

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id

649M
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

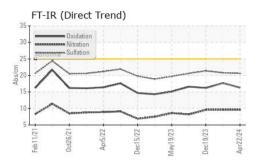
Fluid Condition

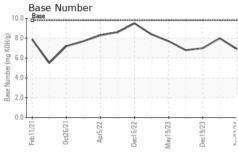
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

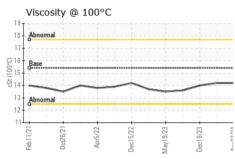
Sample Date Client Info 8880 8989 9952	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 8890 8989 9952 Oil Age hrs Client Info 600 600 600 600 Oil Changed Client Info Changed Changed Changed Changed Sample Status Image: Client Info NORMAL NEG	Sample Number		Client Info		GFL0116893	GFL0116950	GFL0096606
Oil Age hrs Client Info 600 600 600 600 Oil Changed Client Info Changed	Sample Date		Client Info		22 Apr 2024	21 Mar 2024	19 Dec 2023
Client Info Changed Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		8890	8989	9952
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 history1 water WC Method vo.2 NEG NEG	Oil Age	hrs	Client Info		600	600	600
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 history1 water WC Method vo.2 NEG NEG	Oil Changed		Client Info		Changed	Changed	Changed
Fuel					_		
Water WC Method >0.2 NEG	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
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	_S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	21	21	21
Nickel	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >20 <1 2 <1 Lead ppm ASTM D5185m >20 <1 2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Nickel		ASTM D5185m	>5	2	0	6
Silver	Titanium		ASTM D5185m	>2	0	0	0
Aluminum	Silver				0	0	<1
Lead	Aluminum			>20			
Copper ppm ASTM D5185m >330 2 <1 4 Tin ppm ASTM D5185m >15 <1							
Tin							
Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 1 4 2 Barium ppm ASTM D5185m 0 0 0 0 <1 Molybdenum ppm ASTM D5185m 0 66 59 61 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 1023 971 921 Calcium ppm ASTM D5185m 1070 1136 1073 1105 Phosphorus ppm ASTM D5185m 1270 1325 1304 1246 Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base					_		
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ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 1 4 2 Barium ppm ASTM D5185m 0 0 0 <1							
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Barium ppm ASTM D5185m 0 0 <1 Molybdenum ppm ASTM D5185m 60 66 59 61 Manganese ppm ASTM D5185m 0 <1							
Molybdenum ppm ASTM D5185m 60 66 59 61 Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 1023 971 921 Calcium ppm ASTM D5185m 1070 1136 1073 1105 Phosphorus ppm ASTM D5185m 1150 1057 1032 1018 Zinc ppm ASTM D5185m 1270 1325 1304 1246 Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m >20 0 <1 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844<							
Manganese ppm ASTM D5185m 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 1023 971 921 Calcium ppm ASTM D5185m 1070 1136 1073 1105 Phosphorus ppm ASTM D5185m 1150 1057 1032 1018 Zinc ppm ASTM D5185m 1270 1325 1304 1246 Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m 25 4 3 4 Sodium ppm ASTM D5185m 20 0 <1 1 INFRA-RED method limit/base current history1 history1 Soot % % ASTM D7844 >4 1 0.7 1.3 Nitration Abs/cm *ASTM D7815 >30					_		
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Calcium ppm ASTM D5185m 1070 1136 1073 1105 Phosphorus ppm ASTM D5185m 1150 1057 1032 1018 Zinc ppm ASTM D5185m 1270 1325 1304 1246 Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 20 0 <1	•	ppm					
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Zinc ppm ASTM D5185m 1270 1325 1304 1246 Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base current history history Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 2 3 6 Potassium ppm ASTM D5185m >20 0 <1		ppm	ASTM D5185m	1070		1073	1105
Sulfur ppm ASTM D5185m 2060 3242 3455 2602 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 2 3 6 Potassium ppm ASTM D5185m >20 0 <1	Phosphorus	ppm	ASTM D5185m	1150	1057		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 2 3 6 Potassium ppm ASTM D5185m >20 0 <1	Zinc	ppm	ASTM D5185m	1270	1325	1304	1246
Silicon ppm ASTM D5185m >25 4 3 4 Sodium ppm ASTM D5185m 2 3 6 Potassium ppm ASTM D5185m >20 0 <1 1 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 >4 1 0.7 1.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.6 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Sulfur	ppm	ASTM D5185m	2060	3242	3455	2602
Sodium ppm ASTM D5185m 2 3 6 Potassium ppm ASTM D5185m >20 0 <1	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1 0.7 1.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.6 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Silicon	ppm	ASTM D5185m	>25	4		
INFRA-RED	Sodium	ppm	ASTM D5185m		2	3	6
Soot % % *ASTM D7844 >4 1 0.7 1.3 Nitration Abs/cm *ASTM D7624 >20 9.6 9.6 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Potassium	ppm	ASTM D5185m	>20	0	<1	1
Nitration Abs/cm *ASTM D7624 >20 9.6 9.6 9.6 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Soot %	%	*ASTM D7844	>4	1	0.7	1.3
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.8 21.4 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Nitration	Abs/cm	*ASTM D7624	>20	9.6	9.6	9.6
Oxidation Abs/.1mm *ASTM D7414 >25 16.3 17.7 16.2	Sulfation	Abs/.1mm	*ASTM D7415	>30		20.8	21.4
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.3	17.7	16.2
	Base Number (BN)	mg KOH/g			6.9	8.0	7.0



OIL ANALYSIS REPORT



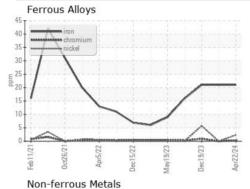


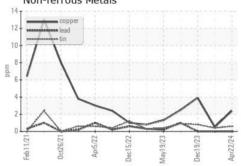


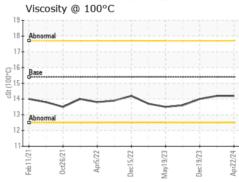
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

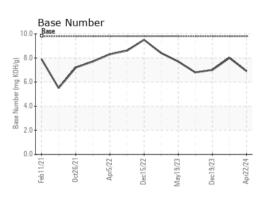
FLUID PROPI	=RIIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.2	14.0

GRAPHS













Certificate 12367

Laboratory

Sample No. Lab Number : 06158876 Unique Number : 10994299

: GFL0116893 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 24 Apr 2024 **Tested** : 25 Apr 2024

Diagnosed : 25 Apr 2024 - Wes Davis

GFL Environmental - 465 - Pontiac 888 Baldwin Pontiac, MI US 48340

Contact: Ricky Matthews rickymathews@gflenv.com T: (586)825-9514

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)