

Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (8 GAL)

Machine Id 3817C Component

Fluid

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

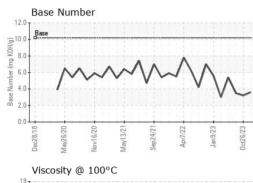


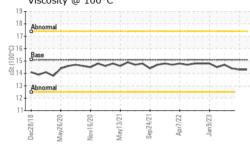


esample at the next service interval to monitor. Sample Date Client Info 17 Nov 2023 26 Oct 2023 14 Sep 2023 Machine Age hrs Client Info 11054 11007 10812 Il component wear rates are normal. Oil Age hrs Client Info 1147 1100 905 Oil Age hrs Client Info Changed Not Changd Not Changd Oil Changed Client Info More in the component wear rates are normal. Oil Age NORMAL NORMAL NORMAL In the condition Indicates that there is suitable kalinity remaining in the oil. The condition of the Mater WC Method >0.1 NEG NEG WEAR METALS method limit/base current history1 history2	DIAGNOSIS	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Team Machine Age hrs Cilent Info 1104 1100 10612 Dia Age hrs Cilent Info 1117 1100 905 Dia Changed Cilent Info 1117 1100 905 Dia Changed Cilent Info 1117 1100 905 Dia Changed Colent Info Changed NorChanged NorChanged Sample Status immetod Immetod Immetods NorChanged NorChanged Sample Status immetod Immetods Convoltantic Info NorChanged	Recommendation	Sample Number		Client Info		GFL0087504	GFL0087508	GFL0087471
Decomponent wear rates are normal. Ontamination Integ	Resample at the next service interval to monitor.	Sample Date		Client Info		17 Nov 2023	26 Oct 2023	14 Sep 2023
Ontamination here is no indication of any contamination in the l. ON Changed Sample Status Client Info Changed NORMAL Not Changed NORMAL Not Changed NORMAL be BM result indicates that here is auitable is suitable for further service. CONTAMINATION method Imitbase current history1 history2 Water Vio Method 0.01 NEG NEG NEG Is suitable for further service. Vio Method 0.01 NEG NEG NEG Nickel ppm ASTM0555m >0 0 6 7 Orromium ppm ASTM05155m >2 0 0 <1	Wear	Machine Age	hrs	Client Info		11054	11007	10812
Sample Status NORMAL NORMAL NORMAL NORMAL uid Condition the BM result indicates that there is suitable is suitable for further service. method Imitbase current history1 history2 Water WC Method >0.1 NEG NEG NEG Water WC Method >0.1 NEG NEG Netsory2 Water WC Method >0.1 NEG NEG Netsory2 Water WC Method >0.1 0 0 <1	All component wear rates are normal.	Oil Age	hrs	Client Info		1147	1100	905
Sample Status NORMAL NORMAL NORMAL NORMAL L Coldition Imit closes current History1 History2 Water WG Method >0.1 NEG NEG NEG Mainisr meaning in the oil. The condition of the is suitable for further service. method method Imitbase current History1 History2 Iron ppm ASTM05HSm >4 2 <1	Contamination	Oil Changed		Client Info		Changed	Not Changd	Not Changd
Out of CONT AMINA I DN method unit/base current history1 metody2 Water WC Method >0.1 NEG	here is no indication of any contamination in the iil.					NORMAL		
Water WC Method Solid NEG NEG NEG NEG NEG Water WC Method 5.011/Meso current History1 History2 Weining mathing in the oil. The condition of the is suitable for further service. MC method imit/Mass current History1 History2 Nickel ppm ASTM05185m >4 2 -1		CONTAMINAT	ION	method	limit/base	current	history1	history2
Tis suitable for further service. TTEATT INE TALES THEATT OF TA	The BN result indicates that there is suitable							
Chromium ppm ASTM D5185m >4 2 <1 2 Nickel ppm ASTM D5185m 2 0 0 <11	il is suitable for further service.	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 0 0 <1 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 Auminum ppm ASTM D5185m >30 8 5 5 Copper ppm ASTM D5185m >30 8 5 5 Copper ppm ASTM D5185m >4 <1 1 1 Tim ppm ASTM D5185m >4 <1 0 0 <1 Copper ppm ASTM D5185m >4 <1 0 0 <1 1 Tim ppm ASTM D5185m >4 <1 0 0 <1 1 ADDITIVES ppm ASTM D5185m 50 60 6 6 5 Barium ppm ASTM D5185m 50 60 55 55 60 55 55 Calcium ppm ASTM D5185m 780 50 56 56 </td <td></td> <th></th> <td>ppm</td> <td>ASTM D5185m</td> <td>>50</td> <td>10</td> <td>6</td> <td>7</td>			ppm	ASTM D5185m	>50	10	6	7
Titanium ppm ASTM D5185m <		Chromium	ppm	ASTM D5185m	>4	2	<1	2
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >9 3 2 1 Leada ppm ASTM D5185m >9 3 1 <1 Copper ppm ASTM D5185m >4 <1 <1 2 Vanadium ppm ASTM D5185m >4 <1 <1 2 Cadmium ppm ASTM D5185m >4 <1 <1 2 ADDITIVES method imit/base current history1 history2 Boron ppm ASTM D5185m 50 9 6 6 Barium ppm ASTM D5185m 50 9 6 6 Barium ppm ASTM D5185m 50 0 0 44 Molybdenum ppm ASTM D5185m 50 664 569 52 Calacium ppm ASTM D5185m 716 116 1662 1550 Phosphorus ppm ASTM D5185m 720 716		Nickel	ppm	ASTM D5185m	>2	0	0	<1
Aluminum ppm ASTM D5185m >9 3 2 1 Lead ppm ASTM D5185m >30 8 5 5 Copper ppm ASTM D5185m >34 <1		Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead ppm ASTM D5165m<>-30 8 5 5 Copper ppm ASTM D5165m >-35 1 <1		Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >4 <1 1 Tin ppm ASTM D5185m >4 <1		Aluminum	ppm	ASTM D5185m	>9	3	2	1
Tin ppm ASTM D5185m >4 <1 <1 2 Vanadium ppm ASTM D5185m -1 0 0 <1		Lead	ppm	ASTM D5185m	>30	8	5	5
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 <1		Copper	ppm	ASTM D5185m	>35	1	<1	1
Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 50 9 6 6 Barium ppm ASTM D5185m 50 0 0 44 Molybdenum ppm ASTM D5185m 50 60 56 54 Magnesium ppm ASTM D5185m 50 664 569 552 Caticuim ppm ASTM D5185m 1510 1816 1662 1550 Phosphorus ppm ASTM D5185m 760 900 735 716 Zinc ppm ASTM D5185m 760 1110 961 941 Sulfur ppm ASTM D5185m 240 2547 2181 2528 CONTAMINANTS method 1imit/base current history1 history2 Solium ppm ASTM D5185m >100 10 <td></td> <th>Tin</th> <td>ppm</td> <td>ASTM D5185m</td> <td>>4</td> <td><1</td> <td><1</td> <td>2</td>		Tin	ppm	ASTM D5185m	>4	<1	<1	2
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m50966BariumppmASTM D5185m50605654MolybdenumppmASTM D5185m0<1		Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 50 9 6 6 Barium ppm ASTM D5185m 50 00 0444 Molybdenum ppm ASTM D5185m 50 60 56 54 Manganese ppm ASTM D5185m 0 <1		Cadmium	ppm	ASTM D5185m		0	0	<1
Barium ppm ASTM D5185m 5 0 0 44 Molybdenum ppm ASTM D5185m 50 60 56 54 Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 560 664 569 552 Calcium ppm ASTM D5185m 560 664 569 552 Calcium ppm ASTM D5185m 560 664 569 552 Calcium ppm ASTM D5185m 780 900 735 716 Zinc ppm ASTM D5185m 780 900 2547 2181 2528 CONTAMINANTS method timit/base current history1 history2 Silicon ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >20 21 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7		ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 60 56 54 Manganese ppm ASTM D5185m 0 <1		Boron	ppm	ASTM D5185m	50	9	6	6
Marganesse ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 560 664 569 552 Calcium ppm ASTM D5185m 1510 1816 1662 1550 Phosphorus ppm ASTM D5185m 780 900 735 716 Zinc ppm ASTM D5185m 870 1110 961 941 Sulfur ppm ASTM D5185m 2040 2547 2181 2528 Solium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >20 <1		Barium	ppm	ASTM D5185m	5	0	0	44
Magnesium ppm ASTM D5185m 560 664 569 552 Calcium ppm ASTM D5185m 1510 1816 1662 1550 Phosphorus ppm ASTM D5185m 780 900 735 716 Zinc ppm ASTM D5185m 870 1110 961 941 Sulfur ppm ASTM D5185m 2040 2547 2181 2528 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >204 21 3 Potassium ppm ASTM D5185m >20 <1		Molybdenum	ppm	ASTM D5185m	50	60	56	54
Calcium ppm ASTM D5185m 1510 1816 1662 1550 Phosphorus ppm ASTM D5185m 780 900 735 716 Zinc ppm ASTM D5185m 870 1110 961 941 Sulfur ppm ASTM D5185m 2040 2547 2181 2528 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >20 <1 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 11.5 Sulfation Abs/tm *ASTM D7415 >30 27.9 26.1 24.8 FLUID DEGRADATION Method limit/base current history1 history2 Oxidation Abs/tm		Manganese	ppm	ASTM D5185m	0	<1	<1	1
Phosphorus ppm ASTM D5185m 780 900 735 716 Zinc ppm ASTM D5185m 870 1110 961 941 Sulfur ppm ASTM D5185m 2040 2547 2181 2528 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >20 <1		Magnesium	ppm	ASTM D5185m	560	664	569	552
Zinc ppm ASTM D5185m 870 1110 961 941 Sulfur ppm ASTM D5185m 2040 2547 2181 2528 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >+100 7 6 7 Sodium ppm ASTM D5185m >20 <1 10 8 Potassium ppm ASTM D5185m >20 <1 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7624 >20 12.7 11.9 11.5 Sulfation Abs/.tm 'ASTM D7415 >30 27.9 26.1 24.8 FLUID DEGRADATION method limit/base		Calcium	ppm	ASTM D5185m	1510	1816	1662	1550
SulfurppmASTM D5185m2040254721812528CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+100767SodiumppmASTM D5185m>+100767SodiumppmASTM D5185m>20<1108PotassiumppmASTM D5185m>20<1<13INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.100.1NitrationAbs/cm*ASTM D7624>2012.711.911.5SulfationAbs/.1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		Phosphorus	ppm	ASTM D5185m	780	900	735	716
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>+100767SodiumppmASTM D5185m>2010108PotassiumppmASTM D5185m>20<1<13INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.100.1NitrationAbs/cm*ASTM D78442012.711.911.5SulfationAbs/1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2523.922.321.1		Zinc	ppm	ASTM D5185m	870	1110	961	941
SiliconppmASTM D5185m>+100767SodiumppmASTM D5185m>+100108PotassiumppmASTM D5185m>20<1<13INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.100.1NitrationAbs/cm*ASTM D7624>2012.711.911.5SulfationAbs/1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		Sulfur	ppm	ASTM D5185m	2040	2547	2181	2528
SodiumppmASTM D5185m10108PotassiumppmASTM D5185m>20<1<13INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.100.1NitrationAbs/cm*ASTM D7624>2012.711.911.5SulfationAbs/.1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		CONTAMINAN	ITS	method	limit/base	current	history1	history2
PotassiumppmASTM D5185m>20<1		Silicon	ppm	ASTM D5185m	>+100	7	6	7
INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.100.1NitrationAbs/cm*ASTM D7624>2012.711.911.5SulfationAbs/.1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATION methodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		Sodium	ppm	ASTM D5185m		10	10	8
Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 12.7 11.9 11.5 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.1 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 22.3 21.1		Potassium	ppm	ASTM D5185m	>20	<1	<1	3
Nitration Abs/cm *ASTM D7624 >20 12.7 11.9 11.5 Sulfation Abs/.1mm *ASTM D7415 >30 27.9 26.1 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 22.3 21.1		INFRA-RED		method	limit/base	current	history1	history2
SulfationAbs/.1mm*ASTM D7415>3027.926.124.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		Soot %	%	*ASTM D7844		0.1	0	0.1
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2523.922.321.1		Nitration	Abs/cm	*ASTM D7624	>20	12.7	11.9	11.5
Oxidation Abs/.1mm *ASTM D7414 >25 23.9 22.3 21.1		Sulfation	Abs/.1mm	*ASTM D7415	>30	27.9	26.1	24.8
Base Number (BN) mg KOH/g ASTM D2896 10.2 3.6 3.2 3.5		FLUID DEGRA	DATION	method	limit/base	current	history1	history2

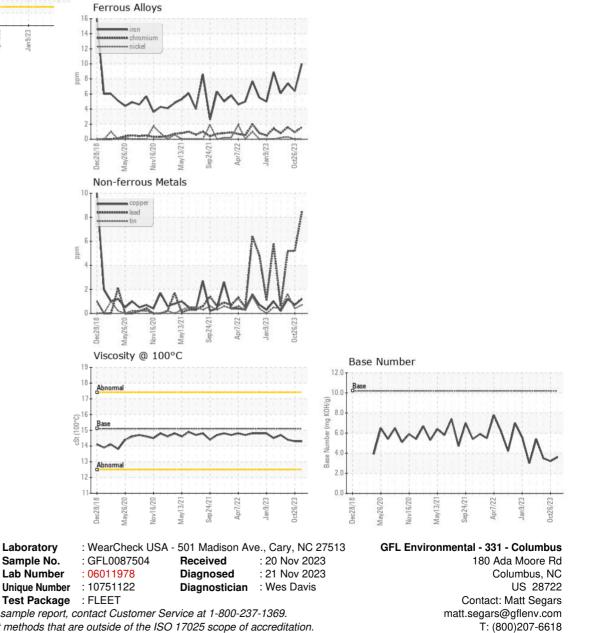


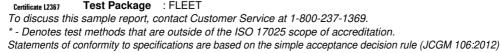
OIL ANALYSIS REPORT





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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.3	14.3	14.4
GRAPHS						





Submitted By: Matt Segars

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