

OIL ANALYSIS REPORT

Sample Rating Trend





Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (9 GAL)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

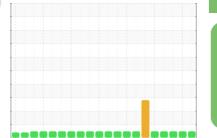
All component wear rates are normal.

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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098965	GFL0098948	GFL0099037
Sample Date		Client Info		27 Dec 2023	04 Dec 2023	10 Nov 2023
Machine Age	hrs	Client Info		10169	10016	9862
Oil Age	hrs	Client Info		9102	9102	9102
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	4	4
Chromium	ppm	ASTM D5185m	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	<1	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 0	history1 <1	history2 0
	ppm ppm					
Boron		ASTM D5185m	250	0 0 53	<1	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	0 0	<1 0	0 9
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	0 0 53	<1 0 51	0 9 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	0 0 53 <1	<1 0 51 0	0 9 58 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	0 0 53 <1 902 980 972	<1 0 51 0 881 1054 913	0 9 58 <1 877 1045 1019
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	0 0 53 <1 902 980	<1 0 51 0 881 1054	0 9 58 <1 877 1045
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	250 10 100 450 3000 1150	0 0 53 <1 902 980 972	<1 0 51 0 881 1054 913	0 9 58 <1 877 1045 1019
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	250 10 100 450 3000 1150 1350 4250 limit/base	0 0 53 <1 902 980 972 1215 2935 current	<1 0 51 0 881 1054 913 1142 2722 history1	0 9 58 <1 877 1045 1019 1159
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	250 10 100 450 3000 1150 1350 4250 limit/base >25	0 0 53 <1 902 980 972 1215 2935 current 5	<1 0 51 0 881 1054 913 1142 2722 history1 3	0 9 58 <1 877 1045 1019 1159 3577 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	0 0 53 <1 902 980 972 1215 2935 current	<1 0 51 0 881 1054 913 1142 2722 history1	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	250 10 100 450 3000 1150 1350 4250 limit/base >25	0 0 53 <1 902 980 972 1215 2935 current 5	<1 0 51 0 881 1054 913 1142 2722 history1 3	0 9 58 <1 877 1045 1019 1159 3577 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	0 0 53 <1 902 980 972 1215 2935 current 5 0 0 0	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 bistory1	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3	0 0 53 <1 902 980 972 1215 2935 <u>current</u> 5 0 0 0 <u>current</u>	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 history1 0.2	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3	0 0 53 <1 902 980 972 1215 2935 <i>current</i> 5 0 0 0 <i>current</i> 0.2 6.7	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 history1 0.2 6.0	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 <u>history2</u> 0.1 5.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3	0 0 53 <1 902 980 972 1215 2935 <u>current</u> 5 0 0 0 <u>current</u>	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 history1 0.2	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >3 >20	0 0 53 <1 902 980 972 1215 2935 <i>current</i> 5 0 0 0 <i>current</i> 0.2 6.7	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 history1 0.2 6.0	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 <u>history2</u> 0.1 5.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >3 >20	0 0 53 <1 902 980 972 1215 2935 <u>current</u> 5 0 0 0 0 <u>current</u> 0.2 6.7 18.1	<1 0 51 0 881 1054 913 1142 2722 history1 3 1 0 history1 0.2 6.0 17.8	0 9 58 <1 877 1045 1019 1159 3577 history2 4 0 2 <u>history2</u> 0.1 5.3 17.8

Submitted By: GFL084, GFL842, GFL844, GFL846 - ROBERT THIBAULT



Base

Jun16/22

Jan27/23

cSt (100°C) Ab

10

Jan21/22

OIL ANALYSIS REPORT

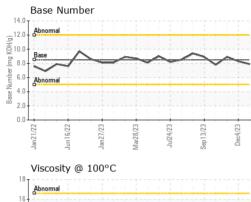
scalar

*Visual

NONE

VISUAL

White Metal



			write wetai	Scalal	visuai	NONE	NONE	NONE	NONE
	~ /		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		~	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
			Silt	scalar		NONE	NONE	NONE	NONE
			Debris	scalar	*Visual	NONE	NONE	NONE	NONE
			Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Mar28/23	Jul24/23	Sep13/23 Dec4/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mai	Jul	Sep	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
°C			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
- C			Free Water	scalar	*Visual		NEG	NEG	NEG
	1 1								
			FLUID PROPE			limit/base		history1	history2
\sim	\sim	\sim	Visc @ 100°C	cSt	ASTM D445	14.4	13.3	13.5	13.8
			GRAPHS						
			Ferrous Alloys						
/23	/23 -	/23	iron chromium						
Mar28/23	Jul24/23	Sep13/23 n4/72	40 - nickel						
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			Jan 21/22 Jun 16/22 Jan 27/23	Mar28/23	Jul24/23 Sep 13/23	Dec4/23			
					- 3				
			Viscosity @ 100°	С			Base Number		
			17 - Abnormal			14	4.0 T		
			16 -				2.0 - Abnormal		
			15 - Base	- +		Base Number (mg KOH/g)	0.0		
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			Ju Jai	M	L Se		n n Jai	Ju U	Se
L.	I	aboratory	: WearCheck USA -	501 Madie	son Ave Ca	rv. NC 275	13 GFI Fnv	/ironmental - ()84 - Clarksville
		ample No.	: GFL0098965	Recieved : 11 Jan 2024					Viller Boulevard
ACCREDIT		ab Number	: 06057888	Diagnos		Jan 2024			Clarksville, TN
TESTING LABORATO		nique Number		Diagnost	tician : We	s Davis			US 37042
Certificate L23		est Package				_			ERT THIBAULT
			contact Customer Ser						ult@gflenv.com
			are outside of the ISO				(ICCM 106-0010)		(931)552-7276
Sialemen	is of con	ionnity to spec	ifications are based on	uie simple	ассеріансе (lecision rule	(JUGIVI 100:2012)	F:	: (931)572-9674

NONE

NONE

NONE

Submitted By: GFL084, GFL842, GFL844, GFL846 - ROBERT THIBAULT