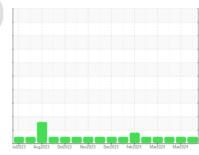


OIL ANALYSIS REPORT

Area KDAC 200250 **Diesel Engine**

TEST OIL GOLD 4 (40 LTR)



Sample Rating Trend

NORMAL



Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the

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.

Machine Age kms Client Info 266653 257254 240248 26141 17020 61035			Juizuza Aug	2023 UCIZUZ3 NOVZUZ3	DBC2023 FB02024 MB2024	Marzuz4	
Sample Date Client Info 16 Apr 2024 28 Mar 2024 01 Mar 2024 Machine Age kms Client Info 266653 257254 240248 Oil Age kms Client Info 26441 17020 61035 Not Changd Not Changd Not Changd NoRMAL NO	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 16 Apr 2024 28 Mar 2024 21 Mar 2024 266653 257254 240248 266653 257254 240248 260148 266653 257254 240248 260148 266653 257254 240248 260148 2601653 267254 240248 260148 2601653 261035 2	Sample Number		Client Info		WC0926309	WC0888913	WC0888911
Coli Changed Cilient Info Cilient Info Cilient Info Cilient Info Cilient Info Not Changed Not Changed Not Changed Northand Northand	Sample Date		Client Info		16 Apr 2024	28 Mar 2024	01 Mar 2024
Oil Changed Client Info Not Changed Normal Norm	Machine Age	kms	Client Info		266653	257254	240248
NORMAL NORMAL NORMAL NORMAL	Oil Age	kms	Client Info		26441	17020	61035
NORMAL NORMAL NORMAL NORMAL	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Fuel	Sample Status					NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >90 11 8 28 Chromium ppm ASTM D5185(m) >20 <1	CONTAMINATION	V	method	limit/base	current	history1	history2
MEG NEG Neg	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>90	11	8	28
Titanium	Chromium	ppm	ASTM D5185(m)	>20	<1	<1	3
Silver	Nickel	ppm	ASTM D5185(m)	>2	<1	<1	2
Ast	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Lead	Silver	ppm	ASTM D5185(m)	>2	0	0	<1
Copper	Aluminum	ppm	ASTM D5185(m)	>20	5	3	21
Tin ppm ASTM D5185(m) =15 0 0 0 <1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 0 Manganese ppm ASTM D5185(m) 0 0 0 0 0 Manganese ppm ASTM D5185(m) 0 0 0 0 0 0 Manganesium ppm ASTM D5185(m) 980 1038 1036 1087 Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1 0 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0 0.2 Nitration Abs/cm ASTM D7845* >20 6.2 5.6 8.2 Nitration Abs/cm ASTM D7815* >30 18.4 18.0 19.4 Sulfution (Diff) Abs/cm ASTM D5185* 30 18.4 18.0 19.4 Sulfation (Diff) Abs/cm ASTM D5185* 30 18.4 18.0 19.4 Sulfation (Diff) Abs/cm ASTM D5185* 30 18.4	Lead	ppm	ASTM D5185(m)	>40	0	0	2
Antimony	Copper	ppm	ASTM D5185(m)	>330	<1	<1	1
Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 1 2 2 <1	Tin	ppm	ASTM D5185(m)	>15	0	0	<1
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	0
Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 1 2 2 <1 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 60 58 58 60 Manganese ppm ASTM D5185(m) 0 <1 0 <1 Magnesium ppm ASTM D5185(m) 950 967 969 978 Calcium ppm ASTM D5185(m) 980 1038 1036 1087 Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) >25	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 60 58 58 60 Manganese ppm ASTM D5185(m) 0 <1 0 <1 Magnesium ppm ASTM D5185(m) 950 967 969 978 Calcium ppm ASTM D5185(m) 980 1038 1036 1087 Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base	Boron	ppm	ASTM D5185(m)	1	2	2	<1
Manganese ppm ASTM D5185(m) 0 <1	Barium	ppm	ASTM D5185(m)	0	0	0	0
Magnesium ppm ASTM D5185(m) 950 967 969 978 Calcium ppm ASTM D5185(m) 980 1038 1036 1087 Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm </th <th>Molybdenum</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>60</th> <th>58</th> <th>58</th> <th>60</th>	Molybdenum	ppm	ASTM D5185(m)	60	58	58	60
Calcium ppm ASTM D5185(m) 980 1038 1036 1087 Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration <th>Manganese</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>0</th> <th><1</th> <th>0</th> <th><1</th>	Manganese	ppm	ASTM D5185(m)	0	<1	0	<1
Phosphorus ppm ASTM D5185(m) 1100 964 978 995 Zinc ppm ASTM D5185(m) 1150 1148 1151 1195 Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1	Magnesium	ppm	ASTM D5185(m)	950	967	969	978
Zinc	Calcium	ppm	ASTM D5185(m)	980	1038	1036	1087
Sulfur ppm ASTM D5185(m) 2600 2426 2493 2499 Lithium ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)	1100	964	978	995
Lithium ppm ASTM D5185(m) <1	Zinc	ppm	ASTM D5185(m)	1150	1148	1151	1195
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) 1 1 2 Potassium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25 3.8 2.9 8.9 Sulfation Abs/.1mm ASTM D7415* >30 18.4 18.0 19.4 Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	Sulfur	ppm	ASTM D5185(m)	2600	2426	2493	2499
Silicon ppm ASTM D5185(m) >25 2 2 4 Sodium ppm ASTM D5185(m) 1 1 2 Potassium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25 3.8 2.9 8.9 Sulfation Abs/.1mm ASTM D7415* >30 18.4 18.0 19.4 Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium ppm ASTM D5185(m) 1 1 2 Potassium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25 3.8 2.9 8.9 Sulfation Abs/.1mm ASTM D7415* >30 18.4 18.0 19.4 Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 7 5 36 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25 3.8 2.9 8.9 Sulfation Abs/.1mm ASTM D7415* >30 18.4 18.0 19.4 Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	Silicon	ppm	ASTM D5185(m)	>25	2	2	4
INFRA-RED	Sodium	ppm	ASTM D5185(m)		1	1	2
Soot % % ASTM D7844* >6 0 0 0.2 Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25	Potassium	ppm	ASTM D5185(m)	>20	7	5	36
Nitration Abs/cm ASTM D7624* >20 6.2 5.6 8.2 Nitration(Diff) Abs/cm ASTM E2412* < 25	INFRA-RED		method	limit/base	current	history1	history2
Nitration(Diff) Abs/cm ASTM E2412* < 25	Soot %	%	ASTM D7844*	>6	0	0	0.2
Sulfation Abs/.1mm ASTM D7415* >30 18.4 18.0 19.4 Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	Nitration	Abs/cm	ASTM D7624*	>20	6.2	5.6	8.2
Sulfation(Diff) Abs/cm ASTM E2412* 0 0 2.3	Nitration(Diff)	Abs/cm	ASTM E2412*	< 25	3.8	2.9	8.9
	Sulfation	Abs/.1mm	ASTM D7415*	>30	18.4	18.0	19.4
21:46) Pay: 1 Submitted By: William Didloy	Sulfation(Diff)	Abs/cm	ASTM E2412*		0		

Submitted By: William Ridley



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No.

Lab Number : 02630447 Unique Number : 5763579

: WC0926309

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 22 Apr 2024

Tested : 23 Apr 2024 Diagnosed : 23 Apr 2024 - Kevin Marson

Test Package : MOB 2 (Additional Tests: FT-IR(Diff))

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

WFR Technical Services

5389 Riverside Drive Burlington, ON CA L7L 3Y1 Contact: William Ridley wfr.technical.services@gmail.com

> T: F:

Submitted By: William Ridley