



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL



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

RECOMMENDATION

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10002858	TO10002081	TO10002404
Sample Date		Client Info		14 Nov 2023	18 Sep 2023	25 Jul 2023
Machine Age	hrs	Client Info		12883	12601	12310
Oil Age	hrs	Client Info		282	291	271
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		None	None	None
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

Gear wear is indicated.

PQ		ASTM D8184		▲ 369	231	317
Iron	ppm	ASTM D5185m	>150	▲ 775	▲ 570	▲ 652
Chromium	ppm	ASTM D5185m	>10	6	5	5
Nickel	ppm	ASTM D5185m	>10	1	2	<1
Titanium	ppm	ASTM D5185m		16	8	10
Silver	ppm	ASTM D5185m		<1	0	3
Aluminum	ppm	ASTM D5185m	>25	● 242	● 125	● 164
Lead	ppm	ASTM D5185m	>100	5	10	9
Copper	ppm	ASTM D5185m	>50	3	8	6
Tin	ppm	ASTM D5185m	>10	3	<1	1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

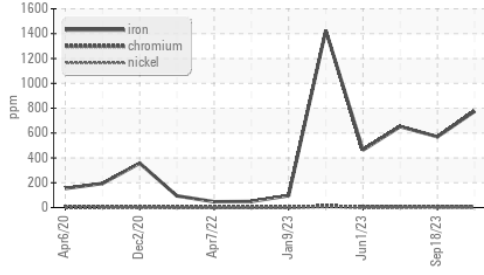
Silicon	ppm	ASTM D5185m	>50	▲ 1141	▲ 635	▲ 707
Potassium	ppm	ASTM D5185m	>20	89	44	58
Water	%	ASTM D6304	>0.1	NEG	▲ 0.246	▲ 0.608
ppm Water	ppm	ASTM D6304	>1000	---	▲ 2460	▲ 6080
Silt	scalar	*Visual	NONE	NONE	NONE	MODER
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	● HAZY
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	0.2%	0.2%	▲ 0.2%

FLUID CONDITION

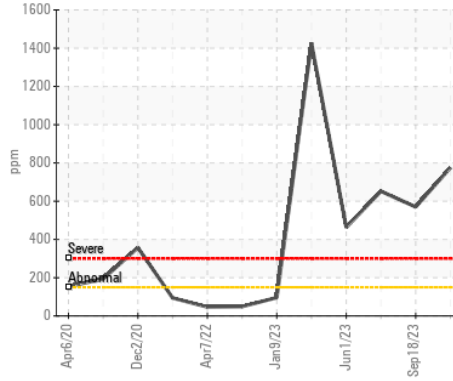
The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185m		24	14	19
Boron	ppm	ASTM D5185m		3	2	0
Barium	ppm	ASTM D5185m		3	3	0
Molybdenum	ppm	ASTM D5185m		0	0	<1
Manganese	ppm	ASTM D5185m		10	7	7
Magnesium	ppm	ASTM D5185m		251	160	158
Calcium	ppm	ASTM D5185m		10217	7502	6630
Phosphorus	ppm	ASTM D5185m		992	956	971
Zinc	ppm	ASTM D5185m		1162	1176	1210
Sulfur	ppm	ASTM D5185m		4977	5402	6020
Acid Number (AN)	mg KOH/g	ASTM D8045		1.29	1.50	1.41
Visc @ 40°C	cSt	ASTM D445		237	227	217
Visc @ 100°C	cSt	ASTM D445		18.39	18.6	16.6
Viscosity Index (VI)	Scale	ASTM D2270		84	90	76

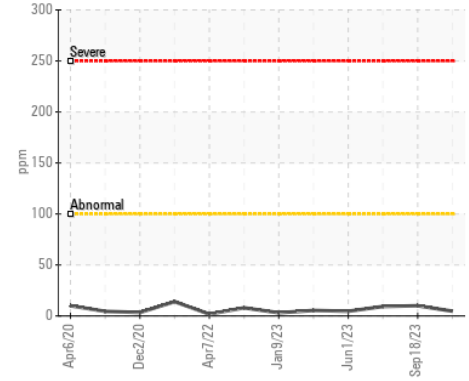
▲ Ferrous Alloys



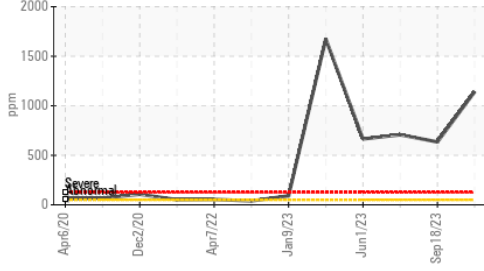
▲ Iron (ppm)



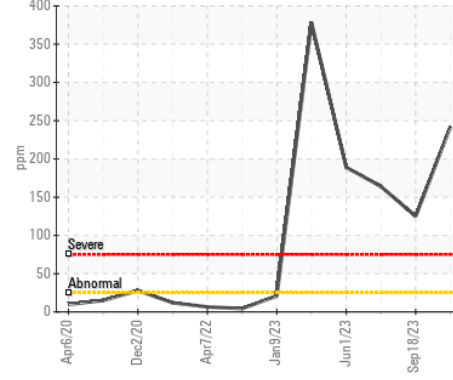
Lead (ppm)



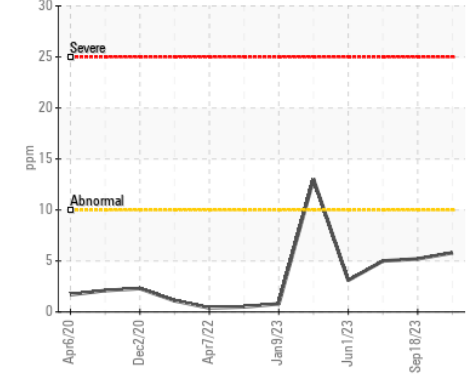
▲ Silicon (ppm)



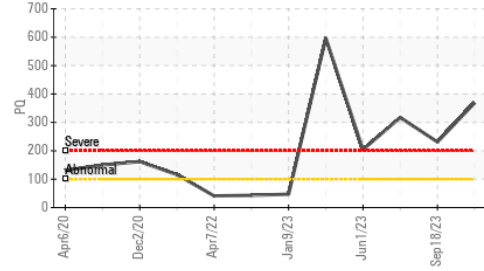
● Aluminum (ppm)



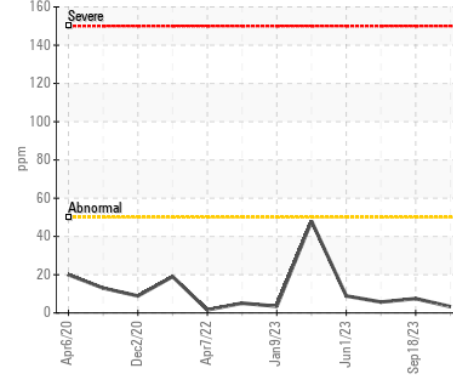
Chromium (ppm)



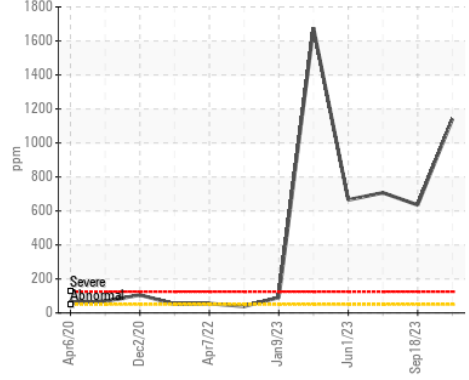
▲ PQ



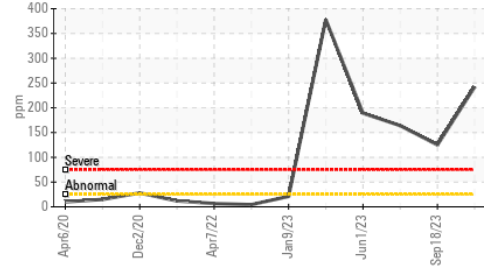
Copper (ppm)



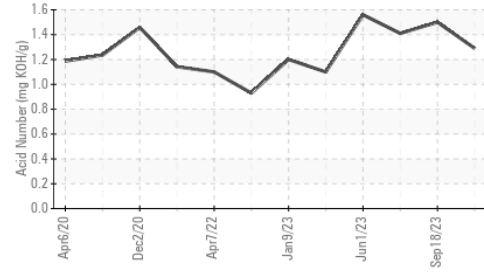
▲ Silicon (ppm)



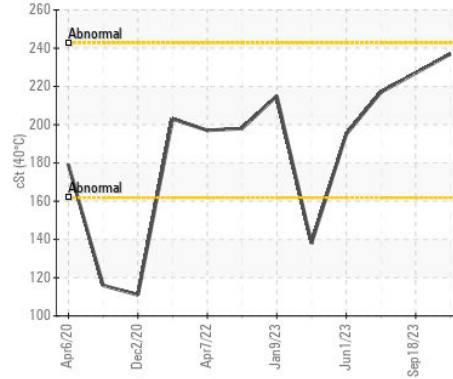
● Aluminum (ppm)



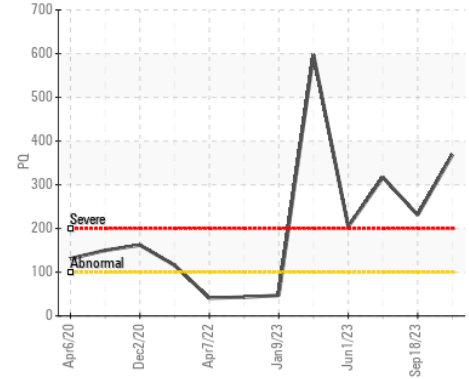
Acid Number



Viscosity @ 40°C



▲ PQ



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TO10002858

Lab Number : 06013422

Unique Number : 10752566

Test Package : MOB 2 (Additional Tests: KF, KV100, PQ, VI)

Received : 20 Nov 2023

Tested : 29 Nov 2023

Diagnosed : 29 Nov 2023 - Jonathan Hester

ANCHOR STONE TULSA ROCK

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F:

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)