



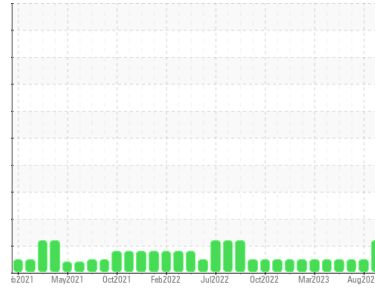
PROBLEM SUMMARY

Sample Rating Trend

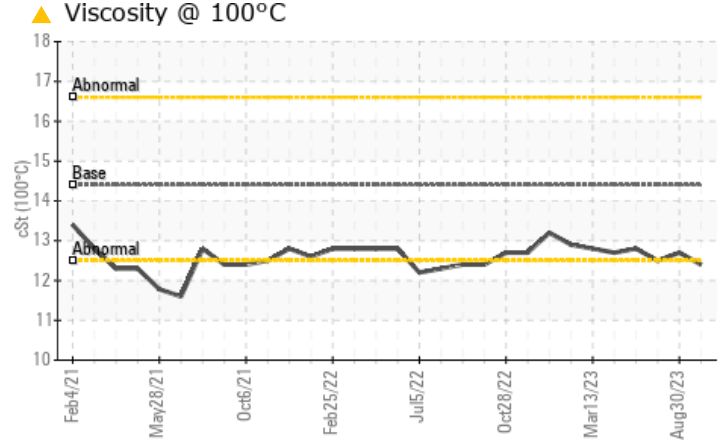
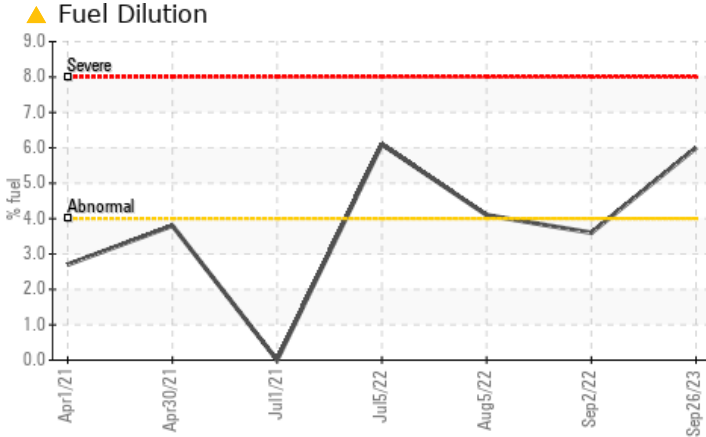
FUEL



Area
Tri State
 Machine Id
[Tri State] Oil - Starboard Main Engine
 Component
Starboard Main Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (37 GAL)



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check the fuel injection system. Resample at the next service interval to monitor. (Customer Sample Comment: To be changed 9-27-23)

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	NORMAL	NORMAL
Fuel	%	ASTM D3524	>4.0	▲ 6.0	<1.0	<1.0
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 12.4	12.7	12.5

Customer Id: MARCAT
 Sample No.: WC0805317
 Lab Number: 05966527
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Don Baldrige +1
don.b505@comcast.net

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

30 Aug 2023 Diag: Sean Felton

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report



27 Jul 2023 Diag: Don Baldrige

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report



29 Jun 2023 Diag: Sean Felton

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

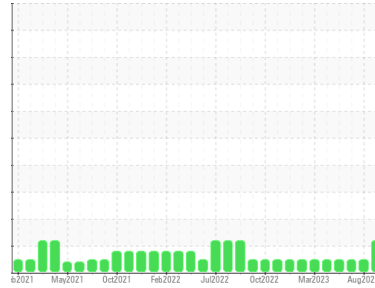
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OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Area
Tri State
 Machine Id
[Tri State] Oil - Starboard Main Engine
 Component
Starboard Main Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (37 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor. (Customer Sample Comment: To be changed 9-27-23)

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	WC0805317	WC0805267	WC0769158
Sample Date	Client Info	26 Sep 2023	30 Aug 2023	27 Jul 2023
Machine Age	hrs	18916	18404	17681
Oil Age	hrs	1234	723	1024
Oil Changed	Client Info	Not Changed	Oil Added	Changed
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >75	5	3	4
Chromium	ppm	ASTM D5185m >8	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m >3	<1	<1	<1
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >15	<1	<1	<1
Lead	ppm	ASTM D5185m >18	<1	0	1
Copper	ppm	ASTM D5185m >80	3	1	7
Tin	ppm	ASTM D5185m >14	<1	<1	0
Vanadium	ppm	ASTM D5185m	0	<1	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m 250	24	29	24
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	63	63	62
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 450	1572	1550	1474
Calcium	ppm	ASTM D5185m 3000	1124	1126	1098
Phosphorus	ppm	ASTM D5185m 1150	992	971	937
Zinc	ppm	ASTM D5185m 1350	1262	1190	1169
Sulfur	ppm	ASTM D5185m 4250	3525	4035	3766

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >20	2	2	2
Sodium	ppm	ASTM D5185m >158	1	1	3
Potassium	ppm	ASTM D5185m >20	<1	<1	2
Fuel	%	ASTM D3524 >4.0	▲ 6.0	<1.0	<1.0

INFRA-RED

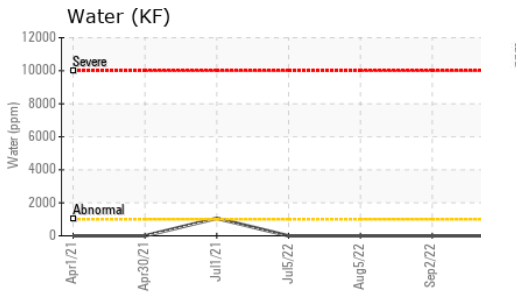
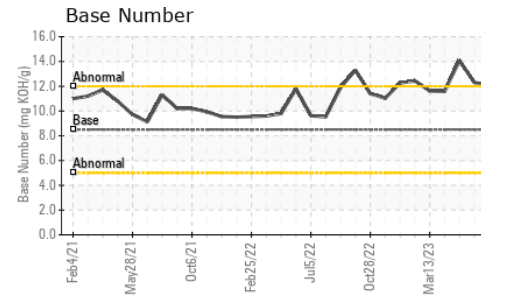
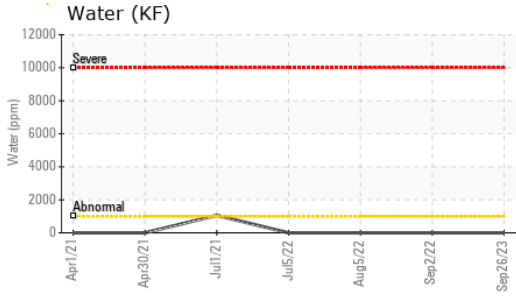
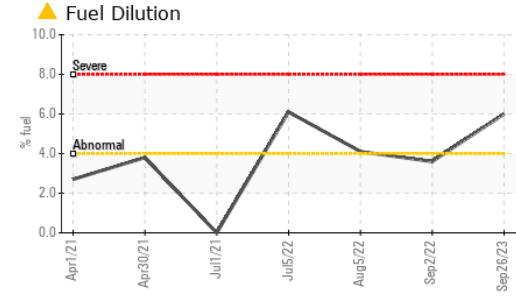
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	10.0	8.6	9.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.9	19.1	19.4

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	17.1	14.9	16.0
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	11.98	12.12	12.29



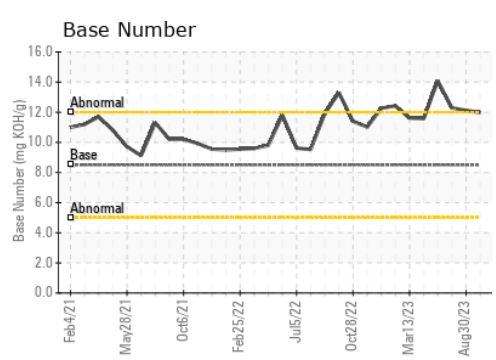
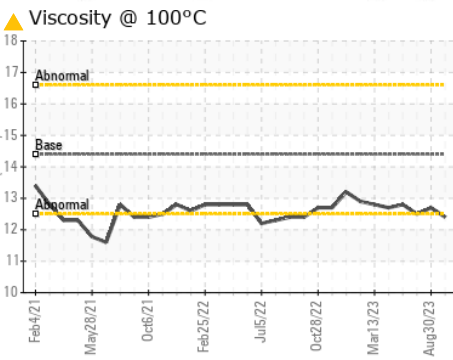
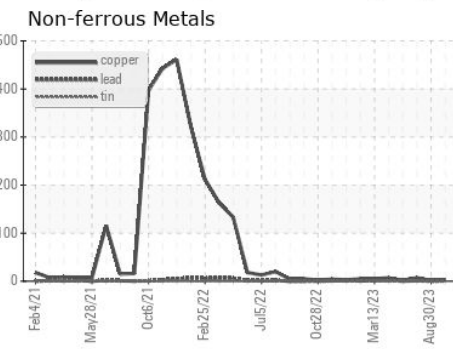
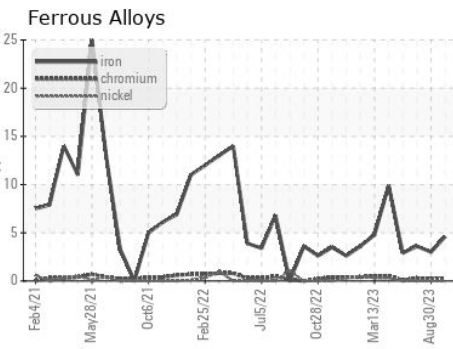
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 12.4	12.7	12.5

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0805317 **Received** : 02 Oct 2023
Lab Number : 05966527 **Diagnosed** : 04 Oct 2023
Unique Number : 10673078 **Diagnostician** : Don Baldrige
Test Package : IND 2 (Additional Tests: FuelDilution, KF, PercentFuel)

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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)