

OIL ANALYSIS REPORT

GUAY SON [CONHER] Machine Id BM NAINARI 2602004123-4 - IBACO BM NAINARI Component

Diesel Engine

Xtra Rev 15W40 (160 LTR)

DIAGNOSIS

A Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor.

Wear

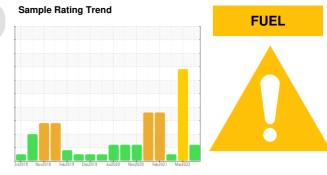
All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. The amount and size of particulates present in the system are acceptable.

Fluid Condition

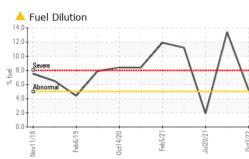
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

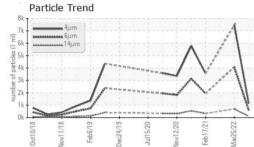


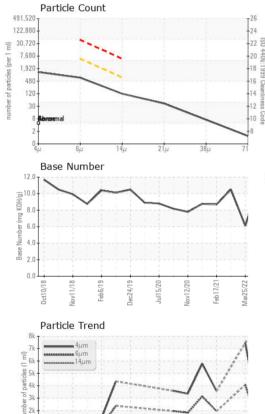
SAMPLE INFORM	IATION	method	limit/base	current	history 1	history 2
Sample Number		Client Info		KL0010130	KL0009157	KL0007470
Sample Date		Client Info		03 Oct 2022	25 Mar 2022	20 Jul 2021
Machine Age	hrs	Client Info		16699	16509	13882
Oil Age	hrs	Client Info		180	2627	1
Oil Changed		Client Info		Not Changd	N/A	Not Changd
Sample Status				ABNORMAL	SEVERE	NORMAL
CONTAMINATION	١	method	limit/base	current	history 1	history 2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>100	14	1 70	5
Chromium	ppm	ASTM D5185m	>20	<1	2	0
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	2	4	0
Lead	ppm	ASTM D5185m	>40	<1	4	<1
Copper	ppm	ASTM D5185m	>330	8	17	<1
Tin	ppm	ASTM D5185m	>15	1	2	0
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history 1	history 2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 1	history 1 73	history 2 396
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	1	73	396
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	1 0	73 0	396 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 2	73 0 113	396 0 104
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 2 <1	73 0 113 1	396 0 104 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 2 <1 6	73 0 113 1 584	396 0 104 <1 477
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 2 <1 6 3107	73 0 113 1 584 1620	396 0 104 <1 477 1463
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	limit/base	1 0 2 <1 6 3107 1196	73 0 113 1 584 1620 868	396 0 104 <1 477 1463 851
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	limit/base	1 0 2 <1 6 3107 1196 1386	73 0 113 1 584 1620 868 1035	396 0 104 <1 477 1463 851 941
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	limit/base	1 0 2 <1 6 3107 1196 1386 4889	73 0 113 1 584 1620 868 1035 2568	396 0 104 <1 477 1463 851 941 2548
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base >25	1 0 2 <1 6 3107 1196 1386 4889 current 16 2	73 0 113 1 584 1620 868 1035 2568 history 1 ▲ 26 ▲ 117	396 0 104 <1 477 1463 851 941 2548 history 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base	1 0 2 <1 6 3107 1196 1386 4889 <u>current</u> 16 2 2	73 0 113 1 584 1620 868 1035 2568 history 1 ▲ 26 ▲ 117 11	396 0 104 <1 477 1463 851 941 2548 history 2 8 8 8 8 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base >25	1 0 2 <1 6 3107 1196 1386 4889 current 16 2	73 0 113 1 584 1620 868 1035 2568 history 1 ▲ 26 ▲ 117	396 0 104 <1 477 1463 851 941 2548 history 2 8 8 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	1 0 2 <1 6 3107 1196 1386 4889 <u>current</u> 16 2 2	73 0 113 1 584 1620 868 1035 2568 history 1 ▲ 26 ▲ 117 11	396 0 104 <1 477 1463 851 941 2548 history 2 8 8 8 8 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5	1 0 2 <1 6 3107 1196 1386 4889 current 16 2 2 2 2 5.2	73 0 113 1 584 1620 868 1035 2568 history 1 ▲ 26 ▲ 117 11 11 ● 13.4	396 0 104 <1 477 1463 851 941 2548 history 2 8 8 8 8 <1 1.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >5 limit/base	1 0 2 <1 6 3107 1196 1386 4889 current 16 2 2 2 2 5.2	73 0 113 1 584 1620 868 1035 2568 history 1 2568 2568 117 11 11 11 13.4	396 0 104 <1 477 1463 851 941 2548 history 2 8 8 8 <1 1.9 1.9 history 2



OIL ANALYSIS REPORT







11 -0

	IESS	method	limit/base	current	history 1	histo
Particles >4µm		ASTM D7647		1144	7468	
Particles >6µm		ASTM D7647	>5000	623	4068	
Particles >14µm		ASTM D7647	>640	106	<u> </u>	
Particles >21µm		ASTM D7647	>160	36	<u> </u>	
Particles >38µm		ASTM D7647	>40	6	36	
Particles >71µm		ASTM D7647	>10	1	4	
Oil Cleanliness		ISO 4406 (c)	>19/16	16/14	▲ 19/17	
FLUID DEGRADA	TION	method	limit/base	current	history 1	histo
Oxidation	Abs/.1mm	*ASTM D7414	>25	7.6	36.8	15.8
Base Number (BN)	mg KOH/g	ASTM D2896		11.5	6.10	10.5
VISUAL		method	limit/base	current	history 1	histo
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	NOR
Odor	scalar	*Visual	NORML	NORML	NORML	NOR
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history 1	histo
				11.4	12.2	14.7
Visc @ 100°C	cSt	ASTM D445		<u> </u>	C.C	14.7
Visc @ 100°C GRAPHS	cSt	ASTM D445		11.4	12.2	14.7
_	cSt	ASTM D445		Particle Cou		14.7
GRAPHS Ferrous Alloys	cSt	ASTM D445	491,52	Particle Cou		14.7
GRAPHS Ferrous Alloys	cSt	ASTM D445		Particle Cou		14.7
GRAPHS Ferrous Alloys	cSt	ASTM D445	491,52	Particle Cou		14.7
GRAPHS Ferrous Alloys			491,52 122,88 30,72	Particle Cou		17.7
GRAPHS Ferrous Alloys			491,52 122,88 30,72	Particle Cou		17.7
GRAPHS Ferrous Alloys	Jul15/20	ASTM D445	491,52 122,88 30,72	Particle Cou		
GRAPHS Ferrous Alloys	Jul15/20		491.52 122.86 30.72 7.68 1.92 9996 48	Particle Cou		
GRAPHS Ferrous Alloys	Jul15/20		491.52 122.88 30.72 7.68 1.92 80 1.92 80 1.92 80 1.92 80 1.92 80 1.92 80 1.92 80 90 1.92 80 90 1.92 80 90 1.92 80 80 80 80 80 80 80 80 80 80 80 80 80	Particle Cou		17.7
GRAPHS Ferrous Alloys	Jul15/20		491,52 122,88 30,72 7,68 1,92 appint 48	Particle Cou		17.7
GRAPHS Ferrous Alloys	Jul15/20		491.52 122.88 30.72 769 1.92 800 1.92 48 48 1.92 48 1.92 48 1.92 48 1.92 48 1.92 48 48 48 48 48 48 48 49 49 48 48 48 48 48 48 49 49 49 48 48 49 49 49 49 49 49 49 49 49 49 49 49 49	Particle Cou		
GRAPHS Ferrous Alloys	OZISTINU S	Feb11210	491,52 122,88 30,72 Tu Lad 30,72 Tu Lad 30,72 Tu Lad 30,72 1,92 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou		
GRAPHS Ferrous Alloys	OZISTINU S	Feb11210	491.52 122.86 30.72 72252 W Ten Jose 1.92 48 48 48 72252 122 8 1.92 48 48 1.92 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou		
GRAPHS Ferrous Alloys	2 S		491.52 122.86 30.72 72252 W Ten Jose 1.92 48 48 48 72252 122 8 1.92 48 48 1.92 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou	nt	17.7 38µ
GRAPHS Ferrous Alloys	2 S	Feb11210	491.52 122.88 30.72 7.68 1.92 War J and 1.92 48 48 1.92 30 7.68 1.92 48 30 7.68 1.92 48 48 30 7.68 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou	nt	
GRAPHS Ferrous Alloys	2 S	Feb11210	491.52 122.88 30.72 7.68 1.92 War J and 1.92 48 48 1.92 30 7.68 1.92 48 30 7.68 1.92 48 48 30 7.68 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou	nt	
GRAPHS Ferrous Alloys	2 S	Feb11210	491.52 122.88 30.72 7.68 1.92 War J and 1.92 48 48 1.92 30 7.68 1.92 48 30 7.68 1.92 48 48 30 7.68 48 48 48 48 48 48 48 48 48 48 48 48 48	Particle Cou	nt	
GRAPHS Ferrous Alloys	2 S Output	Feb11210	491.52 122.88 30.72 7.68 1.92 War J and 1.92 X 202522 War J and 1.92 X 202522 War J	Particle Cou	nt	
GRAPHS Ferrous Alloys	s Ocistin	Feb11210	491.52 122.86 30.72 True 1.92 48 48 722/52/20 48 48 722/52/20 48 48 722/52/20 48 722/52/20 722/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72/52 72 72 72/52 72 72 72 72 72 72 72 72 72 72 72 72 72	Particle Cou	nt	36µ

Feb17/21 NDC201 : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Laboratory : 10 Oct 2022 Sample No. : KL0010130 Received JUAREZ 348 27 : 12 Oct 2022 Lab Number : 05662427 Diagnosed HERMOSILLO, Unique Number : 10166996 Diagnostician : Jonathan Hester MX 83140 **Test Package** : MOB 2 (Additional Tests: PercentFuel, PrtCount) Contact: EDUARDO GARCIA Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. egarcia.comsa@gmail.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (526)622-1581 x:81 F: x:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)