



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id  
**CATERPILLAR 980M 6161 (S/N MK210767)**  
Component  
**Diesel Engine**  
Fluid  
**TULCO LUBSOIL CK-4 15W40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>TO10003048</b>	TO10002799	---
Sample Date		Client Info		<b>15 Dec 2023</b>	18 Oct 2023	---
Machine Age	hrs	Client Info		<b>8765</b>	8534	---
Oil Age	hrs	Client Info		<b>231</b>	300	---
Filter Age	hrs	Client Info		<b>231</b>	300	---
Oil Changed		Client Info		<b>Not Chngd</b>	Changed	---
Filter Changed		Client Info		<b>Not Chngd</b>	Changed	---
Sample Status				<b>NORMAL</b>	NORMAL	---

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>4</b>	0	---
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	---
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	---
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	0	---
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m	>25	<b>&lt;1</b>	<1	---
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	---
Copper	ppm	ASTM D5185m	>330	<b>3</b>	<1	---
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	---
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	---
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---

**CONTAMINATION**

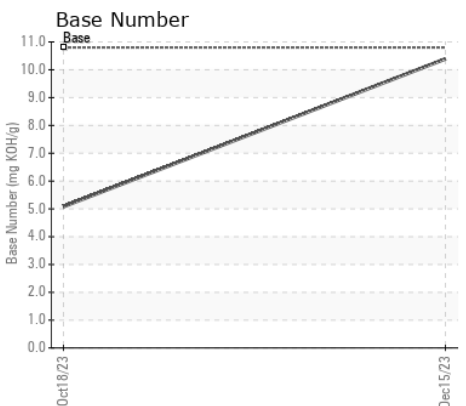
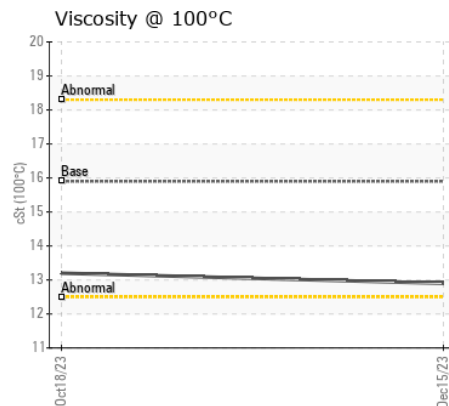
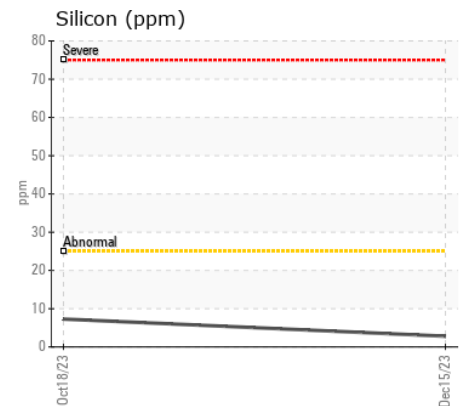
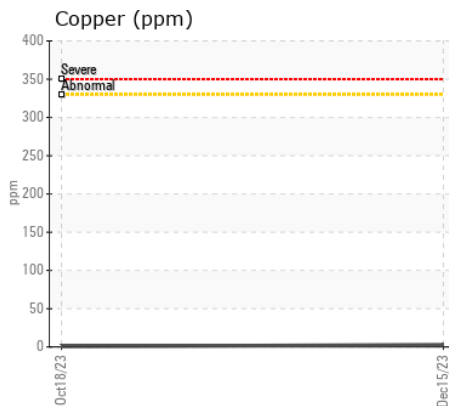
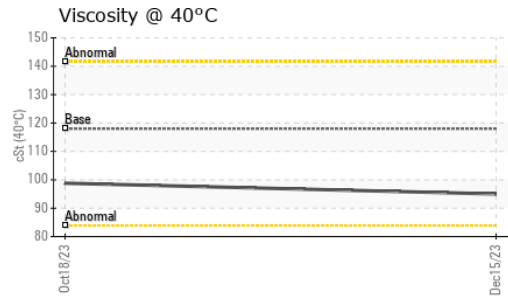
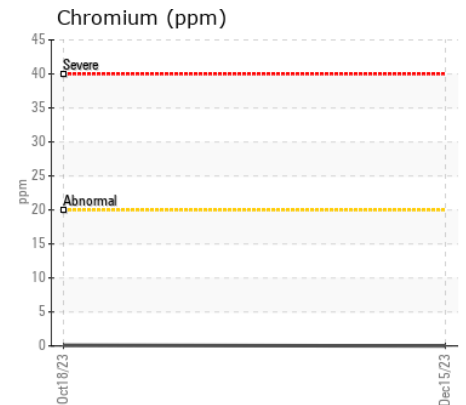
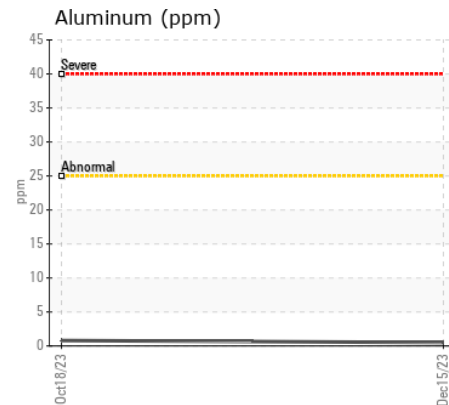
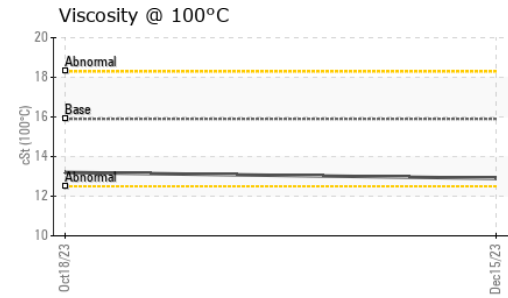
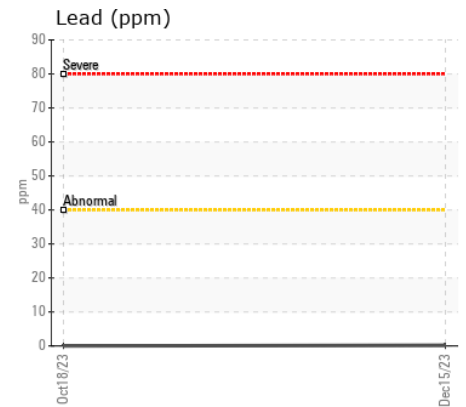
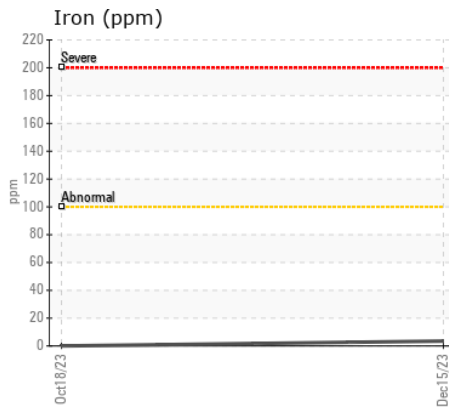
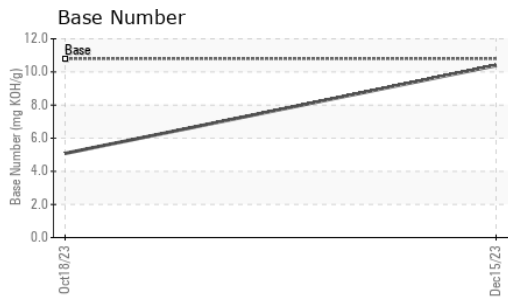
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>3</b>	7	---
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	1	---
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	---
Water		WC Method	>0.2	<b>NEG</b>	NEG	---
Glycol		WC Method		<b>NEG</b>	NEG	---
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.1</b>	5.0	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.1</b>	21.2	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	---

**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.

Sodium	ppm	ASTM D5185m		<b>14</b>	2	---
Boron	ppm	ASTM D5185m		<b>9</b>	58	---
Barium	ppm	ASTM D5185m		<b>0</b>	0	---
Molybdenum	ppm	ASTM D5185m	65	<b>56</b>	39	---
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	---
Magnesium	ppm	ASTM D5185m	1060	<b>872</b>	492	---
Calcium	ppm	ASTM D5185m	1140	<b>1074</b>	1516	---
Phosphorus	ppm	ASTM D5185m	1170	<b>1050</b>	933	---
Zinc	ppm	ASTM D5185m	1230	<b>1215</b>	1109	---
Sulfur	ppm	ASTM D5185m	3130	<b>3118</b>	2945	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.7</b>	18.3	---
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	<b>10.39</b>	5.08	---
Visc @ 40°C	cSt	ASTM D445	118	<b>95.0</b>	98.8	---
Visc @ 100°C	cSt	ASTM D445	15.9	<b>12.9</b>	13.2	---
Viscosity Index (VI)	Scale	ASTM D2270	143	<b>132</b>	131	---



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO10003048 **Received** : 21 Dec 2023  
**Lab Number** : 06042706 **Diagnosed** : 26 Dec 2023  
**Unique Number** : 10803314 **Diagnostician** : Wes Davis  
**Test Package** : MOB 2 ( Additional Tests: KV40, VI )

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)

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