

OIL ANALYSIS REPORT

Area (97J3WG) 920084-205324

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

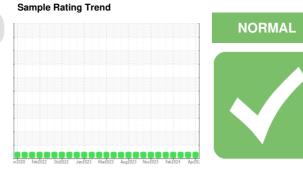
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

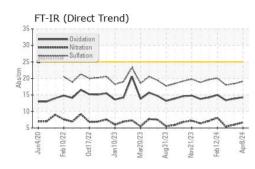
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

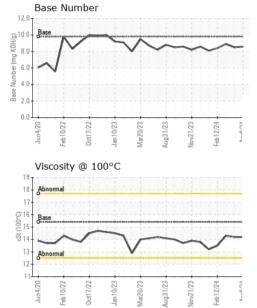


SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0114138	GFL0114116	GFL0114128
Sample Date		Client Info		08 Apr 2024	21 Mar 2024	07 Mar 2024
Machine Age	hrs	Client Info		19267	19130	19016
Oil Age	hrs	Client Info		19026	19003	127
Oil Changed		Client Info		Not Changd	Not Changd	N/A
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	8	7	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	1	1
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current <1	history1 <1	history2 2
	ppm ppm					
Boron		ASTM D5185m	0	<1	<1	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	<1 <1	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 59	<1 <1 59	2 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 59 0	<1 <1 59 <1	2 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	<1 0 59 0 951	<1 <1 59 <1 894	2 0 54 <1 904
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	<1 0 59 0 951 1075	<1 <1 59 <1 894 1080	2 0 54 <1 904 1010
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	<1 0 59 0 951 1075 1032	<1 <1 59 <1 894 1080 917	2 0 54 <1 904 1010 999
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	<1 0 59 0 951 1075 1032 1238	<1 <1 59 <1 894 1080 917 1155	2 0 54 <1 904 1010 999 1180
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	<1 0 59 0 951 1075 1032 1238 3602	<1 <1 59 <1 894 1080 917 1155 2802	2 0 54 <1 904 1010 999 1180 3056
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 0 59 0 951 1075 1032 1238 3602 current	<1 <1 59 <1 894 1080 917 1155 2802 history1	2 0 54 <1 904 1010 999 1180 3056 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 1010 1070 1150 1270 2060	<1 0 59 0 951 1075 1032 1238 3602 current 2	<1 <1 59 <1 894 1080 917 1155 2802 history1 5	2 0 54 <1 904 1010 999 1180 3056 history2 2
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	<1 0 59 0 951 1075 1032 1238 3602 current 2 2 28	<1 <1 59 <1 894 1080 917 1155 2802 history1 5 0	2 0 54 <1 904 1010 999 1180 3056 history2 2 1
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 0 59 0 951 1075 1032 1238 3602 current 2 2 28 8	<1 <1 59 <1 894 1080 917 1155 2802 history1 5 0 2	2 0 54 <1 904 1010 999 1180 3056 history2 2 1 2 1 2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	<1 0 59 0 951 1075 1032 1238 3602 current 2 28 8 8	<1 <p><1</p> 59 <1 894 1080 917 1155 2802 history1 5 0 2 history1	2 0 54 <1 904 1010 999 1180 3056 history2 2 1 2 1 2 <i>h</i> istory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 0 59 0 951 1075 1032 1238 3602 current 2 28 8 8 current 0.6	<1 <1 59 <1 894 1080 917 1155 2802 history1 5 0 2 2 history1 0.4	2 0 54 <1 904 1010 999 1180 3056 history2 2 1 2 1 2 1 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	<1 0 59 0 951 1075 1032 1238 3602 <i>current</i> 2 2 8 8 <i>current</i> 0.6 6.7	<1 <1 59 <1 894 1080 917 1155 2802 history1 5 0 2 history1 0.4 6.0	2 0 54 <1 904 1010 999 1180 3056 history2 2 2 1 2 1 2 history2 0.3 5.4
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	<1 0 59 0 951 1075 1032 1238 3602 <u>current</u> 2 28 8 <u>current</u> 0.6 6.7 19.1	<1 <p><1</p> 59 <1 894 1080 917 1155 2802 history1 5 0 2 history1 0.4 6.0 18.4	2 0 54 <1 904 1010 999 1180 3056 history2 2 1 2 1 2 history2 0.3 5.4 18.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	<1 0 59 0 951 1075 1032 1238 3602 Current 2 28 8 Current 0.6 6.7 19.1 Current	<1 <1 59 <1 894 1080 917 1155 2802 history1 5 0 2 2 history1 0.4 6.0 18.4 history1	2 0 54 <1 904 1010 999 1180 3056 history2 2 1 2 2 1 2 2 history2 0.3 5.4 18.0 history2



OIL ANALYSIS REPORT



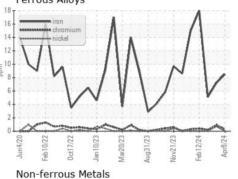


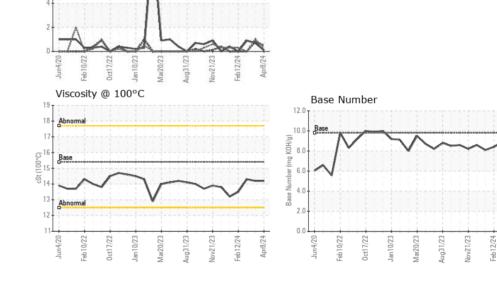
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.2	14.3
GRAPHS						

Ferrous Alloys

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mdd





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 836 - Kansas City Hauling Sample No. : GFL0114138 Received : 16 Apr 2024 7801 East Truman Road Lab Number : 06150935 Tested : 17 Apr 2024 Kansas City, MO Unique Number : 10981013 Diagnosed : 17 Apr 2024 - Wes Davis US 64126 Test Package : FLEET Contact: Loyce Stewart Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. loyce.stewart@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

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

Report Id: GFL836 [WUSCAR] 06150935 (Generated: 04/17/2024 16:43:28) Rev: 1

Submitted By: JEREMY BROWN

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Apr8/24