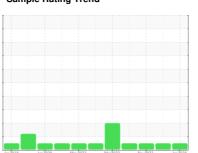


OIL ANALYSIS REPORT

Sample Rating Trend









425044-401385

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (8 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

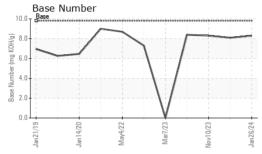
Fluid Condition

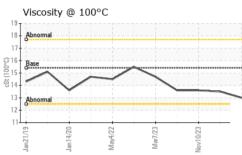
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			Jan2019	Jan2020 May2022	Mar2023 Nov2023	Jan 2024	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16255 6220 16104	Sample Number		Client Info		GFL0098708	GFL0098738	GFL0098761
Oil Age hrs Client Info 600 150 150 Oil Changed Sample Status Client Info Changed Not Changd Not Changd Not Changd Not Changd NormAL NORMAL NORMAL NORMAL Not Changd NoRMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NOR	Sample Date		Client Info		26 Jan 2024	13 Dec 2023	10 Nov 2023
Oil Changed Sample Status Client Info Changed NORMAL Not Changd NORMAL Not Changd NORMAL Not Changd NORMAL Not Changd NORMAL NOR	Machine Age	hrs	Client Info		16255	6220	16104
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		600	150	150
CONTAMINATION	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 30 29 25 Chromium ppm ASTM D5185m >20 2 <1 1 Nickel ppm ASTM D5185m >5 <1 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >20 3 1 2 Lead ppm ASTM D5185m >40 3 <1 2 Copper ppm ASTM D5185m >15 1 <1 <1 Vanadium ppm ASTM D5185m >10 0 0 <1 <t< th=""><th>CONTAMINATI</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATI	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<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 2 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	30	29	25
Titanium	Chromium	ppm	ASTM D5185m	>20	2	<1	1
Stilver	Nickel	ppm	ASTM D5185m	>5	<1	0	<1
Aluminum ppm ASTM D5185m >20 3 1 2 Lead ppm ASTM D5185m >40 3 <1	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Lead ppm ASTM D5185m >40 3 <1 2 Copper ppm ASTM D5185m >330 2 2 2 Tin ppm ASTM D5185m >15 1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 1 <1 ADDITIVES method 100 915 983 1169	Silver	ppm	ASTM D5185m	>2	0	0	<1
Copper ppm ASTM D5185m >330 2 2 2 2 Tin ppm ASTM D5185m >15 1 <1	Aluminum	ppm	ASTM D5185m	>20	3	1	2
Tin ppm ASTM D5185m >15 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 <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 <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	Lead	ppm	ASTM D5185m	>40	3	<1	2
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 1 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 58 59 75 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 915 983 1169 Calcium ppm ASTM D5185m 1070 1037 1038 1257 Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	2	2	2
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 5 1 <1	Tin	ppm	ASTM D5185m	>15	1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 58 59 75 Manganese ppm ASTM D5185m 0 2 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 59 75 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 915 983 1169 Calcium ppm ASTM D5185m 1070 1037 1038 1257 Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4	Boron	ppm	ASTM D5185m	0	5	1	<1
Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 915 983 1169 Calcium ppm ASTM D5185m 1070 1037 1038 1257 Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 2 1.3 Nitration Abs/cm *ASTM D7815	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 915 983 1169 Calcium ppm ASTM D5185m 1070 1037 1038 1257 Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/:mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION *ASTM D7414 >25	Molybdenum	ppm	ASTM D5185m	60	58	59	75
Calcium ppm ASTM D5185m 1070 1037 1038 1257 Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1	Manganese	ppm	ASTM D5185m	0	2	<1	<1
Phosphorus ppm ASTM D5185m 1150 1095 972 1230 Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1	Magnesium	ppm	ASTM D5185m	1010	915	983	1169
Zinc ppm ASTM D5185m 1270 1274 1267 1478 Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 <1	Calcium	ppm	ASTM D5185m	1070	1037	1038	1257
Sulfur ppm ASTM D5185m 2060 3129 2728 3598 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 4 <1	Phosphorus	ppm	ASTM D5185m	1150	1095	972	1230
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 4 <1	Zinc	ppm	ASTM D5185m	1270	1274	1267	1478
Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 4 <1 1 Potassium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 2 1.3 Nitration Abs/cm *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Sulfur	ppm	ASTM D5185m	2060	3129	2728	3598
Sodium ppm ASTM D5185m 4 <1 1 Potassium ppm ASTM D5185m >20 2 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 2 1.3 Nitration Abs/cm *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Silicon	ppm	ASTM D5185m	>25	7	3	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.4 2 1.3 Nitration Abs/cm *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Sodium	ppm	ASTM D5185m		4	<1	1
Soot % % *ASTM D7844 >4 0.4 2 1.3 Nitration Abs/cm *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Potassium	ppm	ASTM D5185m	>20	2	<1	3
Nitration Abs/cm *ASTM D7624 >20 8.4 9.1 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.4 23.0 20.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Soot %	%	*ASTM D7844	>4	0.4	2	1.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Nitration	Abs/cm	*ASTM D7624	>20	8.4	9.1	7.2
Oxidation Abs/.1mm *ASTM D7414 >25 16.2 16.3 14.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.4	23.0	20.7
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.3 8.1 8.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.2	16.3	14.2
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.3	8.1	8.3



OIL ANALYSIS REPORT

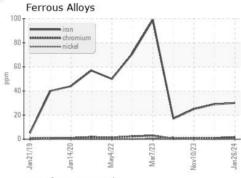


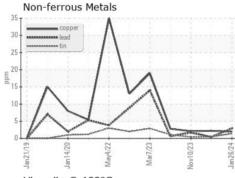


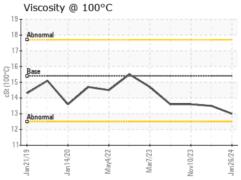
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

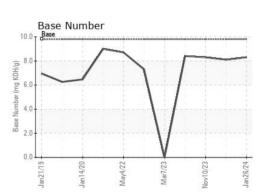
FLUID PROPE	KIIES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	13.5	13.6

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10857676 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0098708 : 06075585

Recieved Diagnosed

: 31 Jan 2024 : 01 Feb 2024 Diagnostician : Wes Davis

GFL Environmental - 829 - Wilco Hauling

5054 Highway HH Hartville, MO US 65667 Contact: James Jones james.jones@gflenv.com

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: (417)349-5006