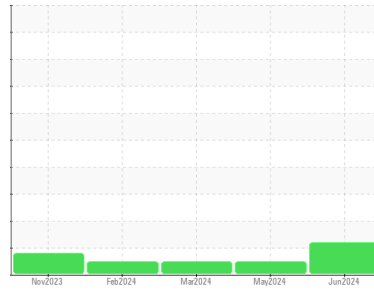


# OIL ANALYSIS REPORT



Machine Id  
**CATERPILLAR 990K 6088 (S/N A9P00362)**  
Component  
**Diesel Engine**  
Fluid  
**TULCO LUBSOIL CK-4 15W40 (--- GAL)**

### Sample Rating Trend



**GLYCOL**



### DIAGNOSIS

**Recommendation**

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**

All component wear rates are normal.

**Contamination**

Sodium and/or potassium levels are high. Test for glycol is negative.

**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 INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>TO10003628</b>	TO10003402	TO10002041
Sample Date	Client Info			<b>13 Jun 2024</b>	04 May 2024	15 Mar 2024
Machine Age	hrs	Client Info		<b>15988</b>	15721	15264
Oil Age	hrs	Client Info		<b>724</b>	457	435
Oil Changed	Client Info			<b>Changed</b>	Not Changd	Changed
Sample Status				<b>ATTENTION</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.2	<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>11</b>	5	10
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>25	<b>3</b>	1	2
Lead	ppm	ASTM D5185m	>40	<b>2</b>	<1	2
Copper	ppm	ASTM D5185m	>330	<b>4</b>	0	2
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1

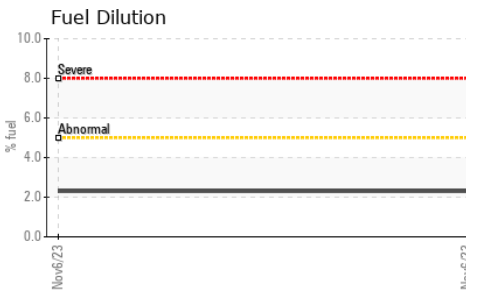
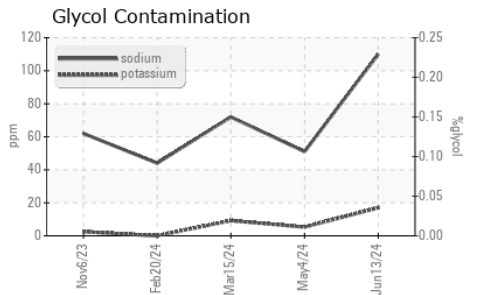
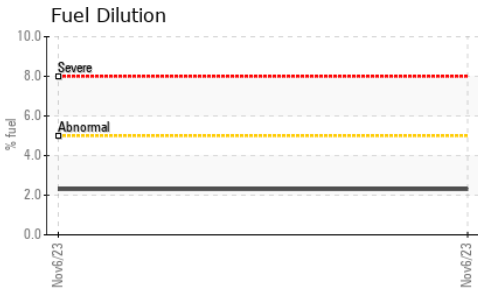
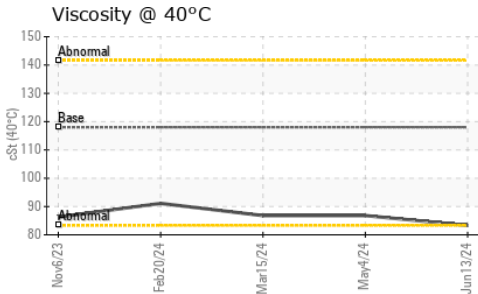
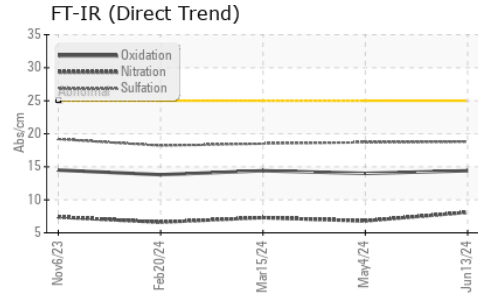
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>3</b>	2	3
Barium	ppm	ASTM D5185m		<b>1</b>	<1	1
Molybdenum	ppm	ASTM D5185m	65	<b>74</b>	64	67
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m	1060	<b>961</b>	928	904
Calcium	ppm	ASTM D5185m	1140	<b>1194</b>	1112	1100
Phosphorus	ppm	ASTM D5185m	1170	<b>1132</b>	1113	1009
Zinc	ppm	ASTM D5185m	1230	<b>1263</b>	1224	1182
Sulfur	ppm	ASTM D5185m	3130	<b>3369</b>	3647	3116

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>4</b>	2	4
Sodium	ppm	ASTM D5185m		<b>110</b>	51	72
Potassium	ppm	ASTM D5185m	>20	<b>17</b>	5	9
Fuel	%	ASTM D3524	>5	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0.4</b>	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.1</b>	6.8	7.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.8</b>	18.7	18.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.4</b>	14.0	14.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.8	<b>9.59</b>	5.76	10.51

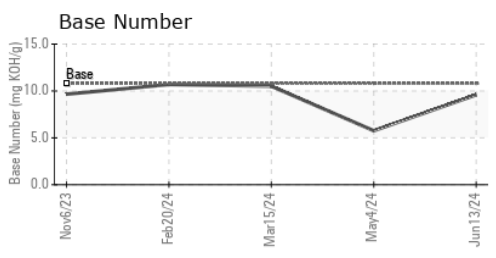
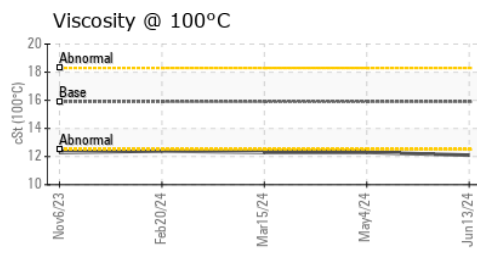
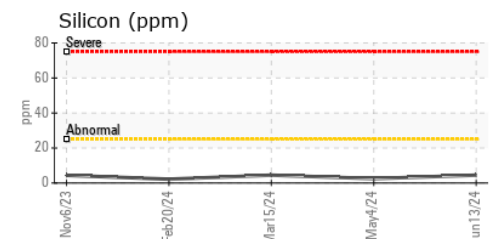
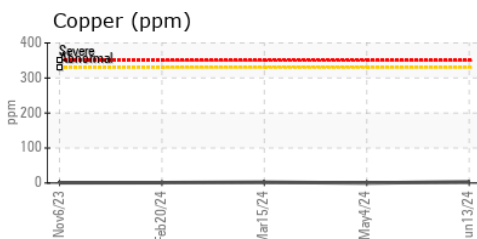
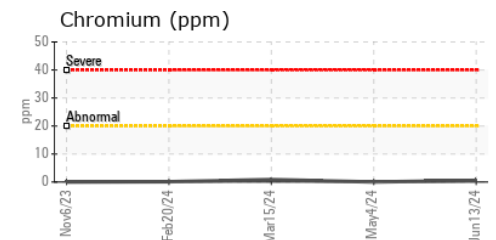
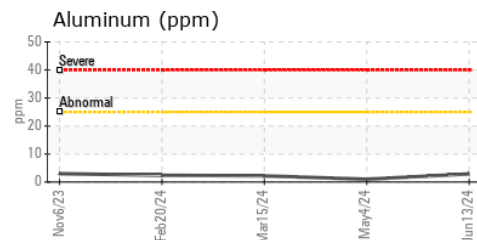
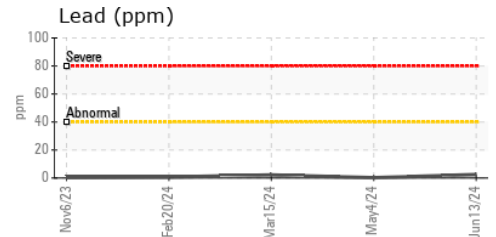
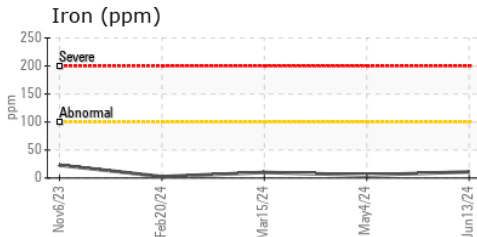
# OIL ANALYSIS REPORT



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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	118	83.31	86.8
Visc @ 100°C	cSt	ASTM D445	15.9	12.1	12.3
Viscosity Index (VI)	Scale	ASTM D2270	143	139	136

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO10003628  
**Lab Number** : 06217409  
**Unique Number** : 11090273

**Received** : 21 Jun 2024  
**Tested** : 26 Jun 2024  
**Diagnosed** : 26 Jun 2024 - Jonathan Hester

**ANCHOR STONE TULSA ROCK**  
 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE  
 TULSA, OK  
 US 74137

**Test Package** : MOB 2 ( Additional Tests: FuelDilution, Glycol, KV40, PercentFuel, Viscosity )  
 To discuss this sample report, contact Customer Service at 1-800-237-1369. Contact: SKIP SAENGERHAUSEN  
 skip@anchorstoneco.com

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (918)928-4575  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: