



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
CATERPILLAR CAROLINE
Component
Starboard Main Engine
Fluid
KENDALL SUPER-D 3 SAE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0843989	---	---
Sample Date		Client Info		07 Dec 2023	---	---
Machine Age	hrs	Client Info		2518	---	---
Oil Age	hrs	Client Info		3000	---	---
Filter Age	hrs	Client Info		3000	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				NORMAL	---	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	2	---	---
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	0	---	---
Copper	ppm	ASTM D5185m	>80	4	---	---
Tin	ppm	ASTM D5185m	>14	<1	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

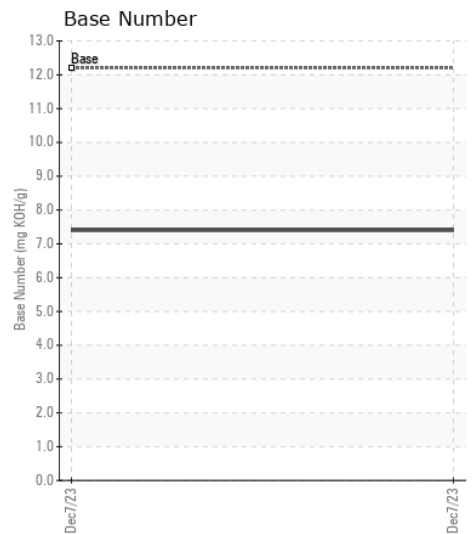
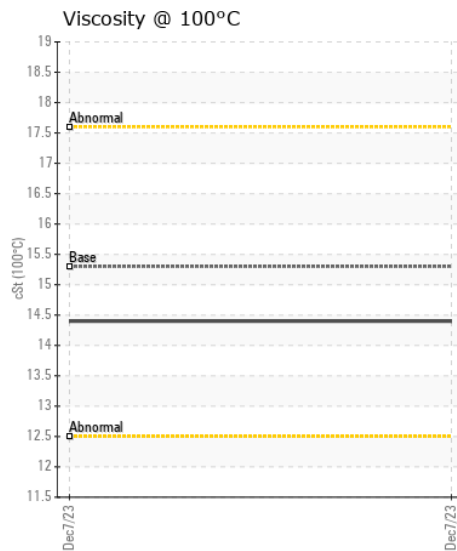
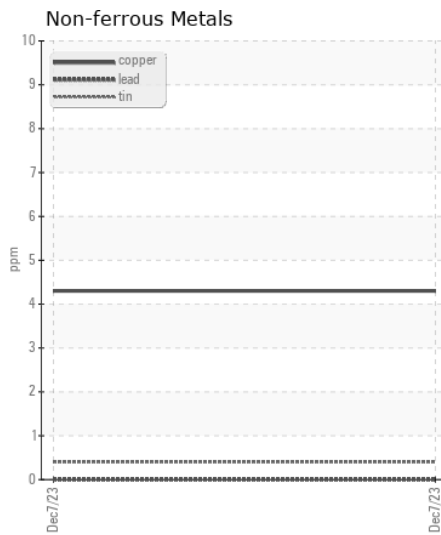
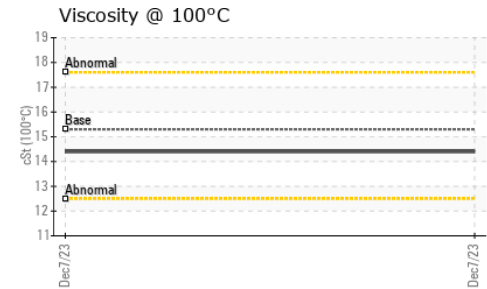
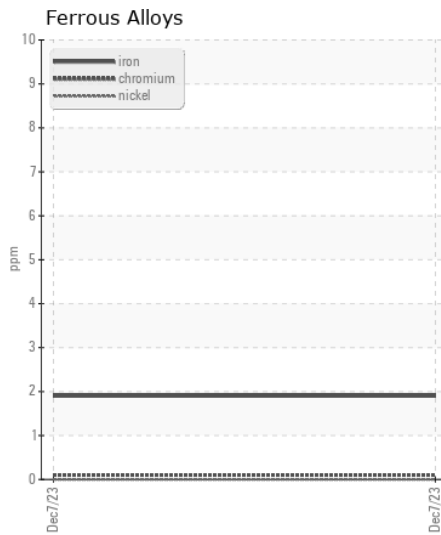
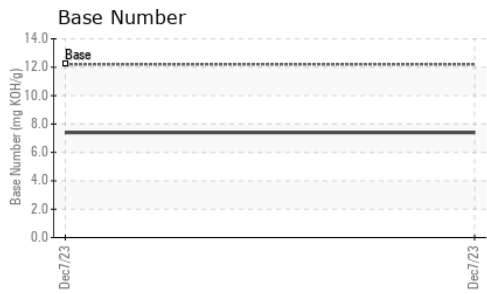
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	2	---	---
Potassium	ppm	ASTM D5185m	>20	0	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water		WC Method	>0.1	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	8.1	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	---	---
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	---	---

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.

Sodium	ppm	ASTM D5185m	>75	10	---	---
Boron	ppm	ASTM D5185m		21	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		20	---	---
Manganese	ppm	ASTM D5185m		0	---	---
Magnesium	ppm	ASTM D5185m		33	---	---
Calcium	ppm	ASTM D5185m		3294	---	---
Phosphorus	ppm	ASTM D5185m		584	---	---
Zinc	ppm	ASTM D5185m	1450	676	---	---
Sulfur	ppm	ASTM D5185m		3419	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.5	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	12.2	7.4	---	---
Visc @ 100°C	cSt	ASTM D445	15.3	14.4	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0843989 **Received** : 07 Feb 2024
Lab Number : 06082984 **Tested** : 08 Feb 2024
Unique Number : 10870429 **Diagnosed** : 09 Feb 2024 - Don Baldrige
Test Package : FLEET

SUPERIOR MARINE
 201 KELLY LANE
 CHESAPEAKE, OH
 US 45619

Contact: DARRELL KEARNS
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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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F: