



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

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		MW0072271	MW0070932	MW0068072
Sample Date		Client Info		01 Jun 2024	01 May 2024	31 Mar 2024
Machine Age	hrs	Client Info		31359	30789	30369
Oil Age	hrs	Client Info		234	0	0
Filter Age	hrs	Client Info		234	0	0
Oil Changed		Client Info		Not Changd	Changed	N/A
Filter Changed		Client Info		Not Changd	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

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

CONTAMINATION

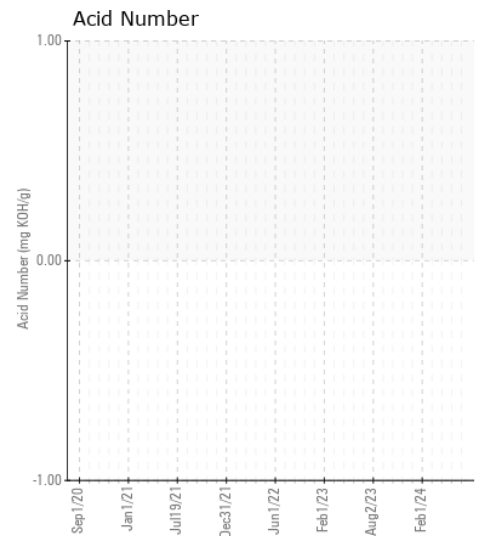
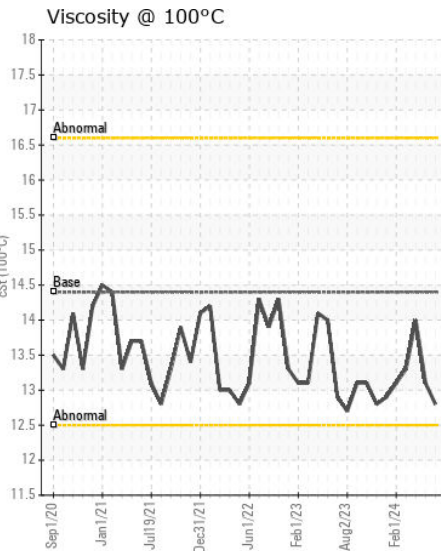
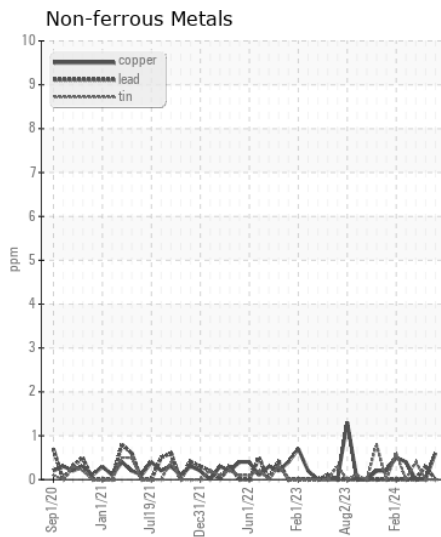
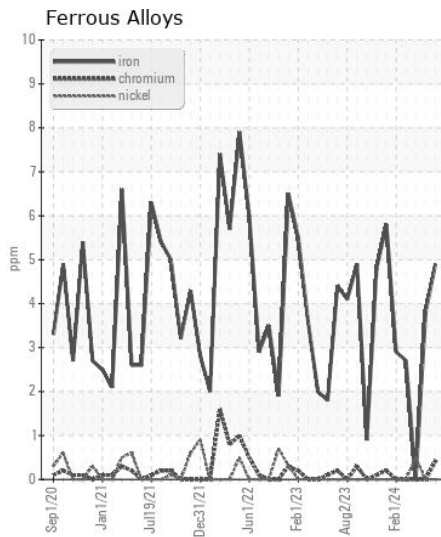
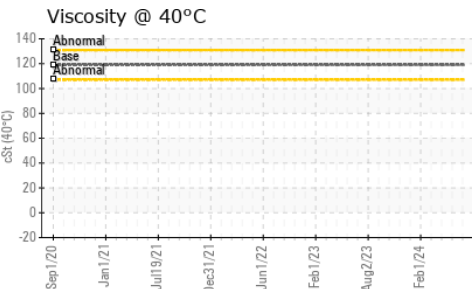
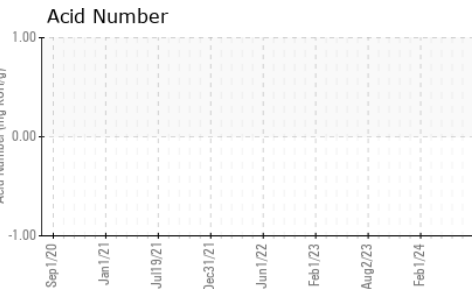
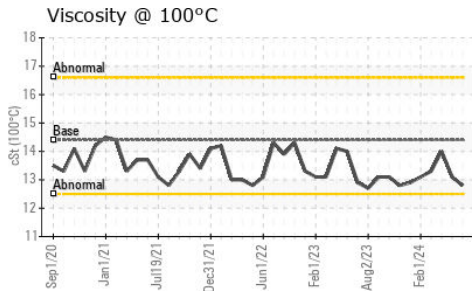
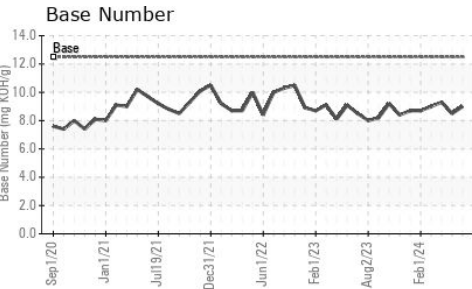
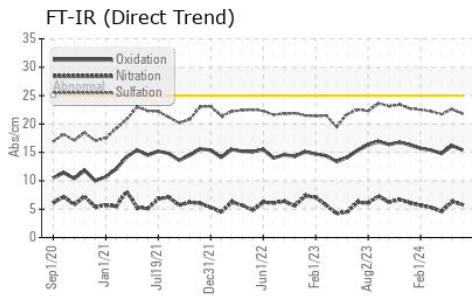
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	6	5	6
Potassium	ppm	ASTM D5185m	>20	2	<1	2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	5.8	6.3	4.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.8	22.6	21.7
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	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		<1	0	1
Boron	ppm	ASTM D5185m	151	379	369	373
Barium	ppm	ASTM D5185m	0.4	<1	0	<1
Molybdenum	ppm	ASTM D5185m	250	120	129	109
Manganese	ppm	ASTM D5185m		1	2	<1
Magnesium	ppm	ASTM D5185m	0	605	692	575
Calcium	ppm	ASTM D5185m	2046	1663	1932	1488
Phosphorus	ppm	ASTM D5185m	1043	864	887	733
Zinc	ppm	ASTM D5185m	943	970	1075	859
Sulfur	ppm	ASTM D5185m	5012	2869	3601	3041
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.4	16.2	14.8
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	9.0	8.5	9.3
Visc @ 100°C	cSt	ASTM D445	14.4	12.8	13.1	14.0



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0072271
Lab Number : 06224171
Unique Number : 11102368
Test Package : MAR 2 (Additional Tests: KV40, TAN Man)

Received : 28 Jun 2024
Tested : 02 Jul 2024
Diagnosed : 02 Jul 2024 - Jonathan Hester

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003

Contact: CHARLES COPELAND
 charles.copeland@ingrambarga.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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