

OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

At 10005 AUTOCAR DC64

Diesel Engine Fluid DIESEL ENGINE OIL SAE 40 (48 QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high. Test for glycol is negative.

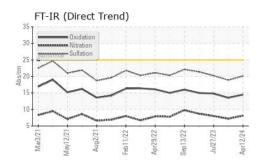
Fluid Condition

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.

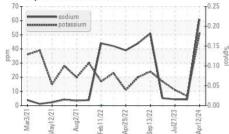
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117479	GFL0094692	GFL0089265
Sample Date		Client Info		12 Apr 2024	10 Oct 2023	27 Jul 2023
Machine Age	hrs	Client Info		8373	7162	6604
Oil Age	hrs	Client Info		1211	558	1603
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	15	7	11
Chromium	ppm	ASTM D5185m	>20	2	<1	1
Nickel	ppm	ASTM D5185m	>2	1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	5
Lead	ppm	ASTM D5185m	>40	1	0	0
Copper	ppm	ASTM D5185m	>330	1	<1	0
Tin	ppm	ASTM D5185m	>15	1	<1	0
				•		
Vanadium	ppm	ASTM D5185m		<1	0	0
Vanadium Cadmium	ppm ppm	ASTM D5185m ASTM D5185m		-		0
			limit/base	<1	0	
Cadmium ADDITIVES		ASTM D5185m	limit/base 250	<1 1	0 0	0
Cadmium ADDITIVES Boron	ppm	ASTM D5185m method		<1 1 current	0 0 history1	0 history2
Cadmium ADDITIVES Boron Barium	ppm ppm	ASTM D5185m method ASTM D5185m	250	<1 1 current 2	0 0 history1 4	0 history2 2
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	250 10	<1 1 current 2 0	0 0 history1 4 0	0 history2 2 0
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	<1 1 current 2 0 62	0 0 <u>history1</u> 4 0 57	0 history2 2 0 63
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	<1 1 2 0 62 1	0 0 history1 4 0 57 <1	0 history2 2 0 63 <1
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	<1 1 2 0 62 1 884	0 0 history1 4 0 57 <1 916	0 history2 2 0 63 <1 1043
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	<1 1 2 0 62 1 884 1049	0 0 history1 4 0 57 <1 916 1017	0 history2 2 0 63 <1 1043 1122 1103 1337
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	<1 1 2 0 62 1 884 1049 1047	0 0 history1 4 0 57 <1 916 1017 998	0 history2 2 0 63 <1 1043 1122 1103
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	<1 1 current 2 0 62 1 884 1049 1047 1182	0 0 history1 4 0 57 <1 916 1017 998 1200	0 history2 2 0 63 <1 1043 1122 1103 1337
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	<1 1 current 2 0 62 1 884 1049 1047 1182 3308	0 0 history1 4 0 57 <1 916 1017 998 1200 2876	0 history2 2 0 63 <1 1043 1122 1103 1337 3744
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	<1 1 current 2 0 62 1 884 1049 1047 1182 3308 current	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2
Cadmium Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	<1 1 current 2 0 62 1 884 1049 1047 1182 3308 current 7	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11
Cadmium Cadmium ADDITIVES 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 method 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	<1 1 current 2 0 62 1 884 1049 1047 1182 3308 current 7 ▲ 61	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4
Cadmium Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	<1 1 current 2 0 62 1 884 1049 1047 1182 3308 current 7 61 61 51	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	<1 1 current 2 0 62 1 884 1049 1047 1182 3308 current 7 ▲ 61 ▲ 51 NEG	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7 NEG	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11 NEG
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 I imit/base >25 >216 >20 I imit/base >6	<1 1 Current 2 0 62 1 62 1 884 1049 1047 1182 3308 Current 7 ▲ 61 ▲ 51 NEG Current	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7 NEG history1	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11 NEG history2
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 I imit/base >25 >216 >20 I imit/base >6	<1 1 Current 2 0 62 1 62 1 884 1049 1047 1182 3308 Current 7 ▲ 61 ▲ 51 NEG Current 1.1	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7 NEG history1 0.8	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11 NEG history2 0.9
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	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 ASTM D5185m 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 >20	<1 1 Current 2 0 62 1 62 1 884 1049 1047 1182 3308 Current 7 ▲ 61 ▲ 51 NEG Current 1.1 8.1	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7 NEG NEG history1 0.8 7.2	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11 NEG history2 0.9 8.0
Cadmium Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	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 ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >216 >20 Iimit/base >6 >20	<1 1 Current 2 0 62 1 62 1 884 1049 1047 1182 3308 Current 7 ▲ 61 ▲ 51 NEG Current 1.1 8.1 20.1	0 0 history1 4 0 57 <1 916 1017 998 1200 2876 history1 3 4 7 NEG history1 0.8 7.2 18.9	0 history2 2 0 63 <1 1043 1122 1103 1337 3744 history2 3 4 11 NEG history2 0.9 8.0 20.2

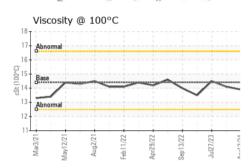


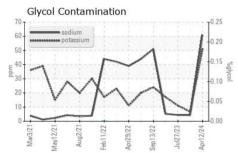
OIL ANALYSIS REPORT





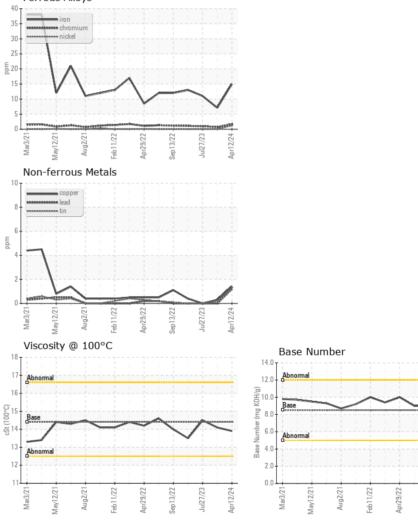






VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.9	14.1	14.5
GRAPHS						

Ferrous Alloys



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 001 - Raleigh(CNG) Sample No. : GFL0117479 Received : 18 Apr 2024 3741 Conquest Drive Lab Number : 06152862 Tested : 23 Apr 2024 Garner, NC Unique Number : 10982940 Diagnosed : 23 Apr 2024 - Jonathan Hester US 27529 Test Package : FLEET (Additional Tests: Glycol) Contact: Craig Johnson Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. craig.johnson@gflenv.com T: (919)662-7100 * - 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: (919)662-7130

Report Id: GFL001 [WUSCAR] 06152862 (Generated: 04/23/2024 11:49:13) Rev: 1

Submitted By: aka Keith - Ronald Gregory

Sep13/22

Jul27/23

Apr12/24

Page 2 of 2