

### **OIL ANALYSIS REPORT**

GLYCOL

Machine Id 413108 Component Diesel Engine Fluid 5W30 MACH OEM (--- GAL)

#### DIAGNOSIS

#### A Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this condition.

#### Wear

All component wear rates are normal.

#### Contamination

Sodium and/or potassium levels are high.

#### Fluid Condition

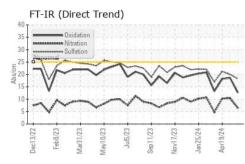
The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0120155	GFL0117171	GFL0117187
Sample Date		Client Info		30 May 2024	14 May 2024	19 Apr 2024
Machine Age	hrs	Client Info		4310	4250	4081
Oil Age	hrs	Client Info		0	600	0
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATIO	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	6	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	17	10	21
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	2	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m		2	4	2
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm	ASTM D5185m		0	7	4
Tin	ppm	ASTM D5185m		0	1	<1
Vanadium	ppm	ASTM D5185m	20	0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		11	20	4
Barium	ppm	ASTM D5185m		0	0	0
Danum	ppiii	ASTIVI DUTOUIII		U	0	0
Molybdonum		AGTM DE185m		76	5	60
	ppm	ASTM D5185m		76	5	60
Manganese	ppm ppm	ASTM D5185m		<1	1	<1
Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m		<1 929	1 805	<1 898
Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		<1 929 1093	1 805 1179	<1 898 1075
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 929 1093 1068	1 805 1179 700	<1 898 1075 999
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 929 1093 1068 1234	1 805 1179 700 863	<1 898 1075 999 1210
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		<1 929 1093 1068 1234 3661	1 805 1179 700 863 2712	<1 898 1075 999 1210 3265
Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	<1 929 1093 1068 1234 3661 current	1 805 1179 700 863 2712 history1	<1 898 1075 999 1210
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 929 1093 1068 1234 3661 current 12	1 805 1179 700 863 2712 history1 4	<1 898 1075 999 1210 3265
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m		<1 929 1093 1068 1234 3661 current	1 805 1179 700 863 2712 history1 4 15	<1 898 1075 999 1210 3265 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 929 1093 1068 1234 3661 <u>current</u> 12 12 ▲ 613 1	1 805 1179 700 863 2712 history1 4 15 6	<1 898 1075 999 1210 3265 history2 6 4 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm <b>S</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	>20	<1 929 1093 1068 1234 3661 <u>current</u> 12 613	1 805 1179 700 863 2712 history1 4 15	<1 898 1075 999 1210 3265 history2 6 4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm <b>S</b> ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20	<1 929 1093 1068 1234 3661 <u>current</u> 12 12 ▲ 613 1	1 805 1179 700 863 2712 history1 4 15 6	<1 898 1075 999 1210 3265 history2 6 4 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>S</b> ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982	>20 >20	<1 929 1093 1068 1234 3661 <u>current</u> 12 ▲ 613 1 NEG	1 805 1179 700 863 2712 history1 4 15 6 NEG	<1 898 1075 999 1210 3265 history2 6 4 0 NEG
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Glycol INFRA-RED Soot %	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 D2982	>20 >20 limit/base >3	<1 929 1093 1068 1234 3661 current 12 ▲ 613 1 NEG current	1 805 1179 700 863 2712 history1 4 15 6 NEG NEG history1	<1 898 1075 999 1210 3265 history2 6 4 0 NEG history2
Silicon Sodium Potassium Glycol	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844	>20 >20 limit/base >3	<1 929 1093 1068 1234 3661 current 12 ▲ 613 1 NEG current 0.5	1 805 1179 700 863 2712 history1 4 15 6 NEG NEG history1 0.3	<1 898 1075 999 1210 3265 history2 6 4 0 NEG history2 0.9
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	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 D2982 *ASTM D2982 *ASTM D7844 *ASTM D7824	>20 >20 limit/base >3 >20	<1 929 1093 1068 1234 3661 current 12 ▲ 613 1 NEG current 0.5 6.4	1 805 1179 700 863 2712 history1 4 15 6 NEG NEG history1 0.3 10.4	<1 898 1075 999 1210 3265 history2 6 4 0 NEG history2 0.9 10.3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	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 D2982 *ASTM D2982 *ASTM D7844 *ASTM D7824	>20 >20 limit/base >3 >20 >30	<1 929 1093 1068 1234 3661 current 12 ▲ 613 1 NEG current 0.5 6.4 18.2	1 805 1179 700 863 2712 history1 4 15 6 NEG history1 0.3 10.4 20.0	<1 898 1075 999 1210 3265 history2 6 4 0 NEG history2 0.9 10.3 21.2

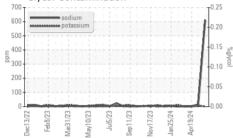
Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836 Page 1 of 2

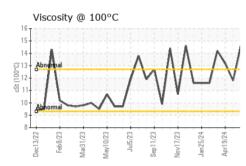


## **OIL ANALYSIS REPORT**

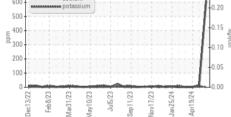








# Glycol Contamination

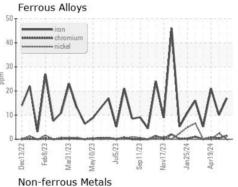


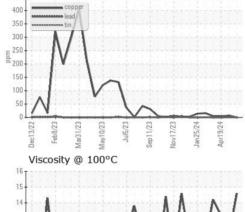
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		14.6	11.8	13.2

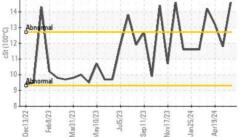
GRAPHS

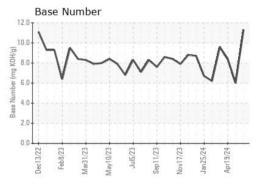
450

0.25









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 836 - Kansas City Hauling Sample No. : GFL0120155 Received : 03 Jun 2024 7801 East Truman Road Lab Number : 06197305 Tested : 05 Jun 2024 Kansas City, MO Unique Number : 11059428 Diagnosed : 05 Jun 2024 - Jonathan Hester US 64126 Test Package : FLEET ( Additional Tests: Glycol ) Contact: Loyce Stewart Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. loyce.stewart@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL836 [WUSCAR] 06197305 (Generated: 06/05/2024 13:27:41) Rev: 1

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836