



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
CATERPILLAR 980M 6161 (S/N MK210767)

Component
Hydraulic System

Fluid
TULCO LUBSOIL SUPER HYDRAULIC AW 46 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TO10003689	TO10003348	TO10003032
Sample Date		Client Info		22 Jun 2024	31 Mar 2024	26 Jan 2024
Machine Age	hrs	Client Info		10196	9552	8990
Oil Age	hrs	Client Info		1962	1318	756
Filter Age	hrs	Client Info		1962	562	456
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Not Chngd	Changed	Changed
Sample Status				NORMAL	ATTENTION	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	7	8	10
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>20	<1	0	2
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m		<1	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>20	<1	<1	<1
Copper	ppm	ASTM D5185m	>20	4	5	4
Tin	ppm	ASTM D5185m	>20	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

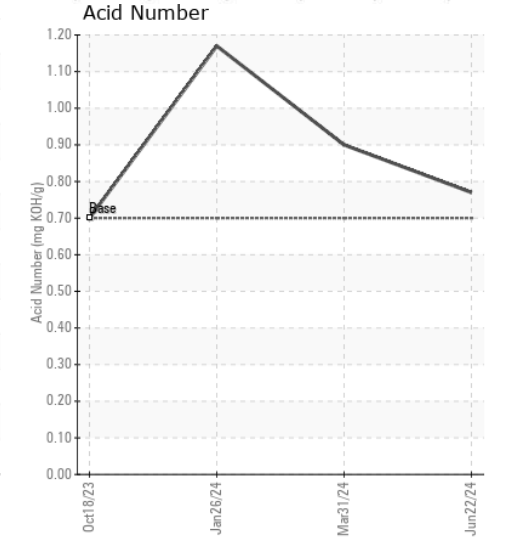
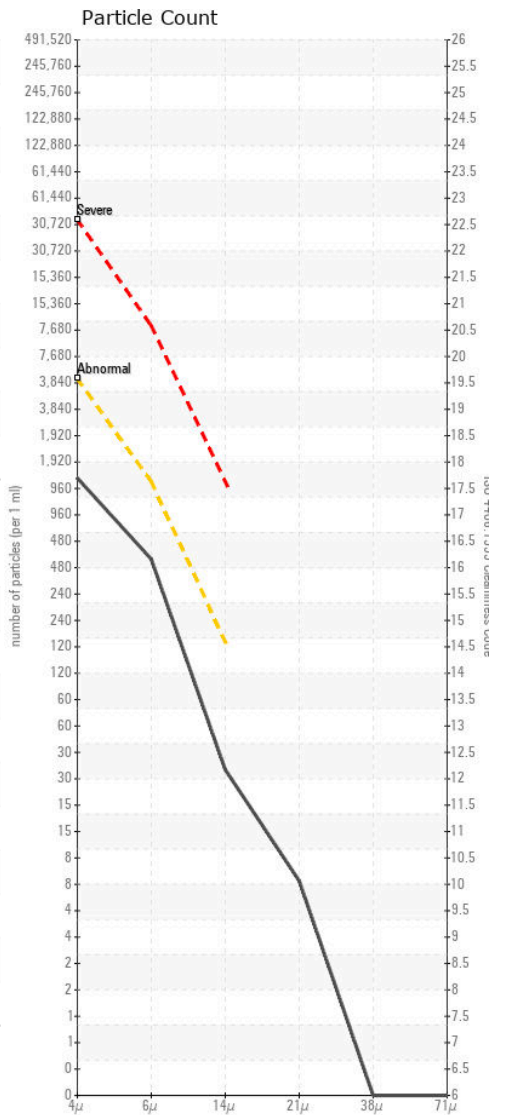
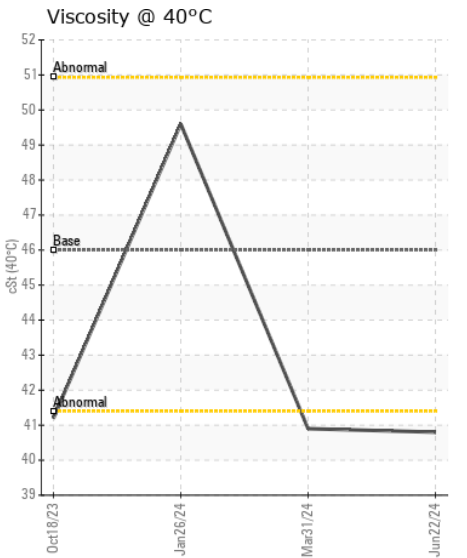
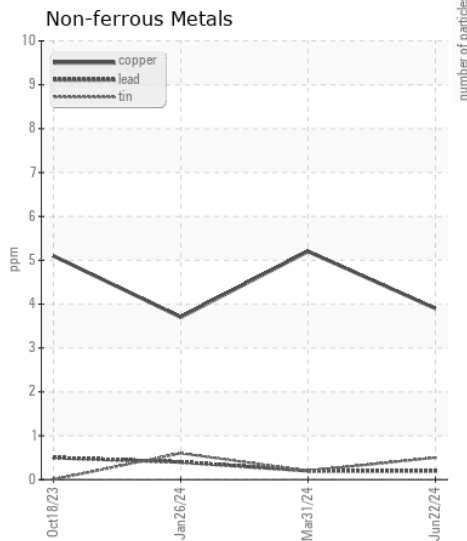
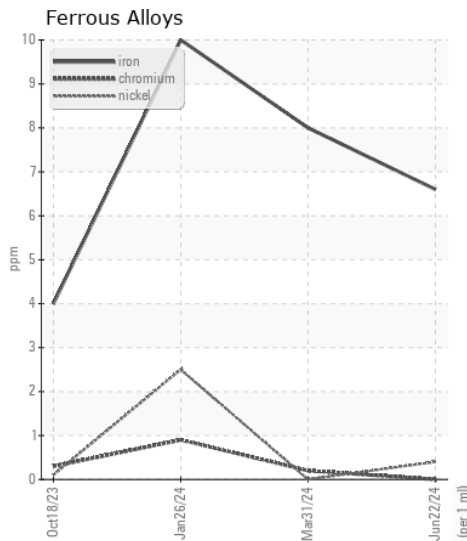
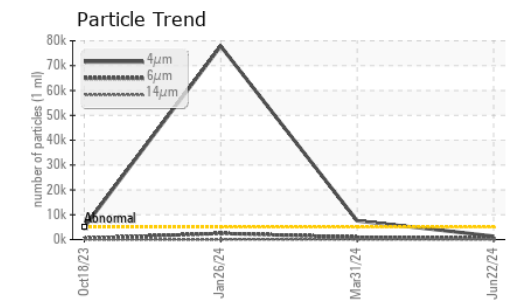
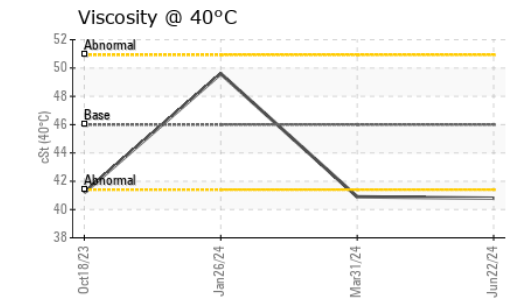
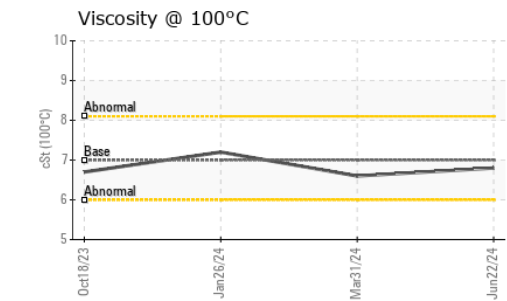
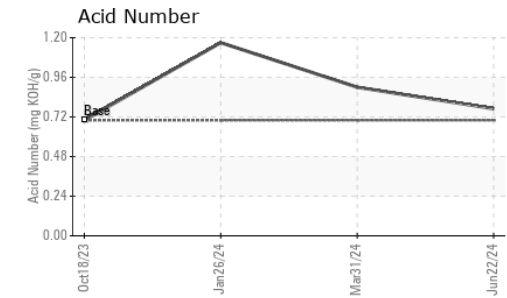
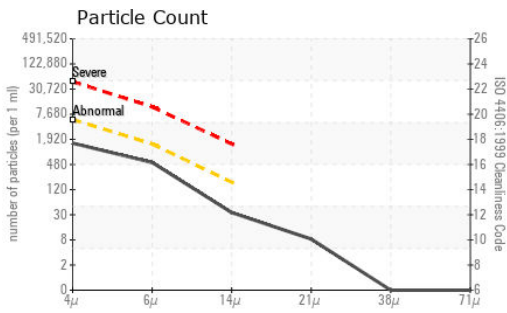
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>15	6	4	▲ 40
Potassium	ppm	ASTM D5185m	>20	4	3	<1
Water	%	ASTM D6304	>0.05	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	1362	● 7541	▲ 77838
Particles >6µm		ASTM D7647	>1300	471	949	▲ 2470
Particles >14µm		ASTM D7647	>160	30	58	14
Particles >21µm		ASTM D7647	>40	7	12	2
Particles >38µm		ASTM D7647	>10	0	0	0
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	18/16/12	● 20/17/13	▲ 23/18/11
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	>0.05	NEG	NEG	NEG

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m		1	0	3
Boron	ppm	ASTM D5185m		0	0	11
Barium	ppm	ASTM D5185m		0	<1	0
Molybdenum	ppm	ASTM D5185m		0	<1	3
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		12	7	84
Calcium	ppm	ASTM D5185m		195	186	2225
Phosphorus	ppm	ASTM D5185m	450	779	765	821
Zinc	ppm	ASTM D5185m	540	1033	945	990
Sulfur	ppm	ASTM D5185m	1825	2209	1918	3235
Acid Number (AN)	mg KOH/g	ASTM D8045	.7	0.77	0.90	1.17
Visc @ 40°C	cSt	ASTM D445	46	40.8	40.9	49.6
Visc @ 100°C	cSt	ASTM D445	7	6.8	6.6	7.2
Viscosity Index (VI)	Scale	ASTM D2270	109	123	114	103



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO10003689 **Received** : 01 Jul 2024
Lab Number : 06225012 **Tested** : 03 Jul 2024
Unique Number : 11103209 **Diagnosed** : 03 Jul 2024 - Don Baldridge
Test Package : MOB 2 (Additional Tests: KF, KV100, 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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