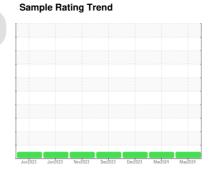


OIL ANALYSIS REPORT



(BD08834) 212004 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

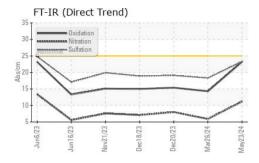
Fluid Condition

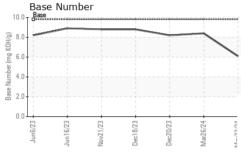
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

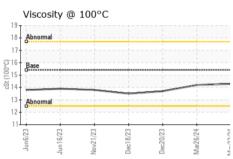
Sample Number Client Info GFL012508 GFL0117703 GFL010580 Sample Date Client Info 23 May 2024 26 Mar 2024 20 Dec 2023 7302 20 Client Info 8005 8023 7302 0 Cli Changed Inst Client Info 8023 7302 0 Cli Changed Chang	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info 8505 8023 7302 0 Oil Age hrs Client Info 8023 7302 0 Oil Changed Client Info Changed	Sample Number		Client Info		GFL0122508	GFL0117703	GFL0105580	
Oil Age hrs Client Info 8023 7302 0 Oil Changed Sample Status Client Info Changed Changed Changed Changed Changed NORMAL NORM	Sample Date		Client Info		23 May 2024	26 Mar 2024	20 Dec 2023	
Oil Age hrs Client Info 8023 7302 0 Oil Changed Sample Status Client Info Changed Changed Changed Changed Changed NORMAL NORM	Machine Age	hrs	Client Info		8505	8023	7302	
Client Info NORMAL NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		8023	7302	0	
NORMAL NORMAL NORMAL NORMAL	-		Client Info		Changed	Changed	Changed	
Fuel								
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 36 3 13 Chromium ppm ASTM D5185m >20 2 <1 <1 Nickel ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 4 2 1 Lead ppm ASTM D5185m >40 1 0 0 Copper ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m >15 1 0 0 Cadmium ppm ASTM D5185m <1 0 0 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
Iron	Water		WC Method	>0.2	NEG	NEG	NEG	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium ppm ASTM D5185m >20 2 <1	WEAR METALS		method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>90	36	3	13	
Titanium	Chromium	ppm	ASTM D5185m	>20	2	<1	<1	
Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 <1 0 0 Aluminum ppm ASTM D5185m >20 4 2 1 Lead ppm ASTM D5185m >30 1 0 0 Copper ppm ASTM D5185m >30 2 0 1 Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m >15 1 0 0 Cadmium ppm ASTM D5185m <1 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 2 2 Barium ppm ASTM D5185m 0 0 0 <1 0 <1 Molybdenum ppm ASTM D5185m 0 <td></td> <td></td> <td>ASTM D5185m</td> <td>>2</td> <th><1</th> <td>2</td> <td><1</td>			ASTM D5185m	>2	<1	2	<1	
Aluminum ppm ASTM D5185m >20 4 2 1 Lead ppm ASTM D5185m >40 1 0 0 Copper ppm ASTM D5185m >330 2 0 1 Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m <1			ASTM D5185m	>2	<1	0	0	
Aluminum			ASTM D5185m	>2	<1	0	0	
Lead			ASTM D5185m	>20	4	2	1	
Copper ppm ASTM D5185m >330 2 0 1 Tin ppm ASTM D5185m >15 1 0 0 Vanadium ppm ASTM D5185m <1			ASTM D5185m	>40	1	0	0	
Tin			ASTM D5185m	>330	2	0	1	
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 0 2 2 Barium ppm ASTM D5185m 0 0 0 <1 Molybdenum ppm ASTM D5185m 0 60 62 52 59 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 996 928 953 Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current <th< td=""><td></td><td></td><td></td><td></td><th>1</th><td>0</td><td>0</td></th<>					1	0	0	
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 2 2 Barium ppm ASTM D5185m 0 0 0 <1			ASTM D5185m				0	
Boron								
Barium ppm ASTM D5185m 0 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum ppm ASTM D5185m 60 62 52 59 Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 996 928 953 Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 2 <1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7624 >20	Boron	ppm	ASTM D5185m	0	0	2	2	
Manganese ppm ASTM D5185m 0 <1 0 <1 Magnesium ppm ASTM D5185m 1010 996 928 953 Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 2 <1	Barium	ppm	ASTM D5185m	0	0	0	<1	
Magnesium ppm ASTM D5185m 1010 996 928 953 Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 2 <1	Molybdenum	ppm	ASTM D5185m	60	62	52	59	
Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 8 2 2 Potassium ppm ASTM D5185m >20 2 2 <1	Manganese	ppm	ASTM D5185m	0	<1	0	<1	
Calcium ppm ASTM D5185m 1070 1127 1041 1067 Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 2 2 Potassium ppm ASTM D5185m >20 2 2 <1	Magnesium	ppm	ASTM D5185m	1010	996	928	953	
Phosphorus ppm ASTM D5185m 1150 970 1006 1111 Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m >20 2 2 2 Potassium ppm ASTM D5185m >20 2 2 <1	Calcium	ppm	ASTM D5185m	1070	1127	1041	1067	
Zinc ppm ASTM D5185m 1270 1345 1221 1284 Sulfur ppm ASTM D5185m 2060 2928 3421 2980 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 8 2 2 Potassium ppm ASTM D5185m >20 2 2 <1			ASTM D5185m	1150	970	1006	1111	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 8 2 2 Potassium ppm ASTM D5185m >20 2 2 <1			ASTM D5185m	1270	1345	1221	1284	
Silicon ppm ASTM D5185m >25 7 3 4 Sodium ppm ASTM D5185m 8 2 2 Potassium ppm ASTM D5185m >20 2 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.3 0.6 Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4	Sulfur	ppm	ASTM D5185m	2060	2928	3421	2980	
Sodium ppm ASTM D5185m 8 2 2 Potassium ppm ASTM D5185m >20 2 2 <1								
Potassium ppm ASTM D5185m >20 2 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.3 0.6 Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4	Silicon	ppm	ASTM D5185m	>25	7	3	4	
Potassium ppm ASTM D5185m >20 2 2 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.5 0.3 0.6 Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4			ASTM D5185m		8	2	2	
Soot % % *ASTM D7844 >6 0.5 0.3 0.6 Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4	Potassium	ppm	ASTM D5185m	>20	2	2	<1	
Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current Limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4	INFRA-RED		method	limit/base	current	history1	history2	
Nitration Abs/cm *ASTM D7624 >20 11.2 5.9 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4	Soot %	%	*ASTM D7844	>6	0.5	0.3	0.6	
Sulfation Abs/.1mm *ASTM D7415 >30 23.3 18.3 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4		Abs/cm	*ASTM D7624					
Oxidation Abs/.1mm *ASTM D7414 >25 23.2 14.3 15.4								
	FLUID DEGRADATION method limit/base current history1 history2							
	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.2	14.3	15.4	
					6.1	8.4	8.2	



OIL ANALYSIS REPORT



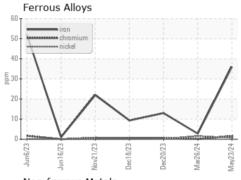


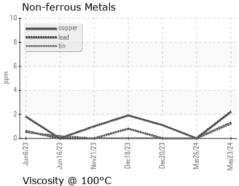


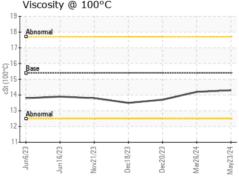
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

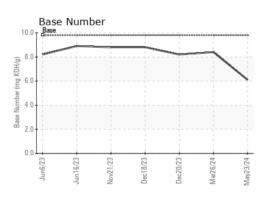
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.2	13.7

GRAPHS













Certificate 12367

Laboratory Sample No. Lab Number : 06190329 Unique Number : 11047081

: GFL0122508

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 24 May 2024

Tested : 29 May 2024 Diagnosed : 29 May 2024 - Don Baldridge

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313

Contact: Frank Wolak fwolak@gflenv.com

T: (586)825-9514

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)