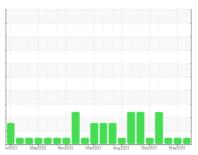


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id **CUMMINS ART VSI**

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

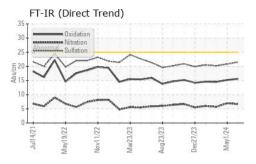
Fluid Condition

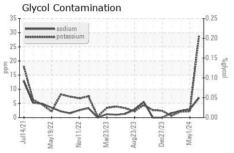
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

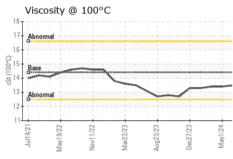
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		KL0013552	KL0013546	KL0013572
Sample Date		Client Info		31 May 2024	01 May 2024	09 Apr 2024
Machine Age	hrs	Client Info		45433	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	V	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
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	26	23	13
Chromium	ppm	ASTM D5185m	>20	3	3	2
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	4
Lead	ppm	ASTM D5185m	>40	2	<1	<1
Copper	ppm	ASTM D5185m	>330	2	2	0
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 427	history1 445	history2 448
	ppm					
Boron		ASTM D5185m	250	427	445	448
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	427 0	445 0	448 0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	427 0 92	445 0 87	448 0 82
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	427 0 92 0	445 0 87 <1	448 0 82 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	427 0 92 0 387	445 0 87 <1 400	448 0 82 <1 423
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	427 0 92 0 387 1407	445 0 87 <1 400 1357	448 0 82 <1 423 1316
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	427 0 92 0 387 1407 957	445 0 87 <1 400 1357 945	448 0 82 <1 423 1316 945
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	427 0 92 0 387 1407 957 1118	445 0 87 <1 400 1357 945 1092	448 0 82 <1 423 1316 945 1093
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	427 0 92 0 387 1407 957 1118 3348	445 0 87 <1 400 1357 945 1092 3389	448 0 82 <1 423 1316 945 1093 3735
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	427 0 92 0 387 1407 957 1118 3348	445 0 87 <1 400 1357 945 1092 3389 history1	448 0 82 <1 423 1316 945 1093 3735 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	427 0 92 0 387 1407 957 1118 3348 current	445 0 87 <1 400 1357 945 1092 3389 history1	448 0 82 <1 423 1316 945 1093 3735 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	427 0 92 0 387 1407 957 1118 3348 current 14	445 0 87 <1 400 1357 945 1092 3389 history1 13	448 0 82 <1 423 1316 945 1093 3735 history2 10 2
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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	427 0 92 0 387 1407 957 1118 3348 current 14 7 29	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D2982	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG current	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG history1	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol 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 >158 >20 limit/base >6 >20	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG current 0.2	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG history1 0.2	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 NEG history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm 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 D7844 *ASTM D7844 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG current 0.2 6.7	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG history1 0.2 7.0	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 NEG history2 0.1 5.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >6 >20 >30 limit/base	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG current 0.2 6.7 21.5	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG history1 0.2 7.0 20.8	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 2 NEG history2 0.1 5.7 20.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m *ASTM D2982 *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 *Method	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >6 >20 >30 limit/base >25	427 0 92 0 387 1407 957 1118 3348 current 14 7 29 NEG current 0.2 6.7 21.5 current	445 0 87 <1 400 1357 945 1092 3389 history1 13 3 2 NEG history1 0.2 7.0 20.8 history1	448 0 82 <1 423 1316 945 1093 3735 history2 10 2 NEG history2 0.1 5.7 20.2 history2

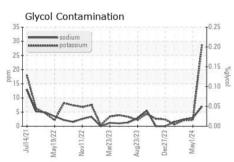


OIL ANALYSIS REPORT





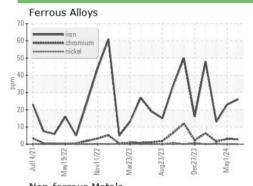


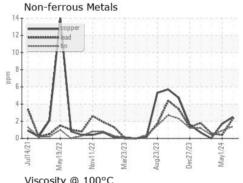


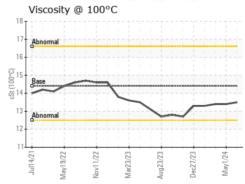
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

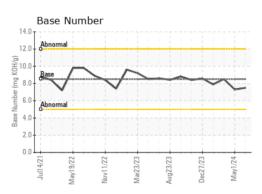
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5	13.4	13.4

GRAPHS













Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : KL0013552 Lab Number : 06207609 Unique Number : 11075070

Received **Tested**

: 12 Jun 2024 : 14 Jun 2024 Diagnosed : 14 Jun 2024 - Sean Felton

3404 N ENTERPRISE DR HOBBS, NM US 88240 Contact: Rick Davidson

rickdavidson.rsi@gmail.com

RAMIREZ & SONS

Test Package : FLEET (Additional Tests: Glycol) To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

Report Id: RAMHOB [WUSCAR] 06207609 (Generated: 06/15/2024 12:36:32) Rev: 1

Contact/Location: Rick Davidson - RAMHOB

T:

F: