

OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id **370M** Component **Diesel Engine** Fluid **NOT GIVEN (36 QTS)**

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.

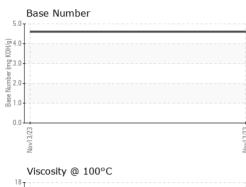
Fluid Condition

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

SAMPLE INFORM	ΛΑΤΙΟΝ	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0059249		
Sample Date		Client Info		13 Nov 2023		
Machine Age	hrs	Client Info		17122		
Oil Age	hrs	Client Info		17122		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	87		
Chromium	ppm	ASTM D5185m	>20	5		
Nickel	ppm	ASTM D5185m	>4	<1		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	<1		
Aluminum	ppm	ASTM D5185m	>20	8		
Lead	ppm	ASTM D5185m	>40	2		
Copper	ppm	ASTM D5185m	>330	3		
Tin	ppm	ASTM D5185m	>15	2		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1	history2
	ppm ppm		limit/base		history1 	history2
Boron		ASTM D5185m	limit/base	4		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	4 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 63		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 63 1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 63 1 959		
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	4 0 63 1 959 1109	 	
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	4 0 63 1 959 1109 1070	 	
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	4 0 63 1 959 1109 1070 1317	 	
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		4 0 63 1 959 1109 1070 1317 2641		
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	limit/base	4 0 63 1 959 1109 1070 1317 2641 current	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	4 0 63 1 959 1109 1070 1317 2641 <u>current</u> 13	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	4 0 63 1 959 1109 1070 1317 2641 <u>current</u> 13 13	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	4 0 63 1 959 1109 1070 1317 2641 current 13 11 <1	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	4 0 63 1 959 1109 1070 1317 2641 current 13 11 <1 <1 <i>current</i>	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	4 0 63 1 959 1109 1070 1317 2641 current 13 11 <1 <1 current 13	 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur CONTAMINAN Solicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	4 0 63 1 959 1109 1070 1317 2641 <i>current</i> 13 11 <1 <1 <i>current</i> 1.6 17.4	 history1 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 t ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	4 0 63 1 959 1109 1070 1317 2641 current 13 11 <1 <1 current 1.6 17.4 30.8	 history1 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >25 >20 limit/base >3 >20 >30 limit/base	4 0 63 1 959 1109 1070 1317 2641 current 13 11 <1 <1 current 1.6 17.4 30.8 current	 history1 history1 history1 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2	
	White Metal	scalar	*Visual	NONE	NONE			
	Yellow Metal	scalar	*Visual	NONE	NONE			
	Precipitate	scalar	*Visual	NONE	NONE			
	Silt	scalar	*Visual	NONE	NONE			
	Debris	scalar	*Visual	NONE	NONE			
	Sand/Dirt	scalar	*Visual	NONE	NONE			
Mov13/23	Appearance	scalar	*Visual	NORML	NORML			
Nov 1	Odor	scalar	*Visual	NORML	NORML			
°C	Emulsified Water	scalar	*Visual	>0.2	NEG			
	Free Water	scalar	*Visual		NEG			
	FLUID PROPI	ERTIES	method	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445		14.3			
	GRAPHS							
	Ferrous Alloys							
	90 80							
	chromium							
	60 nickel							
	50 - E 40							
	30							
	20							
	Vov13/23			Nov13/23				
	Nov			Nov				
	Non-ferrous Meta	als						
	10 copper							
	8							
	6							
	4							
	2 +							
	0							
	/13/23			lov13/23				
	Nov			Nov				
	Viscosity @ 100°	С			Base Number			
					T			
	17- Abnormal			<u>-</u> 4.0				
	16-			(b/HOX) (b/HOX				
	(5.15 -00[]) t3			B 3.0				
	τς 14 -			100 mg 2.0				
	13 Abnormal			ase N				
	12			^{°°} 1.0	1			
	11				1			
	Nov13/23			Nov13/23	Nov13/23		Nov13/23	
	Nov			Nov	Nov		Nov	
Laboratory Sample No.	: WearCheck USA - : GFL0059249	Receive	d : 17	Nov 2023	3 GFL Env	FL Environmental - 410 - Michigan West 39000 Van Born Rd		
Lab Number Unique Number	: 06010570 r : 10749714	Diagnos Diagnos		Nov 2023 an Felton			Wayne, MI US 48184	
Certificate 12367 Test Package		Diagnos	liciali . Sea			Contact	: Belal Dgheish	
To discuss this sample report,		vice at 1-8	300-237-136	9.		bdgheis	sh@gflenv.com	
* - Denotes test methods that	are outside of the ISO	17025 sco	ope of accred	litation.		T:	(734)714-2340	
Statements of conformity to spe	cifications are based on	the simple	e acceptance o	decision rule (JCGM 106:2012)		F:	

Submitted By: Belal Dgheish Page 2 of 2