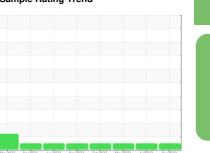


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 651 M Component Diesel Engine Fluid PETRO CANAL

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

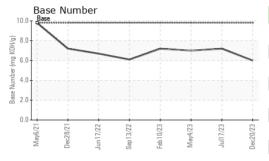
Fluid Condition

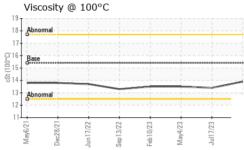
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Client Info	CAMPLE INFOR		and a three de	line it //e		la tarta and	المارة المارة
Client Info	SAMPLE INFORI	MATION	method	limit/base		history1	
Machine Age hrs Client Info 9851 8978 8574	Sample Number		Client Info		GFL0107067	GFL0082759	GFL0081241
Oil Age	Sample Date		Client Info		20 Dec 2023	17 Jul 2023	04 May 2023
Oil Changed Client Info Not Changed NORMAL NORM	Machine Age	hrs	Client Info		9851		
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 NEG N	Oil Age	hrs	Client Info		600	600	600
Fuel	Oil Changed		Client Info		Not Changd	N/A	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 13 19 12 Chromium ppm ASTM D5185m >20 <1	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	13	19	12
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	1	<1	<1
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	<1	0
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >330 2 3 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	2	2	0
Copper ppm ASTM D5185m >330 2 3 2 Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	<1	1	<1
Tin	Copper		ASTM D5185m	>330	2	3	2
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 <1 <1 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 935 976 937 Calcium ppm ASTM D5185m 1070 1091 1140 1053 Phosphorus ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base	Tin				<1	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	Vanadium		ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium		ASTM D5185m		0		0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 60 63 63 61 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 63 63 61 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 935 976 937 Calcium ppm ASTM D5185m 1070 1091 1140 1053 Phosphorus ppm ASTM D5185m 1150 871 966 970 Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Boron	ppm	ASTM D5185m	0	<1	<1	<1
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 935 976 937 Calcium ppm ASTM D5185m 1070 1091 1140 1053 Phosphorus ppm ASTM D5185m 1150 871 966 970 Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m 20 2 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 1010 935 976 937 Calcium ppm ASTM D5185m 1070 1091 1140 1053 Phosphorus ppm ASTM D5185m 1150 871 966 970 Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m >20 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.0 8.3 8.4 Sulfation Abs/.1mm *ASTM D7415	Molybdenum	ppm	ASTM D5185m	60	63	63	61
Calcium ppm ASTM D5185m 1070 1091 1140 1053 Phosphorus ppm ASTM D5185m 1150 871 966 970 Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	Manganese	ppm	ASTM D5185m	0	0	<1	<1
Phosphorus ppm ASTM D5185m 1150 871 966 970 Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	Magnesium	ppm	ASTM D5185m	1010	935	976	937
Zinc ppm ASTM D5185m 1270 1225 1260 1239 Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	Calcium	ppm	ASTM D5185m	1070	1091	1140	1053
Sulfur ppm ASTM D5185m 2060 2414 2909 2842 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	Phosphorus	ppm	ASTM D5185m	1150	871	966	970
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	Zinc	ppm	ASTM D5185m	1270	1225	1260	1239
Silicon ppm ASTM D5185m >25 3 5 3 Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.0 8.3 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Sulfur	ppm	ASTM D5185m	2060	2414	2909	2842
Sodium ppm ASTM D5185m 2 6 3 Potassium ppm ASTM D5185m >20 2 0 <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.0 8.3 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Silicon	ppm	ASTM D5185m	>25	3	5	3
INFRA-RED	Sodium	ppm	ASTM D5185m		2	6	3
Soot % % *ASTM D7844 >4 1 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.0 8.3 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Potassium	ppm	ASTM D5185m	>20	2	0	<1
Nitration Abs/cm *ASTM D7624 >20 9.0 8.3 8.4 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Soot %	%	*ASTM D7844	>4	1	0.9	0.7
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 20.6 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Nitration	Abs/cm	*ASTM D7624	>20	9.0	8.3	8.4
Oxidation Abs/.1mm *ASTM D7414 >25 15.8 16.8 16.3	Sulfation	Abs/.1mm	*ASTM D7415	>30		20.6	20.5
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	16.8	16.3
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	6.0	7.2	



OIL ANALYSIS REPORT

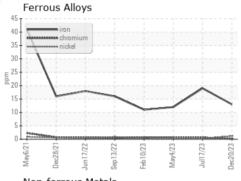


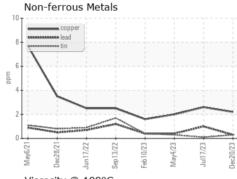


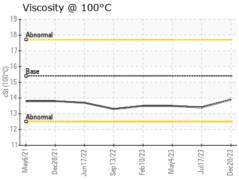
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

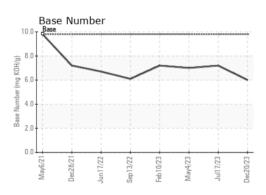
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.4	13.5	

GRAPHS













Laboratory Sample No. Lab Number Test Package : FLEET

: 06045870 Unique Number : 10806478

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0107067 Recieved Diagnosed

: 27 Dec 2023 : 28 Dec 2023 Diagnostician : Wes Davis

888 Baldwin Pontiac, MI US 48340 Contact: Ricky Matthews

GFL Environmental - 465 - Pontiac

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)