

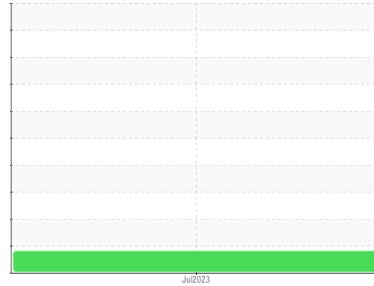


PROBLEM SUMMARY



Machine Id
CATERPILLAR MATTHEW T
 Component
Starboard Main Engine
 Fluid
KENDALL SUPER-D XA 15W40 (--- GAL)

Sample Rating Trend

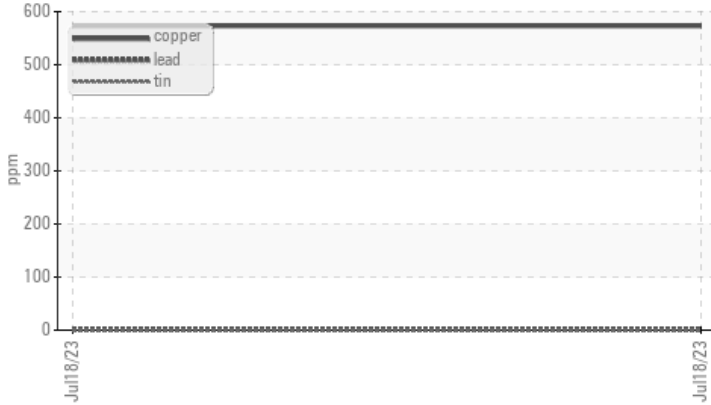


WEAR



COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals



RECOMMENDATION

No corrective action is recommended at this time.
 Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	---	---
Copper	ppm	ASTM D5185m	>300	▲ 573	---	---

Customer Id: SUPSOUOH
 Sample No.: WC05902918
 Lab Number: 05902918
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

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

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT

Sample Rating Trend

WEAR



Machine Id
CATERPILLAR MATTHEW T
 Component
Starboard Main Engine
 Fluid
KENDALL SUPER-D XA 15W40 (--- GAL)



DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC05902918	---	---
Sample Date	Client Info		18 Jul 2023	---	---
Machine Age	hrs	Client Info	8434	---	---
Oil Age	hrs	Client Info	0	---	---
Oil Changed	Client Info		N/A	---	---
Sample Status			ABNORMAL	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	35	---
Chromium	ppm	ASTM D5185m	>10	<1	---
Nickel	ppm	ASTM D5185m	>5	0	---
Titanium	ppm	ASTM D5185m		23	---
Silver	ppm	ASTM D5185m	>5	0	---
Aluminum	ppm	ASTM D5185m	>20	2	---
Lead	ppm	ASTM D5185m	>40	1	---
Copper	ppm	ASTM D5185m	>300	▲ 573	---
Tin	ppm	ASTM D5185m	>10	<1	---
Vanadium	ppm	ASTM D5185m		<1	---
Cadmium	ppm	ASTM D5185m		0	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	59	---
Barium	ppm	ASTM D5185m		0	---
Molybdenum	ppm	ASTM D5185m		71	---
Manganese	ppm	ASTM D5185m		<1	---
Magnesium	ppm	ASTM D5185m	270	144	---
Calcium	ppm	ASTM D5185m	1900	2395	---
Phosphorus	ppm	ASTM D5185m	1000	1129	---
Zinc	ppm	ASTM D5185m	1260	1315	---
Sulfur	ppm	ASTM D5185m	3400	4827	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	4	---
Sodium	ppm	ASTM D5185m		3	---
Potassium	ppm	ASTM D5185m	>20	2	---
Glycol	%	*ASTM D2982		NEG	---

INFRA-RED

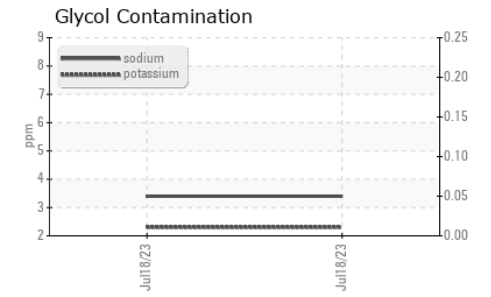
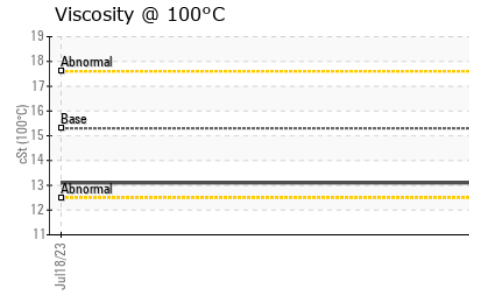
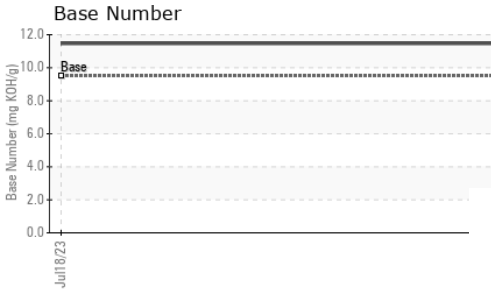
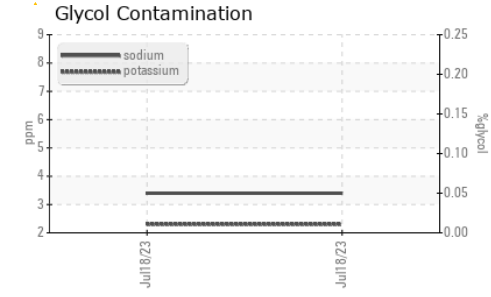
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	10.0	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.6	---
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	11.47	---



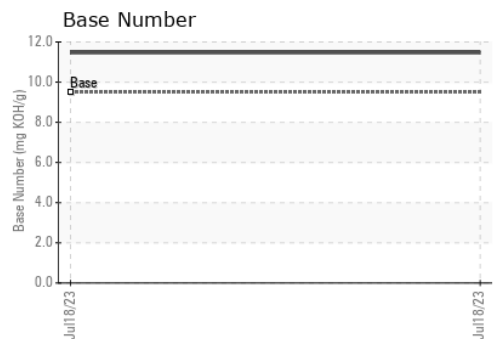
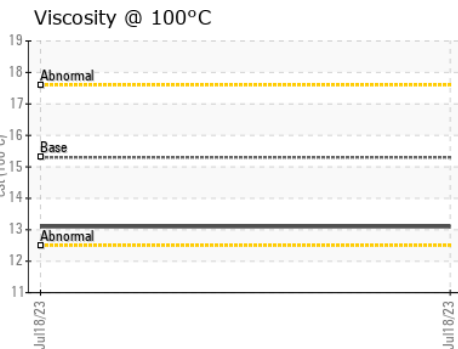
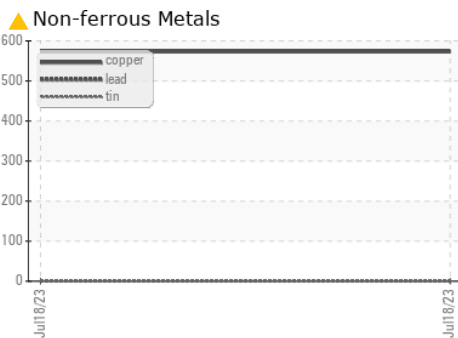
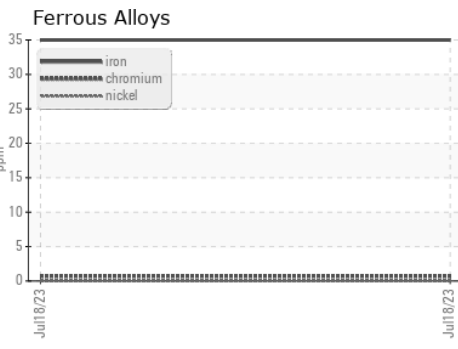
OIL ANALYSIS REPORT



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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.3	13.1	---

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC05902918 **Received** : 19 Jul 2023
Lab Number : 05902918 **Diagnosed** : 21 Jul 2023
Unique Number : 10564274 **Diagnostician** : Sean Felton
Test Package : MAR 2 (Additional Tests: Glycol)

SUPERIOR MARINE WAYS
 5852 CO RD 1
 SOUTH POINT, OH
 US 45680
 Contact: DARRELL KEARNS
 darrellkerns@superiormarineinc.com
 T: (740)894-6224
 F:

Certificate L2367
 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)