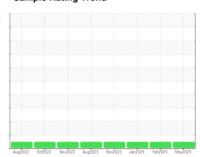


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 4629 M Component Diesel Engine Fluid PETRO CANAI

PETRO CANADA DURON SHP 15W40 (5 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

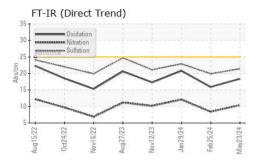
Fluid Condition

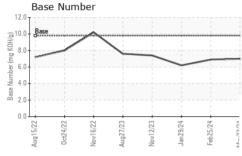
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

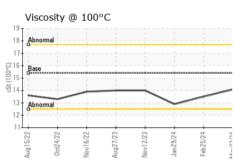
Sample Date Client Info 23 May 2024 25 Feb 2024 29 Jan 203	SAMPLE INFO	RMATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 474 300 503	Sample Number		Client Info		GFL0115198	GFL0115048	GFL0106665
Oil Age hrs Client Info 474 300 503 Oil Changed Sample Status Client Info Changed NoRMAL Changed Changed NoRMAL Changed NoRMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history1 Fuel WC Method >3.0 <1.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >90 55 21 30 Chromium ppm ASTM D5185m >20 3 <1 1 Nickel ppm ASTM D5185m >2 <1 0 <1 Silver ppm ASTM D5185m >2 <1 0 <1 2 Lead ppm ASTM D5185m >20 6 <1 2 <1 0 Copper	Sample Date		Client Info		23 May 2024	25 Feb 2024	29 Jan 2024
Oil Changed Sample Status Client Info MoRMAL Changed NORMAL Changed NeG Changed NEG Changed NEG Changed NEG Changed NEG Changed NEG Changed NEG Changed NEG Changed NEG Change NEG Change NEG Change NEG Change NEG Cha	Machine Age	hrs	Client Info		20056	19582	19386
NORMAL NORMAL NORMAL NORMAL	Oil Age	hrs	Client Info		474	300	503
NORMAL NORMAL NORMAL NORMAL	Oil Changed		Client Info		Changed	Changed	Changed
Fuel							
Water WC Method >0.2 NEG Neg <t< td=""><td>CONTAMINA</td><td>TION</td><td>method</td><td>limit/base</td><th>current</th><td>history1</td><td>history2</td></t<>	CONTAMINA	TION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >90 55 21 30 Chromium ppm ASTM D5185m >20 3 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Irron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 3 <1 1 Nickel ppm ASTM D5185m >2 <1	WEAR META	LS	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>90	55	21	30
Nickel	Chromium	ppm	ASTM D5185m	>20	3	<1	1
Titanium	Nickel		ASTM D5185m	>2	<1	4	<1
Silver							
Aluminum							
Lead							
Copper ppm ASTM D5185m >330 2 8 <1 Tin ppm ASTM D5185m >15 <1					-		
Tin							
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 1 2 0 Barium ppm ASTM D5185m 0 0 0 12 Molybdenum ppm ASTM D5185m 0 0 0 12 Molybdenum ppm ASTM D5185m 0 1 <1 0 Magnesium ppm ASTM D5185m 0 1 <1 0 Magnesium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210					_		
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 1 2 0 Barium ppm ASTM D5185m 0 0 0 12 Molybdenum ppm ASTM D5185m 60 61 62 52 Manganese ppm ASTM D5185m 0 1 <1				>15			
ADDITIVES							
Boron		ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 12 Molybdenum ppm ASTM D5185m 60 61 62 52 Manganese ppm ASTM D5185m 0 1 <1 0 Magnesium ppm ASTM D5185m 1010 970 1141 769 Calcium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 60 61 62 52 Manganese ppm ASTM D5185m 0 1 <1 0 Magnesium ppm ASTM D5185m 1010 970 1141 769 Calcium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7624 </td <td></td> <td></td> <td></td> <td></td> <th></th> <td></td> <td></td>							
Manganese ppm ASTM D5185m 0 1 <1 0 Magnesium ppm ASTM D5185m 1010 970 1141 769 Calcium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1 3 Potassium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history1 Soot % *ASTM D7624 >20	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium ppm ASTM D5185m 1010 970 1141 769 Calcium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1 3 Potassium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 </td <td>Molybdenum</td> <td>ppm</td> <td></td> <td></td> <th>61</th> <td></td> <td></td>	Molybdenum	ppm			61		
Calcium ppm ASTM D5185m 1070 1058 1247 848 Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1	Manganese	ppm	ASTM D5185m	0	1	<1	0
Phosphorus ppm ASTM D5185m 1150 1038 1152 833 Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m >20 3 <1	Magnesium	ppm	ASTM D5185m	1010	970	1141	769
Zinc ppm ASTM D5185m 1270 1279 1490 1042 Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m 20 3 <1	Calcium	ppm	ASTM D5185m	1070	1058	1247	848
Sulfur ppm ASTM D5185m 2060 3210 3352 2406 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m 20 3 <1	Phosphorus	ppm	ASTM D5185m	1150	1038	1152	833
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m 10 2 18 Potassium ppm ASTM D5185m >20 3 <1	Zinc	ppm	ASTM D5185m	1270	1279	1490	1042
Silicon ppm ASTM D5185m >25 19 4 5 Sodium ppm ASTM D5185m 10 2 18 Potassium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >6 0.8 0.6 0.8 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	Sulfur	ppm	ASTM D5185m	2060	3210	3352	2406
Sodium ppm ASTM D5185m 10 2 18 Potassium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >6 0.8 0.6 0.8 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 <1 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 >6 0.8 0.6 0.8 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	Silicon	ppm	ASTM D5185m	>25	19	4	5
INFRA-RED	Sodium	ppm	ASTM D5185m		10	2	18
Soot % % *ASTM D7844 >6 0.8 0.6 0.8 Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	Potassium	ppm	ASTM D5185m	>20	3	<1	3
Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 10.4 8.4 12.1 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history1 history Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8	Soot %	%	*ASTM D7844	>6	0.8	0.6	0.8
Sulfation Abs/.1mm *ASTM D7415 >30 21.4 19.9 22.9 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8							
Oxidation Abs/.1mm *ASTM D7414 >25 18.4 15.9 20.8							
	FLUID DEGRA	ADATION	method	limit/base	current	history1	history2
DOG NUMBER 1019 110 100 10 10 10 10 10 10 10 10 10 10 1	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.4	15.9	20.8



OIL ANALYSIS REPORT



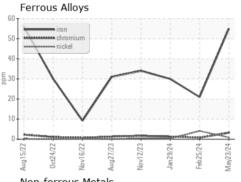


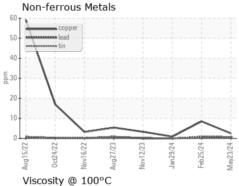


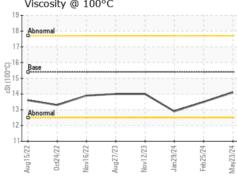
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

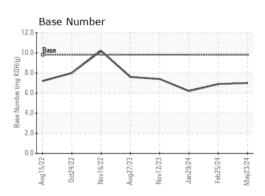
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	13.5	12.9

GRAPHS













Certificate 12367

Laboratory Sample No.

Test Package : FLEET

Lab Number : 06193403 Unique Number : 11050155

: GFL0115198

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 May 2024 **Tested** : 30 May 2024

Diagnosed : 30 May 2024 - Wes Davis

GFL Environmental - 405 - Arbor Hills 7811 Chubb Rd

NORTHVILLE, MI US 48168 Contact: John Nahal jnahal@gflenv.com

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)

Report Id: GFL405 [WUSCAR] 06193403 (Generated: 05/30/2024 08:36:08) Rev: 1

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