



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
TENNESSEE MERCHANT
Component
Hydraulic System
Fluid
CERTIFIED HOC XTREME 46 (--- GAL)

RECOMMENDATION

The oil is near the end of it's useful service life, recommend schedule an oil change. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0044882	MWM731257	MW0044711
Sample Date		Client Info		14 May 2024	02 Dec 2023	17 Nov 2023
Machine Age	hrs	Client Info		6369	0	5092
Oil Age	hrs	Client Info		828	0	5092
Filter Age	hrs	Client Info		828	0	1200
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Filter Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				ABNORMAL	SEVERE	SEVERE

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	6	11	9
Chromium	ppm	ASTM D5185m	>10	2	<1	0
Nickel	ppm	ASTM D5185m	>10	<1	<1	0
Titanium	ppm	ASTM D5185m		4	0	0
Silver	ppm	ASTM D5185m		1	0	0
Aluminum	ppm	ASTM D5185m	>10	2	<1	0
Lead	ppm	ASTM D5185m	>20	<1	<1	0
Copper	ppm	ASTM D5185m	>20	2	10	7
Tin	ppm	ASTM D5185m	>10	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

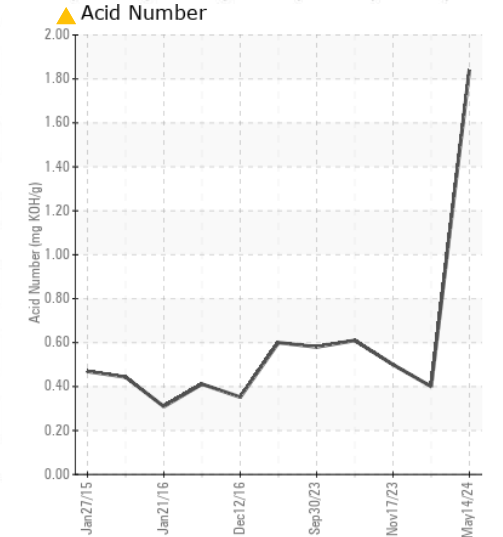
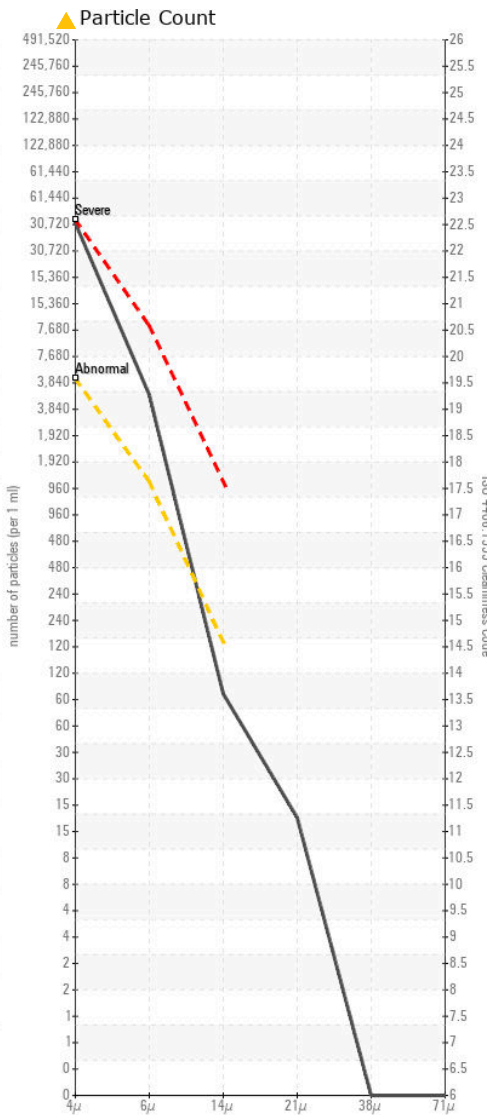
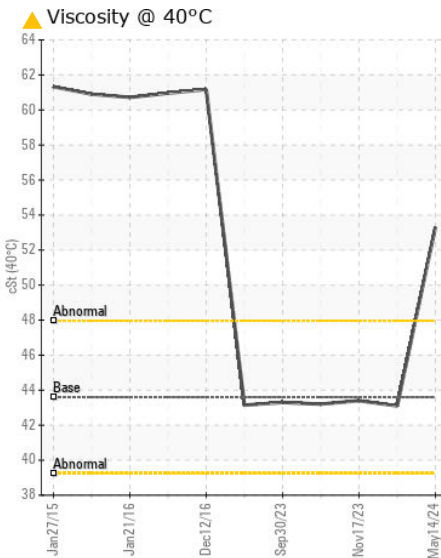
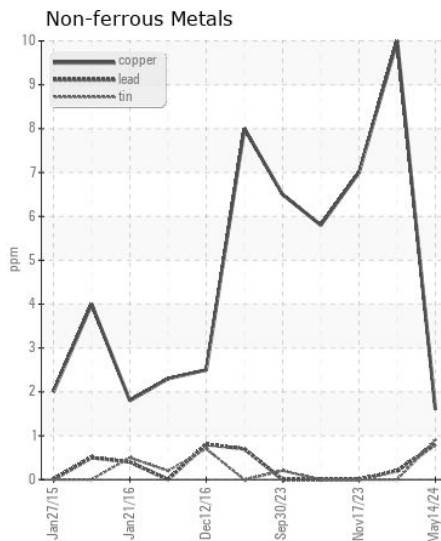
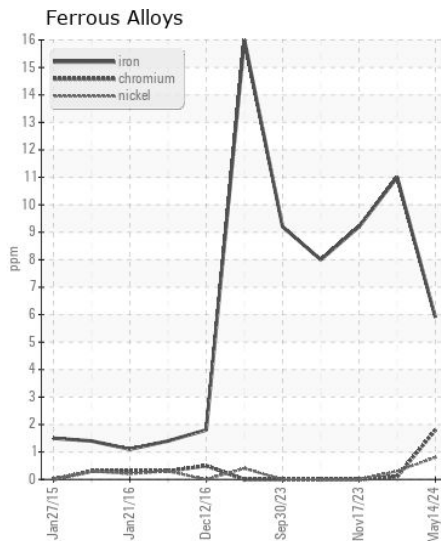
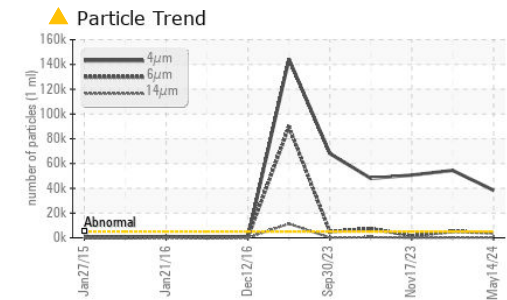
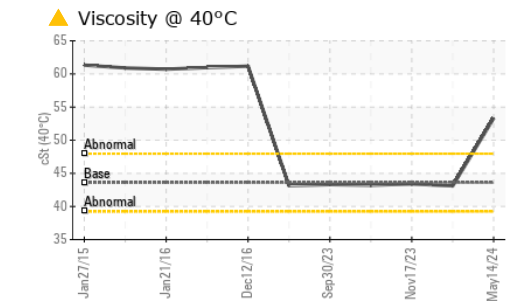
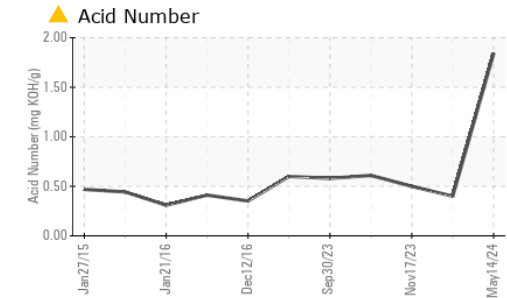
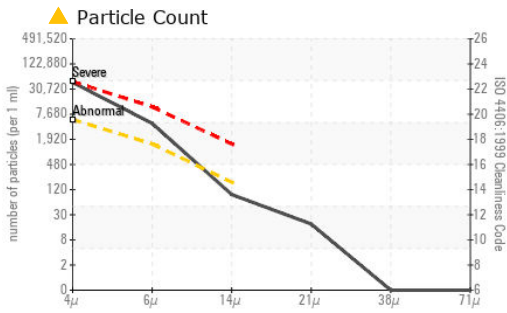
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>15	2	3	2
Potassium	ppm	ASTM D5185m	>20	2	<1	0
Water		WC Method	>0.05	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	▲ 38333	▲ 54432	▲ 50673
Particles >6µm		ASTM D7647	>1300	▲ 4050	▲ 5133	● 1544
Particles >14µm		ASTM D7647	>160	81	● 214	66
Particles >21µm		ASTM D7647	>40	16	● 57	19
Particles >38µm		ASTM D7647	>10	0	4	2
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 22/19/14	▲ 23/20/15	▲ 23/18/13
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 oil viscosity is higher than normal. The AN level is at the top-end of the recommended limit.

Sodium	ppm	ASTM D5185m		4	0	<1
Boron	ppm	ASTM D5185m		<1	0	0
Barium	ppm	ASTM D5185m		1	0	0
Molybdenum	ppm	ASTM D5185m		16	106	109
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m		1	0	0
Calcium	ppm	ASTM D5185m		3	<1	0
Phosphorus	ppm	ASTM D5185m		94	433	430
Zinc	ppm	ASTM D5185m		71	311	317
Sulfur	ppm	ASTM D5185m		571	1568	1506
Acid Number (AN)	mg KOH/g	ASTM D8045		▲ 1.84	0.40	0.50
Visc @ 40°C	cSt	ASTM D445	43.6	▲ 53.31	43.1	43.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0044882
Lab Number : 06186065
Unique Number : 11042817
Test Package : MAR 2

Received : 21 May 2024
Tested : 29 May 2024
Diagnosed : 29 May 2024 - Jonathan Hester

AMERICAN COMMERCIAL LINES
 PO BOX 610, 1701 E. MARKET STREET
 JEFFERSONVILLE, IN
 US 47130

Contact: BOAT MAINTENANCE
 mark.duplantis@aclines.com

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)

T: (812)288-1777
 F: (812)288-1606