

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 926058 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- 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

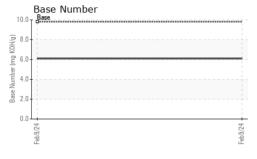
Fluid Condition

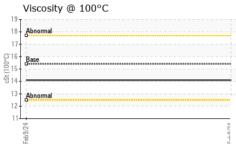
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2	ON SHP 15W40 (-	GAL)			Feb 2024		
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		GFL0111168		
Machine Age hrs Client Info 600							
Oil Age hrs Client Info 600	•	hrs					
Oil Changed Sample Status Client Info Changed NORMAL							
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	•		Client Info		Changed		
Fuel WC Method Sa.0 Ca.0 Ca	-				_		
Water Glycol WC Method >0.2 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 26 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2	Fuel		WC Method	>3.0	<1.0		
Iron	Water		WC Method	>0.2	NEG		
Iron	Glycol		WC Method		NEG		
Chromium ppm ASTM D5185m >20 <1 Nickel ppm ASTM D5185m >5 0 Titanium ppm ASTM D5185m >2 0 Silver ppm ASTM D5185m >2 0 Aluminum ppm ASTM D5185m >20 7 Lead ppm ASTM D5185m >40 <1	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	26		
Titanium	Chromium		ASTM D5185m	>20	<1		
Silver	Nickel	ppm	ASTM D5185m	>5	0		
Aluminum	Titanium	ppm	ASTM D5185m	>2	0		
Lead	Silver	ppm	ASTM D5185m	>2	0		
Copper ppm ASTM D5185m >330 5 Tin ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 <1	Aluminum	ppm	ASTM D5185m	>20	7		
Tin	Lead	ppm	ASTM D5185m	>40	<1		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 0 Magnaese ppm ASTM D5185m 0 0 1 Magnesium ppm ASTM D5185m 1010 916 Calcium ppm ASTM D5185m 1070 1055 Phosphorus ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method	Copper	ppm	ASTM D5185m	>330	5		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 4 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1		
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0		
Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 60 58 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 58 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 1010 916 Calcium ppm ASTM D5185m 1070 1055 Phosphorus ppm ASTM D5185m 1150 943 Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>4</th> <td></td> <td></td>	Boron	ppm	ASTM D5185m	0	4		
Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 1010 916 Calcium ppm ASTM D5185m 1070 1055 Phosphorus ppm ASTM D5185m 1150 943 Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % STM D7844 >4	Barium	ppm	ASTM D5185m	0	0		
Magnesium ppm ASTM D5185m 1010 916 Calcium ppm ASTM D5185m 1070 1055 Phosphorus ppm ASTM D5185m 1150 943 Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7414 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <th>58</th> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m	60	58		
Calcium ppm ASTM D5185m 1070 1055 Phosphorus ppm ASTM D5185m 1150 943 Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION	Manganese	ppm	ASTM D5185m	0	<1		
Phosphorus ppm ASTM D5185m 1150 943 Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.6 Nitration Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION *method limit/base current history1 history2 Oxidation Abs/.1mm	Magnesium	ppm	ASTM D5185m	1010	916		
Zinc ppm ASTM D5185m 1270 1168 Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.6 Nitration Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Calcium	ppm	ASTM D5185m	1070	1055		
Sulfur ppm ASTM D5185m 2060 2546 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m >20 4 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/.mm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Phosphorus	ppm	ASTM D5185m	1150	943		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m 6 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Zinc	ppm	ASTM D5185m	1270	1168		
Silicon ppm ASTM D5185m >25 6 Sodium ppm ASTM D5185m 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Sulfur	ppm	ASTM D5185m	2060	2546		
Sodium ppm ASTM D5185m 6 Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Silicon	ppm	ASTM D5185m	>25	6		
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Sodium	ppm	ASTM D5185m		6		
Soot % % *ASTM D7844 >4 1.2 Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Potassium	ppm	ASTM D5185m	>20	4		
Nitration Abs/cm *ASTM D7624 >20 10.6 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Soot %	%	*ASTM D7844	>4	1.2		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.9	Nitration	Abs/cm	*ASTM D7624	>20	10.6		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.9		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 6.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.9		
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.1		



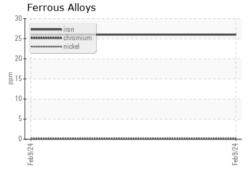
OIL ANALYSIS REPORT

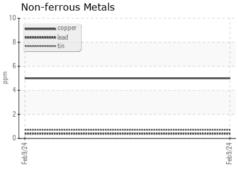


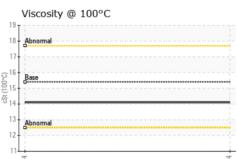


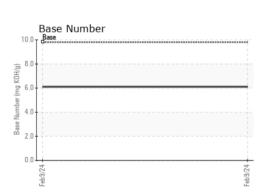
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML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

FLUID PROPE	RTIES	method			history2
Visc @ 100°C	cSt	ΔSTM D445	15.4	14 1	











Certificate L2367

Laboratory Sample No. Lab Number : 06093962

Test Package : FLEET

: GFL0111168 **Unique Number** : 10886815

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

: 20 Feb 2024 : 21 Feb 2024 Diagnosed : 21 Feb 2024 - Wes Davis

GFL Environmental - 960B - Pittsfield HC

1335 W. Washington Pittsfield, IL US 62363

Contact: David Bradshaw david.bradshaw@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: