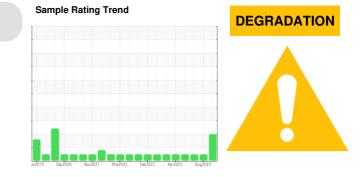


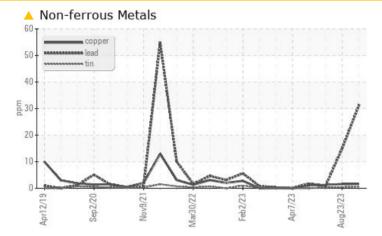
Machine Id 3842C

PROBLEM SUMMARY



Component Natural Gas Engine Fluid PETRO CANADA DURON GEO LD 15W40 (46 GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS								
Sample Status				ABNORMAL	NORMAL	NORMAL		
Lead	ppm	ASTM D5185m	>30	<u> </u>	15	<1		
Base Number (BN)	mg KOH/g	ASTM D2896	10.2	A 2.9	4.1	5.0		

Customer Id: GFL018 Sample No.: GFL0080527 Lab Number: 05982250 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 <u>jhester@wearcheckusa.com</u>

To change component or sample information: Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>

RECOMMENDED ACTIONS						
Action	Status	Date	Done By	Description		
Change Fluid			?	Oil and filter change at the time of sampling has been noted.		
Change Filter			?	Oil and filter change at the time of sampling has been noted.		

HISTORICAL DIAGNOSIS



23 Aug 2023 Diag: Don Baldridge

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



view report

21 Jun 2023 Diag: Wes Davis



Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

02 Jun 2023 Diag: Wes Davis





Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.







OIL ANALYSIS REPORT

Sample Rating Trend

DEGRADATION

Machine Id 3842C

Component
Natural Gas Engine

Fluid

PETRO CANADA DURON GEO LD 15W40 (46 GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

🔺 Wear

The lead level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

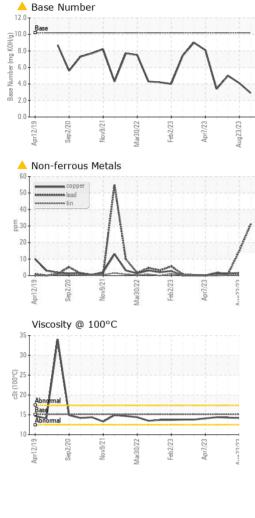
The BN level is low.

Machine Age hrs Client Info 4996 4996 4996 4996 Oil Age hrs Client Info 4996 4996 4996 Oil Changed Client Info ABNORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >2 0 0 <1 Nickel ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >3 2 2 1 1 Nandum ppm ASTM D5185m >30 A 31 15 <1 Vanadium ppm ASTM D5185m >35 2 2 1 1 Tin ppm ASTM D5185m 50	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Date Image Client Info Image Pres Client Info 4996 4996 4996 Oil Age hrs Client Info 4996 4996 4996 Oil Changed Client Info Changed Changed	Sample Number		Client Info		GFL0080527	GFL0080566	GFL0066849
Oil Age hrs Client Info 4996 4996 4996 4996 Oil Changed Client Info Changed Changed Changed Changed Sample Status I Imit/base current history1 history2 Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >2 0 0 <1	Sample Date		Client Info		17 Oct 2023	23 Aug 2023	21 Jun 2023
Oil Changed Sample Status Client Info Changed ABNORMAL Changed NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >2 0 0 <1	Machine Age	hrs	Client Info		4996	4996	4996
Sample Status Image of the status Image of the status NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >2 0 0 <1	Oil Age	hrs	Client Info		4996	4996	4996
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >2 0 0 <1	Oil Changed		Client Info		Changed	Changed	Changed
Iron ppm ASTM D5185m >50 11 11 7 Chromium ppm ASTM D5185m >4 2 1 <1	Sample Status				ABNORMAL	NORMAL	NORMAL
Chromium ppm ASTM D5185m >4 2 1 <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 0 0 <1 Titanium ppm ASTM D5185m >3 0 0 <1	Iron	ppm	ASTM D5185m	>50	11	11	7
Titanium ppm ASTM D5185m >3 0 0 <1 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 5 6 2 Lead ppm ASTM D5185m >30 A 31 15 <1	Chromium	ppm	ASTM D5185m	>4	2	1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 5 6 2 Lead ppm ASTM D5185m >30 A 31 15 <1 Copper ppm ASTM D5185m >35 2 2 1 Tin ppm ASTM D5185m >4 <1 <1 <1 Vanadium ppm ASTM D5185m >4 <1 <1 <1 Vanadium ppm ASTM D5185m 50 7 11 12 Boron ppm ASTM D5185m 50 77 59 70 Magnese ppm ASTM D5185m 50 57 59 70 Magnesium ppm ASTM D5185m 50 57 59 70 Magnesium ppm ASTM D5185m 50 651 700 695 Calcium ppm ASTM D5185m 1510 1	Nickel	ppm	ASTM D5185m	>2	0	0	<1
AluminumppmASTM D5185m>9562LeadppmASTM D5185m>303115<1	Titanium	ppm	ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >30 A 31 15 <1 Copper ppm ASTM D5185m >35 2 2 1 Tin ppm ASTM D5185m >4 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >35 2 2 1 Tin ppm ASTM D5185m >4 <1	Aluminum	ppm	ASTM D5185m	>9		6	2
Tin ppm ASTM D5185m >4 <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 50 7 11 12 Barium ppm ASTM D5185m 50 57 59 70 Magnese ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 780 835 857 903 Sulfur pm ASTM D5185m 780 835 857 903 Sulfur ppm ASTM D5185m 780 838 857 903 Sulfur ppm ASTM D5185m 2040 2429	Lead	ppm	ASTM D5185m	>30	A 31	15	<1
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 50 7 11 12 Barium ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 7 59 70 Maganese ppm ASTM D5185m 50 57 59 70 Marganesum ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 780 8335 857 903 Zinc ppm ASTM D5185m 780 8335 857 903 Sulfur ppm ASTM D5185m 700 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>35</td><th>2</th><td>2</td><td>1</td></t<>	Copper	ppm	ASTM D5185m	>35	2	2	1
Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 57 59 70 Magnesium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 700 1047 1102 1211 Sulfur ppm ASTM D5185m >+100 100 8 9 Sodium ppm ASTM D5185m >20 4		ppm		>4			
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 50 57 59 70 Manganese ppm ASTM D5185m 50 651 700 695 Calcium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 780 835 857 903 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Sodium ppm ASTM D5185m >20	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 50 7 11 12 Barium ppm ASTM D5185m 5 <1 0 0 Molybdenum ppm ASTM D5185m 50 57 59 70 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 500 57 59 70 Magnesium ppm ASTM D5185m 0 <1 <11 <12 Magnesium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 1510 1610 1784 1954 Phosphorus ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 70 1047 1102 1211 Sulfur ppm ASTM D5185m >100 10 8 9 Sodium ppm ASTM D5185m	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 5 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 57 59 70 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	50	7	11	12
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 1510 1610 1784 1954 Phosphorus ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 870 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >20 4 <1	Barium	ppm	ASTM D5185m	5	<1	0	0
Magnesium ppm ASTM D5185m 560 651 700 695 Calcium ppm ASTM D5185m 1510 1610 1784 1954 Phosphorus ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 700 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >20 4 <1	Molybdenum	ppm	ASTM D5185m	50	57	59	70
Calcium ppm ASTM D5185m 1510 1610 1784 1954 Phosphorus ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 870 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >+20 4 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 780 835 857 903 Zinc ppm ASTM D5185m 870 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >20 4 <1	Magnesium	ppm	ASTM D5185m	560	651	700	695
Zinc ppm ASTM D5185m 870 1047 1102 1211 Sulfur ppm ASTM D5185m 2040 2429 3082 3408 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >+20 4 <1	Calcium	ppm	ASTM D5185m	1510	1610	1784	1954
SulfurppmASTM D5185m2040242930823408CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+1001089SodiumppmASTM D5185m>+1001077PotassiumppmASTM D5185m>204<10	Phosphorus	ppm	ASTM D5185m	780	835	857	903
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+1001089SodiumppmASTM D5185m>+100107PotassiumppmASTM D5185m>204<1	Zinc	ppm	AOTH DEADE				
Silicon ppm ASTM D5185m >+100 10 8 9 Sodium ppm ASTM D5185m >+100 19 10 7 Potassium ppm ASTM D5185m >20 4 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 12.1 11.5 11.3 Sulfation Abs/.1mm *ASTM D7615 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6		pp	ASTM D5185m	870	1047	1102	1211
Sodium ppm ASTM D5185m 19 10 7 Potassium ppm ASTM D5185m >20 4 <1	Sulfur				-		
Potassium ppm ASTM D5185m >20 4 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 12.1 11.5 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6		ppm	ASTM D5185m	2040	2429	3082	3408
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 12.1 11.5 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN	ppm TS	ASTM D5185m method	2040 limit/base	2429 current	3082 history1	3408 history2 9
Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 12.1 11.5 11.3 Sulfation Abs/.1mm *ASTM D7415 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN	ppm TS ppm	ASTM D5185m method ASTM D5185m	2040 limit/base	2429 current 10	3082 history1 8	3408 history2 9
Nitration Abs/cm *ASTM D7624 >20 12.1 11.5 11.3 Sulfation Abs/.1mm *ASTM D7624 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN Silicon Sodium	ppm TS ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	2040 limit/base >+100	2429 current 10 19	3082 history1 8 10	3408 history2 9 7
Sulfation Abs/.1mm *ASTM D7415 >30 27.7 26.1 22.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN Silicon Sodium Potassium	ppm TS ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	2040 limit/base >+100 >20	2429 current 10 19 4	3082 history1 8 10 <1	3408 history2 9 7 2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN Silicon Sodium Potassium	ppm TS ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method	2040 limit/base >+100 >20	2429 current 10 19 4 current	3082 history1 8 10 <1 history1	3408 history2 9 7 2 history2
Oxidation Abs/.1mm *ASTM D7414 >25 24.5 21.8 18.6	CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm FS ppm ppm ppm %	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method	2040 limit/base >+100 >20 limit/base	2429 current 10 19 4 current 0.1	3082 history1 8 10 <1 history1 0	3408 history2 9 7 2 history2 0.1
	CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot %	ppm TS ppm ppm ppm ppm % Abs/cm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624	2040 limit/base >+100 >20 limit/base >20	2429 current 10 19 4 current 0.1 12.1	3082 history1 8 10 <1 history1 0 11.5	3408 history2 9 7 2 history2 0.1 11.3
Base Number (BN) mg KOH/g ASTM D2896 10.2 🔺 2.9 4.1 5.0	CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm FS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824 *ASTM D7415	2040 limit/base >+100 >20 limit/base >20 >30	2429 current 10 19 4 current 0.1 12.1 27.7	3082 history1 8 10 <1 history1 0 11.5 26.1	3408 history2 9 7 2 history2 0.1 11.3 22.8
	CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm % Abs/cm Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	2040 limit/base >+100 >20 limit/base >20 >30 limit/base	2429 current 10 19 4 current 0.1 12.1 27.7 current	3082 history1 8 10 <1 history1 0 11.5 26.1 history1	3408 history2 9 7 2 history2 0.1 11.3 22.8 history2



Report Id: GFL018 [WUSCAR] 05982250 (Generated: 10/22/2023 20:26:26) Rev: 1

OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.0	14.2	14.3
GRAPHS						
Ferrous Alloys						

