



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

Machine Id  
**TWIN DISC MORGAN LEIGH**  
Component  
**Starboard Genset**  
Fluid  
**KENDALL SUPER-D XA 15W40 (--- GAL)**

### RECOMMENDATION

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>HRE000289</b>	---	---
Sample Date		Client Info		<b>19 Jun 2024</b>	---	---
Machine Age	hrs	Client Info		<b>18425</b>	---	---
Oil Age	hrs	Client Info		<b>250</b>	---	---
Filter Age	hrs	Client Info		<b>250</b>	---	---
Oil Changed		Client Info		<b>Not Changd</b>	---	---
Filter Changed		Client Info		<b>Not Changd</b>	---	---
Sample Status				<b>ABNORMAL</b>	---	---

### WEAR

Cylinder, crank, or cam shaft wear is indicated. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	<b>▲ 83</b>	---	---
Chromium	ppm	ASTM D5185m	>4	<b>1</b>	---	---
Nickel	ppm	ASTM D5185m	>2	<b>2</b>	---	---
Titanium	ppm	ASTM D5185m		<b>101</b>	---	---
Silver	ppm	ASTM D5185m	>5	<b>&lt;1</b>	---	---
Aluminum	ppm	ASTM D5185m	>12	<b>4</b>	---	---
Lead	ppm	ASTM D5185m	>17	<b>4</b>	---	---
Copper	ppm	ASTM D5185m	>70	<b>2</b>	---	---
Tin	ppm	ASTM D5185m	>15	<b>2</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>2</b>	---	---
White Metal	scalar	*Visual	NONE	<b>NONE</b>	---	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	---	---

### CONTAMINATION

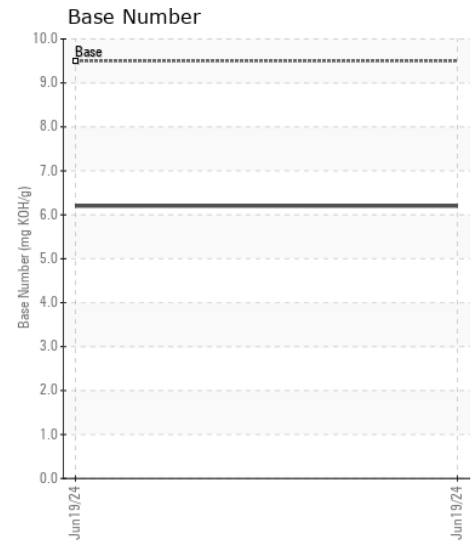
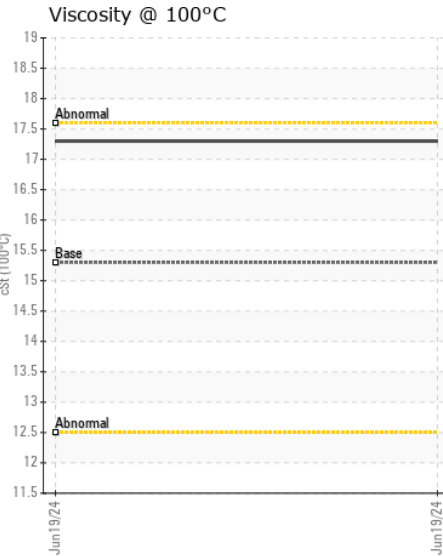
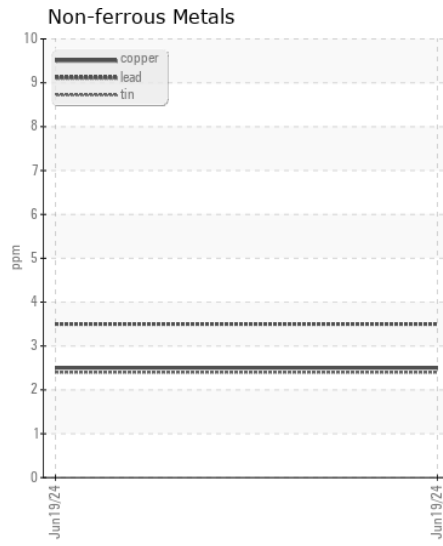
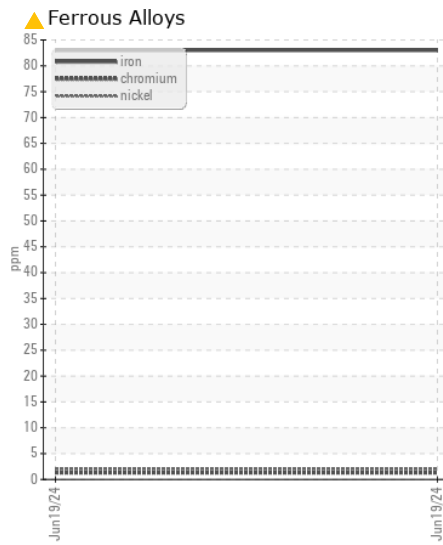
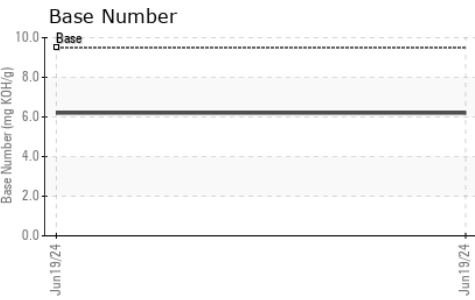
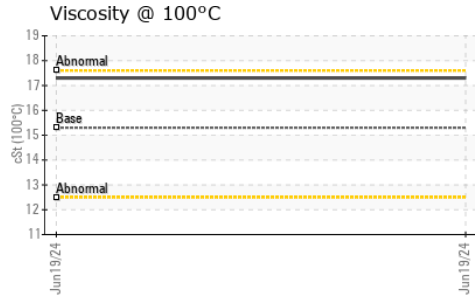
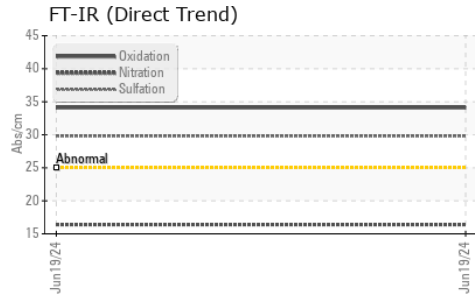
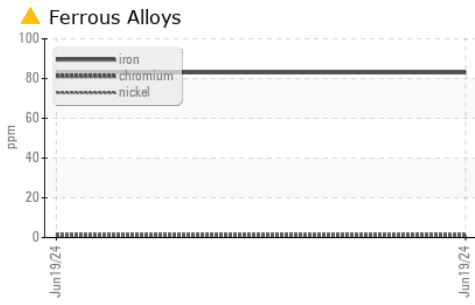
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>9</b>	---	---
Potassium	ppm	ASTM D5185m	>20	<b>10</b>	---	---
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	---	---
Water		WC Method	>0.1	<b>NEG</b>	---	---
Glycol		WC Method		<b>NEG</b>	---	---
Soot %	%	*ASTM D7844		<b>0.4</b>	---	---
Nitration	Abs/cm	*ASTM D7624	>20	<b>16.4</b>	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>29.8</b>	---	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	---	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	---	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	---	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	---	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	---	---
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	---	---

### 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>5</b>	---	---
Boron	ppm	ASTM D5185m	50	<b>81</b>	---	---
Barium	ppm	ASTM D5185m		<b>1</b>	---	---
Molybdenum	ppm	ASTM D5185m		<b>11</b>	---	---
Manganese	ppm	ASTM D5185m		<b>1</b>	---	---
Magnesium	ppm	ASTM D5185m	270	<b>497</b>	---	---
Calcium	ppm	ASTM D5185m	1900	<b>2061</b>	---	---
Phosphorus	ppm	ASTM D5185m	1000	<b>1198</b>	---	---
Zinc	ppm	ASTM D5185m	1260	<b>1432</b>	---	---
Sulfur	ppm	ASTM D5185m	3400	<b>4269</b>	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>34.1</b>	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	<b>6.2</b>	---	---
Visc @ 100°C	cSt	ASTM D445	15.3	<b>17.3</b>	---	---



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HRE0000289  
**Lab Number** : 06217873  
**Unique Number** : 11096070  
**Test Package** : FLEET

**Received** : 24 Jun 2024  
**Tested** : 25 Jun 2024  
**Diagnosed** : 25 Jun 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)

T:  
F: