

OIL ANALYSIS REPORT

Machine Id Freightliner

Componen **Diesel Engine**

MOBIL 15W40 (38 QTS)

Sample Rating Trend



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

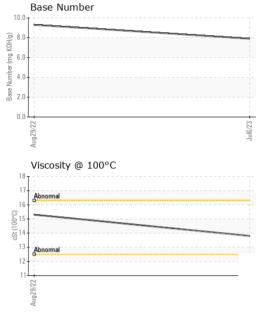
Fluid Condition

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

			Aug2022	Jul2023		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0066198	GFL0055753	
Sample Date		Client Info		06 Jul 2023	29 Aug 2022	
Machine Age	hrs	Client Info		16936	16936	
Oil Age	hrs	Client Info		500	650	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	ABNORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	26	68	
Chromium	ppm	ASTM D5185m	>5	1	3	
Nickel	ppm	ASTM D5185m	>4	0	2	
Titanium	ppm	ASTM D5185m	>2	<1	36	
Silver	ppm	ASTM D5185m	>2	0	<1	
Aluminum	ppm	ASTM D5185m	>15	6	8	
Lead	ppm	ASTM D5185m	>25	0	8	
Copper	ppm	ASTM D5185m	>100	0	4	
Tin	ppm	ASTM D5185m	>4	0	2	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1	history2
	ppm		limit/base			history2
Boron		ASTM D5185m	limit/base	6	35	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	6 0	35 3 32 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	6 0 61	35 3 32 <1 344	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	6 0 61 0 942 1089	35 3 32 <1 344 1767	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	6 0 61 0 942 1089 986	35 3 32 <1 344 1767 1031	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	6 0 61 0 942 1089 986 1240	35 3 32 <1 344 1767 1031 1176	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		6 0 61 0 942 1089 986 1240 3401	35 3 32 <1 344 1767 1031 1176 3447	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	6 0 61 0 942 1089 986 1240 3401 current	35 3 32 <1 344 1767 1031 1176 3447 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	6 0 61 0 942 1089 986 1240 3401 current	35 3 32 <1 344 1767 1031 1176 3447 history1	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	limit/base >25 >118	6 0 61 0 942 1089 986 1240 3401 current	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20	6 0 61 0 942 1089 986 1240 3401 current 9 2	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m	limit/base >25 >118 >20 limit/base	6 0 61 0 942 1089 986 1240 3401 current 9 2 5	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >25 >118 >20	6 0 61 0 942 1089 986 1240 3401 current 9 2 5	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m	limit/base >25 >118 >20 limit/base	6 0 61 0 942 1089 986 1240 3401 current 9 2 5 current 0.5 10.1	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8 15.4	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >25 >118 >20 limit/base >6	6 0 61 0 942 1089 986 1240 3401 current 9 2 5	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >25 >118 >20 limit/base >6 >20	6 0 61 0 942 1089 986 1240 3401 current 9 2 5 current 0.5 10.1	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8 15.4	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method *ASTM D5185m ASTM D76185m ASTM D76185m ASTM D76185m ASTM D76185m ASTM D76185m ASTM D76185m	limit/base >25 >118 >20 limit/base >6 >20 >30	6 0 61 0 942 1089 986 1240 3401 current 9 2 5 current 0.5	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8 15.4 31.6	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m METHOD *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m METHOD *ASTM D7844 *ASTM D7624 *ASTM D7415 METHOD	limit/base >25 >118 >20 limit/base >6 >20 >30 limit/base	6 0 61 0 942 1089 986 1240 3401 current 9 2 5 current 0.5 10.1 21.4 current	35 3 32 <1 344 1767 1031 1176 3447 history1 22 ▲ 259 ▲ 219 history1 2.8 15.4 31.6 history1	history2 history2 history2



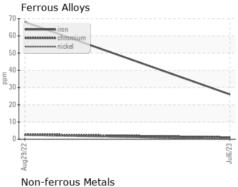
OIL ANALYSIS REPORT



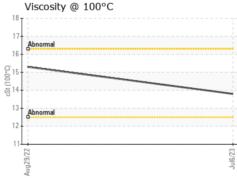
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	

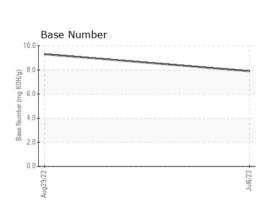
FLUID FROF	ENTIES	memou		HISTOLAL	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	13.8	15.3	

GRAPHS



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Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10551829 Test Package : FLEET

: GFL0066198 : 05896019

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

: 12 Jul 2023 : 13 Jul 2023 Diagnostician : Wes Davis

GFL Environmental - 938 - Hager City

W9724 WIS-35 HAGER CITY, WI US 54014

Contact: ANDY KANE

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)

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