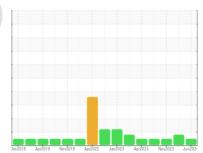


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id 427093-402368

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

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

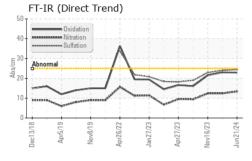
Fluid Condition

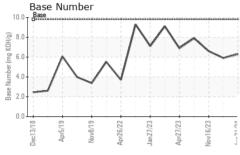
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

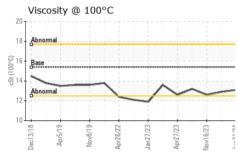
Sample Date Client Info 21 Jun 2024 04 Jan 2024 16 Nov 2023 Machine Age hrs Client Info 16339 15816 15717 Oil Age hrs Client Info Not Changd Changed Not Changd Sample Status Client Info Not Changd Changed Not Changd Sample Status Normal Normal ABNORMAL Normal CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	iAL)		Jec2018 Ap	rž019 Novž019 Aprž02	2 Jan2023 Apr2023 Nov20	23 Junž024	
Sample Date	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16339 15816 15717 Oil Age hrs Client Info 0 15816 15717 Oil Changed Client Info Not Changed ABNORMAL NORMAL Sample Status NORMAL ABNORMAL NORMAL CONTAMINATION method Imilibase current history1 history2 Fuel WC Method NEG NEG NEG NEG Glycol WC Method Neg NEG NEG NEG Glycol WC Method Neg NEG NEG NEG NEG Glycol WC Method Neg NEG NEG NEG NEG Glycol WC Method Neg NEG	Sample Number		Client Info		GFL0125242	GFL0103950	GFL0100486
Oil Age hrs Client Info Not Changed Not Changed Not Changed Not Changed Not Changed Sample Status Not Changed Not Chan	Sample Date		Client Info		21 Jun 2024	04 Jan 2024	16 Nov 2023
Oil Changed Sample Status Client Info Not Changed NORMAL Changed ABNORMAL Not Changed ABNORMAL Not Changed ABNORMAL Not Changed ABNORMAL Not Changed ABNORMAL NorMAL ABNORMAL NORMAL ABNORMAL NORMAL NEG NEG NEG<	Machine Age	hrs	Client Info		16339	15816	15717
CONTAMINATION	Oil Age	hrs	Client Info		0	15816	15717
Fuel	Oil Changed		Client Info		Not Changd	Changed	Not Changd
Fuel	Sample Status				NORMAL	ABNORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >90 50 ▲ 102 75 Chromium ppm ASTM D5185m >20 2 4 4 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 9 7 6 Copper ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m >15 <1 0 <1 <th>CONTAMINAT</th> <th>ΓΙΟΝ</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINAT	ΓΙΟΝ	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 4 4 Nickel ppm ASTM D5185m >2 <1	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1 0 0 Titanium ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>90	50	<u></u> 102	75
Titanium	Chromium	ppm	ASTM D5185m	>20	2	4	4
Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 9 7 6 Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 <1 0 <1 Vanadium ppm ASTM D5185m <1 0 0 <1 Vanadium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m 0 9 0 0 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Mangaesium ppm ASTM D5185m 1010 </td <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>2</td> <th><1</th> <td>0</td> <td>0</td>	Nickel	ppm	ASTM D5185m	>2	<1	0	0
Aluminum ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 9 7 6 Copper ppm ASTM D5185m >330 2 <1	Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	4	4	4
Tin	Lead	ppm	ASTM D5185m	>40	9	7	6
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 57 61 64 Manganese ppm ASTM D5185m 0 <1 0 1 Magnesium ppm ASTM D5185m 1010 893 969 1060 Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	2	<1	<1
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 9 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	0	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 57 61 64 Manganese ppm ASTM D5185m 0 <1 0 1 Magnesium ppm ASTM D5185m 1010 893 969 1060 Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/bas	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 57 61 64 Manganese ppm ASTM D5185m 0 <1 0 1 Magnesium ppm ASTM D5185m 1010 893 969 1060 Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >6	Boron	ppm	ASTM D5185m	0	9	0	0
Manganese ppm ASTM D5185m 0 <1 0 1 Magnesium ppm ASTM D5185m 1010 893 969 1060 Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/m *ASTM D		ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 893 969 1060 Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm	Molybdenum	ppm	ASTM D5185m	60	57	61	64
Calcium ppm ASTM D5185m 1070 1151 1075 1130 Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm "ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION "ASTM D7414	Manganese	ppm	ASTM D5185m	0	<1	0	1
Phosphorus ppm ASTM D5185m 1150 1104 981 1082 Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm "ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm "ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method	Magnesium	ppm	ASTM D5185m	1010	893	969	1060
Zinc ppm ASTM D5185m 1270 1247 1242 1352 Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m >20 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Calcium	ppm	ASTM D5185m	1070	1151	1075	1130
Sulfur ppm ASTM D5185m 2060 2977 2906 3280 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Phosphorus	ppm		1150	1104	981	1082
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Zinc	ppm	ASTM D5185m	1270	1247	1242	1352
Silicon ppm ASTM D5185m >25 11 19 17 Sodium ppm ASTM D5185m 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5			ASTM D5185m	2060	2977	2906	3280
Sodium ppm ASTM D5185m 4 4 7 Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 3 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5		ppm	ASTM D5185m	>25	11		
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Sodium	ppm	ASTM D5185m		4	4	7
Soot % % *ASTM D7844 >6 0.6 0.6 0.6 Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Potassium	ppm	ASTM D5185m	>20	4	3	3
Nitration Abs/cm *ASTM D7624 >20 13.4 12.4 12.4 Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.4 24.0 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Soot %	%	*ASTM D7844	>6	0.6	0.6	0.6
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Nitration	Abs/cm	*ASTM D7624	>20	13.4	12.4	12.4
Oxidation Abs/.1mm *ASTM D7414 >25 22.9 23.0 21.5	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.4	24.0	22.9
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.3 5.9 6.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	22.9	23.0	21.5
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.3	5.9	6.6

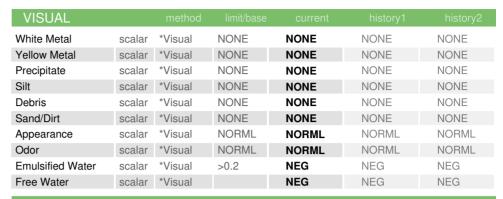


OIL ANALYSIS REPORT



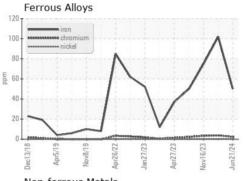


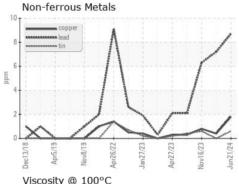


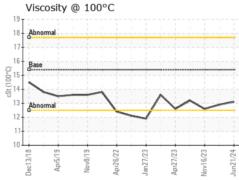


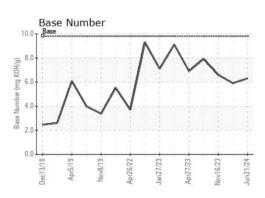
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.9	12.6

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0125242 Lab Number : 06224233 Unique Number : 11102430

Test Package : FLEET

Received : 28 Jun 2024 **Tested** : 01 Jul 2024 Diagnosed

: 01 Jul 2024 - Wes Davis

GFL Environmental - 865 - East Mount Hauling

7213 East Mount Houston Road Houston, TX US 77050

Contact: Saul Castillo saul.castillo@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)

Report Id: GFL865 [WUSCAR] 06224233 (Generated: 07/01/2024 15:53:30) Rev: 1

Submitted By: TECHNICIAN ACCOUNT

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