



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
CATERPILLAR CAROLINE

Component
Port Main Engine

Fluid
KENDALL SUPER-D 3 SAE 15W40 (--- GAL)

RECOMMENDATION

We advise that you check for the source of water entry. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0843988	---	---
Sample Date		Client Info		07 Dec 2023	---	---
Machine Age	hrs	Client Info		26441	---	---
Oil Age	hrs	Client Info		3000	---	---
Filter Age	hrs	Client Info		3000	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ABNORMAL	---	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	3	---	---
Chromium	ppm	ASTM D5185m	>8	<1	---	---
Nickel	ppm	ASTM D5185m	>2	0	---	---
Titanium	ppm	ASTM D5185m	>3	<1	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>15	1	---	---
Lead	ppm	ASTM D5185m	>18	2	---	---
Copper	ppm	ASTM D5185m	>80	7	---	---
Tin	ppm	ASTM D5185m	>14	<1	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

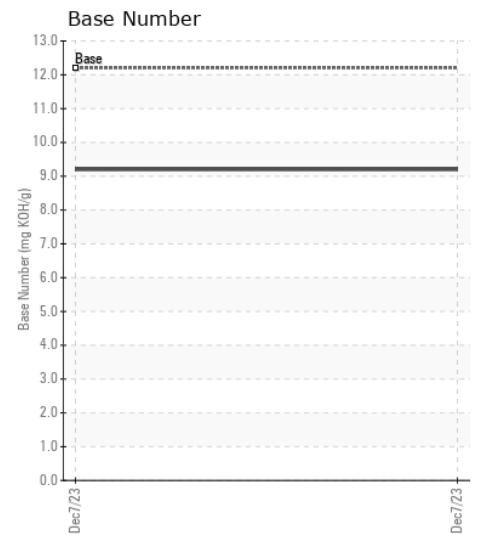
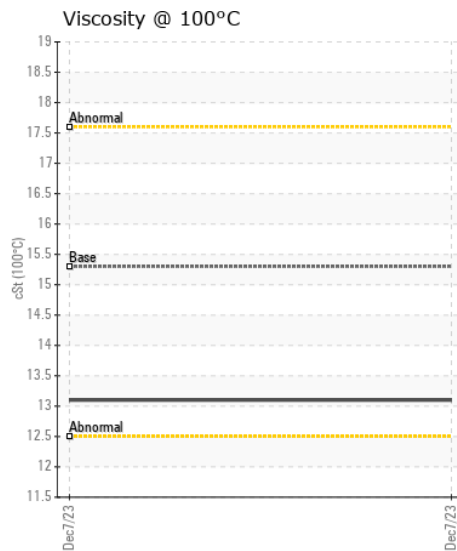
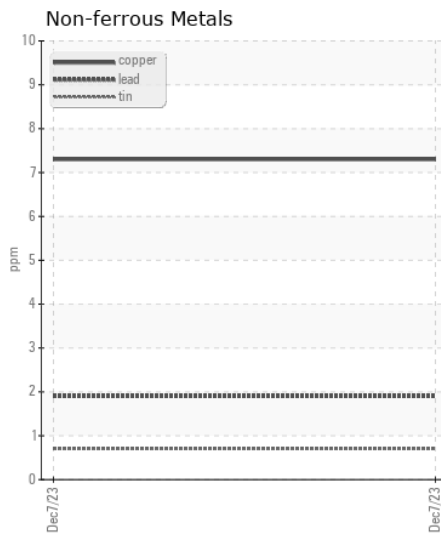
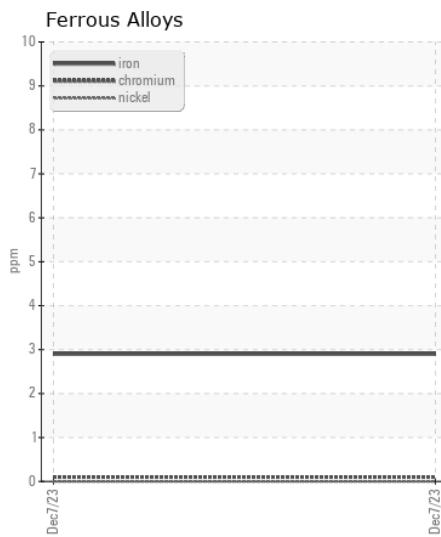
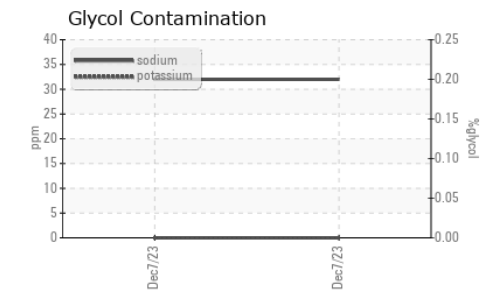
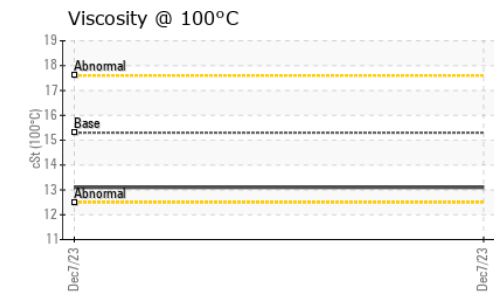
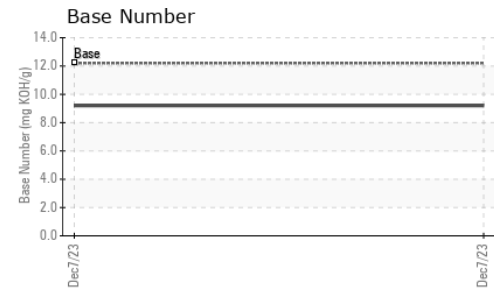
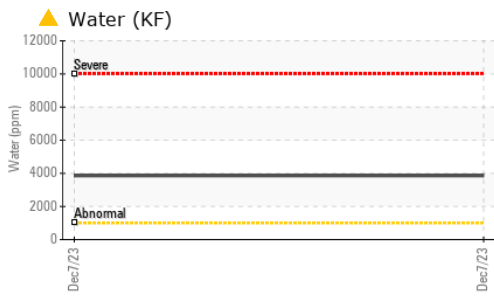
There is a moderate concentration of water present in the oil.

Silicon	ppm	ASTM D5185m	>20	2	---	---
Potassium	ppm	ASTM D5185m	>20	0	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water	%	ASTM D6304	>0.1	▲ 0.386	---	---
ppm Water	ppm	ASTM D6304	>1000	▲ 3860	---	---
Glycol	%	*ASTM D2982		NEG	---	---
Soot %	%	*ASTM D7844		0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	8.9	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	15.5	---	---
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	0.2%	---	---

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m	>75	32	---	---
Boron	ppm	ASTM D5185m		33	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		23	---	---
Manganese	ppm	ASTM D5185m		0	---	---
Magnesium	ppm	ASTM D5185m		25	---	---
Calcium	ppm	ASTM D5185m		3209	---	---
Phosphorus	ppm	ASTM D5185m		499	---	---
Zinc	ppm	ASTM D5185m	1450	584	---	---
Sulfur	ppm	ASTM D5185m		3264	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.6	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	12.2	9.2	---	---
Visc @ 100°C	cSt	ASTM D445	15.3	13.1	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0843988

Lab Number : 06083003

Unique Number : 10870448

Test Package : FLEET (Additional Tests: Glycol, KF)

Received : 07 Feb 2024

Tested : 12 Feb 2024

Diagnosed : 12 Feb 2024 - Jonathan Hester

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)

SUPERIOR MARINE

201 KELLY LANE

CHESAPEAKE, OH

US 45619

Contact: DARRELL KEARNS

darrellkearns@superiormarineinc.com

T:

F: