

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Component **Natural Gas Engine** 

**DIESEL ENGINE OIL (--- 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

Metal levels are typical for a new component breaking in.

#### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

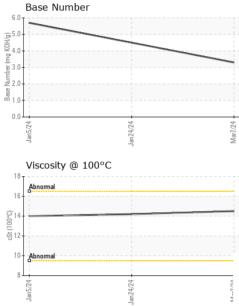
#### Fluid Condition

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

Jun2024 Jun2024 Mur2024									
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2			
Sample Number		Client Info		GFL0111863	GFL0108310	GFL0108343			
Sample Date		Client Info		07 Mar 2024	24 Jan 2024	05 Jan 2024			
Machine Age	hrs	Client Info		686	394	180			
Oil Age	hrs	Client Info		686	394	180			
Oil Changed		Client Info		Not Changd	Not Changd	N/A			
Sample Status				NORMAL	ABNORMAL	NORMAL			
CONTAMINATI	ION	method	limit/base	current	history1	history2			
Water		WC Method	>0.1	NEG	NEG	NEG			
WEAR METAL	S	method	limit/base	current	history1	history2			
Iron	ppm	ASTM D5185m	>50	52	44	38			
Chromium	ppm	ASTM D5185m	>4	4	2	1			
Nickel	ppm	ASTM D5185m	>2	2	<1	<1			
Titanium	ppm	ASTM D5185m		<1	0	0			
Silver	ppm	ASTM D5185m	>3	<1	0	0			
Aluminum	ppm	ASTM D5185m	>9	18	11	9			
Lead	ppm	ASTM D5185m	>30	1	<1	<1			
Copper	ppm	ASTM D5185m	>35	17	14	15			
Tin	ppm	ASTM D5185m	>4	1	<1	<1			
Vanadium	ppm	ASTM D5185m		<1	0	<1			
Cadmium	ppm	ASTM D5185m		<1	0	0			
ADDITIVES		method	limit/base	current	history1	history2			
Boron	ppm	ASTM D5185m		5	10	14			
				0	3	4			
Barium	ppm	ASTM D5185m		0	3	4			
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		61	53	4			
Molybdenum	ppm	ASTM D5185m		61	53	49			
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m		61 14	53 12	49 12			
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		61 14 790	53 12 804	49 12 798			
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		61 14 790 1329	53 12 804 1285	49 12 798 1166			
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		61 14 790 1329 696	53 12 804 1285 692	49 12 798 1166 738			
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	limit/base	61 14 790 1329 696 947	53 12 804 1285 692 948	49 12 798 1166 738 913			
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		61 14 790 1329 696 947 2409	53 12 804 1285 692 948 2459	49 12 798 1166 738 913 2315			
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>+100	61 14 790 1329 696 947 2409 current 29	53 12 804 1285 692 948 2459 history1	49 12 798 1166 738 913 2315 history2			
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	>+100 >75	61 14 790 1329 696 947 2409 current	53 12 804 1285 692 948 2459 history1 29	49 12 798 1166 738 913 2315 history2 31			
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>+100 >75	61 14 790 1329 696 947 2409 current 29 5	53 12 804 1285 692 948 2459 history1 29 4	49 12 798 1166 738 913 2315 history2 31 4			
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m ASTM D5185m	>+100 >75 >20	61 14 790 1329 696 947 2409 current 29 5 72 current	53 12 804 1285 692 948 2459 history1 29 4 48	49 12 798 1166 738 913 2315 history2 31 4 40			
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	>+100 >75 >20 limit/base	61 14 790 1329 696 947 2409 current 29 5 72 5 72 current 0	53 12 804 1285 692 948 2459 history1 29 4 4 ▲ 48 history1 0	49 12 798 1166 738 913 2315 history2 31 4 4 40 history2 0			
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m ASTM D5185m	>+100 >75 >20 limit/base	61 14 790 1329 696 947 2409 current 29 5 72 current	53 12 804 1285 692 948 2459 history1 29 4 4 48 history1	49 12 798 1166 738 913 2315 history2 31 4 40 history2			
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 *ASTM D7844	>+100 >75 >20 limit/base	61 14 790 1329 696 947 2409 <u>current</u> 29 5 72 5 72 <u>current</u> 0 12.7	53 12 804 1285 692 948 2459 history1 29 4 48 48 history1 0 0 11.8	49 12 798 1166 738 913 2315 history2 31 4 40 history2 0 11.3			
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	>+100 >75 >20 limit/base >20 >30 limit/base	61 14 790 1329 696 947 2409 current 29 5 72 29 5 72 current 0 12.7 24.3 current	<ul> <li>53</li> <li>12</li> <li>804</li> <li>1285</li> <li>692</li> <li>948</li> <li>2459</li> <li>history1</li> <li>29</li> <li>4</li> <li>48</li> <li>history1</li> <li>0</li> <li>11.8</li> <li>21.8</li> <li>history1</li> </ul>	49 12 798 1166 738 913 2315 history2 31 4 40 history2 0 11.3 20.1 history2			
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 D7624	>+100 >75 >20 limit/base >20 >30	61 14 790 1329 696 947 2409 <u>current</u> 29 5 72 <u>current</u> 0 12.7 24.3	53 12 804 1285 692 948 2459 history1 29 4 4 ▲ 48 history1 0 11.8 21.8	49 12 798 1166 738 913 2315 history2 31 4 40 history2 0 11.3 20.1			



# **OIL ANALYSIS REPORT**



	VISUAL		method				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
Mar7/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mar	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		14.5	14.2	14.0
	GRAPHS						
	Ferrous Alloys						
<del>بر</del>	60 iron						
101-1	50 - chromium						
2	40						
	Ē 30 -						
	20 -						
	10-						
				Distance of the second second			
	Jan5/24	4/24 -		7/24 -			
	Jan	Jan 24/24		Mar7/24			
	Non-ferrous Meta	ls					
	18 16			_			
	14 - tin						
	12						
	E <sup>10</sup>						
	<sup>□</sup> 8						
	6-						
	2						
	2						
	0	14/24		r7/24			
	4	Jan24/24 -		Mar7/24			
	Viscosity @ 100°C	_	Algerman Constant Second Second		Base Number		
	Viscosity @ 100°C	_			Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0	Base Number		
	Viscosity @ 100°C	_		6.0 5.0 (PH 0) 4.0- bu a 3.0- 8 2.0- 1.0-	Base Number		
	Viscosity @ 100°C	2		6.0 5.0 (0)() 0 4.0 ) 10 3.0 10 10 10 10 10 10 10 10 10 10 10 10 10 1		724	
	Viscosity @ 100°C	_		6.0 5.0 (PH 0) 4.0- bu a 3.0- 8 2.0- 1.0-	Base Number	Jan24/24	
Laboratory Sample No. Lab Number Unique Number Test Package	Viscosity @ 100°C	1 Madiso Recei Teste Diagr	ived :08 ed :11 nosed :11	6.0 (0)(0) 0 (0) (0)(0) 0 (0) (0)(0) 0 (0) (0)(0) 0 (0) (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(	BTL Envir	onmental - 652 - Free 1095 Frec Contact: 1	dericksburg Hauling 4 Houser Drive bericksburg, VA US 22408 WILLIAM MILC ilo@gflenv.com

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