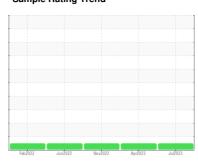


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



721054
Component

Diesel Engine

DIESEL ENGINE OIL SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. 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

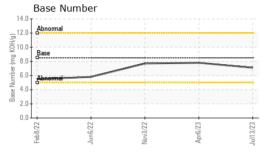
Fluid Condition

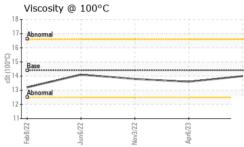
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Feb 2022	Jun2022	Nov2022 Apr2023	Jul2023	
SAMPLE INFORT	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0083858	GFL0061487	GFL0061513
Sample Date		Client Info		13 Jul 2023	06 Apr 2023	03 Nov 2022
Machine Age	hrs	Client Info		1530	1530	0
Oil Age	hrs	Client Info		1530	1530	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	36	27	42
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	2	4
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	2	2	3
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 3	history1	history2 5
	ppm ppm					
Boron		ASTM D5185m	250	3	7	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	3 0	7	5 0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	3 0 63	7 0 59	5 0 62
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	3 0 63 <1	7 0 59 <1	5 0 62 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	3 0 63 <1 894	7 0 59 <1 820	5 0 62 <1 915
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	3 0 63 <1 894 1102	7 0 59 <1 820 1076	5 0 62 <1 915 1088
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 ASTM D5185m	250 10 100 450 3000 1150	3 0 63 <1 894 1102 1016	7 0 59 <1 820 1076 936	5 0 62 <1 915 1088 952
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 ASTM D5185m	250 10 100 450 3000 1150	3 0 63 <1 894 1102 1016 1219	7 0 59 <1 820 1076 936 1143	5 0 62 <1 915 1088 952 1193
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	250 10 100 450 3000 1150 1350 4250	3 0 63 <1 894 1102 1016 1219 2845	7 0 59 <1 820 1076 936 1143 2529	5 0 62 <1 915 1088 952 1193 3167
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	3 0 63 <1 894 1102 1016 1219 2845	7 0 59 <1 820 1076 936 1143 2529 history1	5 0 62 <1 915 1088 952 1193 3167 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	3 0 63 <1 894 1102 1016 1219 2845 current	7 0 59 <1 820 1076 936 1143 2529 history1	5 0 62 <1 915 1088 952 1193 3167 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	3 0 63 <1 894 1102 1016 1219 2845 current 12	7 0 59 <1 820 1076 936 1143 2529 history1 18 6	5 0 62 <1 915 1088 952 1193 3167 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4	5 0 62 <1 915 1088 952 1193 3167 history2 14 2
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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4 history1	5 0 62 <1 915 1088 952 1193 3167 history2 14 2 5
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 Method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7 current	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4 history1 0.6	5 0 62 <1 915 1088 952 1193 3167 history2 14 2 5
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 Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7 current 0.7 10.5	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4 history1 0.6 9.8	5 0 62 <1 915 1088 952 1193 3167 history2 14 2 5 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 Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base >3 >20 >30 limit/base	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7 current 0.7 10.5 21.2	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4 history1 0.6 9.8 20.5	5 0 62 <1 915 1088 952 1193 3167 history2 14 2 5 history2 1 11.9 23.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base >3 >20 >30 limit/base >25	3 0 63 <1 894 1102 1016 1219 2845 current 12 6 7 current 0.7 10.5 21.2	7 0 59 <1 820 1076 936 1143 2529 history1 18 6 4 history1 0.6 9.8 20.5	5 0 62 <1 915 1088 952 1193 3167 history2 14 2 5 history2 1 11.9 23.9



OIL ANALYSIS REPORT

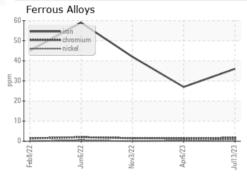


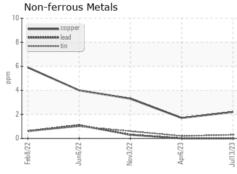


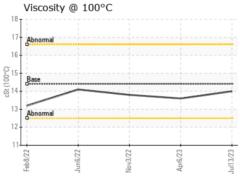
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

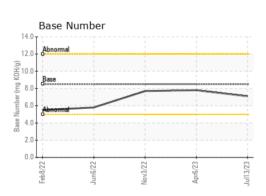
FLUID PROPE	RHES	method	ilmit/base		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	14.4	14.0	13.6	13.8

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number Unique Number : 10561049 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0083858 : 05899693

: 17 Jul 2023 Received Diagnosed : 18 Jul 2023 Diagnostician : Wes Davis

GFL Environmental - 652 - Fredericksburg Hauling 10954 Houser Drive

Fredericksburg, VA US 22408

Contact: WILLIAM MILO wmilo@gflenv.com

T:

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)

F: