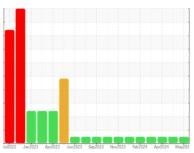


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id 729044 26200

728044-362000

Component **Diesel Engine**

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

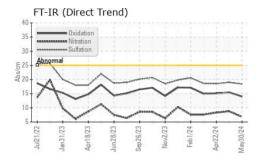
Fluid Condition

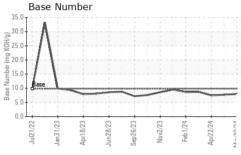
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

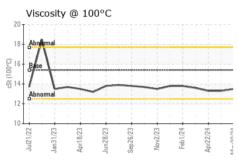
SAMPLE INFORMATION method limit/base current history1 history2	āAL)		Jul2022 Jan2	023 Apr2023 Jun2023	Sep 2023 Nov 2023 Feb 2024 Apr	2024 May202	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 0	Sample Number		Client Info		GFL0104981	GFL0104832	GFL0104817
Machine Age mls Client Info 0 0 238082 Oil Age mls Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A NORMAL NORMAL Contain Status Image: Client Info N/A N/A N/A N/A N/A NORMAL NORMAL NORMAL CONTAMINATION method Image: Client Info NEG NEG NEG NEG Water WC Method >5 <1.0			Client Info		30 May 2024	28 May 2024	22 Apr 2024
Oil Age mls Client Info N/A N/A N/A NORMAL NORMAL		mls	Client Info		0	0	
Sample Status		mls	Client Info		0	0	0
Sample Status	~		Client Info		N/A	N/A	Not Changd
Fuel					NORMAL	NORMAL	
Water Glycol WC Method Glycol NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 6 20 17 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 <1 <1 0 Silver ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <t< th=""><th>CONTAMINAT</th><th>ION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	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 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 1 4 4 Lead ppm ASTM D5185m >40 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	6	20	17
Titanium ppm ASTM D5185m <1 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 1 2 5 Tin ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 0 0	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 4 4 4 Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 1 2 5 Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>4</td> <th>0</th> <td>0</td> <td>0</td>	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM D5185m >40 <1 <1 0 Copper ppm ASTM D5185m >330 1 2 5 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 1 2 5 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	4	4	4
Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 4 4 4 Barium ppm ASTM D5185m 0 1 0 0 0 Molybdenum ppm ASTM D5185m 0 1 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 1 0 0 Magnesium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1070 1163 1128 1186 Sulfur ppm ASTM D5185m 1270 1163 1128 1186	Lead	ppm	ASTM D5185m	>40	<1	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 4 4 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 0 <1 1 Manganese ppm ASTM D5185m 10 10 842 840 876 Calcium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1150 931 994 1008 Phosphorus ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1	Copper	ppm	ASTM D5185m	>330	1	2	5
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 4 4 4 Barium ppm ASTM D5185m 0 1 0 0 0 Molybdenum ppm ASTM D5185m 0 0 <1 1 0 0 Magnese ppm ASTM D5185m 0 0 <1 1 1 1 0 876 6 6 6 58 55 56 6 6 6 842 840 876 6 876 6 6 876 6 6 876 6 876 6 876 6 876 6 876 7 7 10 8 948 1008 8 1008 8 11 8 11 8	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 60 58 55 56 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 55 56 Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 1010 842 840 876 Calcium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1150 931 994 1008 Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >3 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th><1</th> <td>4</td> <td>4</td>	Boron	ppm	ASTM D5185m	0	<1	4	4
Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 1010 842 840 876 Calcium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1150 931 994 1008 Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D784	Barium	ppm	ASTM D5185m	0		0	0
Magnesium ppm ASTM D5185m 1010 842 840 876 Calcium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1150 931 994 1008 Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION *ASTM D7414 >25	Molybdenum	ppm					
Calcium ppm ASTM D5185m 1070 1058 948 1008 Phosphorus ppm ASTM D5185m 1150 931 994 1008 Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION limit/base current history1 history2 Oxidation Abs/.1mm *A	Manganese	ppm	ASTM D5185m	0	0	<1	1
Phosphorus ppm ASTM D5185m 1150 931 994 1008 Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/.mm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	-	ppm					
Zinc ppm ASTM D5185m 1270 1163 1128 1186 Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/.mm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Calcium	ppm	ASTM D5185m	1070			1008
Sulfur ppm ASTM D5185m 2060 3102 3807 4011 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 8 42 39 Potassium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1		ppm					
Silicon ppm ASTM D5185m >25 4 5 5 Sodium ppm ASTM D5185m 8 42 39 Potassium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1			ASTM D5185m	2060	3102	3807	4011
Sodium ppm ASTM D5185m 8 42 39 Potassium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 6 18 14 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Silicon	ppm	ASTM D5185m	>25	4	5	5
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Sodium	ppm	ASTM D5185m		8	42	39
Soot % % *ASTM D7844 >3 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Potassium	ppm	ASTM D5185m	>20	6	18	14
Nitration Abs/cm *ASTM D7624 >20 6.8 8.8 8.3 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.4 19.0 18.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Soot %	%	*ASTM D7844	>3	0.2	0.5	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.0 15.5 15.1	Nitration	Abs/cm	*ASTM D7624	>20	6.8	8.8	8.3
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.4	19.0	18.5
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 8.0 7.7 7.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.0	15.5	15.1
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.0	7.7	7.5

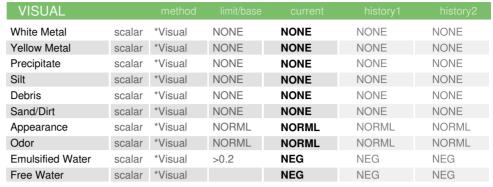


OIL ANALYSIS REPORT



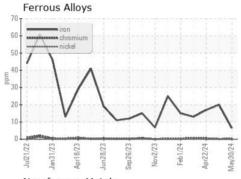


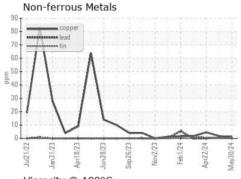


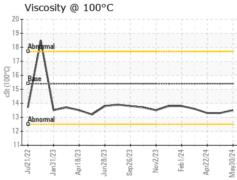


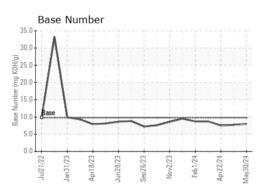
FLUID PROP	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.3	13.3

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0104981 Lab Number : 06201051

Unique Number : 11063174 Test Package : FLEET

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 05 Jun 2024 **Tested** : 06 Jun 2024

Diagnosed : 06 Jun 2024 - Wes Davis

GFL Environmental - 820 - Joplin Hauling

3700 West 7th Street Joplin, MO US 64801

Contact: James Jarrett jjarrett@gflenv.com T: (417)310-2802

Submitted By: VINCE ASTI

 st - 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)