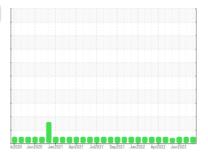


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id
918001
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (10 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

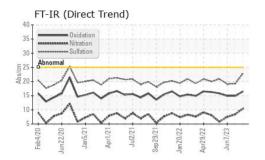
Fluid Condition

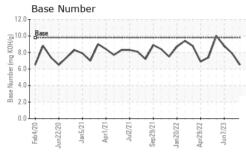
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

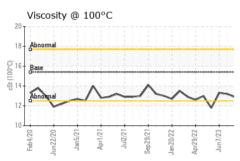
Sample Date Client Info Q4 Apr 2024 02 Oct 2023 07 Jun 20 Machine Age hrs Client Info 2960 2155 14433 300	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 599 300 300 Oil Age hrs Client Info 599 300 300 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Image: Control of Changed Not Changd Not Changd Not Changd Fuel WC Method 5 <1.0	Sample Number		Client Info		GFL0106951	GFL0073240	GFL0073256
Oil Age hrs Client Info 599 300 300 Oil Changed Client Info Not Changed Not Chang	Sample Date		Client Info		04 Apr 2024	02 Oct 2023	07 Jun 2023
Oil Changed Sample Status Client Info Not Changed NORMAL NEG N	Machine Age	hrs	Client Info		2960	2155	14433
Sample Status	Oil Age	hrs	Client Info		599	300	300
CONTAMINATION method limit/base current history1 history1 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imitibase NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 48 12 7 Chromium ppm ASTM D5185m >20 2 1 <1 Nickel ppm ASTM D5185m >4 2 <1 <1 Silver ppm ASTM D5185m >3 0 0 0 Lead ppm ASTM D5185m >40 2 <1 <1 Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 1	Oil Changed		Client Info		Not Changd	Changed	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 48 12 7 Chromium ppm ASTM D5185m >20 2 1 <1 Nickel ppm ASTM D5185m >4 2 <1 <1 Silver ppm ASTM D5185m >3 0 0 0 Sliver ppm ASTM D5185m >20 15 17 16 Lead ppm ASTM D5185m >40 2 <1 2 Copper ppm ASTM D5185m >40 2 <1 <1 Tin ppm ASTM D5185m >40 2 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history1 <th>CONTAMINATI</th> <th>ON</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >100 48 12 7 Chromium ppm ASTM D5185m >20 2 1 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 2 1 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	48	12	7
Titanium	Chromium	ppm	ASTM D5185m	>20	2	1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 15 17 16 Lead ppm ASTM D5185m >20 15 17 16 Copper ppm ASTM D5185m >40 2 <1 <1 Tin ppm ASTM D5185m >330 2 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 5 <1 <1 Boron ppm ASTM D5185m 0 5 <1 <1 Barium ppm ASTM D5185m 0 0 0 0 Molydenum ppm ASTM D5185m 0 71 66 60 Margnesium ppm ASTM D5185m 1010 901 990	Nickel	ppm	ASTM D5185m	>4	2	<1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 15 17 16 Lead ppm ASTM D5185m >20 15 17 16 Copper ppm ASTM D5185m >40 2 <1 <1 Tin ppm ASTM D5185m >330 2 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 5 <1 <1 Boron ppm ASTM D5185m 0 5 <1 <1 Barium ppm ASTM D5185m 0 5 <1 <1 Barium ppm ASTM D5185m 0 71 66 60 Mangnesium ppm ASTM D5185m 1010 901 990	Titanium		ASTM D5185m		<1	0	<1
Aluminum ppm ASTM D5185m >20 15 17 16 Lead ppm ASTM D5185m >40 2 <1	Silver		ASTM D5185m	>3	0	0	0
Lead ppm ASTM D5185m >40 2 <1 2 Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 1 <1 <1 Vanadium ppm ASTM D5185m 0 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 5 <1 <1 ADDITIVES method limit/base current history1 history1 ADDITIVES method limit/base current history1 history1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 5 <1 <1 Boron ppm ASTM D5185m 1010 901 990	Aluminum	ppm	ASTM D5185m	>20	15	17	16
Copper ppm ASTM D5185m >330 2 <1 <1 Tin ppm ASTM D5185m >15 1 <1	Lead			>40	2	<1	2
Tin	Copper		ASTM D5185m	>330	2	<1	<1
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 5 <1 <1 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 901 990 1003 Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1					1	<1	<1
Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 5 <1					<u>-</u>		
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 5 <1					_		
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 71 66 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 901 990 1003 Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 20 4 13 7 INFRA-RED method limit/bas	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 71 66 60 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	5	<1	<1
Molybdenum ppm ASTM D5185m 60 71 66 60 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 901 990 1003 Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 20 4 13 7 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7624	Barium		ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 901 990 1003 Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 </td <td>Molybdenum</td> <td></td> <td>ASTM D5185m</td> <td>60</td> <th>71</th> <td>66</td> <td>60</td>	Molybdenum		ASTM D5185m	60	71	66	60
Magnesium ppm ASTM D5185m 1010 901 990 1003 Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/:nm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION *ASTM D7414<	•	• •	ASTM D5185m	0	<1		<1
Calcium ppm ASTM D5185m 1070 1105 1049 1136 Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 2 3 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/:nm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION *ASTM D74	-				901	990	1003
Phosphorus ppm ASTM D5185m 1150 1021 1070 1027 Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION *ASTM D7414 >25 16.5 14.9 14.9	-		ASTM D5185m	1070	1105	1049	1136
Zinc ppm ASTM D5185m 1270 1189 1289 1326 Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D741					1021		
Sulfur ppm ASTM D5185m 2060 2794 3311 3795 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9			ASTM D5185m	1270	1189	1289	1326
Silicon ppm ASTM D5185m >25 8 7 4 Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	Sulfur		ASTM D5185m	2060	2794	3311	3795
Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 2 3 3 Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	Silicon	ppm	ASTM D5185m	>25	8	7	4
Potassium ppm ASTM D5185m >20 4 13 7 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9		• •					
Soot % % *ASTM D7844 >3 2 0.7 0.4 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9			ASTM D5185m	>20	4	13	7
Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 7.5 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	Soot %	%	*ASTM D7844	>3	2	0.7	0.4
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 19.2 19.1 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9	Nitration	Abs/cm	*ASTM D7624	>20			7.5
Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.9 14.9							
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	14.9	14.9
DADO HAMINOU IDIN MUNDIN MOUNT DEUD DIO U.J 1.J 1.J 0.0	Base Number (BN)	mg KOH/g			6.5	7.9	8.8



OIL ANALYSIS REPORT





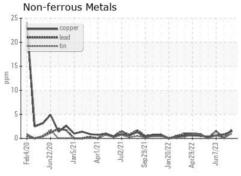


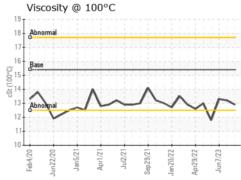
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

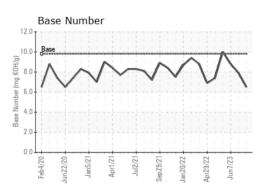
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.9	13.2	13.3

GRAPHS

Ferrous Alloys











Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06148417 Unique Number : 10978495

: GFL0106951 Test Package : FLEET

Received : 15 Apr 2024 **Tested** : 16 Apr 2024 Diagnosed

: 16 Apr 2024 - Wes Davis

GFL Environmental - 097 - Knoxville Hauling

1901 Sutherland Ave Knoxville, TN US 37921

Contact: Doug Weeden dweeden@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)

T:

F: