

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 420111

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		GFL0087032	GFL0083657	GFL0087051
Sample Date		Client Info		30 Aug 2023	07 Aug 2023	28 Jul 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	600	0
Oil Changed		Client Info		Not Changd	Changed	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	ppm	ASTM D5185m	>110	5	12	9
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	5	4
Lead	ppm	ASTM D5185m	>45	0	1	1
Copper	ppm	ASTM D5185m	>85	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current <1	history1 1	history2 1
	ppm ppm					
Boron		ASTM D5185m	0	<1	1	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 0	1 0	1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 0 58	1 0 56	1 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 0 58 <1	1 0 56 <1	1 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	<1 0 58 <1 911	1 0 56 <1 887	1 0 57 <1 896
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 58 <1 911 1355	1 0 56 <1 887 1185	1 0 57 <1 896 1241
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 58 <1 911 1355 1074	1 0 56 <1 887 1185 942	1 0 57 <1 896 1241 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	<1 0 58 <1 911 1355 1074 1272	1 0 56 <1 887 1185 942 1219	1 0 57 <1 896 1241 981 1222
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 0 1010 1070 1150 1270 2060	<1 0 58 <1 911 1355 1074 1272 3895	1 0 56 <1 887 1185 942 1219 3332	1 0 57 <1 896 1241 981 1222 3455
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 58 <1 911 1355 1074 1272 3895 current	1 0 56 <1 887 1185 942 1219 3332 history1	1 0 57 <1 896 1241 981 1222 3455 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 limit/base >30	<1 0 58 <1 911 1355 1074 1272 3895 current 3	1 0 56 <1 887 1185 942 1219 3332 history1 4	1 0 57 <1 896 1241 981 1222 3455 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 limit/base >30	<1 0 58 <1 911 1355 1074 1272 3895 <u>current</u> 3 4	1 0 56 <1 887 1185 942 1219 3332 history1 4 5	1 0 57 <1 896 1241 981 1222 3455 history2 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30	<1 0 58 <1 911 1355 1074 1272 3895 current 3 4 <1	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 -20	<1 0 58 <1 911 1355 1074 1272 3895 current 3 4 <1 current	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16 history1	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9 9
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 200 limit/base >30	<1 0 58 <1 911 1355 1074 1272 3895 <u>current</u> 3 4 <1 <u>current</u> 0.2	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16 history1 0.4	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9 9 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 <i>limit/base</i> >30 <i>limit/base</i> >20	<1 0 58 <1 911 1355 1074 1272 3895 current 3 4 <1 current 0.2 5.4	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16 history1 0.4 7.6	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9 history2 0.3 7.2
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 >30 imit/base >3 20	<1 0 58 <1 911 1355 1074 1272 3895 <u>current</u> 3 4 <1 <u>current</u> 0.2 5.4 18.2	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16 history1 0.4 7.6 18.8	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9 <u>history2</u> 0.3 7.2 18.4
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 2060 2060 2060 2	<1 0 58 <1 911 1355 1074 1272 3895 Current 3 4 <1 Current 0.2 5.4 18.2 Current	1 0 56 <1 887 1185 942 1219 3332 history1 4 5 16 history1 0.4 7.6 18.8 history1	1 0 57 <1 896 1241 981 1222 3455 history2 4 5 9 history2 0.3 7.2 18.4 history2



OIL ANALYSIS REPORT

Viscosity @ 100°C

Jan 13/23

May1/23 -

May25/23

19

18 17

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

13 Abnorma

12 11-

Laboratory

Sample No.

Lab Number

Unique Number

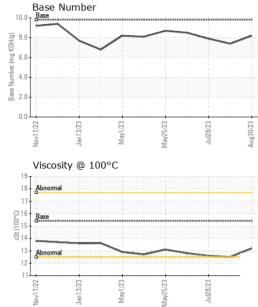
Test Package : FLEET

Nov17/22

: GFL0087032

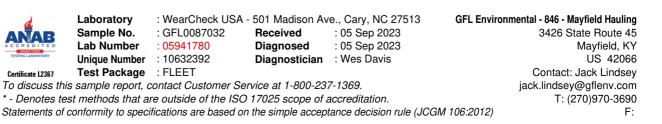
: 05941780

: 10632392



10 5 0	rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual	NONE NONE NONE NONE NORML >0.2 Iimit/base 15.4	NONE NONE NONE NONE NORML NORML NEG NEG 13.2	NONE NONE NONE NONE NORML NORML NEG NEG history1 12.5	NONE NONE NONE NONE NORML NORML NEG NEG history2 12.6
Precipitate scala Silt scala Debris scala Sand/Dirt scala Appearance scala Odor scala Emulsified Water scala Free Water scala Free Water scala Free Water scala Free Water scala Free Water scala Free Water scala	rr *Visual rr *Visual	NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NORML NORML NEG NEG history2
Silt scala Debris scala Sand/Dirt scala Appearance scala Odor scala Emulsified Water scala Free Water scala Free Water scala Free Water scala Free Water scala Free Water scala Free Water scala	rr *Visual rr *Visual	NONE NONE NORML NORML >0.2 limit/base	NONE NONE NORML NORML NEG NEG	NONE NONE NORML NORML NEG NEG history1	NONE NONE NORML NORML NEG NEG history2
Debris scala Sand/Dirt scala Appearance scala Odor scala Emulsified Water scala Free Water scala	rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual S method	NONE NORML NORML >0.2 limit/base	NONE NORML NORML NEG NEG	NONE NONE NORML NEG NEG history1	NONE NONE NORML NEG NEG history2
Sand/Dirt scala Appearance scala Odor scala Emulsified Water scala Free Water scala Free Water scala FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	rr *Visual rr *Visual rr *Visual rr *Visual rr *Visual S method	NONE NORML NORML >0.2	NONE NORML NORML NEG NEG current	NONE NORML NORML NEG NEG history1	NONE NORML NORML NEG NEG history2
Appearance scala Odor scala Emulsified Water scala Free Water scala FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	ur *Visual ur *Visual ur *Visual ur *Visual S method	NORML NORML >0.2 limit/base	NORML NORML NEG NEG current	NORML NORML NEG NEG history1	NORML NORML NEG NEG history2
Odor scala Emulsified Water scala Free Water scala FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	ur *Visual ur *Visual ur *Visual S method	NORML >0.2 limit/base	NORML NEG NEG current	NORML NEG NEG history1	NORML NEG NEG history2
Emulsified Water scala Free Water scala FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	ur *Visual ur *Visual S method	>0.2 limit/base	NEG NEG current	NEG NEG history1	NEG NEG history2
Free Water scala FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys 30 4 5 10 5 10 10 10 10 10 10 10 10 10 10	r *Visual S method	limit/base	NEG current	NEG history1	NEG history2
FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys	S method		current	history1	history2
Visc @ 100°C cSt GRAPHS Ferrous Alloys					
GRAPHS Ferrous Alloys	ASTM D445	15.4	13.2	12.5	12.6
Ferrous Alloys					
EZELING Non-ferrous Metals	E2/82/w	Aug30/23			





Jan 13/23

May1/23 -

Base Number

10.0 Base

8. (mg KOH/g)

6 (Number (4 (Base

2 (

0.0

Nov17/22

Jul28/23 -

Aug30/23 -

Certificate L2367

Mav25/23

Jul28/23 -

Aug30/23