

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

914030

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

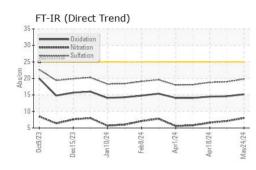
Fluid Condition

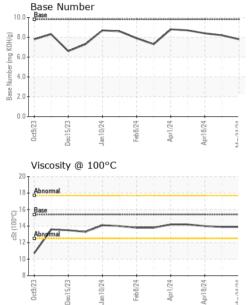
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093509	GFL0109304	GFL0109420
Sample Date		Client Info		24 May 2024	07 May 2024	18 Apr 2024
Machine Age	hrs	Client Info		2272	2140	2023
Oil Age	hrs	Client Info		525	493	276
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
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	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	17	13	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	3	2	3
Titanium	ppm	ASTM D5185m		9	9	9
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	1	3
Lead	ppm	ASTM D5185m	>40	<1	2	<1
Copper	ppm	ASTM D5185m	>330	6	6	6
Tin	ppm	ASTM D5185m	>15	1	<1	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 7	history1 6	history2 8
	ppm ppm					
Boron		ASTM D5185m	0	7	6	8
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	7 0	6 0	8 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 0 56	6 0 56	8 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 0 56 <1	6 0 56 <1	8 0 54 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	7 0 56 <1 936	6 0 56 <1 950	8 0 54 <1 890
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	7 0 56 <1 936 1158	6 0 56 <1 950 1183	8 0 54 <1 890 1101
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	7 0 56 <1 936 1158 1049	6 0 56 <1 950 1183 1064	8 0 54 <1 890 1101 1109
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	0 0 60 0 1010 1070 1150 1270	7 0 56 <1 936 1158 1049 1269	6 0 56 <1 950 1183 1064 1278	8 0 54 <1 890 1101 1109 1235
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	0 0 60 0 1010 1070 1150 1270 2060	7 0 56 <1 936 1158 1049 1269 3387	6 0 56 <1 950 1183 1064 1278 3598	8 0 54 <1 890 1101 1109 1235 3504
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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 1010 1070 1150 1270 2060	7 0 56 <1 936 1158 1049 1269 3387 current	6 0 56 <1 950 1183 1064 1278 3598 history1	8 0 54 <1 890 1101 1109 1235 3504 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060 limit/base	7 0 56 <1 936 1158 1049 1269 3387 current 5	6 0 56 <1 950 1183 1064 1278 3598 history1 4	8 0 54 <1 890 1101 1109 1235 3504 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m 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 limit/base	7 0 56 <1 936 1158 1049 1269 3387 current 5 4	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	7 0 56 <1 936 1158 1049 1269 3387 current 5 4 6	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 3	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >3	7 0 56 <1 936 1158 1049 1269 3387 current 5 4 6 current	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 3 3 history1	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >3	7 0 56 <1 936 1158 1049 1269 3387 current 5 4 6 current 0.6	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 3 history1 0.4	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 4 4 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	7 0 56 <1 936 1158 1049 1269 3387 <i>current</i> 5 4 6 <i>current</i> 0.6 8.0	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 3 history1 0.4 7.1	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 4 4 history2 0.3 6.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	7 0 56 <1 936 1158 1049 1269 3387 <u>current</u> 5 4 6 <u>current</u> 0.6 8.0 19.8	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 3 3 history1 0.4 7.1 19.0	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 4 history2 0.3 6.6 18.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	7 0 56 <1 936 1158 1049 1269 3387 current 5 4 6 current 0.6 8.0 19.8 current	6 0 56 <1 950 1183 1064 1278 3598 history1 4 4 4 3 history1 0.4 7.1 19.0 history1	8 0 54 <1 890 1101 1109 1235 3504 history2 5 2 4 4 history2 0.3 6.6 18.8 history2



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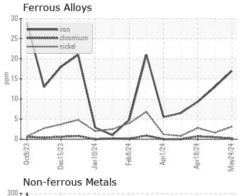
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.9	14.0

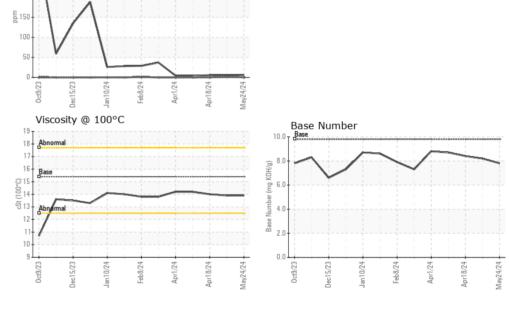
GRAPHS

lead

250

200





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 891 - Oklahoma City Hauling Sample No. : GFL0093509 Received : 28 May 2024 1001 South Rockwell Lab Number : 06193432 Tested : 30 May 2024 Oklahoma City, OK Unique Number : 11050184 Diagnosed : 30 May 2024 - Wes Davis US 73128 Test Package : FLEET Contact: Andy Smith Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. andrew.smith@gflenv.com T: (405)306-1651 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F:

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

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Submitted By: Andy Smith Page 2 of 2