

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 525145- SW7531 FREIGHTLINER CASCADIA 125

Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 0

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

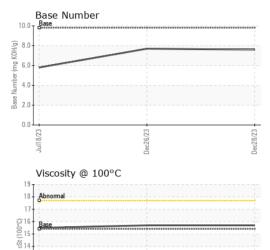
Fluid Condition

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

Client Info	AL)		Jul	2023	Dec2023 Dec20	23	
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 0 0 362717	Sample Number		Client Info		GFL0066580	GFL0066607	GFL0085487
Oil Age	Sample Date		Client Info		28 Dec 2023	26 Dec 2023	18 Jul 2023
Colient Info	Machine Age	mls	Client Info		0	0	362717
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 NEG NEG	Oil Age	mls	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Oil Changed		Client Info		N/A	N/A	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >80 7 5 52 Chromium ppm ASTM D5185m >5 0 <1	CONTAMINATION	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<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 METALS	3	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>80	7	5	52
Titanium	Chromium	ppm	ASTM D5185m	>5	0	<1	2
Silver	Nickel	ppm	ASTM D5185m	>2			
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead	Silver	ppm					
Copper ppm ASTM D5185m >150 4 4 10 Tin ppm ASTM D5185m >5 0 <1	Aluminum	ppm	ASTM D5185m	>30		2	
Tin	Lead	ppm					
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 6 7 0 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 0 0 0 1 1 Manganese ppm ASTM D5185m 0 0 <1 <1 1 Magnesium ppm ASTM D5185m 1010 48 23 576 Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 <td></td> <td>ppm</td> <td></td> <td></td> <td></td> <td></td> <td></td>		ppm					
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 6 7 0 Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 0 0 -1 -1 Manganese ppm ASTM D5185m 0 0 -1 -1 Magnesium ppm ASTM D5185m 1010 48 23 576 Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current <t< td=""><td></td><td></td><td></td><td>>5</td><td></td><td></td><td></td></t<>				>5			
ADDITIVES		ppm					
Boron		ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 2 Molybdenum ppm ASTM D5185m 60 43 39 41 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	,	history2
Molybdenum ppm ASTM D5185m 60 43 39 41 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 48 23 576 Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624 >20	Boron	ppm	ASTM D5185m	0	6	7	
Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 48 23 576 Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844	Barium	ppm	ASTM D5185m	0	-	0	2
Magnesium ppm ASTM D5185m 1010 48 23 576 Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D74	Molybdenum	ppm				39	41
Calcium ppm ASTM D5185m 1070 2481 2328 1743 Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION	-	ppm			-		
Phosphorus ppm ASTM D5185m 1150 1008 1018 1001 Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Ab	-	ppm	ASTM D5185m		_		
Zinc ppm ASTM D5185m 1270 1252 1195 1249 Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3		ppm	ASTM D5185m	1070	2481	2328	1743
Sulfur ppm ASTM D5185m 2060 3154 2998 3818 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3		ppm					
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m 0 <1	-				_		
Silicon ppm ASTM D5185m >20 5 5 0 Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3			ASTM D5185m	2060	3154	2998	
Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3	CONTAMINANT	ΓS		limit/base	current		history2
Potassium ppm ASTM D5185m >20 1 3 6 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3	Silicon	ppm	ASTM D5185m	>20	5	5	
INFRA-RED		ppm	ASTM D5185m		0		0
Soot % % *ASTM D7844 >3 0.2 0.2 1.2 Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3	Potassium	ppm	ASTM D5185m	>20	1	3	6
Nitration Abs/cm *ASTM D7624 >20 6.2 6.2 12.5 Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 16.0 16.1 28.1 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 9.5 9.5 22.3	Soot %	%	*ASTM D7844	>3	0.2	0.2	1.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm 'ASTM D7414 >25 9.5 9.5 22.3	Nitration	Abs/cm	*ASTM D7624	>20	6.2	6.2	12.5
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	16.0	16.1	28.1
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.6 7.7 5.8	Oxidation	Abs/.1mm	*ASTM D7414	>25	9.5	9.5	22.3
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.6	7.7	5.8



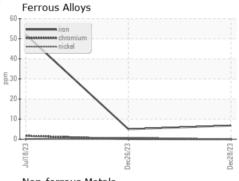
OIL ANALYSIS REPORT

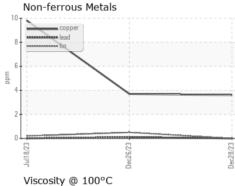


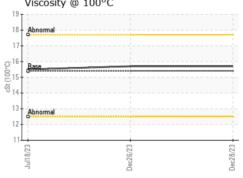
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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
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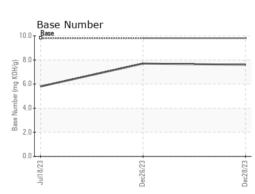
FLUID PROPE	RHES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	15.7	15.7	15.5

GRAPHS











Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10817698 Test Package : FLEET

: GFL0066580 : 06051749

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 05 Jan 2024 Diagnosed : 08 Jan 2024

Diagnostician : Jonathan Hester

GFL Environmental - 980 - Northside Hauling

1820 Candle Ridge Park Dr Houston, TX US 77073 Contact: Edwin Collins

ecollins@gflenv.com

T: F:

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)