

OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id 921023 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

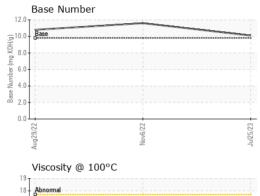
Fluid Condition

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

Sample Number Client Info GFL0071286 GFL0059828 GFL00568 GFL0059828 GFL00568 GFL0059828 GFL005961 ABST00518 GERG CHC015 CHC015 <t< th=""><th>N SHP 15W40 (</th><th>- GAL)</th><th>Aug</th><th>2022</th><th>Nov2022 Jul20</th><th>23</th><th></th></t<>	N SHP 15W40 (- GAL)	Aug	2022	Nov2022 Jul20	23	
Sample Date Client Info 25 Jul 2023 06 Nov 2022 29 Aug 20	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 28669 0 0 Oil Age hrs Client Info 28669 0 0 Oil Changed Client Info NoRMAL ATTENTION ATTENTION Sample Status NoRMAL ATTENTION ATTENTION CONTAMINATION method limit/bass current history1 history1 Fuel WC Method NEG NEG NEG NEG WEAR METALS method limit/bass current history1 history1 Iron ppm ASTM D5185m >120 8 54 76 Chromium ppm ASTM D5185m >120 8 54 76 Chromium ppm ASTM D5185m >20 -1 1 4 Wickel ppm ASTM D5185m 22 0 0 -1 2 Itanium ppm ASTM D5185m 22 0 0 -1 1 Chromium	Sample Number		Client Info		GFL0071286	GFL0059828	GFL0056003
Oil Age hrs Client Info 28669 0 0 Oil Changed Client Info Not Changed Changed Changed Sample Status NORMAL ATTENTION	Sample Date		Client Info		25 Jul 2023	06 Nov 2022	29 Aug 2022
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CONTAMINATION	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel							ATTENTION
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >120 8 54 76 Chromium ppm ASTM D5185m >20 <1 1 4 Nickel ppm ASTM D5185m >20 <1 1 4 Nickel ppm ASTM D5185m >2 0 0 <1 2 Titanium ppm ASTM D5185m >2 0 0 <1 1 1 4 4 10 10 <1 1	CONTAMINAT	ION	method	limit/base	current	history1	history2
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Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 1 4 Nickel ppm ASTM D5185m >5 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 0 <1 2 Titanium ppm ASTM D5185m >2 0 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 0 4 10 Aluminum ppm ASTM D5185m >2 0 0 0 4 10 Lead ppm ASTM D5185m >3 0 2 <1 1 1 Copper ppm ASTM D5185m >15 <1 1 1 Copper ppm ASTM D5185m >15 <1 2 1 2 Tin ppm ASTM D5185m >15 <1 2 1 2 Vanadium ppm ASTM D5185m 0 0 0 0 1 Cadmium ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 histor Boron ppm ASTM D5185m 0 0 0 0 0 ADDITIVES method limit/base current history1 histor Barium ppm ASTM D5185m 0 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 0 Magnesium ppm ASTM D5185m 10 0 0 10 0 0 0 Magnesium ppm ASTM D5185m 10 0 0 1002 857 545 Calcium ppm ASTM D5185m 10 100 1002 857 545 Calcium ppm ASTM D5185m 1150 1066 877 531 Zinc ppm ASTM D5185m 1270 1285 1094 708 Sulfur ppm ASTM D5185m 2060 3796 3183 2069 CONTAMINANTS method limit/base current history1 histor Socion ppm ASTM D5185m >25 4 6 6 16 Sodium ppm ASTM D5185m >20 7 11 29 INFRA-RED method limit/base current history1 histor Soot % % 'ASTM D5185m >20 6.9 10.9 13.9 Sulfation Abs/.1mm 'ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 histor	Iron	ppm	ASTM D5185m	>120	8	54	76
Description	Chromium	ppm	ASTM D5185m	>20	<1	1	4
Titanium ppm ASTM D5185m >2 0 0 <1 Silver ppm ASTM D5185m >2 0 0 <1	Nickel	ppm	ASTM D5185m	>5	0	<1	2
Silver	Titanium		ASTM D5185m	>2	0	0	<1
Aluminum	Silver		ASTM D5185m	>2	0	0	<1
Lead ppm ASTM D5185m >40 <1 <1 1 Copper ppm ASTM D5185m >330 2 <1 2 Tin ppm ASTM D5185m >15 <1 <1 2 Vanadium ppm ASTM D5185m 0 0 0 <1 Cadmium ppm ASTM D5185m 0 6 14 35 Boron ppm ASTM D5185m 0 6 14 35 Barium ppm ASTM D5185m 0 6 14 35 Barium ppm ASTM D5185m 0 6 14 35 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 41 <1 1 Magnesium ppm ASTM D5185m 1010 1002 857 545 Calcium ppm ASTM D5185m 1070 1098	Aluminum		ASTM D5185m	>20	0	4	10
Copper ppm ASTM D5185m >330 2 <1 2 Tin ppm ASTM D5185m >15 <1	Lead		ASTM D5185m	>40	<1	<1	1
Tin				>330			
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Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 1002 857 545 Calcium ppm ASTM D5185m 1070 1098 1103 1227 Phosphorus ppm ASTM D5185m 1150 1066 877 531 Zinc ppm ASTM D5185m 1270 1285 1094 708 Sulfur ppm ASTM D5185m 2060 3796 3183 2069 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 6 16 Sodium ppm ASTM D5185m >20 7 11 29 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 0 3 3.4 Nitration Abs/:1mm *ASTM D741	Barium	ppm	ASTM D5185m	0	0	0	0
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Magnesium ppm ASTM D5185m 1010 1002 857 545 Calcium ppm ASTM D5185m 1070 1098 1103 1227 Phosphorus ppm ASTM D5185m 1150 1066 877 531 Zinc ppm ASTM D5185m 1270 1285 1094 708 Sulfur ppm ASTM D5185m 2060 3796 3183 2069 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 6 16 Sodium ppm ASTM D5185m 20 7 11 29 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0 3 3.4 Nitration Abs/amm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method li	Manganese	ppm	ASTM D5185m	0	<1	<1	1
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Silicon ppm ASTM D5185m >25 4 6 16 Sodium ppm ASTM D5185m 49 ▲ 164 ▲ 281 Potassium ppm ASTM D5185m >20 7 11 29 INFRA-RED method limit/base current history1 history1 history1 Soot % % *ASTM D7844 >4 0 3 3.4 Nitration Abs/cm *ASTM D7624 >20 6.9 10.9 13.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9							
Sodium ppm ASTM D5185m 49 ▲ 164 ▲ 281 Potassium ppm ASTM D5185m >20 7 11 29 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >4 0 3 3.4 Nitration Abs/cm *ASTM D7624 >20 6.9 10.9 13.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9	CONTAMINAN	TS	method	limit/base	current	history1	history2
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INFRA-RED	Sodium	ppm	ASTM D5185m		49	<u></u> 164	<u>^</u> 281
Soot % *ASTM D7844 >4 0 3 3.4 Nitration Abs/cm *ASTM D7624 >20 6.9 10.9 13.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9	Potassium	ppm	ASTM D5185m	>20	7	11	29
Nitration Abs/cm *ASTM D7624 >20 6.9 10.9 13.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9	Soot %	%	*ASTM D7844	>4	0	3	3.4
Sulfation Abs/.1mm *ASTM D7415 >30 21.1 25.7 29.2 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9	Nitration	Abs/cm	*ASTM D7624	>20	6.9	10.9	13.9
Oxidation Abs/.1mm *ASTM D7414 >25 14.3 16 17.9							
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	16	17.9
Dasc Number (DN) higherly Activided 3.0 IU.I II.0 IU.O	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	10.1	11.6	10.8



OIL ANALYSIS REPORT



VISUAL		method				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

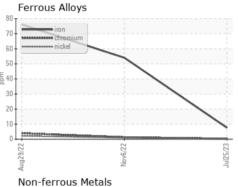
14.3

15.0

14.8

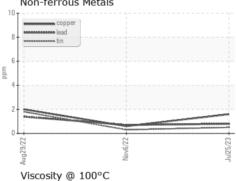
Abnormal	 	 		 	 	••••	
Base	 	 		 	 		
14							-
13 - Abnormal							
12-	 	 					
44			- 1				

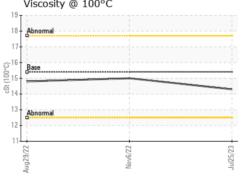
Visc @ 100°C **GRAPHS**

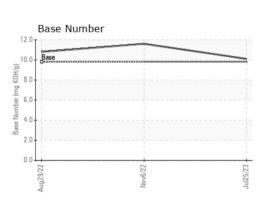


cSt

ASTM D445 15.4









Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10658734 Test Package : FLEET

: GFL0071286 : 05957521

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 21 Sep 2023 Diagnosed : 25 Sep 2023

Diagnostician : Wes Davis

GFL Environmental - 932 - Muskego HC

W144 S6400 College Ct. Muskego, WI US 53150

Contact: Brian Schlomann brian.schlomann@gflenv.com T: (262)510-4586

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)

Report Id: GFL932 [WUSCAR] 05957521 (Generated: 09/30/2023 20:17:08) Rev: 1