ 6.5 history1 0.3	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1 <1 <1 0.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >5 limit/base	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 7.4 current	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1 ▲ 6.5 history1	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1 △ 3.5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >5 limit/base	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 7.4 current 0.4 10.1	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1 ▲ 6.5 history1 0.3 8.8	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1 <1 3.5 history2 0.2 7.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3 >20 >30 limit/base	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 7.4 current 0.4 10.1 21.0 current	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1 ▲ 6.5 history1 0.3 8.8 19.9 history1	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1 △ 3.5 history2 0.2 7.3 18.8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 >5 limit/base >3 >20 >3	24 0 73 <1 1321 1738 1570 1922 5262 current 6 8 3 ▲ 7.4 current 0.4 10.1 21.0	18 0 46 0 871 1148 1030 1215 3212 history1 6 4 1 △ 6.5 history1 0.3 8.8 19.9	12 0 45 <1 870 1120 1027 1257 3282 history2 2 <1 <1 ▲ 3.5 history2 0.2 7.3 18.8



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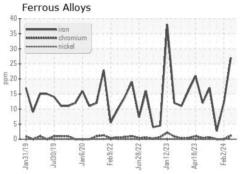


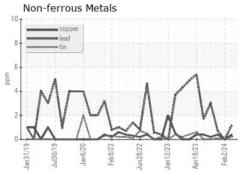


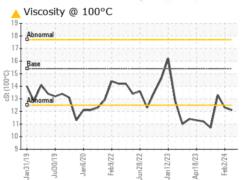
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual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

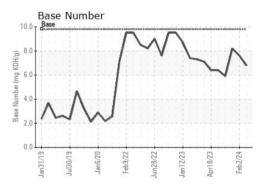
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.1	▲ 12.3	13.3

GRAPHS













Laboratory Sample No. Lab Number : 06104910

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

: GFL0109251

Received **Tested** Unique Number : 10903140

: 04 Mar 2024 Diagnosed Test Package: FLEET (Additional Tests: PercentFuel)

: 04 Mar 2024 - Wes Davis

: 29 Feb 2024

GFL Environmental - 891 - Oklahoma City Hauling 1001 South Rockwell Oklahoma City, OK US 73128

Contact: Andy Smith andrew.smith@gflenv.com T: (405)306-1651

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)