

OIL ANALYSIS REPORT

(GD53870) 228036

Diesel Engine

PETRO CANADA DURON SHP 15W40 (6 GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

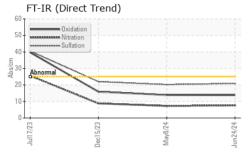
Fluid Condition

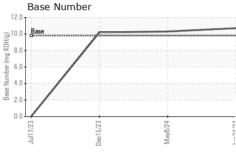
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

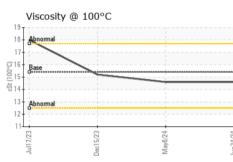
SAMPLE INFORMATION method imit/base current history1 history2	AL)		Jul202	3 Dec2023	May2024 Ju	un2024	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 500 19650 19050 Oil Age hrs Client Info 500 19650 500 Oil Changed Client Info 500 19650 500 Contaged Client Info Changed Not Changed Not Changed Not Changed Not Changed CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >5 <1.0	Sample Number		Client Info		GFL0120458	GFL0060359	GFL0066174
Oil Age hrs Client Info 500 19650 500 Oil Changed Sample Status Client Info Changed Not Changed Not Changed Changed Not Changed NorMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history2 Fruel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit base current history1 history2 Iron ppm ASTM D5185n >100 10 8 10 Chromium ppm ASTM D5185n >20 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Sample Date		Client Info		24 Jun 2024	08 May 2024	15 Dec 2023
Oil Changed Sample Status Client Info Changed NORMAL NORMAL Not Changed NORMAL NORMAL Changed NORMAL Changed NORMAL NORMAL Changed NORMAL Change NORMAL	Machine Age	hrs	Client Info		19650	19650	19650
Sample Status Morman Norman Norman Norman CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTMD5185m >100 10 8 10 Chromium ppm ASTMD5185m >20 <1 <1 <1 0 Nickel ppm ASTMD5185m >20 <1 <1 0 0 Silver ppm ASTMD5185m >3 0 <1 0 0 Silver ppm ASTMD5185m >20 <1 1 1 1 1 1 1 1 4 4 0 0 1 3 0 <1 0 0 0 0 0	Oil Age	hrs	Client Info		500	19650	500
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0	Oil Changed		Client Info		Changed	Not Changd	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 10 8 10 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >4 0 0 0 Silver ppm ASTM D5185m >40 0 1 3 Silver ppm ASTM D5185m >40 0 1 3 Copper ppm ASTM D5185m >40 0 1 3 Copper ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m >16 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINAT	ΓΙΟΝ	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 10 8 10 Chromium ppm ASTM D5185m >20 <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 0 Titanium ppm ASTM D5185m >3 0 <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	10	8	10
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	0
Lead ppm ASTM D5185m >40 0 1 3 Copper ppm ASTM D5185m >330 19 14 4 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m <1 <1 <1 <1 Cadmium ppm ASTM D5185m 0 <1 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 5 8 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 0 0 Calcium ppm ASTM D5185m 1070 1302 1211 1013 1013 Phosphorus ppm	Silver	ppm	ASTM D5185m	>3	0	<1	0
Copper ppm ASTM D5185m >330 19 14 4 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	<1	1	1
Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m <1 <1 <1 <1 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 5 8 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 41 <1 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 0 0 6 66 60 57 6 66 60 57 4 0 4 1 007 896 6 66 60 57 4 1 007 896 6 66 60 57 4 1 007 896 1	Lead	ppm	ASTM D5185m	>40	0	1	3
Vanadium ppm ASTM D5185m <1 <1 <1 <1 <1 Cadmium ppm ASTM D5185m 0 <1 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 5 8 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 66 60 57 Manganese ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	19	14	4
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 8 5 8 Barium ppm ASTM D5185m 0 <t< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>>15</td><th>0</th><td><1</td><td>0</td></t<>	Tin	ppm	ASTM D5185m	>15	0	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	<1
Boron ppm ASTM D5185m 0 8 5 8 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 66 60 57 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 1084 1007 896 Calcium ppm ASTM D5185m 1070 1302 1211 1013 Phosphorus ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base curr	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 66 60 57 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 66 60 57 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 1084 1007 896 Calcium ppm ASTM D5185m 1070 1302 1211 1013 Phosphorus ppm ASTM D5185m 1150 1191 1090 920 Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844<	Boron	ppm	ASTM D5185m	0	8	5	8
Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 1084 1007 896 Calcium ppm ASTM D5185m 1070 1302 1211 1013 Phosphorus ppm ASTM D5185m 1150 1191 1090 920 Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 1084 1007 896 Calcium ppm ASTM D5185m 1070 1302 1211 1013 Phosphorus ppm ASTM D5185m 1150 1191 1090 920 Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Molybdenum	ppm	ASTM D5185m	60	66	60	57
Calcium ppm ASTM D5185m 1070 1302 1211 1013 Phosphorus ppm ASTM D5185m 1150 1191 1090 920 Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	0
Phosphorus ppm ASTM D5185m 1150 1191 1090 920 Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Magnesium	ppm	ASTM D5185m	1010	1084	1007	896
Zinc ppm ASTM D5185m 1270 1425 1358 1131 Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Calcium	ppm	ASTM D5185m	1070	1302	1211	1013
Sulfur ppm ASTM D5185m 2060 4187 4016 2928 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Phosphorus	ppm	ASTM D5185m	1150	1191	1090	920
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1	Zinc	ppm	ASTM D5185m	1270	1425	1358	1131
Silicon ppm ASTM D5185m >25 3 3 3 Sodium ppm ASTM D5185m 2 1 <1 <1 Potassium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Sulfur	ppm	ASTM D5185m	2060	4187	4016	2928
Sodium ppm ASTM D5185m 2 1 <1 Potassium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 2 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Silicon	ppm	ASTM D5185m	>25	3	3	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Sodium	ppm	ASTM D5185m		2	1	<1
Soot % % *ASTM D7844 >3 2.1 1.7 2.2 Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Potassium	ppm	ASTM D5185m	>20	1	2	0
Nitration Abs/cm *ASTM D7624 >20 7.6 7.3 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.9 20.2 22.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Soot %	%	*ASTM D7844	>3	2.1	1.7	2.2
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2513.813.915.9	Nitration	Abs/cm	*ASTM D7624	>20	7.6	7.3	8.8
Oxidation Abs/.1mm *ASTM D7414 >25 13.8 13.9 15.9	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	20.2	22.0
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	13.9	15.9
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8		10.3	10.2



OIL ANALYSIS REPORT



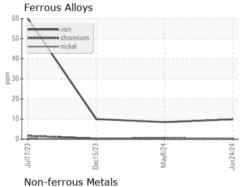


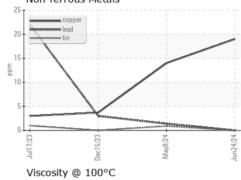


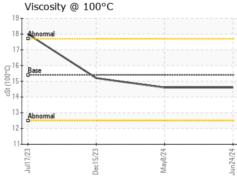
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

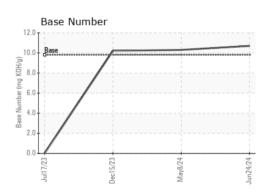
FLUID PROPI	ERIIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.6	15.2

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06223221 Unique Number : 11101418

: GFL0120458

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 Jun 2024 **Tested** Diagnosed

: 28 Jun 2024 : 28 Jun 2024 - Wes Davis

GFL Environmental - 904B - Menomonie

1706 MIDWAY RD MENOMONIE, WI US 54751

Contact: ANDY KANE

Test Package : FLEET 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) T: (715)202-3420