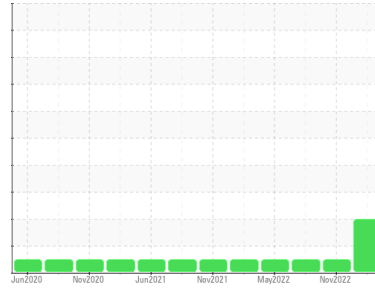


# OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id  
**CATERPILLAR 990K 6088 (S/N A9P00362)**  
 Component  
**Steering**  
 Fluid  
**TULCO LUBSOIL SUPER HYDRAULIC HZ 46 (35 GAL)**

## DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of particulates present in the fluid.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>TO10001591</b>	TO10001620	TO10001397
Sample Date	Client Info		<b>13 Mar 2023</b>	16 Nov 2022	05 Aug 2022
Machine Age	hrs	Client Info	<b>13292</b>	12798	12270
Oil Age	hrs	Client Info	<b>3554</b>	3060	2532
Oil Changed	Client Info		<b>Not Changed</b>	N/A	Not Changed
Sample Status			<b>ATTENTION</b>	NORMAL	NORMAL

## CONTAMINATION

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

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >60	<b>5</b>	4	5
Chromium	ppm	ASTM D5185m >12	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m >6	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185m >4	<b>3</b>	3	4
Lead	ppm	ASTM D5185m >12	<b>3</b>	3	4
Copper	ppm	ASTM D5185m >30	<b>4</b>	4	5
Tin	ppm	ASTM D5185m	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>52</b>	47	80
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>8</b>	9	9
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m	<b>37</b>	36	34
Calcium	ppm	ASTM D5185m	<b>1202</b>	1244	1290
Phosphorus	ppm	ASTM D5185m	<b>709</b>	724	693
Zinc	ppm	ASTM D5185m	<b>877</b>	857	877
Sulfur	ppm	ASTM D5185m	<b>2700</b>	3224	2621

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >10	<b>7</b>	7	6
Sodium	ppm	ASTM D5185m	<b>0</b>	2	3
Potassium	ppm	ASTM D5185m >20	<b>5</b>	2	0

## FLUID CLEANLINESS

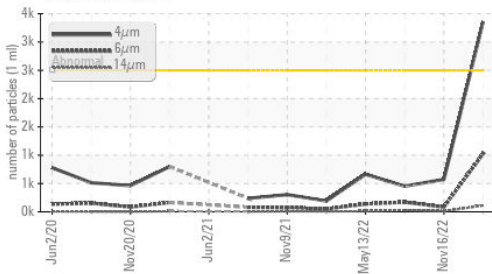
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	<b>▲ 3359</b>	573	453
Particles >6µm	ASTM D7647	>640	<b>▲ 1027</b>	86	172
Particles >14µm	ASTM D7647	>80	<b>▲ 112</b>	10	28
Particles >21µm	ASTM D7647	>20	<b>▲ 29</b>	3	5
Particles >38µm	ASTM D7647	>4	<b>1</b>	0	0
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>18/16/13	<b>▲ 19/17/14</b>	16/14/10	16/15/12

## FLUID DEGRADATION

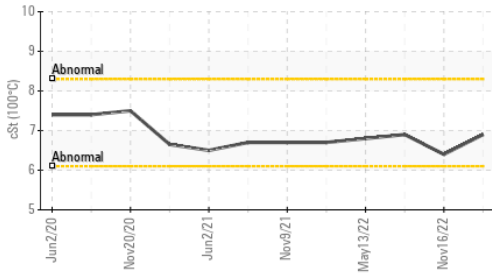
	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.702</b>	0.97	0.924

# OIL ANALYSIS REPORT

### ▲ Particle Trend



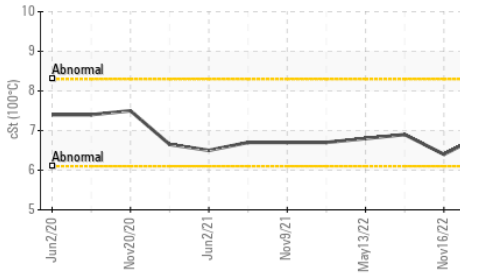
### Viscosity @ 100°C



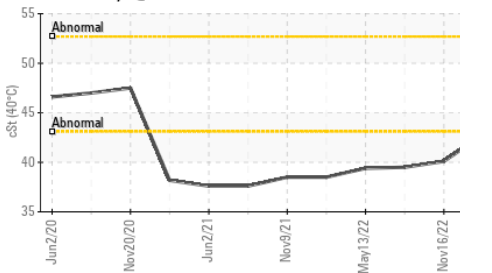
### Acid Number



### Viscosity @ 100°C



### Viscosity @ 40°C

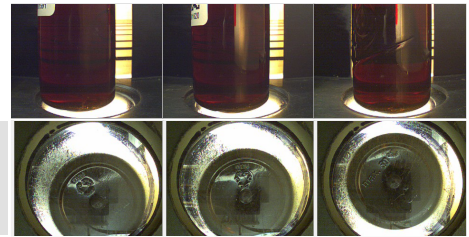


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	42.8	40.1	39.5
Visc @ 100°C	cSt	ASTM D445	6.9	6.4	6.9
Viscosity Index (VI)	Scale	ASTM D2270	118	108	134

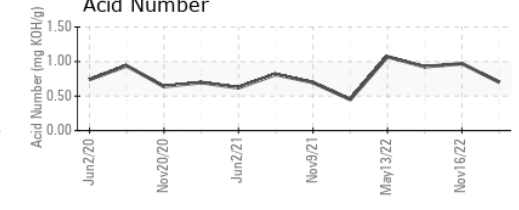
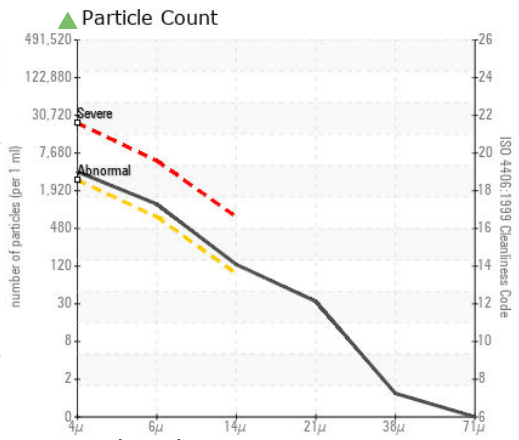
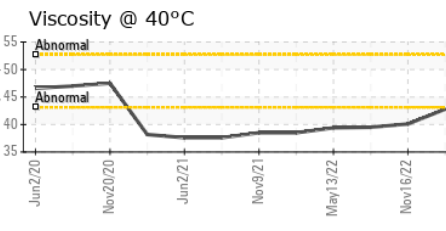
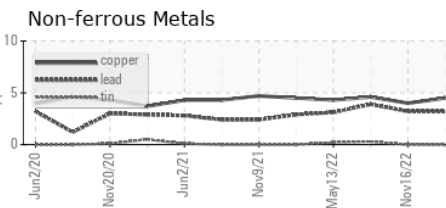
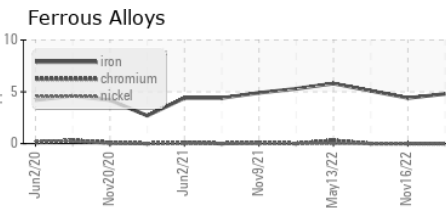
SAMPLE IMAGES	method	limit/base	current	history1	history2
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### Color



### Bottom

### GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO10001591 **Received** : 23 Mar 2023  
**Lab Number** : 05799678 **Diagnosed** : 24 Mar 2023  
**Unique Number** : 10389362 **Diagnostician** : Doug Bogart  
**Test Package** : MOB 2 ( Additional Tests: KV100, PrtCount, 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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