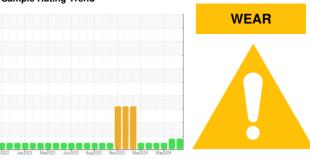


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 731116

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

Cylinder, crank, or cam shaft wear is indicated. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

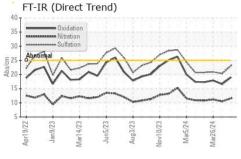
Fluid Condition

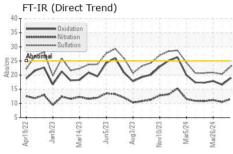
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

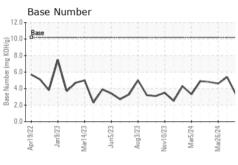
ABNORMAL ABNORMAL ABNORMAL NORMAL	(GAL)							
Client Info 23 Apr 2024 17 Apr 2024 26 Mar 2024 Machine Age hrs Client Info 6885 6851 6722	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Sample Date Client Info 23 Apr 2024 17 Apr 2024 26 Mar 2024 Machine Age hrs Client Info 6885 6851 6722 Dil Age hrs Client Info 0 0 0 0 Dil Age hrs Client Info Not Changd Not Changd ABNORMAL ABNORMAL	Sample Number		Client Info		GFL0117159	GFL0114064	GFL0114077	
Machine Age hrs Client Info 6885 6851 6722 Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info Not Changd Astr Astr Astr 4 4 3 3 4 4 4 3 4 4 4 3 4 4 4 3			Client Info			17 Apr 2024	26 Mar 2024	
Oil Age hrs Client Info Not Changd ABNORMAL Not Changd Not Changd Not Changd ABNORMAL Not Changd Not Changd Not Changd NoRMAL Sample Status Well ABNORMAL NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 ♣ 59 ♣ 61 43 Chromium ppm ASTM D5185m >4 4 3 3 Nickel ppm ASTM D5185m >2 3 <1 <1 Chromium ppm ASTM D5185m >2 3 <1 <1 Ichaul ppm ASTM D5185m >3 <1 <1 <1 Silver ppm ASTM D5185m >3 <1 <1 <1 ALead ppm ASTM D5185m >30 3 2 3 Copper ppm ASTM D5185m >4 2 2 1 Vanadium ppm ASTM D5185m <th>•</th> <th>hrs</th> <th></th> <th></th> <th>•</th> <th></th> <th>6722</th>	•	hrs			•		6722	
Coli Changed Client Info		hrs	Client Info		0	0		
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 59 61 43 Chromium ppm ASTM D5185m >4 4 3 3 Nickel ppm ASTM D5185m >2 3 <1 <1 <1 Silver ppm ASTM D5185m >3 <1 0 <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<	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd	
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 ▲ 59 ▲ 61 43 Chromium ppm ASTM D5185m >4 4 3 3 Nickel ppm ASTM D5185m >2 3 <1	Sample Status					ABNORMAL		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 ♣ 59 ♠ 61 43 Chromium ppm ASTM D5185m >4 4 3 3 Nickel ppm ASTM D5185m >2 3 <1 2 Titanium ppm ASTM D5185m >2 3 <1 <1 Aluminum ppm ASTM D5185m >3 <1 0 <1 Aluminum ppm ASTM D5185m >9 6 5 5 Lead ppm ASTM D5185m >9 6 5 5 Lead ppm ASTM D5185m >4 2 2 1 Lead ppm ASTM D5185m >4 2 2 1 Lead ppm ASTM D5185m >4 2 2 1 Calcium ppm ASTM D5185m <1 0 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2	
Description	Water		WC Method	>0.1	NEG	NEG	NEG	
Chromium ppm ASTM D5185m >4 4 3 3 Nickel ppm ASTM D5185m >2 3 <1 2 Titanium ppm ASTM D5185m >2 1 <1 <1 Siliver ppm ASTM D5185m >3 <1 0 <1 Aluminum ppm ASTM D5185m >3 <1 0 <1 Aluminum ppm ASTM D5185m >30 3 2 3 Copper ppm ASTM D5185m >30 3 2 3 Copper ppm ASTM D5185m >4 2 2 1 Tin ppm ASTM D5185m >4 2 2 1 Vanadium ppm ASTM D5185m <1 0 <1 1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 7 4 <td< th=""><th>WEAR METAL</th><th>S</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>50	5 9	△ 61	43	
Titanium	Chromium	ppm	ASTM D5185m	>4	4	3	3	
Silver	Nickel	ppm	ASTM D5185m	>2	3	<1	2	
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	<1	
Lead	Silver	ppm	ASTM D5185m	>3	<1	0	<1	
Copper ppm ASTM D5185m >35 2 1 2 Tin ppm ASTM D5185m >4 2 2 1 Vanadium ppm ASTM D5185m <1 <1 <1 Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history2 ADDITIVES method limit	Aluminum	ppm	ASTM D5185m	>9	6	5	5	
Tin	Lead	ppm	ASTM D5185m	>30	3	2	3	
Vanadium ppm ASTM D5185m <1	Copper	ppm	ASTM D5185m	>35	2	1	2	
Cadmium ppm ASTM D5185m <1	Tin	ppm	ASTM D5185m	>4	2	2	1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	<1	
Boron	Cadmium	ppm	ASTM D5185m		<1	0	<1	
Barium ppm ASTM D5185m 5 <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 50 61 59 58 Manganese ppm ASTM D5185m 0 2 1 2 Magnesium ppm ASTM D5185m 560 527 542 508 Calcium ppm ASTM D5185m 560 527 542 508 Calcium ppm ASTM D5185m 1510 1653 1784 1637 Phosphorus ppm ASTM D5185m 780 704 740 755 Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >20 4 <1	Boron	ppm	ASTM D5185m	50	7	4	14	
Manganese ppm ASTM D5185m 0 2 1 2 Magnesium ppm ASTM D5185m 560 527 542 508 Calcium ppm ASTM D5185m 1510 1653 1784 1637 Phosphorus ppm ASTM D5185m 780 704 740 755 Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Barium	ppm	ASTM D5185m	5	<1	0	0	
Magnesium ppm ASTM D5185m 560 527 542 508 Calcium ppm ASTM D5185m 1510 1653 1784 1637 Phosphorus ppm ASTM D5185m 780 704 740 755 Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7415 >30<	Molybdenum	ppm			61	59	58	
Calcium ppm ASTM D5185m 1510 1653 1784 1637 Phosphorus ppm ASTM D5185m 780 704 740 755 Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *	Manganese	ppm	ASTM D5185m	0	2	1	2	
Phosphorus ppm ASTM D5185m 780 704 740 755 Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m 9 9 9 9 Potassium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION *ASTM D7414 >25	Magnesium	ppm	ASTM D5185m	560	527	542	508	
Zinc ppm ASTM D5185m 870 979 963 980 Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m 9 9 9 Potassium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25	Calcium	ppm	ASTM D5185m	1510	1653	1784	1637	
Sulfur ppm ASTM D5185m 2040 2825 2917 2608 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m 9 9 9 Potassium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	Phosphorus	ppm			704		755	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m 9 9 9 Potassium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	Zinc	ppm	ASTM D5185m	870	979	963	980	
Silicon ppm ASTM D5185m >+100 21 17 16 Sodium ppm ASTM D5185m 9 9 9 Potassium ppm ASTM D5185m >20 4 <1	Sulfur	ppm	ASTM D5185m	2040	2825	2917	2608	
Sodium ppm ASTM D5185m 9 9 9 Potassium ppm ASTM D5185m >20 4 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	CONTAMINAN	TS	method	limit/base	current	history1	history2	
Potassium ppm ASTM D5185m >20 4 <1	Silicon	ppm	ASTM D5185m	>+100	21	17	16	
INFRA-RED	Sodium	ppm	ASTM D5185m		9	9	9	
Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	Potassium	ppm	ASTM D5185m	>20	4	<1	3	
Nitration Abs/cm *ASTM D7624 >20 11.6 10.5 11.2 Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation Abs/.1mm *ASTM D7415 >30 23.1 20.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	Soot %	%	*ASTM D7844			0	0	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 19.0 16.6 17.9	Nitration	Abs/cm	*ASTM D7624	>20	11.6	10.5	11.2	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	23.1	20.3	20.9	
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2	
Base Number (BN) mg KOH/g ASTM D2896 10.2 3.3 5.4 4.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.0	16.6	17.9	
	Dece Niconia and (DNI)	ma 1/011/a	ACTM DOOGS	100	0.0	F 4	1.0	

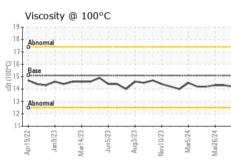


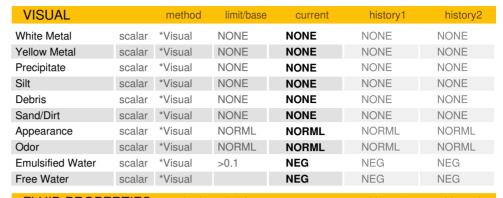
OIL ANALYSIS REPORT





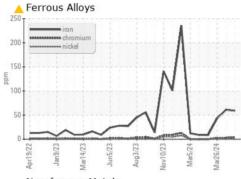


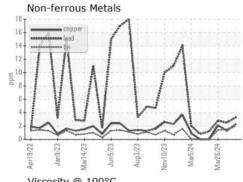


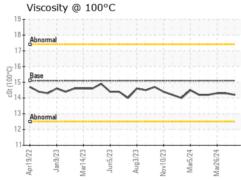


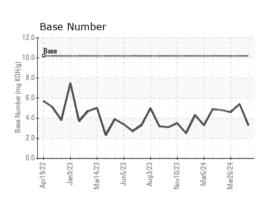
FLUID PROPI	ERITES	method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	15.1	14.2	14.3	14.3

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06160216

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0117159

Unique Number : 10995639 Test Package : FLEET

Received : 25 Apr 2024 Tested Diagnosed

: 26 Apr 2024 : 26 Apr 2024 - Don Baldridge

GFL Environmental - 836 - Kansas City Hauling

7801 East Truman Road Kansas City, MO US 64126

Contact: Loyce Stewart loyce.stewart@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: GFL836 [WUSCAR] 06160216 (Generated: 04/26/2024 13:44:47) Rev: 1

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