

OIL ANALYSIS REPORT

Sample Rating Trend



728044-362000

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.

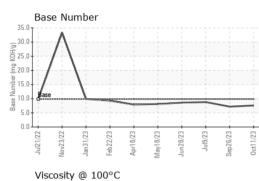
Fluid Condition

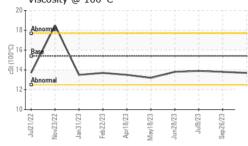
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current		history2
Sample Number		Client Info		GFL0088061	GFL0088182	GFL0067705
Sample Date		Client Info		11 Oct 2023	26 Sep 2023	09 Jul 2023
Machine Age	hrs	Client Info		2720	222744	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	15	12	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>20	<1	<1	0
	ppm	ASTM D5185m	~4	<1	0	<1
Titanium Silver	ppm		. 0			
	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	4	4	10
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	current 32	46	0
	ppm ppm		0	32 10	46 0	
Boron		ASTM D5185m	0	32	46 0 29	0 0 57
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	32 10	46 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	32 10 37	46 0 29	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	32 10 37 <1	46 0 29 <1	0 0 57 <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	32 10 37 <1 516	46 0 29 <1 482	0 0 57 <1 879
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	32 10 37 <1 516 1361	46 0 29 <1 482 1599	0 0 57 <1 879 970
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 ASTM D5185m	0 0 60 0 1010 1070 1150	32 10 37 <1 516 1361 960	46 0 29 <1 482 1599 1039	0 0 57 <1 879 970 936
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	32 10 37 <1 516 1361 960 1116 3054	46 0 29 <1 482 1599 1039 1238	0 0 57 <1 879 970 936 1148
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 1010 1070 1150 1270 2060	32 10 37 <1 516 1361 960 1116 3054	46 0 29 <1 482 1599 1039 1238 3229	0 0 57 <1 879 970 936 1148 3397
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	32 10 37 <1 516 1361 960 1116 3054 Current	46 0 29 <1 482 1599 1039 1238 3229 history1	0 0 57 <1 879 970 936 1148 3397 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	32 10 37 <1 516 1361 960 1116 3054 current 2	46 0 29 <1 482 1599 1039 1238 3229 history1 4	0 0 57 <1 879 970 936 1148 3397 history2 3
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base	32 10 37 <1 516 1361 960 1116 3054 current 2 2 23 14	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23	0 0 57 <1 879 970 936 1148 3397 history2 3 36
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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	32 10 37 <1 516 1361 960 1116 3054 current 2 2 23 14 current	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11	0 0 57 <1 879 970 936 1148 3397 history2 3 3 6 13
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	32 10 37 <1 516 1361 960 1116 3054 Current 2 23 14 Current 0.6	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11 4 23 11 0.6	0 0 57 <1 879 970 936 1148 3397 history2 3 36 13 13 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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	32 10 37 <1 516 1361 960 1116 3054 current 2 2 23 14 current	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11 history1	0 0 57 <1 879 970 936 1148 3397 history2 3 36 13 history2
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	32 10 37 <1 516 1361 960 1116 3054 <u>current</u> 2 23 14 <u>current</u> 0.6 8.6 20.7	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11 4 23 11 0.6 8.6	0 0 57 <1 879 970 936 1148 3397 history2 3 36 13 history2 0.3 6.4
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 D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	32 10 37 <1 516 1361 960 1116 3054 Current 2 2 23 14 Current 0.6 8.6 20.7 Current	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11 4 23 11 0.6 8.6 20.1 history1	0 0 57 <1 879 970 936 1148 3397 history2 3 3 36 13 history2 0.3 6.4 19.0 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	32 10 37 <1 516 1361 960 1116 3054 <u>current</u> 2 23 14 <u>current</u> 0.6 8.6 20.7	46 0 29 <1 482 1599 1039 1238 3229 history1 4 23 11 4 23 11 0.6 8.6 20.1	0 0 57 <1 879 970 936 1148 3397 history2 3 3 6 13 history2 0.3 6.4 19.0

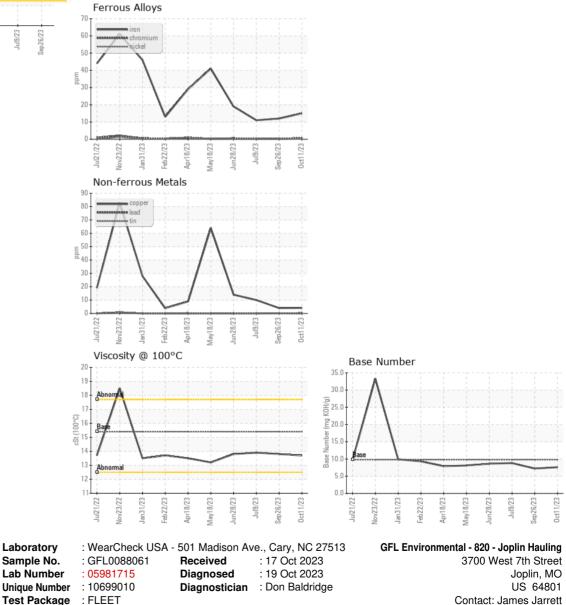


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	13.7	13.8	13.9
GRAPHS						



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

* - 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)

Certificate L2367

jjarrett@gflenv.com

T: (417)310-2802

F: