

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend

# **NORMAL**



## OKLAHOMA/105/EG - TRUCK-ON-HWY-HEAVY DUTY 08.96 [OKLAHOMA^105^EG - TRUCK-ON-HWY-HEAVY DUTY]

**Diesel Engine** 

MOBIL 15W40 (--- GAL)

## DIAGNOSIS

#### 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

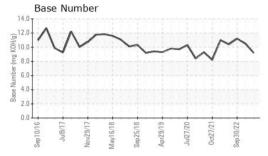
#### **Fluid Condition**

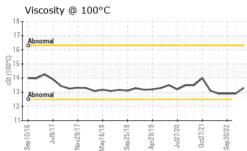
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

<sub>(P.</sub> Z016 JuZ017 NovZ017 Ma <sub>(P</sub> Z018 Sap <sub>2</sub> Z018 Ap <sub>2</sub> Z019 JuZ020 OczZ021 Sap <sub>2</sub> Z022						
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0726227	WC0778392	WC0738513
Sample Date		Client Info		08 Aug 2023	19 Jan 2023	30 Sep 2022
Machine Age	hrs	Client Info		12117	11268	11268
Oil Age	hrs	Client Info		849	500	300
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	22	16	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	7	6	4
Lead	ppm	ASTM D5185m	>40	1	<1	<1
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 44	history1	history2 50
	ppm		limit/base			
Boron		ASTM D5185m	limit/base	44	62	50
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	44 2	62 2	50 0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 2 48	62 2 42	50 0 40
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 2 48 <1	62 2 42 <1	50 0 40 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 2 48 <1 514	62 2 42 <1 514	50 0 40 <1 506
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 2 48 <1 514 1866	62 2 42 <1 514 1711	50 0 40 <1 506 1779
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	limit/base	44 2 48 <1 514 1866 802	62 2 42 <1 514 1711 769	50 0 40 <1 506 1779 769
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	limit/base	44 2 48 <1 514 1866 802 973	62 2 42 <1 514 1711 769 920	50 0 40 <1 506 1779 769 923
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		44 2 48 <1 514 1866 802 973 2946	62 2 42 <1 514 1711 769 920 2988	50 0 40 <1 506 1779 769 923 3140
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	44 2 48 <1 514 1866 802 973 2946 current	62 2 42 <1 514 1711 769 920 2988 history1	50 0 40 <1 506 1779 769 923 3140 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	44 2 48 <1 514 1866 802 973 2946 current	62 2 42 <1 514 1711 769 920 2988 history1	50 0 40 <1 506 1779 769 923 3140 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118	44 2 48 <1 514 1866 802 973 2946  current 6	62 2 42 <1 514 1711 769 920 2988 history1 6 4	50 0 40 <1 506 1779 769 923 3140 history2 5 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20	44 2 48 <1 514 1866 802 973 2946 current 6 0 26	62 2 42 <1 514 1711 769 920 2988 history1 6 4	50 0 40 <1 506 1779 769 923 3140 history2 5 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >118 >20 limit/base >6	44 2 48 <1 514 1866 802 973 2946 current 6 0 26 current	62 2 42 <1 514 1711 769 920 2988 history1 6 4 17	50 0 40 <1 506 1779 769 923 3140 history2 5 3 8
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	limit/base >25 >118 >20 limit/base >6	44 2 48 <1 514 1866 802 973 2946 current 6 0 26 current 0.6	62 2 42 <1 514 1711 769 920 2988 history1 6 4 17 history1 0.2	50 0 40 <1 506 1779 769 923 3140 history2 5 3 8 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m  method  *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >25 >118 >20 limit/base >6 >20	44 2 48 <1 514 1866 802 973 2946  current 6 0 26  current 0.6 9.9	62 2 42 <1 514 1711 769 920 2988 history1 6 4 17 history1 0.2 6.8	50 0 40 <1 506 1779 769 923 3140 history2 5 3 8 history2 0.3 7.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D76145	limit/base >25 >118 >20 limit/base >6 >20 >30	44 2 48 <1 514 1866 802 973 2946 current 6 0 26 current 0.6 9.9 23.7	62 2 42 <1 514 1711 769 920 2988 history1 6 4 17 history1 0.2 6.8 22.0	50 0 40 <1 506 1779 769 923 3140 history2 5 3 8 history2 0.3 7.7 23.8



### **OIL ANALYSIS REPORT**

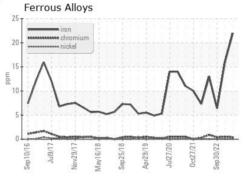


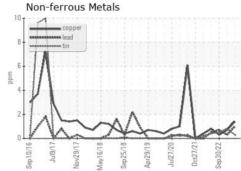


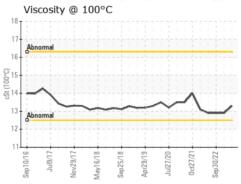
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

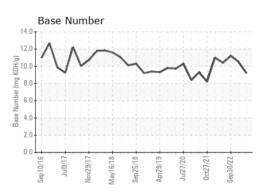
FLUID PROPERTIES		method			history2
Visc @ 100°C	cSt	ASTM D445	13.3	12.9	12.9

#### **GRAPHS**













Laboratory Sample No. Lab Number

: WC0726227 : 05923183 Unique Number : 10603130

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 14 Aug 2023 : 14 Aug 2023

Diagnosed Diagnostician : Wes Davis

Test Package : CONST ( Additional Tests: TBN ) 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.

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3219 WEST MAY ST WICHITA, KS US 67213

Contact: DOUG KING doug.king@sherwood.net

T: (316)617-3161 F: x:

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