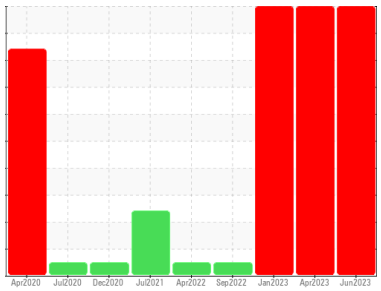
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
CATERPILLAR 420 FST BACKHOE 6010 (S/N SKR04232)
Component
Front Right Planetary
Fluid
TULCO LUBSOIL TO-4 50 (0 GAL)

DIAGNOSIS

Recommendation
We advise that you check for the source of water entry. We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Wear
Gear wear is indicated.

Contamination
Appearance is hazy. There is a high concentration of water present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**TO10002364**	TO10002179	TO10001550
Sample Date		Client Info		**01 Jun 2023**	18 Apr 2023	09 Jan 2023
Machine Age	hrs	Client Info		**12039**	11802	11286
Oil Age	hrs	Client Info		**139**	516	50
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		**1432**	1781	2315
Iron	ppm	ASTM D5185m	>150	**2397**	3954	857
Chromium	ppm	ASTM D5185m	>10	**17**	30	10
Nickel	ppm	ASTM D5185m	>10	**3**	13	0
Titanium	ppm	ASTM D5185m		**58**	99	2
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**653**	904	34
Lead	ppm	ASTM D5185m	>100	**8**	7	7
Copper	ppm	ASTM D5185m	>50	**19**	23	19
Tin	ppm	ASTM D5185m	>10	**8**	6	1
Vanadium	ppm	ASTM D5185m		**2**	3	<1
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**9**	20	4
Barium	ppm	ASTM D5185m		**7**	5	0
Molybdenum	ppm	ASTM D5185m		**<1**	<1	<1
Manganese	ppm	ASTM D5185m		**37**	49	6
Magnesium	ppm	ASTM D5185m		**1013**	1404	30
Calcium	ppm	ASTM D5185m		**10000**	18780	3565
Phosphorus	ppm	ASTM D5185m		**852**	784	961
Zinc	ppm	ASTM D5185m		**911**	834	1208
Sulfur	ppm	ASTM D5185m		**5610**	4514	5463

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**3947**	5825	135
Sodium	ppm	ASTM D5185m		**79**	137	7
Potassium	ppm	ASTM D5185m	>20	**303**	620	12
Water	%	ASTM D6304	>0.1	**6.132**	8.69	---
ppm Water	ppm	ASTM D6304	>1000	**61320**	86900	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.45**	1.14	1.35

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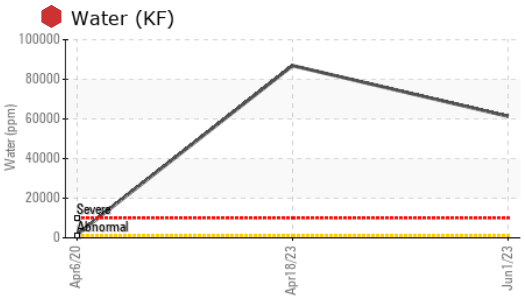
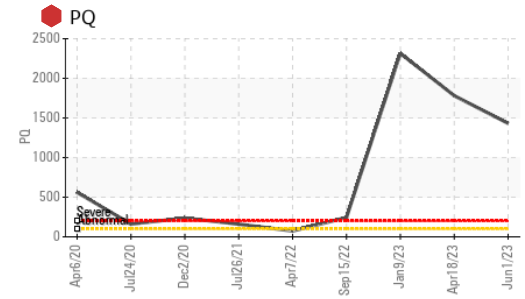
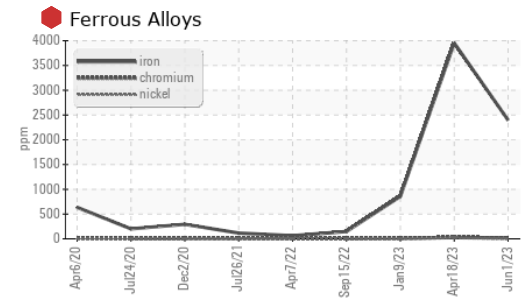
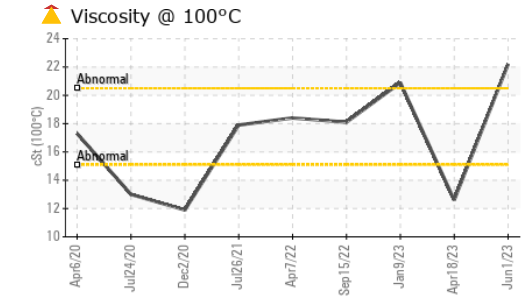
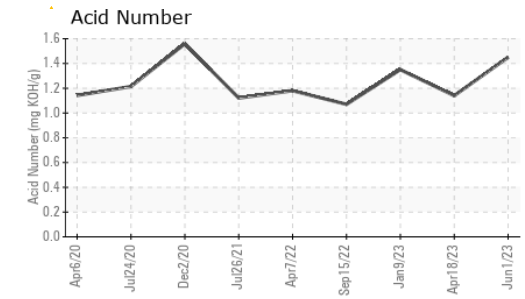








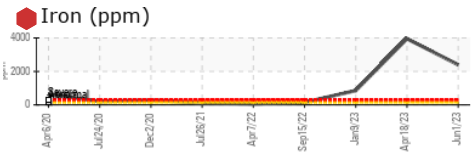


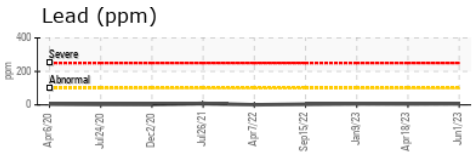
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	▲ HEAVY
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	▲ **HAZY**	▲ MILKY	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	▲ **0.2%**	⬢ 0.2%	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

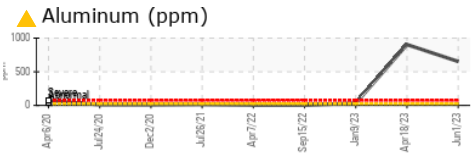
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		▲ **298**	▲ 188	221
Visc @ 100°C	cSt	ASTM D445		▲ **22.2**	▲ 12.6	20.89
Viscosity Index (VI)	Scale	ASTM D2270		**90**	30	111

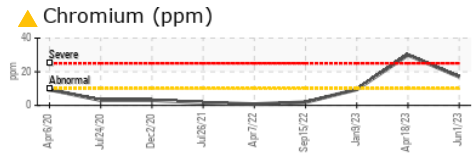
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color			*no image*	*no image*	*no image*
Bottom			*no image*	*no image*	*no image*

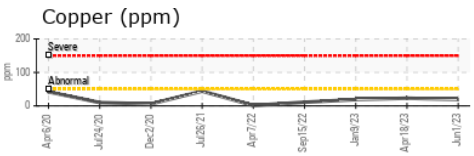
GRAPHS

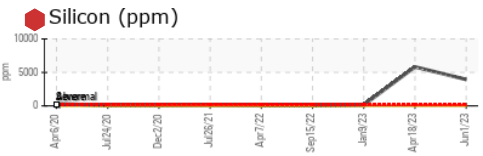


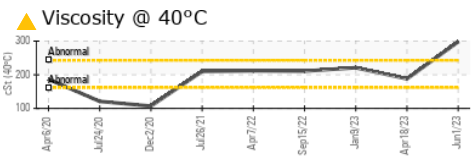


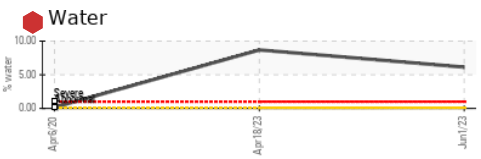












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10002364 **Received** : 05 Jun 2023
Lab Number : 05865222 **Diagnosed** : 19 Jun 2023
Unique Number : 10499687 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: KF, KV100, PQ, 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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Report Id: ANCTUL [WUSCAR] 05865222 (Generated: 12/04/2023 10:07:06) Rev: 1

Submitted By: SKIP SAENGERHAUSEN