

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend

# NORMAL





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SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103189	GFL0094649	GFL0089295
Sample Date		Client Info		11 Mar 2024	08 Dec 2023	12 Sep 2023
Machine Age	hrs	Client Info		10269	9535	8920
Oil Age	hrs	Client Info		734	615	540
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	12	7	8
Chromium	mag	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	mag	ASTM D5185m	>2	0	0	0
Silver	maa	ASTM D5185m	>2	0	0	0
Aluminum	mag	ASTM D5185m	>20	1	<1	3
Lead	ppm	ASTM D5185m	>150	0	0	<1
Copper	ppm	ASTM D5185m	>90	۔ د1	<1	<1
Tin	ppm	ASTM D5185m	>5	0	0	<1
Vanadium	mag	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
		and the second	1		In the second	history O
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 2	history1 <1	history2 4
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 2 0	history1 <1 0	history2 4 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 2 0 54	history1 <1 0 57	history2 4 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 2 0 54 0	history1 <1 0 57 0	history2 4 0 60 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 2 0 54 0 901	history1 <1 0 57 0 928	history2 4 0 60 <1 978
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current           2           0           54           0           901           1022	history1 <1 0 57 0 928 1030	history2 4 0 60 <1 978 1206
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150	current           2           0           54           0           901           1022           974	history1 <1 0 57 0 928 1030 967	history2 4 0 60 <1 978 1206 1021
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350	current           2           0           54           0           901           1022           974           1144	history1         <1         0         57         0         928         1030         967         1198	history2           4           0           60           <1           978           1206           1021           1275
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	current           2           0           54           0           901           1022           974           1144           3243	<1         0         57         0         928         1030         967         1198         3091	history2         4         0         60         <1         978         1206         1021         1275         3702
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 450 3000 1150 1350 4250	current         2         0         54         0         901         1022         974         1144         3243         current	<1         0         57         0         928         1030         967         1198         3091         history1	history2         4         0         60         <1         978         1206         1021         1275         3702         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >35	current           2           0           54           0           901           1022           974           1144           3243           current           2	history1         <1         0         57         0         928         1030         967         1198         3091         history1         2	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	limit/base 250 10 450 3000 1150 1350 4250 limit/base >35 >216	current           2           0           54           0           901           1022           974           1144           3243           current           2           3	<1         0         57         0         928         1030         967         1198         3091         history1         2         3	4         0         60         <1         978         1206         1021         1275         3702         history2         4         4         4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method           ASTM D5185m	limit/base 250 10 450 3000 1150 1350 4250 kimit/base >35 >216 >20	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         3         2	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         4         2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	limit/base 250 10 400 450 3000 1150 1350 4250 <b>limit/base</b> >35 >216 >20	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         2         3         3         3         2         3         2         history1	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         4         2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method           ASTM D5185m	limit/base 250 10 400 450 3000 1150 1350 4250 imit/base >35 >216 >20 imit/base >7.5	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current         1	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         3         0.7	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0         0         0.5
ADDITIVES 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	method           ASTM D5185m	limit/base 250 10 450 3000 1150 1350 4250 kimit/base >216 >216 >20 kimit/base >7.5 >20	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current         1         8.2	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         3         0.7         6.9	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0
ADDITIVES 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 t ppm ppm	method           ASTM D5185m	limit/base 250 10 40 450 3000 1150 1350 4250 <b>limit/base</b> >216 >20 <b>limit/base</b> >7.5 >20 >30	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         ka.2         19.9	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         3         0.7         6.9         18.8	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0         18.0
ADDITIVES 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 TS ppm ppm ppm ppm % Abs/cm Abs/.1mm	method           ASTM D5185m	limit/base 250 10 450 3000 1150 1350 4250 imit/base >35 >216 >20 imit/base >7.5 >20 >30	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current         1         8.2         19.9         current	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         1030         1198         3091         history1         2         3         2         18.8         history1	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0         18.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/1mm	method           ASTM D5185m           ASTM D7844           *ASTM D7415           Method	limit/base 250 10 450 3000 1150 1350 4250 imit/base >216 >216 >20 imit/base >7.5 >20 >30 imit/base	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current         1         8.2         19.9         current         14.8	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         2         history1         0.7         6.9         18.8         history1         13.7	4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0         18.0         history2         13.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm % Abs/cm Abs/cm Abs/.1mm mg KOH/a	method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7415 ASTM D7415 ASTM D7414 ASTM D7848 ASTM D7414 ASTM D7418 </th <th>limit/base 250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> &gt;20 <b>limit/base</b> &gt;7.5 &gt;20 30 <b>limit/base</b> &gt;25 8.5</th> <th>current         2         0         54         0         901         1022         974         1144         3243         current         2         3         &lt;1         current         1         8.2         19.9         current         14.8         8.5</th> <th>&lt;1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         0.7         6.9         18.8         history1         13.7         8.7</th> <th>history2         4         0         60         &lt;1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0         18.0         history2         13.0</th>	limit/base 250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >20 <b>limit/base</b> >7.5 >20 30 <b>limit/base</b> >25 8.5	current         2         0         54         0         901         1022         974         1144         3243         current         2         3         <1         current         1         8.2         19.9         current         14.8         8.5	<1         0         57         0         928         1030         967         1198         3091         history1         2         3         2         3         0.7         6.9         18.8         history1         13.7         8.7	history2         4         0         60         <1         978         1206         1021         1275         3702         history2         4         2         history2         0.5         7.0         18.0         history2         13.0

#### Machine Ic 910013 AUTOCAR ACX Component

**Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 40 (48 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 suitable for further service.



# **OIL ANALYSIS REPORT**





VISUAL		method			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	13.4	13.3	14.2
GRAPHS						





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