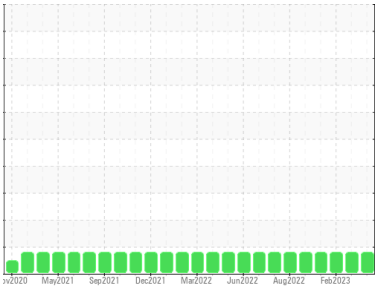
PROBLEM SUMMARY

Sample Rating Trend

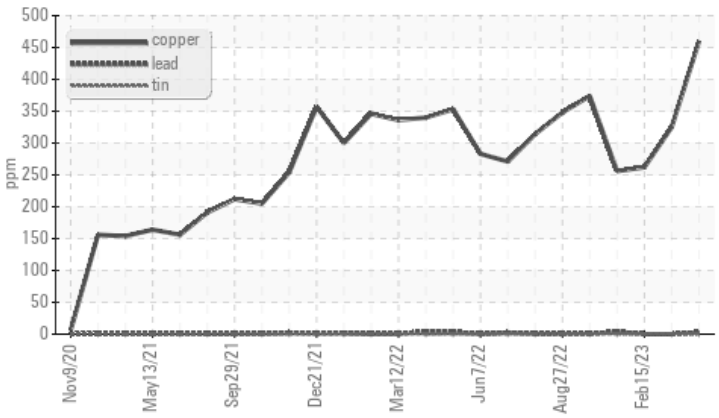


WEAR

Area
Texas City
Machine Id
[Texas City] Oil - Starboard Reduction Gear
Component
Starboard Reduction Gear
Fluid
DIESEL ENGINE OIL SAE 15W40 (35 GAL)

COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Copper	ppm	ASTM D5185m	>50	▲ **460**	▲ 325	▲ 262

Customer Id: MARCAT
Sample No.: WC0735740
Lab Number: 05999091
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Angela Borella +1 800-237-1369
angela.borella@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

06 Jul 2023 Diag: Don Baldridge

WEAR

No corrective action is recommended at this time. Resample at the next service interval to monitor.The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

15 Feb 2023 Diag: Don Baldridge

WEAR

No corrective action is recommended at this time. Resample at the next service interval to monitor.The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

15 Jan 2023 Diag: Don Baldridge

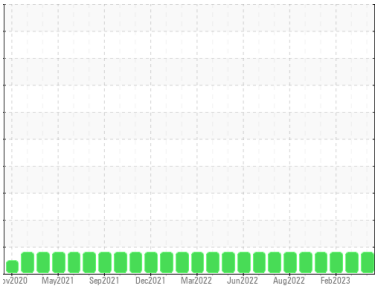
WEAR

No corrective action is recommended at this time. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.The copper level is abnormal. All other component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
Texas City
Machine Id
[Texas City] Oil - Starboard Reduction Gear
Component
Starboard Reduction Gear
Fluid
DIESEL ENGINE OIL SAE 15W40 (35 GAL)

DIAGNOSIS

Recommendation

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

Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0735740**	WC0735733	WC0719427
Sample Date		Client Info		**21 Oct 2023**	06 Jul 2023	15 Feb 2023
Machine Age	hrs	Client Info		**14946**	14066	12829
Oil Age	hrs	Client Info		**2203**	1321	12829
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>150	**4**	6	6
Chromium	ppm	ASTM D5185m	>10	**0**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**0**	<1	0
Aluminum	ppm	ASTM D5185m	>25	**0**	0	<1
Lead	ppm	ASTM D5185m	>100	**3**	0	0
Copper	ppm	ASTM D5185m	>50	▲ **460**	▲ 325	▲ 262
Tin	ppm	ASTM D5185m	>10	**0**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

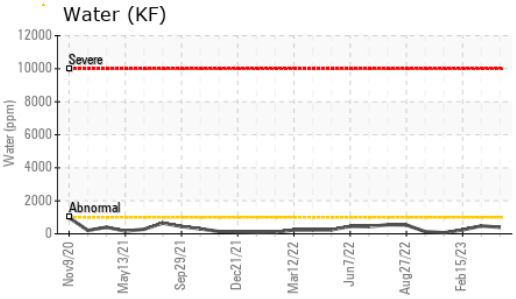
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**25**	30	29
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**50**	48	51
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**453**	501	485
Calcium	ppm	ASTM D5185m	3000	**1371**	1411	1402
Phosphorus	ppm	ASTM D5185m	1150	**791**	864	850
Zinc	ppm	ASTM D5185m	1350	**876**	977	982
Sulfur	ppm	ASTM D5185m	4250	**2607**	3596	2934

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**2**	2	3
Sodium	ppm	ASTM D5185m	>158	**6**	6	3
Potassium	ppm	ASTM D5185m	>20	**0**	2	2
Water	%	ASTM D6304	>0.1	**0.039**	0.047	0.023
ppm Water	ppm	ASTM D6304	>1000	**394.7**	478.9	239.9

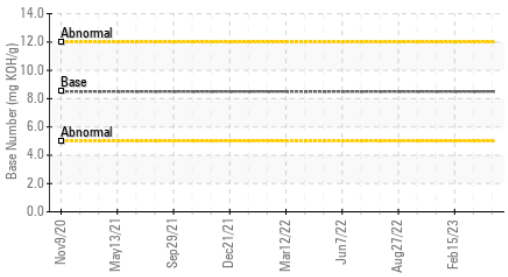
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.77**	0.74	0.89

OIL ANALYSIS REPORT

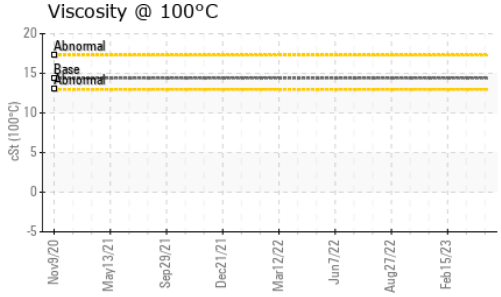
Water (KF)



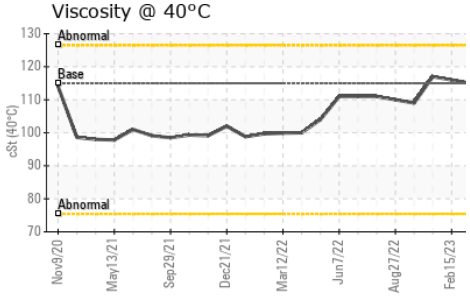
Base Number



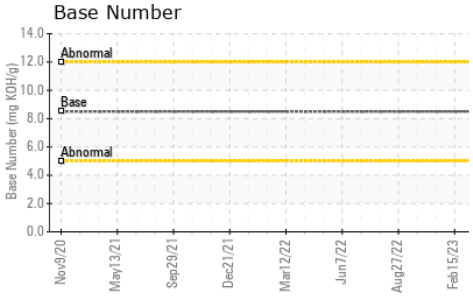
Viscosity @ 100°C



Viscosity @ 40°C



Base Number



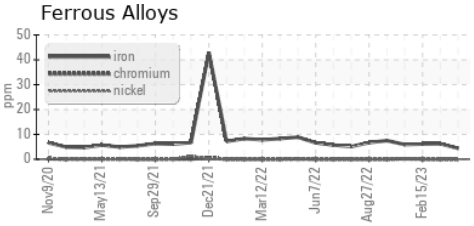
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	115	**116**	115	116

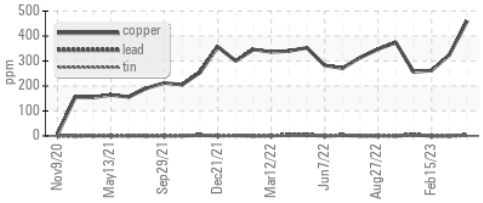
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

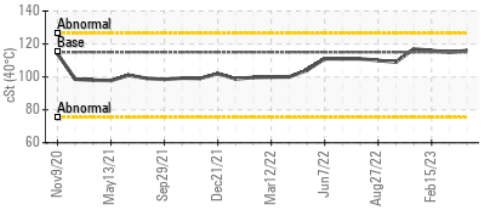
Ferrous Alloys



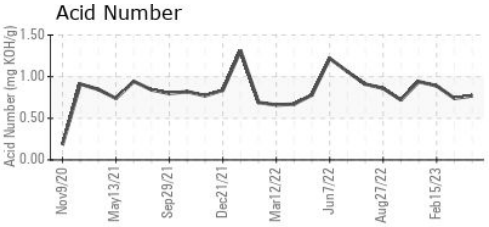
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0735740 **Received** : 06 Nov 2023
Lab Number : 05999091 **Diagnosed** : 07 Nov 2023
Unique Number : 10727451 **Diagnostician** : Angela Borella
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, TBN)

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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Report Id: MARCAT [WUSCAR] 05999091 (Generated: 11/08/2023 14:20:30) Rev: 1

Submitted By: M/V TEXAS CITY