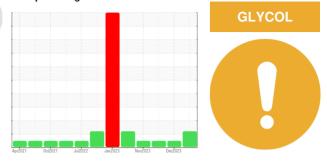


## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 587M

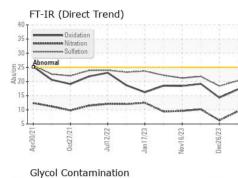
Diesel Engine

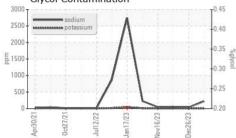
## PETRO CANADA DURON SHP 15W40 (--- GAL)

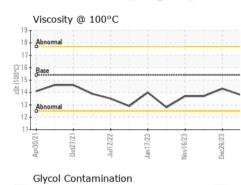
DIAGNOSIS	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Recommendation	Sample Number		Client Info		GFL0117711	GFL0105856	GFL0105626
No corrective action is recommended at this time.	Sample Date		Client Info		01 Apr 2024	26 Dec 2023	08 Dec 2023
Resample at the next service interval to monitor.	Machine Age	hrs	Client Info		10281	10129	10100
Wear	Oil Age	hrs	Client Info		10129	10100	10032
All component wear rates are normal.	Oil Changed		Client Info		Not Changd	Changed	Changed
Contamination	Sample Status				ATTENTION	NORMAL	NORMAL
Sodium and/or potassium levels are high. Test for glycol is negative.	CONTAMINAT	ION	method	limit/base	current	history1	history2
Fluid Condition	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
The BN result indicates that there is suitable	Water		WC Method	>0.2	NEG	NEG	NEG
alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.	WEAR METAL	S	method	limit/base	current	history1	history2
	Iron	ppm	ASTM D5185m	>90	22	7	37
	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
	Nickel	ppm	ASTM D5185m	>2	0	0	<1
	Titanium	ppm	ASTM D5185m	>2	0	0	0
	Silver	ppm	ASTM D5185m	>2	0	0	0
	Aluminum	ppm	ASTM D5185m	>20	3	2	3
	Lead	ppm	ASTM D5185m	>40	0	0	0
	Copper	ppm	ASTM D5185m	>330	4	5	33
	Tin	ppm	ASTM D5185m	>15	0	<1	0
	Vanadium	ppm	ASTM D5185m		<1	0	0
	Cadmium	ppm	ASTM D5185m		0	0	0
	ADDITIVES		method	limit/base	current	history1	history2
			mounou				
	Boron	ppm	ASTM D5185m		2	1	2
		ppm ppm		0		1 0	2
	Boron		ASTM D5185m	0	2		
	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	0	0
	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 75	0 59	0
	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 75 <1	0 59 0	0 58 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 1070	2 0 75 <1 1002	0 59 0 963	0 58 1 934
	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 1150	2 0 75 <1 1002 1108	0 59 0 963 1100	0 58 1 934 1058
	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 1270	2 0 75 <1 1002 1108 1094	0 59 0 963 1100 1051	0 58 1 934 1058 981
	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	2 0 75 <1 1002 1108 1094 1339 3683	0 59 0 963 1100 1051 1244	0 58 1 934 1058 981 1289
	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 0 1010 1070 1150 1270 2060 Limit/base	2 0 75 <1 1002 1108 1094 1339 3683	0 59 0 963 1100 1051 1244 3102	0 58 1 934 1058 981 1289 2521
	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 Limit/base	2 0 75 <1 1002 1108 1094 1339 3683	0 59 0 963 1100 1051 1244 3102 history1	0 58 1 934 1058 981 1289 2521 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221	0 59 0 963 1100 1051 1244 3102 history1 3	0 58 1 934 1058 981 1289 2521 history2 6
	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 1010 1070 1150 1270 2060 imit/base >25	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2	0 59 0 963 1100 1051 1244 3102 history1 3 36 <1	0 58 1 934 1058 981 1289 2521 history2 6 54
	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 1010 1070 1150 1270 2060 imit/base >25	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2 NEG	0 59 0 963 1100 1051 1244 3102 history1 3 36	0 58 1 934 1058 981 1289 2521 history2 6 54 2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2 NEG current	0 59 0 963 1100 1051 1244 3102 history1 3 36 <1 NEG history1	0 58 1 934 1058 981 1289 2521 history2 6 54 2 2 NEG NEG
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2 NEG current 0.4	0 59 0 963 1100 1051 1244 3102 history1 3 3 6 <1 NEG history1 0.3	0 58 1 934 1058 981 1289 2521 history2 6 54 2 2 NEG NEG 0.7
	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 D5185m *ASTM D2982	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2 NEG 0.4 9.5	0 59 0 963 1100 1051 1244 3102 <u>history1</u> 3 36 <1 NEG <u>history1</u> 0.3 6.3	0 58 1 934 1058 981 1289 2521 history2 6 54 2 2 NEG NEG 0.7 10.2
	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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20 20 20 20 20 20 20 20 20 20 20 20 2	2 0 75 <1 1002 1108 1094 1339 3683 current 2 2 NEG current 0.4 9.5 20.3	0 59 0 963 1100 1051 1244 3102 history1 3 3 6 <1 NEG history1 0.3 6.3 18.4	0 58 1 934 1058 981 1289 2521 history2 6 54 2 NEG NEG NEG 0.7 10.2 21.8
	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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	2 0 75 <1 1002 1108 1094 1339 3683 current 2 2 NEG current 0.4 9.5 20.3	0 59 0 963 1100 1051 1244 3102 <u>history1</u> 3 36 <1 NEG <u>history1</u> 0.3 6.3	0 58 1 934 1058 981 1289 2521 history2 6 54 2 2 NEG NEG 0.7 10.2
	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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >6 >20 >30 imit/base	2 0 75 <1 1002 1108 1094 1339 3683 current 7 221 2 NEG current 0.4 9.5 20.3	0 59 0 963 1100 1051 1244 3102 history1 3 3 6 <1 NEG history1 0.3 6.3 18.4	0 58 1 934 1058 981 1289 2521 history2 6 54 2 NEG NEG NEG 0.7 10.2 21.8
	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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 <b>method</b> *ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >6 >20 imit/base >30	2 0 75 <1 1002 1108 1094 1339 3683 Current 7 221 2 NEG 221 2 NEG 0.4 9.5 20.3 Current	0 59 0 963 1100 1051 1244 3102 history1 3 36 <1 NEG history1 0.3 6.3 18.4 history1	0 58 1 934 1058 981 1289 2521 history2 6 54 2 NEG NEG 0.7 10.2 21.8 history2

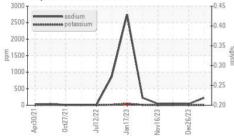


## **OIL ANALYSIS REPORT**

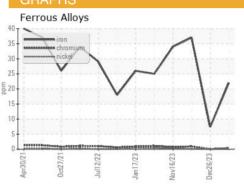


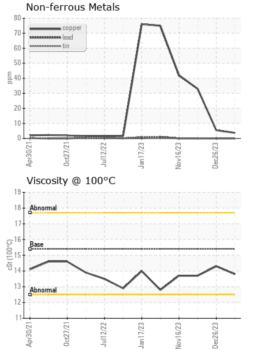


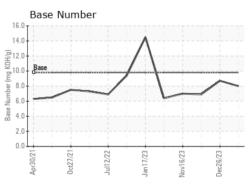




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	13.8	14.3	13.7
GRAPHS						







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 415 - Michigan East Sample No. : GFL0117711 Received : 03 Apr 2024 6200 Elmridge Lab Number : 06137143 Tested : 05 Apr 2024 Sterling Heights, MI US 48313 Unique Number : 10956608 Diagnosed : 05 Apr 2024 - Sean Felton Test Package : FLEET ( Additional Tests: Glycol ) Contact: Frank Wolak Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. fwolak@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (586)825-9514 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) E:

Report Id: GFL415 [WUSCAR] 06137143 (Generated: 04/05/2024 22:42:41) Rev: 1

Submitted By: Frank Wolak

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