

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id CATERPILLAR C15 HOBBS GENERATOR Component Diesel Engine

Diesel Engine

SHELL ROTELLA T 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Moor

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

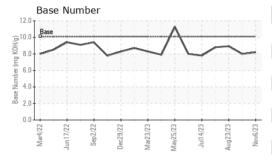
Fluid Condition

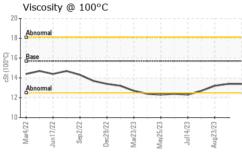
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		KL0013234	KL0013253	KL0011647
Sample Date		Client Info		06 Nov 2023	27 Sep 2023	23 Aug 2023
Machine Age	hrs	Client Info		45160	0	45160
Oil Age	hrs	Client Info		45160	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	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	0	1	1
Chromium	ppm	ASTM D5185m	>6	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	2	2	<1
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>150	0	<1	2
Tin	ppm	ASTM D5185m	>4	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 430	history1 439	history2 418
	ppm					
Boron		ASTM D5185m	316	430	439	418
Boron Barium	ppm	ASTM D5185m ASTM D5185m	316 0.0	430 0	439 0	418 0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0	430 0 83	439 0 89	418 0 88
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2	430 0 83 <1	439 0 89 0	418 0 88 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2	430 0 83 <1 412	439 0 89 0 402	418 0 88 <1 445
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292	430 0 83 <1 412 1346	439 0 89 0 402 1354 886 1115	418 0 88 <1 445 1441
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	316 0.0 1.2 24 2292 1064	430 0 83 <1 412 1346 960	439 0 89 0 402 1354 886	418 0 88 <1 445 1441 901
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996	430 0 83 <1 412 1346 960 1141	439 0 89 0 402 1354 886 1115 3223 history1	418 0 88 <1 445 1441 901 1080
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996	430 0 83 <1 412 1346 960 1141 3161 current	439 0 89 0 402 1354 886 1115 3223 history1	418 0 88 <1 445 1441 901 1080 3747
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base	430 0 83 <1 412 1346 960 1141 3161 current 4	439 0 89 0 402 1354 886 1115 3223 history1 5	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base	430 0 83 <1 412 1346 960 1141 3161 current	439 0 89 0 402 1354 886 1115 3223 history1	418 0 88 <1 445 1441 901 1080 3747 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base	430 0 83 <1 412 1346 960 1141 3161 current 4	439 0 89 0 402 1354 886 1115 3223 history1 5	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20	430 0 83 <1 412 1346 960 1141 3161 current 4 0	439 0 89 0 402 1354 886 1115 3223 history1 5 0 2	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 	430 0 83 <1 412 1346 960 1141 3161 current 4 0 current	439 0 89 0 402 1354 886 1115 3223 history1 5 0 2	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 	430 0 83 <1 412 1346 960 1141 3161 current 4 0 current 0	439 0 89 0 402 1354 886 1115 3223 history1 5 0 2 history1 0	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1 2 history2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20	430 0 83 <1 412 1346 960 1141 3161 current 4 0 0 current 0 5.3	439 0 89 0 402 1354 886 1115 3223 history1 5 0 2 history1 0 5.2	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1 2 history2 0 5.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	316 0.0 1.2 24 2292 1064 1160 4996 limit/base >20 >20 limit/base >3 >20 >30	430 0 83 <1 412 1346 960 1141 3161 current 4 0 0 current 0 5.3 20.0	439 0 89 0 402 1354 886 1115 3223 history1 5 0 2 history1 0 5.2 19.8	418 0 88 <1 445 1441 901 1080 3747 history2 4 <1 2 history2 0 5.2 19.6



OIL ANALYSIS REPORT

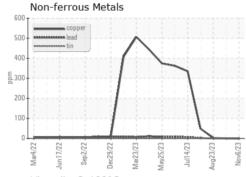


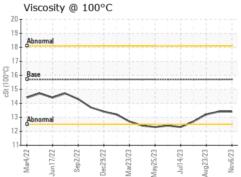


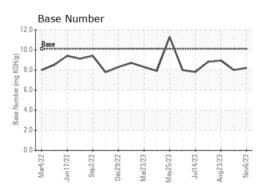
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	15.7	13.4	13.4	13.2

Ferrous Alloys











Certificate L2367

Report Id: RAMHOB [WUSCAR] 06010106 (Generated: 11/17/2023 16:39:41) Rev: 1

Laboratory

Sample No. Lab Number **Unique Number** Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : KL0013234 : 06010106 : 10749250

Received Diagnosed Diagnostician : Wes Davis

: 16 Nov 2023 : 17 Nov 2023

RAMIREZ & SONS 3404 N ENTERPRISE DR HOBBS, NM US 88240

Contact: Rick Davidson rickdavidson.rsi@gmail.com

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)

Submitted By: Mike Richardson

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