



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**CATERPILLAR STEPHEN T**  
Component  
**Starboard Genset**  
Fluid  
**KENDALL SUPER-D XA 15W40 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>HRE0000263</b>	WC0843967	WC0843992
Sample Date		Client Info		<b>24 Jun 2024</b>	23 Feb 2024	22 Sep 2023
Machine Age	hrs	Client Info		<b>13121</b>	11620	10025
Oil Age	hrs	Client Info		<b>250</b>	250	500
Filter Age	hrs	Client Info		<b>250</b>	250	500
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	<b>24</b>	35	16
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>81</b>	69	91
Silver	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	0
Aluminum	ppm	ASTM D5185m	>12	<b>2</b>	2	<1
Lead	ppm	ASTM D5185m	>17	<b>0</b>	2	<1
Copper	ppm	ASTM D5185m	>70	<b>1</b>	4	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

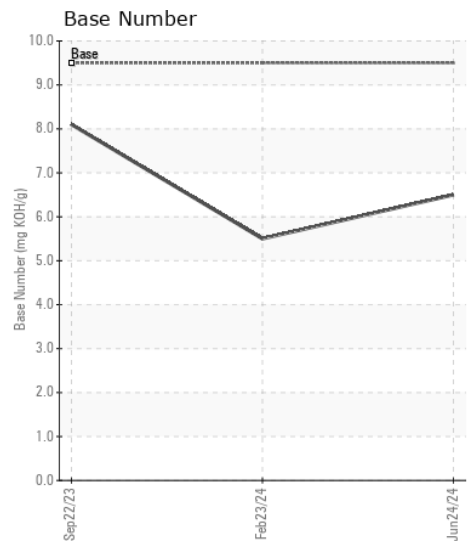
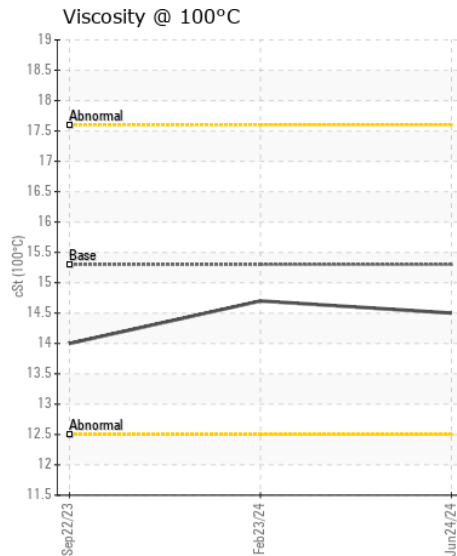
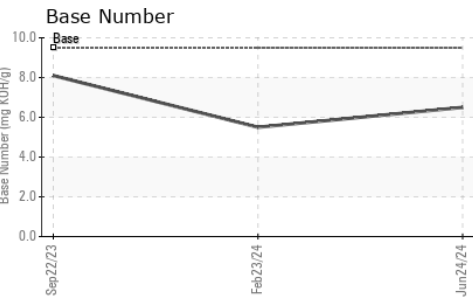
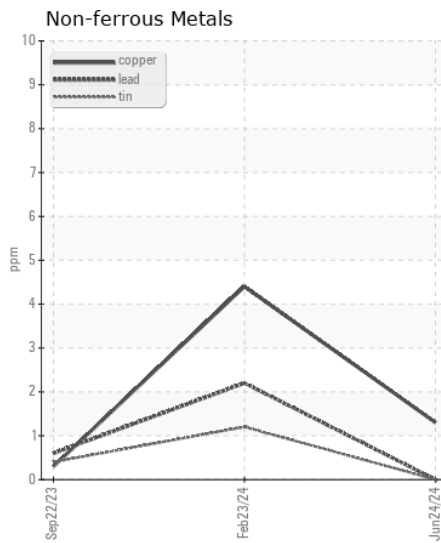
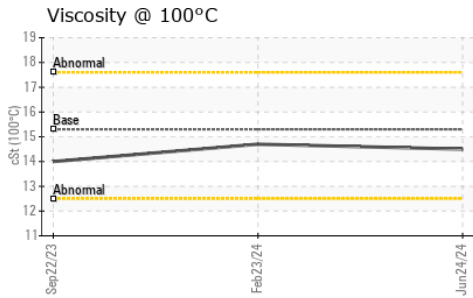
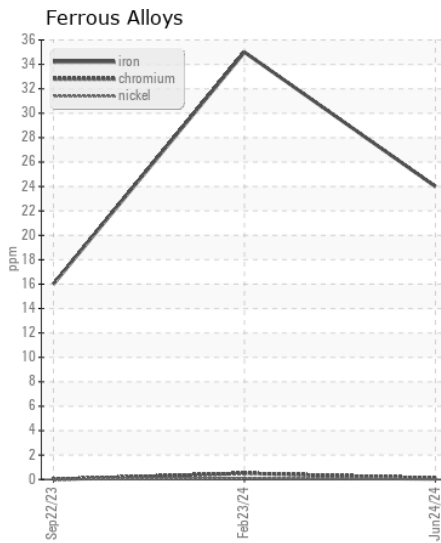
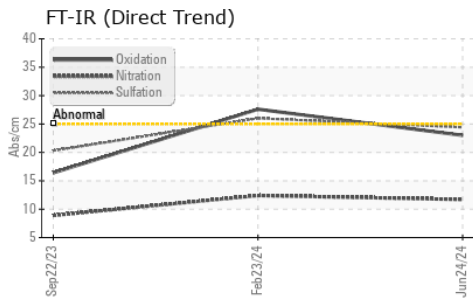
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>4</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	4	3
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>11.7</b>	12.4	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>24.4</b>	26.0	20.3
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

### 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		<b>4</b>	5	2
Boron	ppm	ASTM D5185m	50	<b>49</b>	57	142
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>15</b>	21	4
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	1	<1
Magnesium	ppm	ASTM D5185m	270	<b>418</b>	369	437
Calcium	ppm	ASTM D5185m	1900	<b>2149</b>	2104	1901
Phosphorus	ppm	ASTM D5185m	1000	<b>1072</b>	1022	1045
Zinc	ppm	ASTM D5185m	1260	<b>1340</b>	1328	1320
Sulfur	ppm	ASTM D5185m	3400	<b>4354</b>	4520	4109
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>23.0</b>	27.6	16.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	<b>6.5</b>	5.5	8.1
Visc @ 100°C	cSt	ASTM D445	15.3	<b>14.5</b>	14.7	14.0



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HRE0000263  
**Lab Number** : 06234367  
**Unique Number** : 11123201  
**Test Package** : FLEET

**Received** : 11 Jul 2024  
**Tested** : 12 Jul 2024  
**Diagnosed** : 14 Jul 2024 - Don Baldrige

**SUPERIOR MARINE**  
 201 KELLY LANE  
 CHESAPEAKE, OH  
 US 45619

Contact: DARRELL KEARNS  
 darrellkearns@superiormarineinc.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)

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F: