

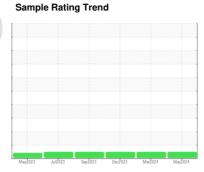
OIL ANALYSIS REPORT



Machine Id 713064 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the

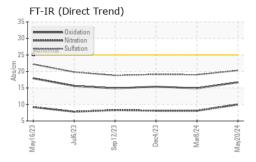
Fluid Condition

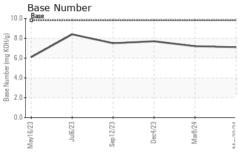
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

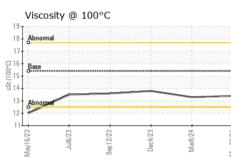
Cample Number Client Info CFL0086985 GFL0086985 CFL0086985	N 3HF 13W40 (-	GAL)	May2023	Juizuzs Sepzuzs	Deczuza Marzuz4	May2U24	
Client Info 20 May 2024 08 Mar 2024 04 Dec 2025	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs	Sample Number		Client Info		GFL0086985	GFL0086983	GFL0086959
Dil Age	Sample Date		Client Info		20 May 2024	08 Mar 2024	04 Dec 2023
Dil Changed Client Info Not Changd Nor Changd NORMAL N	Machine Age	hrs	Client Info		3112	2000	2000
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 Nate Na	Oil Age	hrs	Client Info		400	600	1091
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0	Oil Changed		Client Info		Not Changd	Not Changd	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imitibase Current history1 history2 WEAR METALS method limitibase current history1 history2 Iron ppm ASTM D5185m >120 13 10 8 Chromium ppm ASTM D5185m >20 <1	CONTAMINAT	ΓΙΟΝ	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	ron	ppm	ASTM D5185m	>120	13	10	8
Silver	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	<1	2	1
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	1	<1	<1
Tin	_ead	ppm	ASTM D5185m	>40	<1	<1	0
Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 2 2 4 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 60 61 59 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1070 1117 1093 912 Phosphorus ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Soliton ppm AST	Copper	ppm	ASTM D5185m	>330	3	<1	2
ADDITIVES	Γin	ppm	ASTM D5185m	>15	1	0	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		<1	0	<1
Boron	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 59 56 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 914 973 929 Calcium ppm ASTM D5185m 1070 1117 1093 912 Phosphorus ppm ASTM D5185m 1150 1046 996 880 Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 225 4 3 5 Sodium ppm ASTM D5185m 20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 <t< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>2</th><td>2</td><td>4</td></t<>	Boron	ppm	ASTM D5185m	0	2	2	4
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 914 973 929 Calcium ppm ASTM D5185m 1070 1117 1093 912 Phosphorus ppm ASTM D5185m 1150 1046 996 880 Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m >20 2 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 914 973 929 Calcium ppm ASTM D5185m 1070 1117 1093 912 Phosphorus ppm ASTM D5185m 1150 1046 996 880 Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m >20 2 <1	Molybdenum	ppm	ASTM D5185m	60	61	59	56
Calcium ppm ASTM D5185m 1070 1117 1093 912 Phosphorus ppm ASTM D5185m 1150 1046 996 880 Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m >20 2 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 1150 1046 996 880 Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m >20 2 <1	Magnesium	ppm	ASTM D5185m	1010	914	973	929
Zinc ppm ASTM D5185m 1270 1186 1241 1108 Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m >20 2 <1	Calcium	ppm	ASTM D5185m	1070	1117	1093	912
Sulfur ppm ASTM D5185m 2060 3233 3515 2820 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 <1	Phosphorus	ppm	ASTM D5185m	1150	1046	996	880
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 <1	Zinc	ppm	ASTM D5185m	1270	1186	1241	1108
Silicon ppm ASTM D5185m >25 4 3 5 Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 10.0 8.1 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Sulfur	ppm	ASTM D5185m	2060	3233	3515	2820
Sodium ppm ASTM D5185m 4 2 3 Potassium ppm ASTM D5185m >20 2 <1	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 10.0 8.1 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Silicon	ppm	ASTM D5185m	>25	4	3	5
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 10.0 8.1 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Sodium	ppm	ASTM D5185m		4	2	3
Soot % *ASTM D7844 >4 0.5 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 10.0 8.1 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Potassium	ppm	ASTM D5185m	>20	2	<1	0
Nitration Abs/cm *ASTM D7624 >20 10.0 8.1 8.1 Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Soot %	%	*ASTM D7844	>4	0.5	0.5	0.3
Sulfation Abs/.1mm *ASTM D7415 >30 20.3 19.0 19.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Vitration	Abs/cm	*ASTM D7624	>20	10.0	8.1	8.1
Oxidation Abs/.1mm *ASTM D7414 >25 16.7 14.9 15.4	Sulfation	Abs/.1mm	*ASTM D7415	>30		19.0	19.1
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.7	14.9	15.4
	Base Number (BN)				7.1	7.2	



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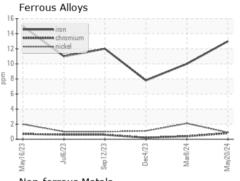


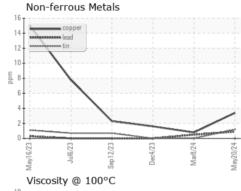


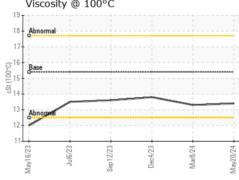
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

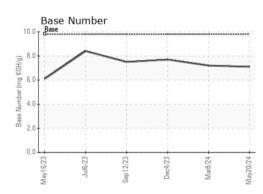
FLUID PROPI	ERHES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.4	13.3	13.8

GRAPHS













Certificate 12367

Sample No.

: GFL0086985 Lab Number : 06194775 Unique Number : 11056898

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 29 May 2024 **Tested**

: 30 May 2024 Diagnosed : 30 May 2024 - Wes Davis

GFL Environmental - 408 - Brown City

4235 M-53 BROWN CITY, MI US 48416

Contact: WILLIAM DEOLA bdeola@gflenv.com

T: (810)238-2836

Test Package : FLEET 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)