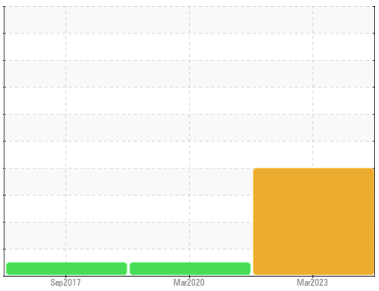
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
CATERPILLAR 12H GRADER 6438 (S/N 8MN00572)
Component
Left Final Drive
Fluid
TULBO LUBSOIL TO-4 50 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check all areas where dirt can enter the system. We recommend an early resample to monitor this condition. (Customer Sample Comment: 263 is the machines hrs)

Wear
Gear wear is indicated.

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

Fluid Condition
The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**TO10001722**	TO1006882	TO1005548
Sample Date		Client Info		**20 Mar 2023**	23 Mar 2020	09 Sep 2017
Machine Age	hrs	Client Info		**263**	13896	13102
Oil Age	hrs	Client Info		**263**	1019	0
Oil Changed		Client Info		**Not Changd**	Not Changd	N/A
Sample Status				**ABNORMAL**	NORMAL	NORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>500	**151**	124	76
Iron	ppm	ASTM D5185m	>500	▲ **1072**	142	72
Chromium	ppm	ASTM D5185m	>10	▲ **39**	<1	<1
Nickel	ppm	ASTM D5185m		**2**	<1	0
Titanium	ppm	ASTM D5185m		**4**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	● **41**	2	1
Lead	ppm	ASTM D5185m	>25	**3**	<1	0
Copper	ppm	ASTM D5185m	>50	**3**	<1	<1
Tin	ppm	ASTM D5185m	>10	**0**	0	0
Antimony	ppm	ASTM D5185m		**---**	0	0
Vanadium	ppm	ASTM D5185m		**4**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

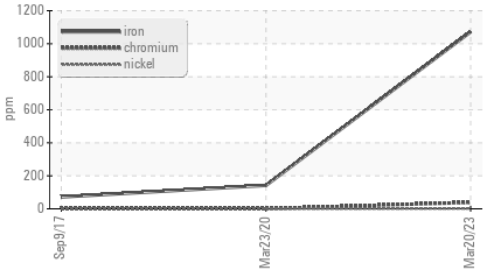
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**<1**	7	6
Barium	ppm	ASTM D5185m		**75**	0	0
Molybdenum	ppm	ASTM D5185m		**30**	3	3
Manganese	ppm	ASTM D5185m		**11**	1	<1
Magnesium	ppm	ASTM D5185m		**21**	15	16
Calcium	ppm	ASTM D5185m		**3287**	3876	3719
Phosphorus	ppm	ASTM D5185m		**1174**	883	868
Zinc	ppm	ASTM D5185m		**1300**	1034	1031
Sulfur	ppm	ASTM D5185m		**9966**	6332	3148

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>75	▲ **114**	11	12
Sodium	ppm	ASTM D5185m		**13**	<1	<1
Potassium	ppm	ASTM D5185m	>20	**10**	0	0

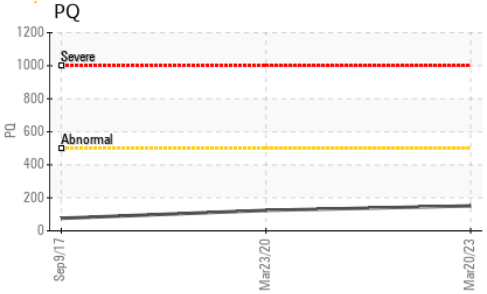
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.23**	1.286	1.270

OIL ANALYSIS REPORT

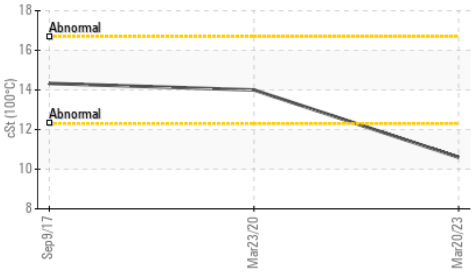
Ferrous Alloys



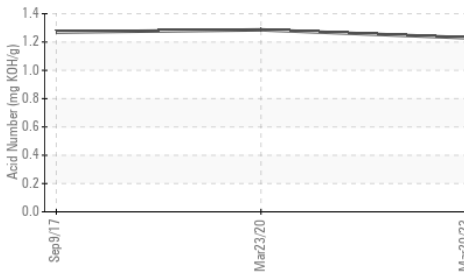
PQ



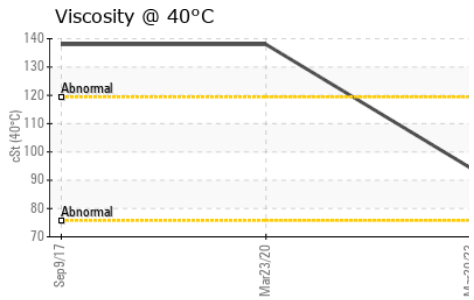
Viscosity @ 100°C



Acid Number



Viscosity @ 40°C



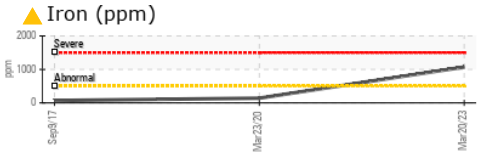
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**LIGHT**	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		**94.3**	138	138.0
Visc @ 100°C	cSt	ASTM D445		**10.6**	14.0	14.33
Viscosity Index (VI)	Scale	ASTM D2270		**94**	97	101

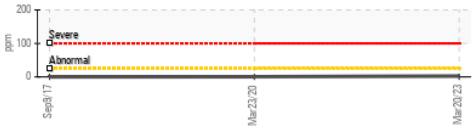
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color			*no image*	*no image*	*no image*
Bottom			*no image*	*no image*	*no image*

GRAPHS

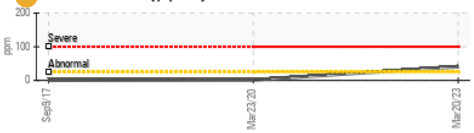
Iron (ppm)



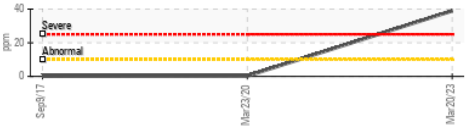
Lead (ppm)



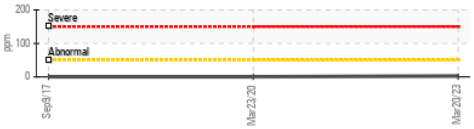
Aluminum (ppm)



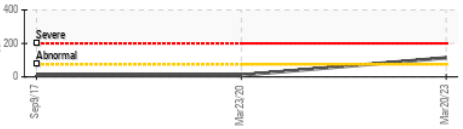
Chromium (ppm)



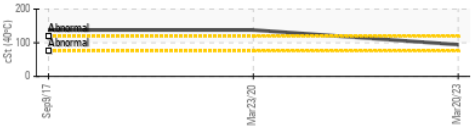
Copper (ppm)



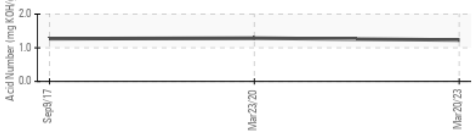
Silicon (ppm)



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10001722
Lab Number : 05804116
Unique Number : 10401645
Test Package : MOB 2 (Additional Tests: KV100, PQ, VI)

Received : 28 Mar 2023
Tested : 31 Mar 2023
Diagnosed : 31 Mar 2023 - Jonathan Hester

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] 05804116 (Generated: 05/30/2024 12:04:25) Rev: 1

Submitted By: SKIP SAENGERHAUSEN