

OIL ANALYSIS REPORT

Sample Rating Trend

SAMPLE INFORMATION method limit/ba





NORMAL

Machine Id 713005 Component Diesel Engi Fluid DIESEL ENG

Component Diesel Engine

DIESEL ENGINE OIL SAE 30 (--- GAL)

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.

Sample Number Sample Date		Client Info Client Info		GFL0089593 14 Sep 2023	GFL0089596 24 Aug 2023	GFL0046602 07 Aug 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	4	4	15
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	0	3	1
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185M	>330	2	1	<
Vanadium	ppm	ASTM D5185m	>15	<1	< 1	< 1
Cadmium	ppm	ASTM D5185m		0	0	0
Cadmidin	ррпі	ASTINDUTOSIII		Ū	0	0
					hietory1	history2
ADDITIVES		methou	IIIII/Dasc	ounchi	Thistory I	motoryz
Boron	ppm	ASTM D5185m	250	13	12	4
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	250 10	13 0	12 0	4 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	13 0 66	12 0 65	4 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	13 0 66 <1	12 0 65 <1	4 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	13 0 66 <1 935	12 0 65 <1 878	4 0 63 <1 971
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	13 0 66 <1 935 1103	12 0 65 <1 878 1052	4 0 63 <1 971 1080
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	13 0 66 <1 935 1103 1013	12 0 65 <1 878 1052 967	4 0 63 <1 971 1080 1060
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 1350 450	13 0 66 <1 935 1103 1013 1242 2314	12 0 65 <1 878 1052 967 1148 2424	4 0 63 <1 971 1080 1060 1298 2742
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	250 10 100 450 3000 1150 1350 4250	13 0 66 <1 935 1103 1013 1242 3714	12 0 65 <1 878 1052 967 1148 3434	4 0 63 <1 971 1080 1060 1298 3742
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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Limit/base	13 0 66 <1 935 1103 1013 1242 3714 current	12 0 65 <1 878 1052 967 1148 3434 history1	4 0 63 <1 971 1080 1060 1298 3742 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m 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	13 0 66 <1 935 1103 1013 1242 3714 current 10	12 0 65 <1 878 1052 967 1148 3434 history1 8	4 0 63 <1 971 1080 1060 1298 3742 history2 7 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75	13 0 66 <1 935 1103 1013 1242 3714 current 10 2	12 0 65 <1 878 1052 967 1148 3434 history1 8 2	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 2	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 3
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20 limit/base	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4 current	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 2 2 history1	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20 limit/base >4	13 0 66 <1 935 1103 1013 1242 3714 <u>current</u> 10 2 4 <u>current</u> 0.1	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 history1 0.1	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2 0.3
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20 limit/base >4 >20 20	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4 current 0.1 5.2	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 2 2 history1 0.1 4.9	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2 0.3 7.0 17.0
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	250 10 100 450 3000 1150 1350 4250 25 >25 >75 >20 limit/base >4 >20 >4 >20 >30	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4 current 0.1 5.2 17.3	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 history1 0.1 4.9 17.2	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2 0.3 7.0 17.8
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/cm Abs/cm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >75 >20 Imit/base >4 >20 >30 Imit/base	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4 current 0.1 5.2 17.3	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 history1 0.1 4.9 17.2 history1	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2 0.3 7.0 17.8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	250 10 100 450 3000 1150 1350 4250 imit/base >25 >75 >20 imit/base >4 >20 >30 imit/base	13 0 66 <1 935 1103 1013 1242 3714 current 10 2 4 current 0.1 5.2 17.3 current 13.2	12 0 65 <1 878 1052 967 1148 3434 history1 8 2 history1 0.1 4.9 17.2 history1 13.0	4 0 63 <1 971 1080 1060 1298 3742 history2 7 3 3 history2 0.3 7.0 17.8 history2 13.6



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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 PROPEI	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	13.0	13.0	13.2
GRAPHS						





* - 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)

Submitted By: WILLIAM BROWN

F:

T: (706)936-4065