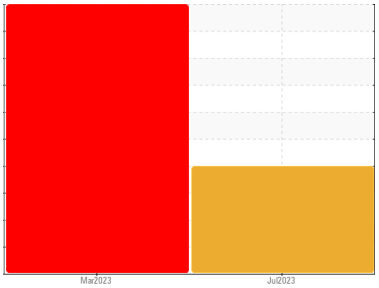
PROBLEM SUMMARY

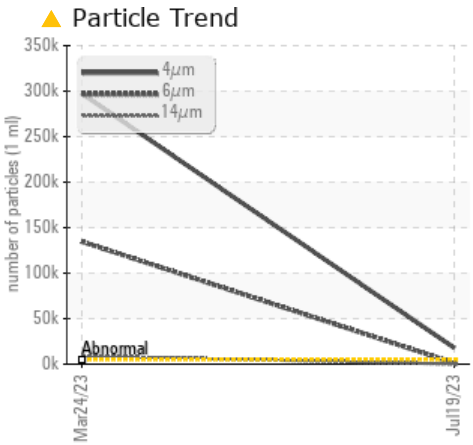
Sample Rating Trend

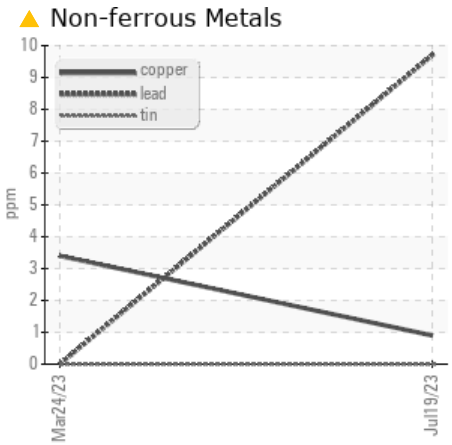


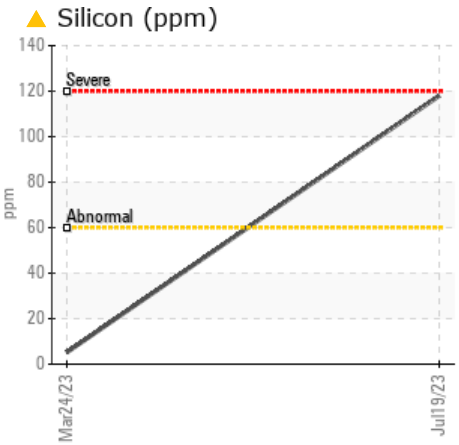
DIRT

Machine Id
316 - STEAM COND. TRANSFER
Component
Pump
Fluid
MOBIL SHC 626 (1 GAL)

COMPONENT CONDITION SUMMARY







RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Analytical Ferrography: Results show dramatic improvement over the previous sample. There is a moderate amount of an unknown debris present. This debris is clear-gray and appears to possibly be a grease soap or additive component. Considering the shift in P, Zn, and the uptick in silicone, this may be a silicone antifoam. The elevated lead is not showing in the ferrogram; white nonferrous metals are difficult to identify but at present nothing is suggesting it is there as a wear metal, and may be passivation from a lead component such as a counterweight or possibly lead solder from a lube cooler.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	SEVERE	---
Lead	ppm	ASTM D5185m	>12	▲ **10**	0	---
Other	Scale 0-10	*ASTM D7684		▲ **4**	⬢ 7	
Silicon	ppm	ASTM D5185m	>60	▲ **118**	5	---
Particles >4µm		ASTM D7647	>5000	▲ **17954**	⬢ 297398	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/17/12**	⬢ 25/24/20	---

Customer Id: GRAMAC
Sample No.: WC0824324
Lab Number: 05904976
Test Package: PLANT

To manage this report scan the QR code

To discuss the diagnosis or test data:
Aaron Black +1
aaron.black@wearcheck.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

24 Mar 2023 Diag: Aaron Black

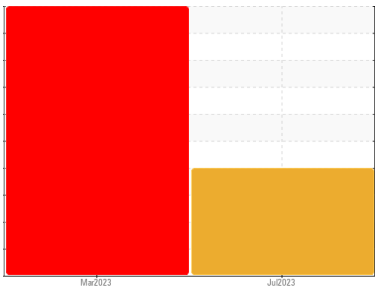
WEAR PARTICLES

Suggest flushing this sump. Analytical Ferrography: Suggest inspecting for excessive wear. System has heavy ferrous rubbing wear along with excessive rolling and fatigue wear suggesting there is a bearing with an active fault. Fault source appears to be lube degradation and accumulation of contamination and degradation byproducts. Viscosity is likely elevated from excessive degradation. Suggest investigating the root cause of excessive lube degradation (unless system drain is known to be overdue).Wear particle analysis indicates that the ferrous rubbing particles are severe. Wear particle analysis indicates that the ferrous rolling particles are abnormal. Iron ppm levels are abnormal. Moderate concentration of visible metal present. Bearing and/or gear wear is indicated. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
316 - STEAM COND. TRANSFER
Component
Pump
Fluid
MOBIL SHC 626 (1 GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. Analytical Ferrography: Results show dramatic improvement over the previous sample. There is a moderate amount of an unknown debris present. This debris is clear-gray and appears to possibly be a grease soap or additive component. Considering the shift in P, Zn, and the uptick in silicone, this may be a silicone antifoam. The elevated lead is not showing in the ferrogram; white nonferrous metals are difficult to identify but at present nothing is suggesting it is there as a wear metal, and may be passivation from a lead component such as a counterweight or possibly lead solder from a lube cooler.

Wear

Lead ppm levels are noted. All other component wear rates are normal. The analytical ferrographic results are normal indicating no abnormal wear in the system.

Contaminants

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

Oil Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0824324**	WC0783637	---
Sample Date		Client Info		**19 Jul 2023**	24 Mar 2023	---
Machine Age	mths	Client Info		**0**	0	---
Oil Age	mths	Client Info		**3**	0	---
Oil Changed		Client Info		**Not Changd**	N/A	---
Sample Status				**ABNORMAL**	SEVERE	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		**14**	48	---
Iron	ppm	ASTM D5185m	>90	**40**	▲ 97	---
Chromium	ppm	ASTM D5185m	>5	**0**	3	---
Nickel	ppm	ASTM D5185m	>5	**<1**	0	---
Titanium	ppm	ASTM D5185m	>3	**0**	0	---
Silver	ppm	ASTM D5185m	>3	**<1**	0	---
Aluminum	ppm	ASTM D5185m	>7	**0**	1	---
Lead	ppm	ASTM D5185m	>12	▲ **10**	0	---
Copper	ppm	ASTM D5185m	>30	**<1**	3	---
Tin	ppm	ASTM D5185m	>9	**0**	0	---
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	---
Barium	ppm	ASTM D5185m		**<1**	0	---
Molybdenum	ppm	ASTM D5185m		**0**	0	---
Manganese	ppm	ASTM D5185m		**<1**	1	---
Magnesium	ppm	ASTM D5185m		**0**	0	---
Calcium	ppm	ASTM D5185m		**0**	2	---
Phosphorus	ppm	ASTM D5185m		**431**	466	---
Zinc	ppm	ASTM D5185m		**13**	0	---
Sulfur	ppm	ASTM D5185m		**38**	0	---

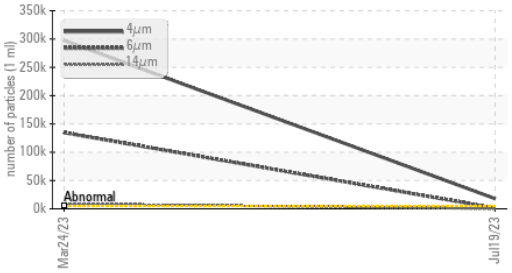
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>60	▲ **118**	5	---
Sodium	ppm	ASTM D5185m		**3**	2	---
Potassium	ppm	ASTM D5185m	>20	**<1**	1	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **17954**	⬢ 297398	---
Particles >6µm		ASTM D7647	>1300	**1267**	⬢ 134648	---
Particles >14µm		ASTM D7647	>160	**32**	⬢ 8869	---
Particles >21µm		ASTM D7647	>40	**9**	⬢ 1601	---
Particles >38µm		ASTM D7647	>10	**0**	⬢ 94	---
Particles >71µm		ASTM D7647	>3	**0**	5	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **21/17/12**	⬢ 25/24/20	---

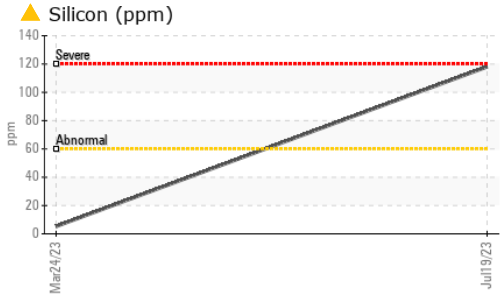
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.31**	0.34	---

OIL ANALYSIS REPORT

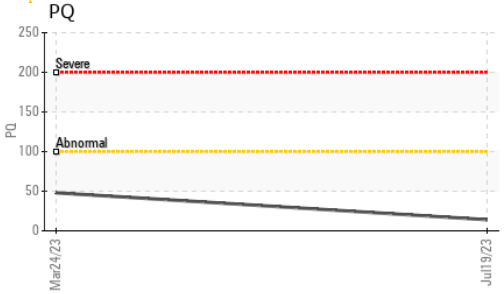
Particle Trend



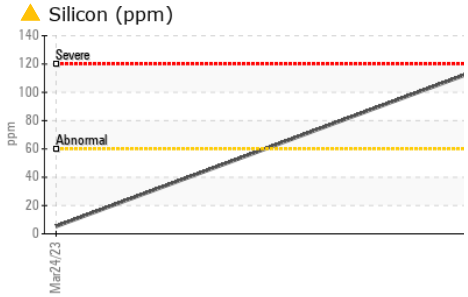
Silicon (ppm)



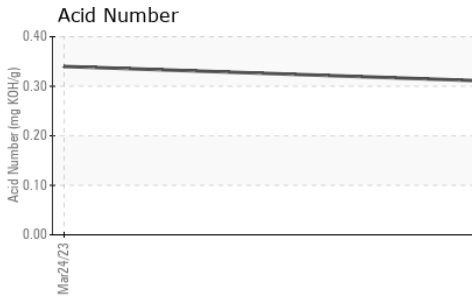
PQ



Silicon (ppm)

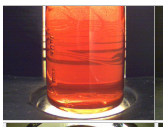
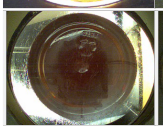


Acid Number



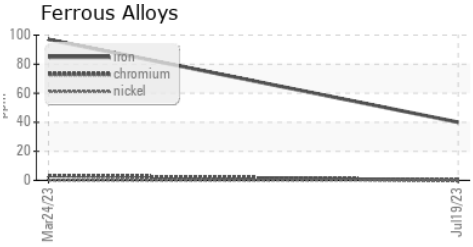
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	▲ LIGHT	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	LIGHT	---
Sand/Dirt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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	69.9	**66.8**	▲ 93.1	---

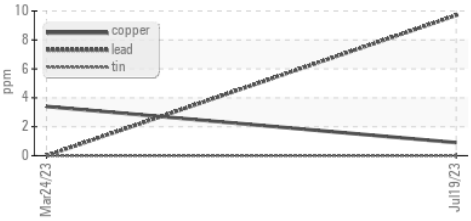
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

GRAPHS

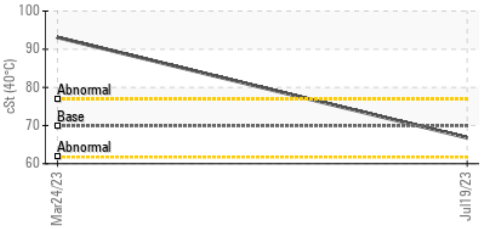
Ferrous Alloys



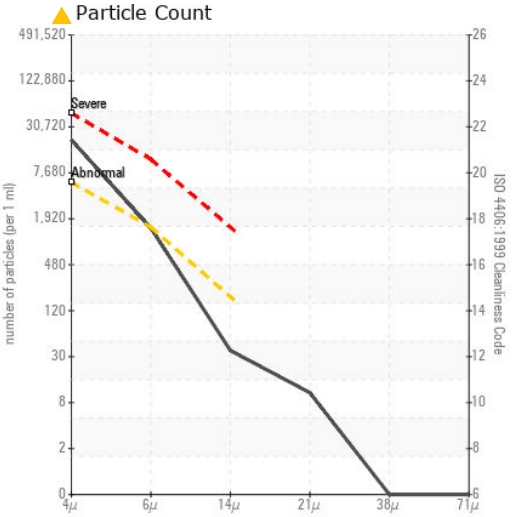
Non-ferrous Metals



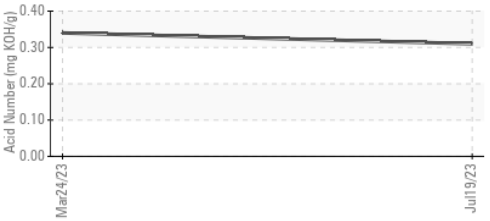
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0824324 **Received** : 21 Jul 2023
Lab Number : 05904976 **Diagnosed** : 03 Aug 2023
Unique Number : 10566332 **Diagnostician** : Aaron Black
Test Package : PLANT (Additional Tests: A-FERR)

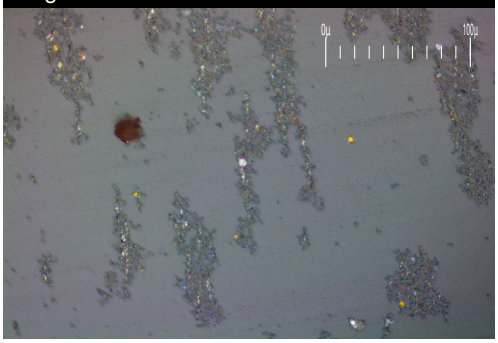
To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

GRAPHIC PACKAGING INTERNATIONAL
100 GRAPHIC PACKAGING INTERNATIONAL
MACON, GA
US 31206
Contact: DARYL SPRINGER
daryl.springer@graphicpkg.com
T: (478)784-3677
F:

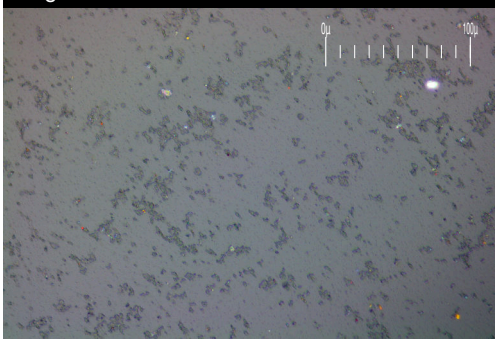
FERROGRAPHY REPORT

Machine Id
316 - STEAM COND. TRANSFER
Component
Pump
Fluid
MOBIL SHC 626 (1 GAL)

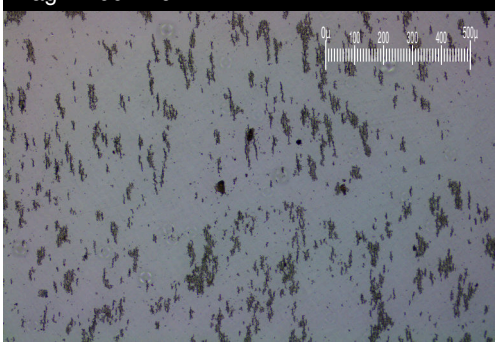
Magn: 500x Illum: RW



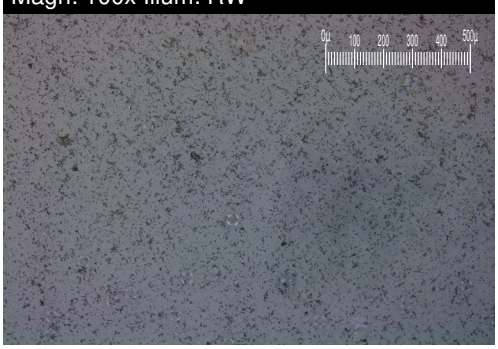
Magn: 500x Illum: RW



Magn: 100x Illum: RW



Magn: 100x Illum: RW



FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	*ASTM D7684		2	7	
Ferrous Sliding	Scale 0-10	*ASTM D7684				
Ferrous Cutting	Scale 0-10	*ASTM D7684				
Ferrous Rolling	Scale 0-10	*ASTM D7684			5	
Ferrous Break-in	Scale 0-10	*ASTM D7684				
Ferrous Spheres	Scale 0-10	*ASTM D7684				
Ferrous Black Oxides	Scale 0-10	*ASTM D7684				
Ferrous Red Oxides	Scale 0-10	*ASTM D7684				
Ferrous Corrosive	Scale 0-10	*ASTM D7684				
Ferrous Other	Scale 0-10	*ASTM D7684				
Nonferrous Rubbing	Scale 0-10	*ASTM D7684				
Nonferrous Sliding	Scale 0-10	*ASTM D7684				
Nonferrous Cutting	Scale 0-10	*ASTM D7684				
Nonferrous Rolling	Scale 0-10	*ASTM D7684				
Nonferrous Other	Scale 0-10	*ASTM D7684				
Carbonaceous Material	Scale 0-10	*ASTM D7684				
Lubricant Degradation	Scale 0-10	*ASTM D7684			7	
Sand/Dirt	Scale 0-10	ASTM D7684				
Fibres	Scale 0-10	*ASTM D7684				
Spheres	Scale 0-10	*ASTM D7684				
Other	Scale 0-10	*ASTM D7684		4	7	

WEAR

Lead ppm levels are noted. All other component wear rates are normal. The analytical ferrographic results are normal indicating no abnormal wear in the system.

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