

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 812041

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.

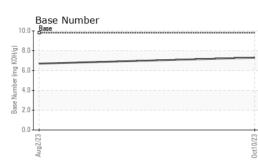
Fluid Condition

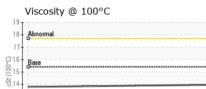
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0096603	GFL0082789	
Sample Date		Client Info		10 Oct 2023	02 Aug 2023	
Machine Age	hrs	Client Info		3866	3286	
Oil Age	hrs	Client Info		600	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method	20	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
		ASTM D5185m	>100	14	19	
Iron	ppm				<1	
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m ASTM D5185m	>4	<1	<1 0	
Titanium Silver	ppm		. 0	<1		
	ppm	ASTM D5185m	>3	<1	<1	
Aluminum Lead	ppm	ASTM D5185m	>20	<1 <1	<1 <1	
	ppm	ASTM D5185m	>40			
Copper	ppm	ASTM D5185m	>330	2	3	
Tin Vanadium	ppm	ASTM D5185m	>15	<1	<1 0	
	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		<1	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 1	history2
	ppm ppm					
Boron		ASTM D5185m	0	0	1	
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0 3	1 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 3 59	1 0 64	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 3 59 <1 913 1052	1 0 64 <1 929 1123	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	0 3 59 <1 913 1052 861	1 0 64 <1 929 1123 985	
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	0 3 59 <1 913 1052	1 0 64 <1 929 1123	
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	0 0 60 0 1010 1070 1150	0 3 59 <1 913 1052 861	1 0 64 <1 929 1123 985	
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	0 3 59 <1 913 1052 861 1154	1 0 64 <1 929 1123 985 1252	
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 1010 1070 1150 1270 2060	0 3 59 <1 913 1052 861 1154 2470	1 0 64 <1 929 1123 985 1252 2755	
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	0 3 59 <1 913 1052 861 1154 2470 current	1 0 64 <1 929 1123 985 1252 2755 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 imit/base >25	0 3 59 <1 913 1052 861 1154 2470 current 3	1 0 64 <1 929 1123 985 1252 2755 history1 3	 history2
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	0 3 59 <1 913 1052 861 1154 2470 current 3 5	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 3	 history2
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 imit/base >25 -20	0 3 59 <1 913 1052 861 1154 2470 current 3 5 <1	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 3 1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 >20 limit/base >3	0 3 59 <1 913 1052 861 1154 2470 current 3 5 <1 current	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 1 history1	 history2 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >3	0 3 59 <1 913 1052 861 1154 2470 <u>current</u> 3 5 <1 2 0.8	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 1 1 history1 0.9	 history2 history2 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 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	0 3 59 <1 913 1052 861 1154 2470 current 3 5 <1 current 0.8 8.4	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 1 1 history1 0.9 8.3	 history2 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 ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20 >30	0 3 59 <1 913 1052 861 1154 2470 current 3 5 <1 current 0.8 8.4 20.8 current	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 3 1 history1 0.9 8.3 20.1 history1	 history2 history2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 220 20 33 20 20 330	0 3 59 <1 913 1052 861 1154 2470 current 3 5 <1 current 0.8 8.4 20.8	1 0 64 <1 929 1123 985 1252 2755 history1 3 3 1 history1 0.9 8.3 20.1	 history2 history2 history2 history2



OIL ANALYSIS REPORT







VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPER	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.8	
GRAPHS						
Ferrous Alloys			Det10/23			
			0			

Base Number

10.0

8. (mg KOH/g)

6 | lumber

4 (Base

0.0

Aug2/23

0ct10/23 -

: 16 Oct 2023

: 17 Oct 2023



Unique Number : 10697605 Diagnostician : Wes Davis Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. rickymathews@gflenv.com * - 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)

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

Received

Diagnosed

Viscosity @ 100°C

19

18 17

+(100°C)

ぢ 14

13 Abno 12 11-

Aug2/23

: GFL0096603

: 05980310

Laboratory

Sample No.

Lab Number

Contact: Ricky Matthews

T: (586)825-9514

GFL Environmental - 465 - Pontiac

888 Baldwin

Pontiac, MI

US 48340

F: