

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 813077

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

Elevated aluminum (AI) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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.

•··· ·=)	Feb.2023 Mar2023 Apr2023 Jun2023					
SAMPLE INFORM	/IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0083701	GFL0075006	GFL0069467
Sample Date		Client Info		28 Jun 2023	03 Apr 2023	13 Mar 2023
Machine Age	hrs	Client Info		1343	758	583
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	80	45	18
Chromium	ppm	ASTM D5185m	>4	3	2	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	73	49	0
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	14	16	4
Tin	ppm	ASTM D5185m	>4	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 43	history1 113	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 43 1	history1 113 1	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 43 1 109	history1 113 1 110	history2 0 0 62
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 43 1 109 9	history1 113 1 110 7	history2 0 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current 43 1 109 9 903	history1 113 1 110 7 648	history2 0 0 62 <1 953
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070	current 43 1 109 9 903 1510	history1 113 1 110 7 648 1339	history2 0 62 <1 953 1047
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150	current 43 1 109 9 903 1510 853	history1 113 1 110 7 648 1339 643	history2 0 62 <1 953 1047 904
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270	current 43 1 109 9 903 1510 853 1119	history1 113 1 11 110 7 648 1339 643 826	history2 0 62 <1 953 1047 904 1240
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current 43 1 109 9 903 1510 853 1119 3227	history1 113 11 110 7 648 1339 643 826 2095	history2 0 0 62 <1 953 1047 904 1240 2839
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060	current 43 1 109 9 903 1510 853 1119 3227 current	history1 113 1 11 110 7 648 1339 643 826 2095 history1	history2 0 0 62 <1 953 1047 904 1240 2839 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >30	current 43 1 109 9 903 1510 853 11119 3227 current 17	history1 113 1 110 7 648 1339 643 826 2095 history1 19	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >30	current 43 1 109 9 903 1510 853 1119 3227 current 17 4	history1 113 1 113 1 110 7 648 1339 643 826 2095 history1 19 3	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >30 >20	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1
ADDITIVES 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	method ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 <1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >33	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current 0.7	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1 0.5	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 history2 0.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ррт ррт ррт ррт ррт ррт ррт ррт	method ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >30 >20	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current 0.7 12.5	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1 0.5 10.7	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 0.8 9.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm	method ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >3 >20 s30 >3 >20	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current 0.7 12.5 26.6	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1 0.5 10.7 24.6	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 <1 0.8 9.5 20.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 Method	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >30 limit/base >3 >20 s30 limit/base	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current 0.7 12.5 26.6 current	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1 0.5 10.7 24.6 history1	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 0.8 9.5 20.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7185M ASTM D7624 *ASTM D7624 *ASTM D7414	limit/base 0 0 60 0 1010 1070 1150 2060 limit/base >30 limit/base >3 >20 limit/base >3 >20 limit/base >3 >20 limit/base >3 >20 limit/base >20 >30 >20 >30 >20 >30	current 43 1 109 9 903 1510 853 1119 3227 current 17 4 187 current 0.7 12.5 26.6 current 24.0	history1 113 1 110 7 648 1339 643 826 2095 history1 19 3 130 history1 0.5 10.7 24.6 history1 20.7	history2 0 0 62 <1 953 1047 904 1240 2839 history2 4 <1 <1 <1 0.8 9.5 20.6 history2 16.2



OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2			
White Metal	scal	ar *Visual	NONE	NONE	NONE	NONE			
Yellow Meta	scal	ar *Visual	NONE	NONE	NONE	NONE			
Precipitate	scal	ar *Visual	NONE	NONE	NONE	NONE			
Silt	scal	ar *Visual	NONE	NONE	NONE	NONE			
Debris	scal	ar *Visual	NONE	NONE	NONE	NONE			
Sand/Dirt	scal	ar *Visual	NONE	NONE	NONE	NONE			
Appearance	scal	ar *Visual	NORML	NORML	NORML	NORML			
Odor	scal	ar *Visual	NORML	NORML	NORML	NORML			
Emulsified V	Vater scal	ar *Visual	>0.2	NEG	NEG	NEG			
Free Water	scal	ar *Visual		NEG	NEG	NEG			
FLUID P	ROPERTIE	ES method	limit/base	current	history1	history2			
Visc @ 100°	C cSt	ASTM D445	5 15.4	13.8	13.1	13.8			
GRAPHS	S								
Ferrous Al	oys								
80 iron			/						
60	nium I	/							
50									
E 40		/							
30-	/								
20									
10-									
0	m								
Feb 6/2	ar13/2	Apr3/2	In 28/2						
Non-ferrous Metals									
14 copp	er								
12 - tin		/							
10	/								
Md 8									
6									
4	\checkmark								
2									
23 23	23	23	23						
Feb 6/	Mar13//	Apr3/	Jun28/						

Base Number

Mar13/23

10.0

8 (mg KOH/g)

6 umber 4 Base

0.0

Feb6/23

Jun28/23 -

: 20 Jul 2023

: 21 Jul 2023



: 10564977 Unique Number Diagnostician : Wes Davis Test Package : FLEET Certificate L2367 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)

Mar13/23

Viscosity @ 100°C

19

18 17

()-16 ()-00 () 15 () 14

13 Abnorma 12 11-

Laboratory Sample No.

Lab Number

Feb 6/23

: GFL0083701

: 05903621

Apr3/23

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

Received

Diagnosed



Apr3/23

un28/23