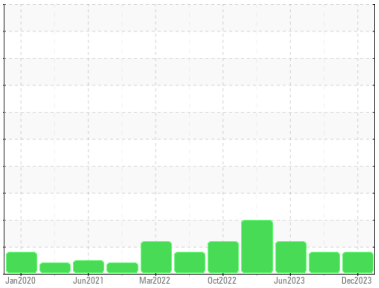
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
CATERPILLAR 299D SKIDSTEER 040-0019 (S/N CAT0299DAFD204356)
Component
Hydraulic System
Fluid
AW HYDRAULIC OIL ISO 46 (--- 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 high amount of silt (particulates < 14 microns in size) present in the oil.

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0868392**	WC0815231	WC0815194
Sample Date		Client Info		**21 Dec 2023**	03 Oct 2023	06 Jun 2023
Machine Age	hrs	Client Info		**11252**	10384	9154
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	**23**	20	18
Chromium	ppm	ASTM D5185m	>10	**0**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	**3**	0	1
Lead	ppm	ASTM D5185m	>10	**<1**	1	<1
Copper	ppm	ASTM D5185m	>75	**13**	9	6
Tin	ppm	ASTM D5185m	>10	**0**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

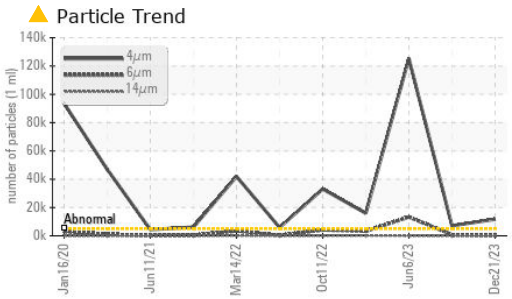
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	5	**0**	0	0
Barium	ppm	ASTM D5185m	5	**0**	<1	0
Molybdenum	ppm	ASTM D5185m	5	**77**	85	120
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	25	**0**	6	6
Calcium	ppm	ASTM D5185m	200	**464**	489	1136
Phosphorus	ppm	ASTM D5185m	300	**667**	716	796
Zinc	ppm	ASTM D5185m	370	**795**	831	830
Sulfur	ppm	ASTM D5185m	2500	**2238**	2428	4141

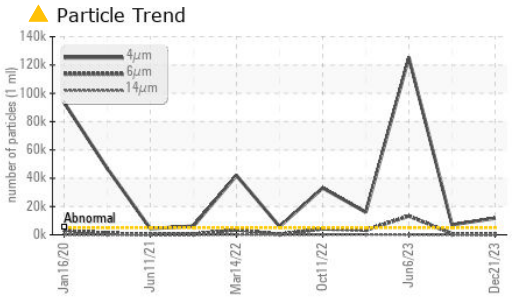
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**2**	2	3
Sodium	ppm	ASTM D5185m		**<1**	0	1
Potassium	ppm	ASTM D5185m	>20	**0**	2	1

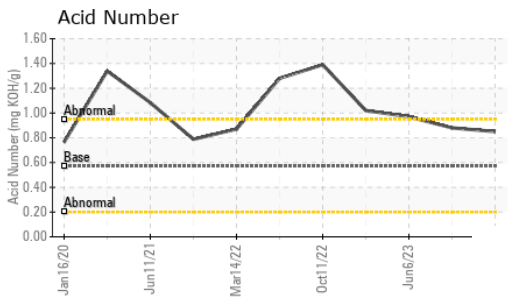
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **11691**	▲ 7157	▲ 125307
Particles >6µm		ASTM D7647	>1300	**177**	782	▲ 13323
Particles >14µm		ASTM D7647	>160	**5**	45	31
Particles >21µm		ASTM D7647	>40	**1**	10	7
Particles >38µm		ASTM D7647	>10	**0**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/15/10**	▲ 20/17/13	▲ 24/21/12

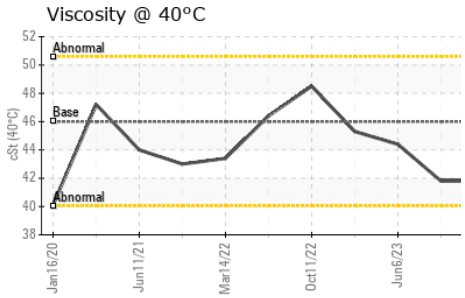
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	**0.85**	0.88	0.97

OIL ANALYSIS REPORT



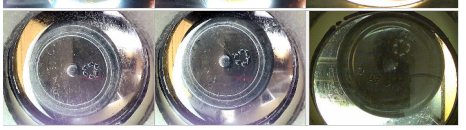




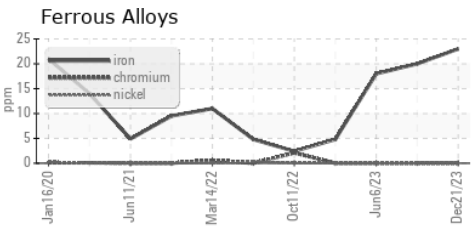


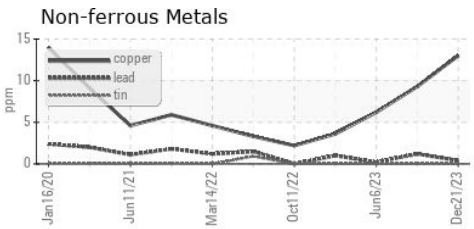
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

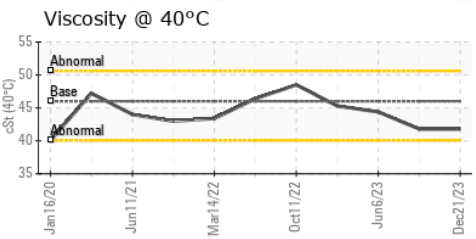
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	**41.8**	41.8	44.4

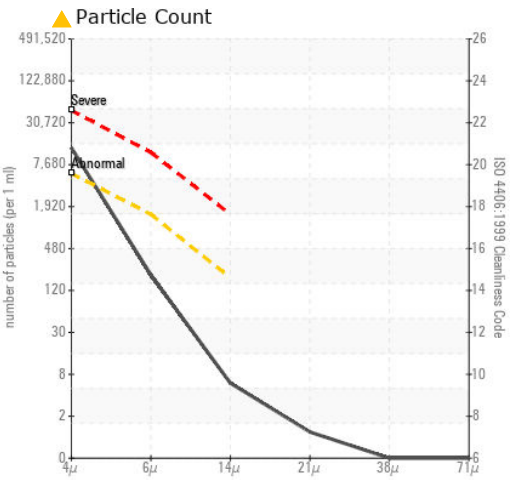
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

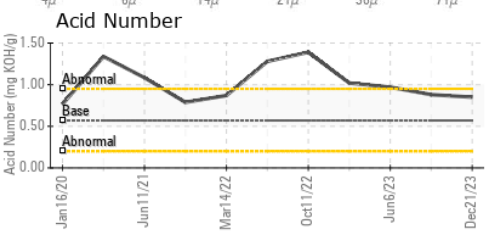
GRAPHS











Certificate L2367

Laboratory	: WearCheck USA - 501 Madison Ave., Cary, NC 27513		
Sample No.	: WC0868392	**Recieved**	: 30 Jan 2024
Lab Number	: 06073821	**Diagnosed**	: 31 Jan 2024
Unique Number	: 10855912	**Diagnostician**	: Angela Borella
Test Package	: CONST		

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)

SHIMMICK CONSTRUCTION
5535 TRAILHEAD DRIVE
CHATTANOOGA, TN
US 37415
Contact: DANIEL LISELLA
daniel.lisella@shimmick.com
T:
F: