



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

Area

**WILLARD HAMMOND**

Machine Id

**[WILLARD HAMMOND] 008 587215-8**

Component

**Starboard Genset**

Fluid

**CHEVRON DELO 400 MULTIGRADE 15W40 (4 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0068072</b>	MW0068070	MW0068041
Sample Date		Client Info		<b>31 Mar 2024</b>	14 Mar 2024	01 Feb 2024
Machine Age	hrs	Client Info		<b>30369</b>	30177	29690
Oil Age	hrs	Client Info		<b>0</b>	0	144
Filter Age	hrs	Client Info		<b>0</b>	0	144
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	<b>0</b>	3	3
Chromium	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>12	<b>3</b>	2	2
Lead	ppm	ASTM D5185m	>17	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>70	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

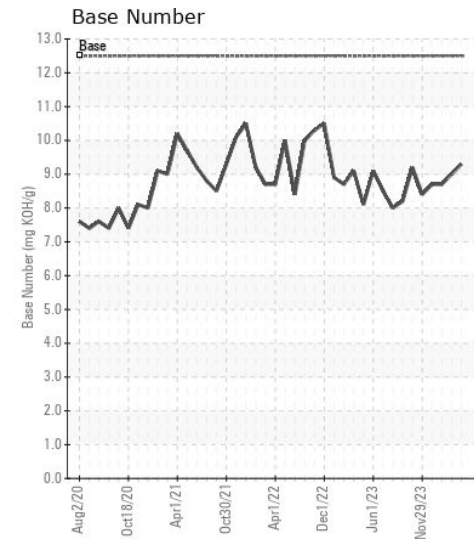
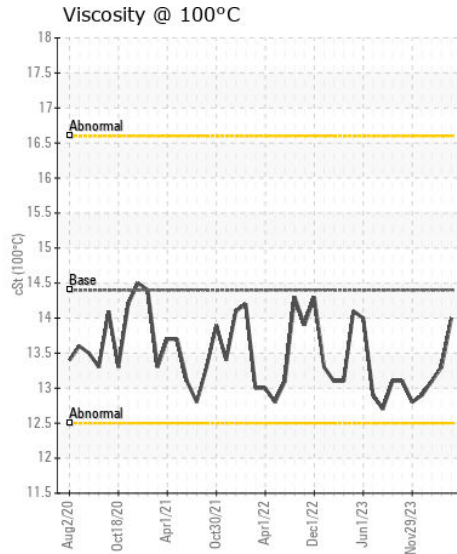
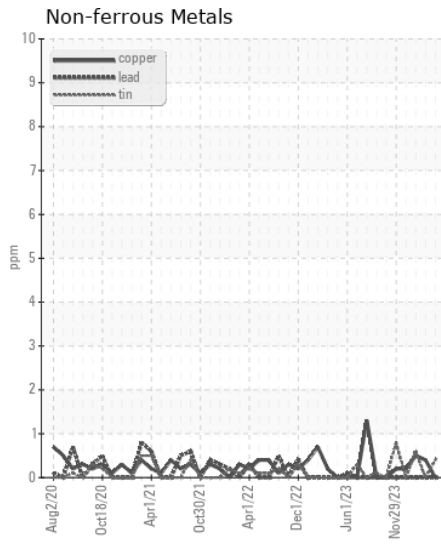
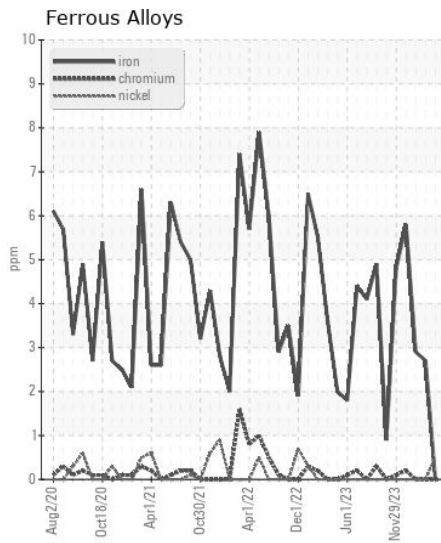
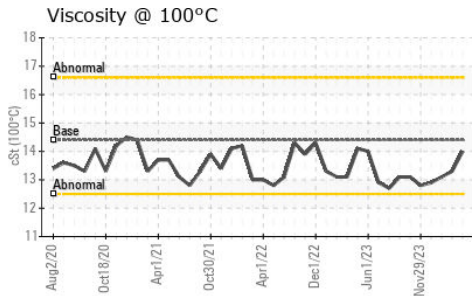
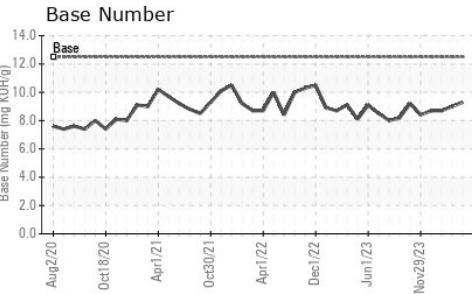
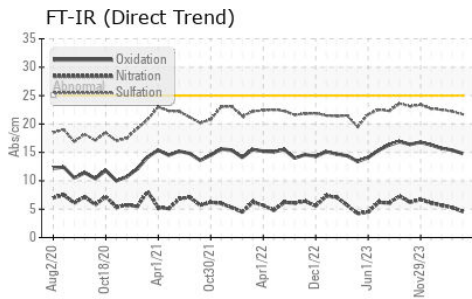
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>6</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	2	0
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>4.6</b>	5.3	5.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.7</b>	22.2	22.5
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 suitable for further service.

Sodium	ppm	ASTM D5185m		<b>1</b>	2	1
Boron	ppm	ASTM D5185m	151	<b>373</b>	328	349
Barium	ppm	ASTM D5185m	0.4	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m	250	<b>109</b>	123	124
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	0	<b>575</b>	660	660
Calcium	ppm	ASTM D5185m	2046	<b>1488</b>	1785	1633
Phosphorus	ppm	ASTM D5185m	1043	<b>733</b>	733	689
Zinc	ppm	ASTM D5185m	943	<b>859</b>	860	824
Sulfur	ppm	ASTM D5185m	5012	<b>3041</b>	3133	2597
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.8</b>	15.4	15.7
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	<b>9.3</b>	9.0	8.7
Visc @ 100°C	cSt	ASTM D445	14.4	<b>14.0</b>	13.3	13.1



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0068072  
**Lab Number** : 06146365  
**Unique Number** : 10976443  
**Test Package** : MAR 2  
**Received** : 11 Apr 2024  
**Tested** : 12 Apr 2024  
**Diagnosed** : 12 Apr 2024 - Wes Davis

**INGRAM BARGE**  
 900 S 3RD ST  
 PADUCAH, KY  
 US 42003  
 Contact: CHARLES COPELAND  
 charles.copeland@ingrambarga.com  
 T: (270)415-4467  
 F: (615)695-3697

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)