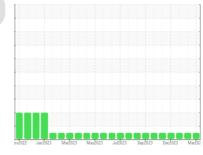


OIL ANALYSIS REPORT

{UNASSIGNED} 913025

Front Diesel Engine

PETRO CANADA DURON SHP 15W40 (40 QTS)



Sample Rating Trend



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

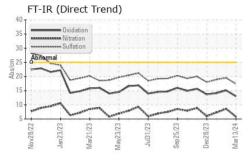
Fluid Condition

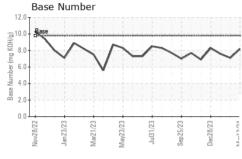
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

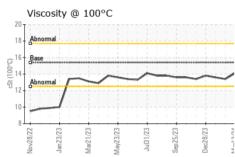
Sample Number Client Info GFL0098877 GFL0099027 GFL0098944 Sample Date Client Info 13 Mar 2024 12 Feb 2024 23 Jan 2024 Machine Age hrs Client Info 2410 24	SAMPLE INFORMA	ATION	method	limit/base	current	history1	history2
Sample Date						•	
Machine Age hrs Client Info 3501 3501 3332 Oil Age hrs Client Info 2410 2410 2410 2410 Oil Changed Client Info Not Changd Not Changd NA NA Sample Status Client Info Not Changd Not Changd NA NA CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5186m >12.0 7 18 14 Chromium ppm ASTM D5186m >2.0 0 <1 0 Chromium ppm ASTM D5186m >2.2 1 0 0 Silver ppm ASTM D5186m >2.0 1 <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Oil Age hrs Client Info 2410	•	nrs					
Contamped Client Info Not Changd NORMAL NORMAL NORMAL NORMAL	-						
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current nistory1 nistory2	-				-		
Fuel	Sample Status					Ü	
Water Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 7 18 14 Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >2 2 2 1 Silver ppm ASTM D5185m >2 0 <1 0 Oliver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Copper ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 5 0	CONTAMINATIC	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >5 2 2 1 Titanium ppm ASTM D5185m >2 <1 0 0 Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >20 1 4 1 Lead ppm ASTM D5185m >20 1 4 1 Lead ppm ASTM D5185m >330 <1 2 2 2 Tin ppm ASTM D5185m >15 0 <1 <1 1 Vanadium ppm ASTM D5185m 0 0 <1 <1 1 Cadmium ppm ASTM D5185m 0 0 5 0 0 Barium ppm ASTM D5185m <td>WEAR METALS</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron p	opm	ASTM D5185m	>120	7	18	14
Description	Chromium p	opm	ASTM D5185m	>20	0	<1	0
Silver	Nickel p	opm	ASTM D5185m	>5	2	2	1
Aluminum ppm ASTM D5185m >20 1 4 1 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 <1	Titanium p	opm	ASTM D5185m	>2	<1	0	0
Lead	Silver	pm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >330 <1 2 2 Tin ppm ASTM D5185m >15 0 <1	Aluminum p	opm	ASTM D5185m	>20	1	4	1
Tin	Lead p	opm	ASTM D5185m	>40	0	0	0
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 945 848 1031 Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current <td>Copper</td> <td>opm</td> <td>ASTM D5185m</td> <td>>330</td> <th><1</th> <td>2</td> <td>2</td>	Copper	opm	ASTM D5185m	>330	<1	2	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 5 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1	Tin p	pm	ASTM D5185m	>15	0	<1	<1
ADDITIVES	Vanadium p	opm	ASTM D5185m		<1	0	0
Boron	Cadmium p	opm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 55 57 58 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 945 848 1031 Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1070 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m 20 4 14 3 INFRA-RED method	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 55 57 58 Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 945 848 1031 Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1150 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7824 >20	Boron p	opm	ASTM D5185m	0	0	5	0
Manganese ppm ASTM D5185m 0 <1 <1 0 Magnesium ppm ASTM D5185m 1010 945 848 1031 Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1150 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/:1mm *ASTM D7415	Barium p	opm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 945 848 1031 Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1150 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m 1 1 1 <1 Potassium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7415 >30	Molybdenum p	pm	ASTM D5185m	60	55	57	58
Calcium ppm ASTM D5185m 1070 1102 983 1111 Phosphorus ppm ASTM D5185m 1150 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/.mm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method	Manganese p	opm	ASTM D5185m	0	<1	<1	0
Phosphorus ppm ASTM D5185m 1150 1011 990 1073 Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium p	opm	ASTM D5185m	1010	945	848	1031
Zinc ppm ASTM D5185m 1270 1261 1155 1283 Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Calcium	opm	ASTM D5185m	1070	1102	983	1111
Sulfur ppm ASTM D5185m 2060 3827 2699 3221 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m >20 4 14 3 Potassium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Phosphorus p	opm	ASTM D5185m	1150	1011	990	1073
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m 1 1 1 <1	Zinc	opm	ASTM D5185m	1270	1261	1155	1283
Silicon ppm ASTM D5185m >25 3 5 4 Sodium ppm ASTM D5185m 1 1 1 <1 Potassium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Sulfur p	opm	ASTM D5185m	2060	3827	2699	3221
Sodium ppm ASTM D5185m 1 1 1 <1 Potassium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 14 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Silicon	opm		>25	3		4
INFRA-RED	Sodium p	opm	ASTM D5185m		1	1	<1
Soot % % *ASTM D7844 >4 0.2 0.5 0.4 Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Potassium p	opm	ASTM D5185m	>20	4	14	3
Nitration Abs/cm *ASTM D7624 >20 5.8 8.6 7.3 Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.4 19.5 18.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Soot %	%	*ASTM D7844	>4	0.2	0.5	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Nitration A	Abs/cm	*ASTM D7624	>20	5.8	8.6	7.3
Oxidation Abs/.1mm *ASTM D7414 >25 13.0 15.1 14.1	Sulfation A	Abs/.1mm	*ASTM D7415	>30	17.4	19.5	18.9
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
	Oxidation A	Abs/.1mm	*ASTM D7414	>25	13.0	15.1	14.1
					8.2	7.1	7.6



OIL ANALYSIS REPORT



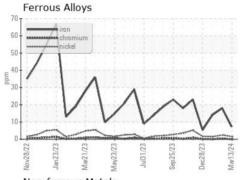


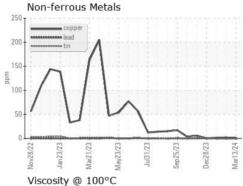


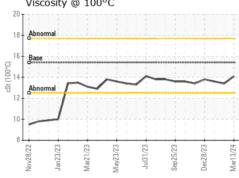
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

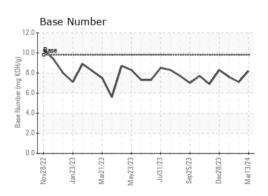
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.4	13.6

GRAPHS













Certificate 12367

Laboratory Sample No.

: GFL0098877 Lab Number : 06142096

Unique Number : 10966904 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Apr 2024

Tested : 09 Apr 2024 Diagnosed : 09 Apr 2024 - Wes Davis

699 Jack Miller Boulevard Clarksville, TN US 37042

Contact: ROBERT THIBAULT robert.thibault@gflenv.com

GFL Environmental - 084 - Clarksville

T: (931)552-7276

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)

F: (931)572-9674 Submitted By: GFL084,GFL842,GFL844,GFL846 - ROBERT THIBAULT