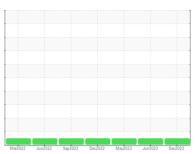


OIL ANALYSIS REPORT

Sample Rating Trend









Machine Id 927059 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

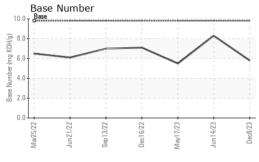
Fluid Condition

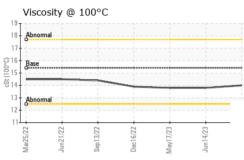
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info GFL0095374 GFL0076923 GFL005298 Sample Date Client Info 08 Dec 2023 14 Jun 2023 17 May 202 18 May 202 19 May 20	N SHP 15W40 (-	GAL)	Mar2022	Jun2022 Sep2022	Dec2022 May2023 Jun2023	Dec2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 16194 15629 15505 Oil Age hrs Client Info 572 124 584 Oil Age hrs Client Info Changed Changed Changed Changed NORMAL N	Sample Number		Client Info		GFL0095374	GFL0076923	GFL0052981
Dil Age	Sample Date		Client Info		08 Dec 2023	14 Jun 2023	17 May 2023
Contained Client Info Changed Normal N	Machine Age	hrs	Client Info		16194	15629	15505
CONTAMINATION	Oil Age	hrs	Client Info		572	124	584
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 12 5 11 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 0 0 Silver ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >2 0 <1 0 Aluminum ppm ASTM D5185m >40 0 2 <1 1 Copper ppm ASTM D5185m >330 <1 <1 <1 <1 Tin ppm ASTM D5185m >15 0 <1 <1 <1 Vanadium ppm ASTM D5185m >10	CONTAMINAT	ION	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
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	12	5	11
Silver	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	2	1	3
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	0
Lead	Silver	ppm	ASTM D5185m	>2	0	<1	0
Copper ppm ASTM D5185m >330 <1 <1 1 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	2	<1	2
Tin	Lead	ppm	ASTM D5185m	>40	0	2	<1
Vanadium ppm ASTM D5185m <1 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 7 14 18 Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 0 60 61 58 74 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1018 935 943 Calcium ppm ASTM D5185m 1070 1158 1309 1167 Phosphorus ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><td><1</td><td><1</td><td>1</td></th<>	Copper	ppm	ASTM D5185m	>330	<1	<1	1
Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 7 14 18 Barium ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 0 0 <1 0 Molybdenum ppm ASTM D5185m 60 61 58 74 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 58 74 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1018 935 943 Calcium ppm ASTM D5185m 1070 1158 1309 1167 Phosphorus ppm ASTM D5185m 1070 1061 1061 1030 Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current<	Boron	ppm	ASTM D5185m	0	7	14	18
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1018 935 943 Calcium ppm ASTM D5185m 1070 1158 1309 1167 Phosphorus ppm ASTM D5185m 1150 1061 1061 1030 Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/am *ASTM	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium ppm ASTM D5185m 1010 1018 935 943 Calcium ppm ASTM D5185m 1070 1158 1309 1167 Phosphorus ppm ASTM D5185m 1150 1061 1061 1030 Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION *ASTM D7414	Molybdenum	ppm	ASTM D5185m	60	61	58	74
Calcium ppm ASTM D5185m 1070 1158 1309 1167 Phosphorus ppm ASTM D5185m 1150 1061 1061 1030 Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1061 1061 1030 Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation A	Magnesium	ppm	ASTM D5185m	1010	1018	935	943
Zinc ppm ASTM D5185m 1270 1299 1329 1272 Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Calcium	ppm	ASTM D5185m	1070	1158	1309	1167
Sulfur ppm ASTM D5185m 2060 2982 3805 2954 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Phosphorus	ppm	ASTM D5185m	1150	1061	1061	1030
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 4 4 Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Zinc	ppm	ASTM D5185m	1270	1299	1329	1272
Silicon ppm ASTM D5185m >25 4 4 4 4 Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Sulfur	ppm	ASTM D5185m	2060	2982	3805	2954
Sodium ppm ASTM D5185m 10 8 9 Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 3 5 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Silicon	ppm	ASTM D5185m	>25	4	4	4
INFRA-RED	Sodium	ppm	ASTM D5185m		10	8	9
Soot % *ASTM D7844 >4 0.3 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Potassium	ppm	ASTM D5185m	>20	2	3	5
Nitration Abs/cm *ASTM D7624 >20 11.6 7.8 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 25.6 20.7 26.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Soot %	%	*ASTM D7844	>4	0.3	0.1	0.3
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Nitration	Abs/cm	*ASTM D7624	>20	11.6	7.8	11.7
Oxidation Abs/.1mm *ASTM D7414 >25 23.7 16.7 24.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	25.6	20.7	26.0
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 5.8 8.3 5.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.7	16.7	24.0
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.8	8.3	5.5



OIL ANALYSIS REPORT

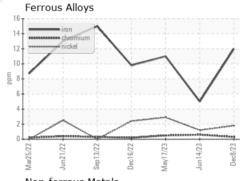


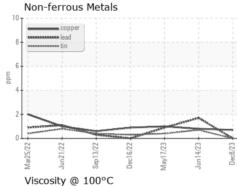


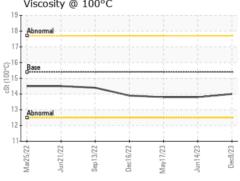
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

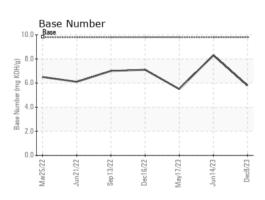
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.8	13.8

GRAPHS













Certificate L2367

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

: GFL0095374 : 06041255

: 10796484

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 20 Dec 2023

Diagnosed : 22 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 930 - Mosinee HC

1372 State Highway 34 MOSINEE, WI US 54455

Contact: Kirk Koss

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: (715)571-2784 F: