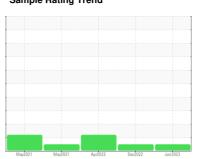


OIL ANALYSIS REPORT

Sample Rating Trend









158M **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

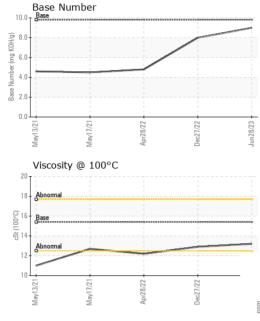
Fluid Condition

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 GFL0015783 GFL00167619 GFL0015801 Sample Date Client Info 28 Jun 2023 27 Dec 2022 28 Apr 2022	N SHP 15W40 (GAL)	May2021	May2021	Apr2022 Dec2022	Jun 2023	
Cample Date Client Info 28 Jun 2023 27 Dec 2022 28 Apr 2022 29 Apr 2022 28 Apr 2022 29 Apr 2022 28 Apr 2022 29 Apr 2022	SAMPLE INFOR	MATION	method	limit/base	current	history 1	history 2
Machine Age hrs Client Info	Sample Number		Client Info		GFL0015783	GFL0067619	GFL0015800
Dil Changed	Sample Date		Client Info		28 Jun 2023	27 Dec 2022	28 Apr 2022
Dil Changed Client Info N/A N/A N/A N/A NORMAL NO	Machine Age	hrs	Client Info		20849	422732	600
CONTAMINATION method limit/base current history 1 history 2	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION	Oil Changed		Client Info		N/A	N/A	N/A
Fuel	Sample Status				NORMAL	NORMAL	ATTENTION
NEG Neg	CONTAMINAT	ION	method	limit/base	current	history 1	history 2
WEAR METALS method limit/base current history 1 history 2 ron ppm ASTM D5185m >120 7 11 28 Chromium ppm ASTM D5185m >20 2 <1	-uel		WC Method	>3.0	<1.0	<1.0	△ 2.6
Chromium	Glycol		WC Method		NEG	NEG	NEG
Description	WEAR METAL	.S	method	limit/base	current	history 1	history 2
ASTM D5185m S	ron	ppm	ASTM D5185m	>120	7	11	28
Titanium	Chromium	ppm	ASTM D5185m	>20	2	<1	2
Salver	Nickel	ppm	ASTM D5185m	>5	1	0	<1
Aluminum	Γitanium	ppm	ASTM D5185m	>2	2	0	<1
December December	Silver	ppm	ASTM D5185m	>2	2	0	<1
Copper	Aluminum	ppm	ASTM D5185m	>20	2	1	13
Antimony	_ead	ppm	ASTM D5185m	>40	4	<1	2
Antimony	Copper	ppm	ASTM D5185m	>330	3	3	8
Vanadium ppm ASTM D5185m 1 0 0 Cadmium ppm ASTM D5185m 2 0 0 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 2 87 5 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 51 62 63 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1070 1038 1092 1083 Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m >2060 3375 3305 2069 method limit/base current history 1	Γin	ppm	ASTM D5185m	>15	2	<1	1
ADDITIVES	Antimony	ppm	ASTM D5185m				
ADDITIVES	√anadium	ppm	ASTM D5185m		1	0	0
Soron ppm ASTM D5185m 0 2 87 5	Cadmium	ppm	ASTM D5185m		2	0	0
Sarium	ADDITIVES		method	limit/base	current	history 1	history 2
Molybdenum ppm ASTM D5185m 60 51 62 63 Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 913 860 829 Calcium ppm ASTM D5185m 1070 1038 1092 1083 Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % *ASTM D7624 >2	Boron	ppm	ASTM D5185m	0	2	87	5
Manganese ppm ASTM D5185m 0 2 <1 <1 Magnesium ppm ASTM D5185m 1010 913 860 829 Calcium ppm ASTM D5185m 1070 1038 1092 1083 Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 913 860 829 Calcium ppm ASTM D5185m 1070 1038 1092 1083 Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/.1mm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM	Molybdenum	ppm	ASTM D5185m	60	51	62	63
Calcium ppm ASTM D5185m 1070 1038 1092 1083 Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION *ASTM	Manganese	ppm	ASTM D5185m	0	2	<1	<1
Phosphorus ppm ASTM D5185m 1150 921 956 924 Zinc ppm ASTM D5185m 1270 1166 1152 1153 Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m 4 4 6 Potassium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Gulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method <td< td=""><td>Magnesium</td><td>ppm</td><td>ASTM D5185m</td><td>1010</td><th>913</th><td>860</td><td>829</td></td<>	Magnesium	ppm	ASTM D5185m	1010	913	860	829
Zinc ppm ASTM D5185m 1270 1166 1152 1153 2069 3375 3305 2069 2069 2060 3375 3305 2069 2069 2060 2	Calcium	ppm	ASTM D5185m	1070	1038	1092	1083
Sulfur ppm ASTM D5185m 2060 3375 3305 2069 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m 4 4 6 Potassium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Phosphorus	ppm	ASTM D5185m	1150	921	956	924
CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >25 5 6 8 Sodium ppm ASTM D5185m 4 4 6 Potassium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Zinc	ppm	ASTM D5185m	1270	1166	1152	1153
Solition ppm ASTM D5185m >25 5 6 8	Sulfur	ppm	ASTM D5185m	2060	3375	3305	2069
Sodium ppm ASTM D5185m 4 4 6 Potassium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	CONTAMINAN	ITS	method	limit/base	current	history 1	history 2
Potassium ppm ASTM D5185m >20 6 1 8 INFRA-RED method limit/base current history 1 history 2 Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Silicon	ppm	ASTM D5185m	>25	5	6	8
INFRA-RED	Sodium	ppm	ASTM D5185m		4	4	6
Soot % % *ASTM D7844 >4 0.2 0.3 0.8 Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Potassium	ppm	ASTM D5185m	>20	6	1	8
Nitration Abs/cm *ASTM D7624 >20 6.7 7.7 12.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	INFRA-RED		method	limit/base	current	history 1	history 2
Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.6 25.9 FLUID DEGRADATION method limit/base current history 1 history 2 Dxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Soot %	%	*ASTM D7844	>4	0.2	0.3	0.8
FLUID DEGRADATION method limit/base current history 1 history 2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Nitration	Abs/cm	*ASTM D7624	>20	6.7	7.7	12.0
Oxidation Abs/.1mm *ASTM D7414 >25 14.3 15.0 20.8	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.4	18.6	25.9
	FLUID DEGRA	OATION	method	limit/base	current	history 1	history 2
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.0 8.0 4.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3	15.0	20.8
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	9.0	8.0	4.8

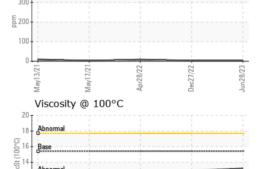


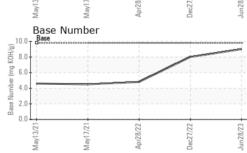
OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history 1	history 2
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	RTIES	method	limit/base	current	history 1	history 2

Visc @ 100	°C	cSt	ASTM D445	15.4	13.2	12.	.9	▲ 12.2
GRAPH	S							
Iron (ppm)				Lead (p	pm)		
250 Severe					Severe			
200 Abnormal					Abnormal			
50-					20			
May13/21	May17/21+	Apr28/22 +	Dec27/22 -	Jun28/23	May13/21	May17/21	Apr28/22 -	Dec27/22 -
Aluminum (ppm) Chromium (ppm)								
Severe					Severe			
Abnormal					20 Abnormal			
10-					10			
May13/21	May17/21	Apr28/22 +	Dec27/22 -	Jun28/23	May13/21	May17/21	Apr28/22	Dec27/22





Silicon (ppm)





Laboratory

Sample No. Lab Number **Unique Number** Test Package : MOB 2

: GFL0015783 : 05888889 : 10539372

Copper (ppm)

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 03 Jul 2023 Received Diagnosed : 05 Jul 2023 Diagnostician : Don Baldridge

GFL Environmental - 463 - Cheboygan 501 N. Western Ave

Cheboygan, MI US 49721 Contact: Chris Gee cgee@gflenv.com T: (231)597-8553

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)