

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

DIESEL ENGINE OIL SAE 40 (48 QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

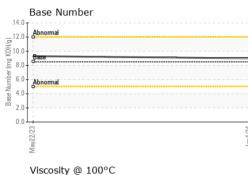
Fluid Condition

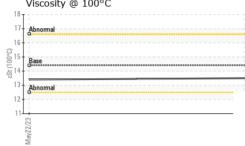
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

AL 40 (40 GIS)			May2023	Jan 2024		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098131	GFL0083331	
Sample Date		Client Info		04 Jan 2024	22 May 2023	
Machine Age	mls	Client Info		455241	455241	
Oil Age	mls	Client Info		10	450	
Oil Changed		Client Info		N/A	N/A	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	1	26	
Chromium	ppm	ASTM D5185m	>20	0	<1	
Nickel	ppm	ASTM D5185m	>5	0	0	
Titanium	ppm	ASTM D5185m	>2	0	0	
Silver	ppm	ASTM D5185m	>2	0	0	
Aluminum	ppm	ASTM D5185m	>20	<1	0	
Lead	ppm	ASTM D5185m	>40	0	<1	
Copper	ppm	ASTM D5185m	>330	1	2	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current	history1 13	history2
Boron	ppm	ASTM D5185m	250	11	13	
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	250 10	11 0	13 0	
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	11 0 55	13 0 60	
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	11 0 55 <1	13 0 60 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	11 0 55 <1 866	13 0 60 <1 855	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	11 0 55 <1 866 1044	13 0 60 <1 855 1237	
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	250 10 100 450 3000 1150	11 0 55 <1 866 1044 1016	13 0 60 <1 855 1237 980	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	11 0 55 <1 866 1044 1016 1212	13 0 60 <1 855 1237 980 1230	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	11 0 55 <1 866 1044 1016 1212 3038	13 0 60 <1 855 1237 980 1230 3557	
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	250 10 100 450 3000 1150 1350 4250	11 0 55 <1 866 1044 1016 1212 3038 current	13 0 60 <1 855 1237 980 1230 3557 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base	11 0 55 <1 866 1044 1016 1212 3038 current 2	13 0 60 <1 855 1237 980 1230 3557 history1 3	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	11 0 55 <1 866 1044 1016 1212 3038 <u>current</u> 2 2	13 0 60 <1 855 1237 980 1230 3557 history1 3 6	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	11 0 55 <1 866 1044 1016 1212 3038 current 2 2 2 1	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 216 >216 >20 Limit/base	11 0 55 <1 866 1044 1016 1212 3038 current 2 2 2 1	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2 2 history1	 history2 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 ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base >20	11 0 55 <1 866 1044 1016 1212 3038 <u>current</u> 2 2 1 2 1	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2 2 history1 0.9	 history2 history2
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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >216 >20 Iimit/base >4 >20	11 0 55 <1 866 1044 1016 1212 3038 <u>current</u> 2 2 1 2 1 <u>current</u> 0.1 4.8 17.5	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2 history1 0.9 6.5	 history2 history2
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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >216 >216 >20 Imit/base >4 >20	11 0 55 <1 866 1044 1016 1212 3038 <u>current</u> 2 2 1 2 1 <u>current</u> 0.1 4.8 17.5	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2 history1 0.9 6.5 18.7 history1	 history2 history2 history2
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	ASTM D5185m ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 imit/base >25 >216 >20 >20 imit/base >4 >20 >30	11 0 55 <1 866 1044 1016 1212 3038 Current 2 2 2 1 Current 0.1 4.8 17.5 Current	13 0 60 <1 855 1237 980 1230 3557 history1 3 6 2 <u>history1</u> 0.9 6.5 18.7	 history2 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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5	13.4	
GRAPHS						
Ferrous Alloys						
30 iron						
25 - nickel						
20						
15						
10-						
5 -						
0						
May22/23			Jan 4/24			
May2			Jan			
Non-ferrous Metal	s					
10 copper 1						
8 -						
sassassassa tin						
6						
Edd						
4-						
2						
0			24			
May22/23			Jan4/24			
≥ Viscosity @ 100°C			-	Deer Nord		
18 _T				Base Number	•	
10 T			14.0			
17				Abaamal		
17- Abnormal			12.0	Abnormal		
17				Abnormal Base		

Base Number 6.0

Jan4/24 .

: 04 Jan 2024

: 05 Jan 2024

Diagnostician : Don Baldridge

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2.0

0.0

SCICCINE IN



Test Package : FLEET Certificate L2367 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)

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

Recieved

Diagnosed

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13

12

11

Unique Number : 10817347

Laboratory

Sample No.

Lab Number

Mav22/23

Abnorma

: GFL0098131

: 06051398

GFL Environmental - 017 - Durham 148 Stone Park Court Durham, NC US 27703 Contact: Shane Parks shane.parks@gflenv.com T: (919)596-1363 F: (919)598-1852

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