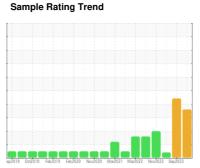


OIL ANALYSIS REPORT

GUAY SON [CONHER] **IBACO ARCENIO VICENTE AUX-1**

Diesel Engine

XTRA REV 15W40 (8 LTR)





DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil. There is a light concentration of water present in the oil.

▲ Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sample Date Client Info 20 Jan 2024 20 Sep 2023 17 Feb 2023 Machine Age hrs Client Info 0 21796 21052 Oil Age hrs Client Info 100 24 672 Oil Changed Client Info Not Changd Changed Not Changd Sample Status ABNORMAL ABNORMAL ATTENTION CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1			ep.2018 Oct20	18 Feb2019 Feb2020 No	v2020 Mar2021 Mar2022 Nov2022	Sep 2023	
Sample Date Client Info 20 Jan 2024 20 Sep 2023 17 Feb 2023 Machine Age hrs Client Info 0 21796 21052 Oil Age hrs Client Info 100 21796 21052 Oil Changed hrs Client Info Not Changd Changed Not Changd Sample Status ABNORMAL ABNORMAL ATTENTION CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 21796 21052 Oil Age hrs Client Info 100 24 672 Oil Changed Client Info Not Changd Changed MADORMAL ATTENTION Sample Status Med ABNORMAL ATTENTION CONTAMINATION method limit/base current history1 history2 Water WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 48 28 83 Chromium ppm ASTM D5185m >20 <1 4 2 Nickel ppm ASTM D5185m >20 <1 4 2 Nickel ppm ASTM D5185m >20 2 6 2 Lead ppm ASTM D5185m >30 0 0 0 Copper ppm	Sample Number		Client Info		KL0013486	KL0012848	KL0010227
Oil Age hrs Client Info 100 24 672 Oil Changed Client Info Not Changed Changed Not Changed Sample Status ABNORMAL ATTENTION CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10.0 48 28 83 Othromium ppm ASTM D5185m >20 <1 4 2 Nickel ppm ASTM D5185m >3 0 0 <1 Aluminum ppm ASTM D5185m >3 0 0 <1 Lead ppm ASTM D5185m >30 0 0 <1 Copper ppm ASTM D5185m >30 2 14 6 Caladium ppm ASTM D5185m	Sample Date		Client Info		20 Jan 2024	20 Sep 2023	17 Feb 2023
Contained Sample Status	Machine Age	hrs	Client Info		0	21796	21052
ABNORMAL ABNORMAL ATTENTION CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		100	24	672
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >10 48 28 83 Chromium ppm ASTM D5185m >20 <1	Oil Changed		Client Info		Not Changd	Changed	Not Changd
Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imil/base current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 48 28 83 Chromium ppm ASTM D5185m >20 -1 4 2 Nickel ppm ASTM D5185m >20 -1 4 2 Nickel ppm ASTM D5185m >3 0 0 -1 Alluminum ppm ASTM D5185m >3 0 0 0 Alluminum ppm ASTM D5185m >20 2 △ 6 2 Lead ppm ASTM D5185m >30 2 14 6 Copper ppm ASTM D5185m >330 2 14 6 Tin ppm ASTM D5185m 0 <1	Sample Status				ABNORMAL	ABNORMAL	ATTENTION
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Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >-4 0 0 0 <-1 Titanium ppm ASTM D5185m 0 0 <-1 0 Silver ppm ASTM D5185m >-3 0 0 0 0 Aluminum ppm ASTM D5185m >-20 2	Iron	ppm	ASTM D5185m	>100	48	28	83
Titanium ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 ▲ 6 2 Lead ppm ASTM D5185m >20 2 ▲ 6 2 Copper ppm ASTM D5185m >330 2 14 6 Tin ppm ASTM D5185m >15 0 2 <1	Chromium	ppm	ASTM D5185m	>20	<1	4	2
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 ▲ 6 2 Lead ppm ASTM D5185m >20 2 ▲ 6 2 Copper ppm ASTM D5185m >330 2 14 6 Tin ppm ASTM D5185m 0 2 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 0 Cadmium ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 89 181 12 Calcium ppm <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>4</td> <td>0</td> <td>0</td> <td><1</td>	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum ppm ASTM D5185m >20 2 ▲ 6 2 Lead ppm ASTM D5185m >40 0 4 <1	Titanium	ppm	ASTM D5185m		0	<1	0
Lead ppm ASTM D5185m >40 0 4 <1 Copper ppm ASTM D5185m >330 2 14 6 Tin ppm ASTM D5185m >15 0 2 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 3213 <th< td=""><td>Silver</td><td>ppm</td><td>ASTM D5185m</td><td>>3</td><td>0</td><td>0</td><td>0</td></th<>	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 2 14 6 Tin ppm ASTM D5185m >15 0 2 <1	Aluminum	ppm	ASTM D5185m	>20	2	6	2
Tin ppm ASTM D5185m >15 0 2 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1	Lead	ppm	ASTM D5185m	>40	0	4	<1
Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 4 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>330</td><td>2</td><td>14</td><td>6</td></t<>	Copper	ppm	ASTM D5185m	>330	2	14	6
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1	Tin	ppm	ASTM D5185m	>15	0	2	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 97 125 <1	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 97 125 <1 Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D5185m >20 4	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 1 0 0 Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D5185m >20 4 2 0 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 18 40 2 Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D5185m >20 4 2 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624	Boron	ppm	ASTM D5185m		97	125	<1
Manganese ppm ASTM D5185m 0 <1 1 Magnesium ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 2.2 <1.0	Barium	ppm	ASTM D5185m		1	0	0
Magnesium ppm ASTM D5185m 89 181 12 Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 2.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7624 >3 0.4 0.1 0.3 Nitration Abs/cm <t< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td></td><td>18</td><td>40</td><td>2</td></t<>	Molybdenum	ppm	ASTM D5185m		18	40	2
Calcium ppm ASTM D5185m 2277 2399 2791 Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 4 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 4 2.2 <1.0	Manganese	ppm	ASTM D5185m		0	<1	1
Phosphorus ppm ASTM D5185m 1021 1095 681 Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 4 70 7 Sodium ppm ASTM D5185m >25 11 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 4 2.2 <1.0	Magnesium	ppm	ASTM D5185m		89	181	12
Zinc ppm ASTM D5185m 1261 1379 662 Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 ▲ 2.2 <1.0	Calcium	ppm	ASTM D5185m		2277	2399	2791
Sulfur ppm ASTM D5185m 3213 3536 4273 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 ▲ 2.2 <1.0	Phosphorus	ppm	ASTM D5185m		1021	1095	681
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 ▲ 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 ▲ 2.2 <1.0	Zinc	ppm	ASTM D5185m		1261	1379	662
Silicon ppm ASTM D5185m >25 11 ▲ 70 7 Sodium ppm ASTM D5185m 7 4 3 Potassium ppm ASTM D5185m >20 4 2 0 Fuel % ASTM D3524 >5 ▲ 2.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	Sulfur	ppm	ASTM D5185m		3213	3536	4273
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Fuel % ASTM D3524 >5 ▲ 2.2 <1.0 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	Sodium	ppm	ASTM D5185m		7	4	3
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	Potassium	ppm	ASTM D5185m	>20	4	2	0
Soot % % *ASTM D7844 >3 0.4 0.1 0.3 Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	Fuel	%	ASTM D3524	>5	<u> </u>	<1.0	<1.0
Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 7.1 6.3 9.6	Soot %	%	*ASTM D7844	>3	0.4	0.1	0.3
	Nitration						
	Sulfation						



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