

OIL ANALYSIS REPORT

Sample Rating Trend





414059 Component

Front Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- LTR)

DIAGNOSIS Recommendation

Resample at the next service interval to monitor. 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 INFORI	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0091222	GFL0087887	GFL0087882	
Sample Date		Client Info		02 Oct 2023	14 Sep 2023	11 Sep 2023	
Machine Age	hrs	Client Info		3123	606	3123	
Oil Age	hrs	Client Info		600	606	600	
Oil Changed		Client Info		Not Changd	Changed	Not Changd	
Sample Status			NORMAL		NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2	
Iron	maa	ASTM D5185m	>120	4	6	6	
Chromium	ppm	ASTM D5185m	>20	0	<1	<1	
Nickel	maa	ASTM D5185m	>5	0	0	<1	
Titanium	maa	ASTM D5185m	>2	0	0	0	
Silver	maa	ASTM D5185m	>2	0	<1	<1	
Aluminum	ppm	ASTM D5185m	>20	0	<1	2	
Lead	ppm	ASTM D5185m	>40	0	0	<1	
Copper	ppm	ASTM D5185m	>330	3	17	18	
Tin	ppm	ASTM D5185m	>15	<1	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 2	history1 17	history2 15	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 2 <1	history1 17 0	history2 15 2	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 2 <1 63	history1 17 0 64	history2 15 2 69	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 2 <1 63 <1	history1 17 0 64 <1	history2 15 2 69 <1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 2 <1 63 <1 912	history1 17 0 64 <1 997	history2 15 2 69 <1 941	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current 2 <1 63 <1 912 1022	history1 17 0 64 <1 997 1111	history2 15 2 69 <1 941 1120	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150	current 2 <1 63 <1 912 1022 1033	history1 17 0 64 <1 997 1111 1068	history2 15 2 69 <1 941 1120 1058	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350	current 2 <1 63 <1 912 1022 1033 1214	history1 17 0 64 <1 997 1111 1068 1295	history2 15 2 69 <1 941 1120 1058 1260	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	current 2 <1 63 <1 912 1022 1033 1214 3298	history1 17 0 64 <1 997 1111 1068 1295 3527	history2 15 2 69 <1 941 1120 1058 1260 3592	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base	current 2 <1 63 <1 912 1022 1033 1214 3298	history1 17 0 64 <1 997 1111 1068 1295 3527 history1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2 6	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2 6 history1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current 0.1	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2 6 history1 0.1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2 0.1	
ADDITIVES 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 ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >4	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current 0.1 5.0	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 6 history1 0.1 5.7	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2 0.1 5.7	
ADDITIVES 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 ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >4 >20	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current 0.1 5.0 17.3	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2 6 history1 0.1 5.7 18.1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2 0.1 5.7 18.7	
ADDITIVES 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 ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 Method	limit/base 250 10 10 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >4 >20 30 limit/base	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current 0.1 5.0 17.3 current	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 6 history1 0.1 5.7 18.1 history1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2 0.1 5.7 18.7 history2	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7415 Method *ASTM D7414 *ASTM D7414	limit/base 250 10 10 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >24 >20 >30 limit/base >25	current 2 <1 63 <1 912 1022 1033 1214 3298 current 5 0 3 current 0.1 5.0 17.3 current 13.3	history1 17 0 64 <1 997 1111 1068 1295 3527 history1 12 2 6 history1 0.1 5.7 18.1 history1 14.1	history2 15 2 69 <1 941 1120 1058 1260 3592 history2 13 1 4 history2 0.1 5.7 18.7 history2 14.5	



OIL ANALYSIS REPORT

VISUAL





		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
/23 -	/23 -	Appearance	scalar	*Visual	NORMI	NORMI	NORMI	NORMI
Aug 11 Aug 22	Sep 11 Sep 14	Odor	scalar	*Visual	NORMI	NORMI	NORMI	NORMI
-		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
C		Free Water	scalar	*Visual		NEG	NEG	NEG
			DTIEO		11 1. 11			
		FLUID PROPE	RHES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	14.4	13.9	13.5	13.7
/		GRAPHS						
_		Ferrous Alloys						
Aug11/2 Aug22/2	Sep 14/2 Sep 14/2	25 20 uitin 10 5 0 EC EC EC EC EC EC EC EC EC EC	11/12.4	11/23 Sep11/23 Sep11/23 Sep14/23	a2/23 / 042/23 /			
		Viscosity @ 100°C	°C			Dear Number		
		18 17 Abrend				Dase Number		
		16 Abnormal	Abnormal			Abnormal		
		15 - Base			。 光 10.0			
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		9			2.0			
		/23 + /23 +	/23-	/23 -		/23	/23-	/23+
		Jul5 Jul28 Aug4	Aug I I Aug 22	Sep11 Sep14	0ct2	Jul5 Jul28 Aug4,	Aug11	Sep11 Sep14 Oct2
	Laboratory Sample No. Lab Number Unique Number	: WearCheck USA - 5 : GFL0091222 I : 05973867 I : 10685817 I	01 Madis Received Diagnose Diagnost	son Ave., Ca 1 : 10 (ed : 11 (iician : Wes	ry, NC 27513 Dct 2023 Dct 2023 s Davis	GFL Envi	ironmental - 166 18 Old P	5 - Phenix City J Brickyard Rd henix City, AL US 36869
Certificate L2367	Test Package	: FLEET			,		Contact: DEA	
To discuss th	is sample report, o	contact Customer Servi	ce at 1-8	00-237-1369	l. itation		dean.peace	∋@gtlenv.com ⊤.
Statements of	conformity to spec	ifications are based on the	ro∠5 sco ne simple	acceptance d	lecision rule (J	ICGM 106:2012)		1: F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)