

# **OIL ANALYSIS REPORT**

Sample Rating Trend



AUTOCAR 813022

Diesel Engine Fluid NOT GIVEN (--- GAL)

# 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

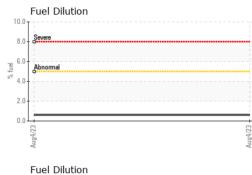
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

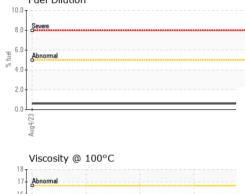
		Aug2023	Aug2023	Sep2023 Oct2023	Dec2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086255	GFL0086197	GFL0086266
Sample Date		Client Info		27 Dec 2023	23 Oct 2023	06 Sep 2023
Machine Age	hrs	Client Info		1064	714	273
Oil Age	hrs	Client Info		0	714	435
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	35	59	42
Chromium	ppm	ASTM D5185m		35 <1	59 1	42 <1
Nickel	ppm	ASTM D5185m	>20	<1	<1	<1
Titanium	ppm		>4	0 <1	<1	<1
Silver	ppm	ASTM D5185m	. 0			
001	ppm	ASTM D5185m ASTM D5185m	>3	0 16	0	<1 19
Aluminum	ppm			-	24	
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m		7	15	12
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	current 16	history1 22	history2 32
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	16	22	32
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	16 2	22 0	32 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56	22 0 49	32 2 49
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56 3	22 0 49 7	32 2 49 7
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56 3 760	22 0 49 7 830	32 2 49 7 883
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56 3 760 1233	22 0 49 7 830 1237	32 2 49 7 883 1288
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56 3 760 1233 794	22 0 49 7 830 1237 693	32 2 49 7 883 1288 738
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	16 2 56 3 760 1233 794 1067	22 0 49 7 830 1237 693 947	32 2 49 7 883 1288 738 982
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	limit/base	16 2 56 3 760 1233 794 1067 2516	22 0 49 7 830 1237 693 947 2137	32 2 49 7 883 1288 738 982 2968
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	limit/base	16 2 56 3 760 1233 794 1067 2516 current	22 0 49 7 830 1237 693 947 2137 history1	32 2 49 7 883 1288 738 982 2968 history2
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 <b>method</b>	limit/base	16 2 56 3 760 1233 794 1067 2516 current 9	22 0 49 7 830 1237 693 947 2137 history1 18	32 2 49 7 883 1288 738 982 2968 history2 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25 >20	16 2 56 3 760 1233 794 1067 2516 <b>current</b> 9 3	22 0 49 7 830 1237 693 947 2137 history1 18 6	32 2 49 7 883 1288 738 982 2968 history2 16 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >25 >20	16 2 56 3 760 1233 794 1067 2516 <u>current</u> 9 3 3 38	22 0 49 7 830 1237 693 947 2137 <b>history1</b> 18 6 52	32 2 49 7 883 1288 738 982 2968 history2 16 6 33
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	16 2 56 3 760 1233 794 1067 2516 <u>current</u> 9 3 3 8 38 < 1.0	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 < 1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	16 2 56 3 760 1233 794 1067 2516 <i>current</i> 9 3 3 8 <1.0 <i>current</i>	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0 kistory1	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3	16 2 56 3 760 1233 794 1067 2516 <i>current</i> 9 3 38 <1.0 <i>current</i> 0.6	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0 history1 0.6	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 <1.0 history2 0.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3 >20	16 2 56 3 760 1233 794 1067 2516 Current 9 3 38 <1.0 Current 0.6 10.2	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0 history1 0.6 12.1	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 <1.0 history2 0.4 10.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >20 >5 limit/base >3 >20 >30 >30	16 2 56 3 760 1233 794 1067 2516 <i>current</i> 9 3 3 8 <1.0 <i>current</i> 0.6 10.2 20.9 <i>current</i>	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0 history1 0.6 12.1 23.3 history1	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 <1.0 history2 0.4 10.1 20.7 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base >3 >20 >3 >30	16 2 56 3 760 1233 794 1067 2516 <i>current</i> 9 3 3 8 <1.0 <i>current</i> 0.6 10.2 20.9	22 0 49 7 830 1237 693 947 2137 history1 18 6 52 <1.0 history1 0.6 12.1 23.3	32 2 49 7 883 1288 738 982 2968 history2 16 6 33 <1.0 history2 0.4 10.1 20.7

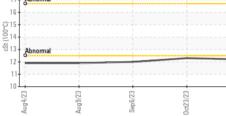


# **OIL ANALYSIS REPORT**

VICLIAI







	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
Aug4/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Au	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE			limit/base		history1	history2
	Visc @ 100°C	cSt	ASTM D445		12.2	12.3	12.0
	GRAPHS						
	Ferrous Alloys		~				
	50 - iron chromium		$\langle \rangle$				
	40 -						
	Ē.30-						
	20 -						
	10-						
		27 27	<u></u>	33			
	Aug4/23 Aug9/23	Sep6/23	0ct23/23	Dec27/23			
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3/23 -	<sup>16</sup> T	15					
0ct23/23	14- copper		$\wedge$				
	12 - tin	$\sim$	$\langle \rangle$				
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	2						
				Internet			
	Aug4/23 Aug9/23	Sep6/23	0ct23/23	Dec27/23			
		_	00	Der			
	Viscosity @ 100°C				Base Number	-	
	17- Abnormal				9.0 8.0		
	16				1		
ŝ	p <sup>15</sup>			Base Number (mg KOH/g)	5.0		
	15- 00114- 35 13-			jer J	5.0		
c	Abnormal			Numk	3.0		
	12-			Base	2.0		
	11				1.0		
		/23 -	/23 -		→ 33 33	/23 -	/23-
	Aug4/23 Aug9/23	Sep6/23	0ct23/23	Dec27/23	Aug4/23 Aug9/23	Sep6/23	0ct23/23 . Dec27/23 .
l ab a unta ma	WaarObaali UOA						000 50:
Laboratory Sample No.	: WearCheck USA - : : GFL0086255	SA - 501 Madison Ave., Cary, NC 27513 <b>Recieved</b> : 29 Dec 2023			IS GFLE	nvironmental - 6905	Roosevelt Hwy
Lab Number	: 06048207	Diagnos	ed : 02	Jan 2024		0000	Fairburn, GA
Unique Number		Diagnos		athan Heste	ər		US 30213
Test Package	: FLEET (Additional			n			act: Eric Jones
	contact Customer Serv						es@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)

T: (678)630-9927

F:

Certificate L2367