

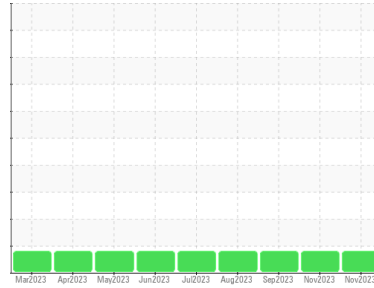


# PROBLEM SUMMARY

Sample Rating Trend

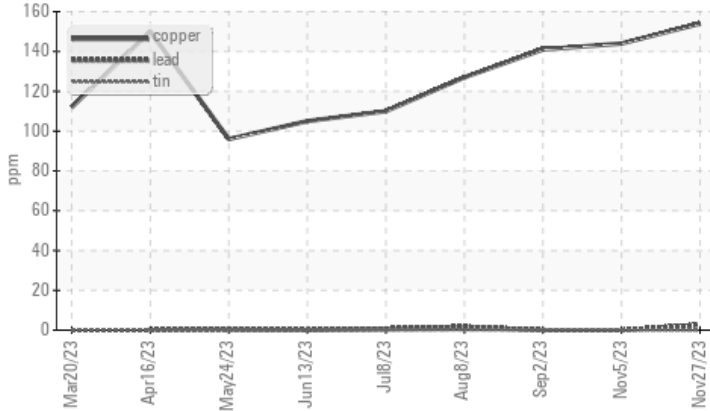
WEAR

Area  
**Huntington**  
 Machine Id  
**[Huntington] Oil - Starboard Reduction Gear**  
 Component  
**Starboard Reduction Gear**  
 Fluid  
**SAE 40W (24 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
	▲ 154	▲ 144	▲ 141

Customer Id: MARCAT  
 Sample No.: WC0804873  
 Lab Number: 06026623  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Jonathan Hester +1 919-379-4092 x4092  
[jhester@wearcheckusa.com](mailto:jhester@wearcheckusa.com)

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

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

### 05 Nov 2023 Diag: Don Baldrige

#### 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



### 02 Sep 2023 Diag: Jonathan Hester

#### 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



### 08 Aug 2023 Diag: Doug Bogart

#### 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.

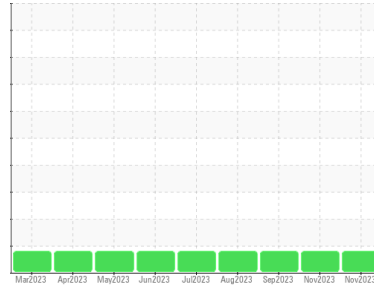
view report





# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Area  
**Huntington**  
 Machine Id  
**[Huntington] Oil - Starboard Reduction Gear**  
 Component  
**Starboard Reduction Gear**  
 Fluid  
**SAE 40W (24 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

The water content is negligible. 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		<b>WC0804873</b>	WC0804874	WC0769349
Sample Date	Client Info		<b>27 Nov 2023</b>	05 Nov 2023	02 Sep 2023
Machine Age	hrs	Client Info	<b>18865</b>	18484	17511
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>Not Changed</b>	Not Changd	N/A
Sample Status			<b>ABNORMAL</b>	ABNORMAL	ABNORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	<b>2</b>	2	7
Chromium	ppm	ASTM D5185m >10	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m >10	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185m >25	<b>0</b>	<1	0
Lead	ppm	ASTM D5185m >100	<b>3</b>	0	0
Copper	ppm	ASTM D5185m >50	<b>▲ 154</b>	▲ 144	▲ 141
Tin	ppm	ASTM D5185m >10	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>5</b>	6	7
Barium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>90</b>	88	97
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	<b>196</b>	180	202
Calcium	ppm	ASTM D5185m	<b>2123</b>	2019	2273
Phosphorus	ppm	ASTM D5185m	<b>905</b>	821	891
Zinc	ppm	ASTM D5185m	<b>982</b>	890	1010
Sulfur	ppm	ASTM D5185m	<b>2720</b>	2553	3476

## CONTAMINANTS

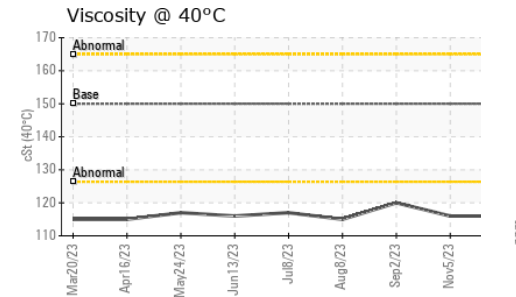
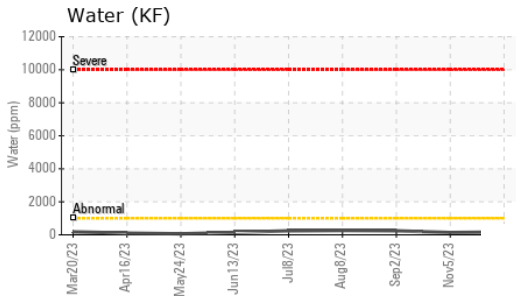
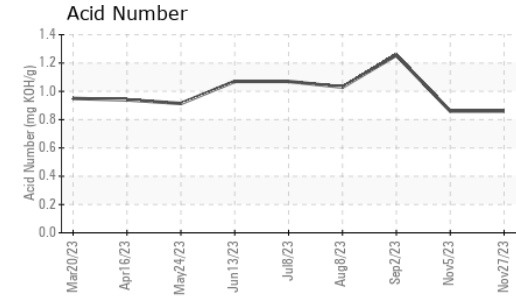
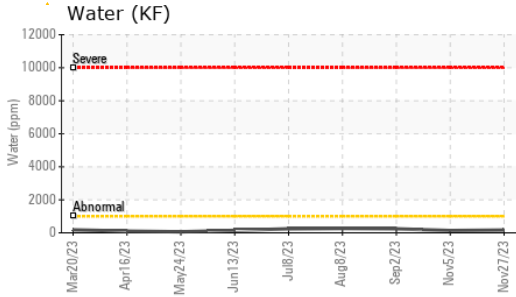
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>3</b>	2	3
Sodium	ppm	ASTM D5185m	<b>4</b>	4	6
Potassium	ppm	ASTM D5185m >20	<b>0</b>	0	2
Water	%	ASTM D6304 >0.1	<b>0.016</b>	0.013	0.024
ppm Water	ppm	ASTM D6304 >1000	<b>167</b>	138.4	244

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.86</b>	0.86	1.255



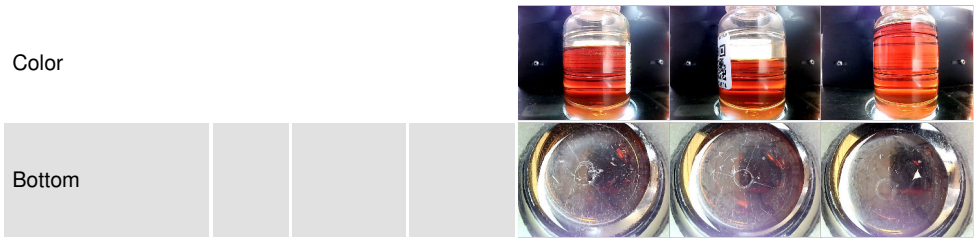
# OIL ANALYSIS REPORT



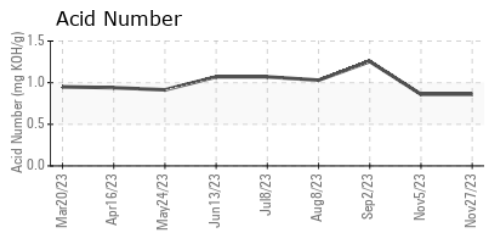
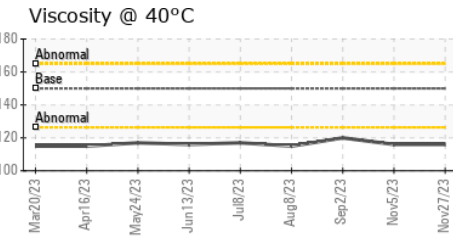
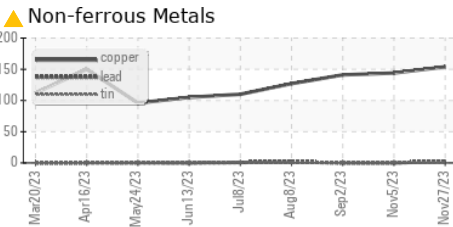
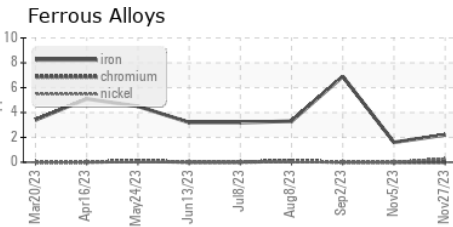
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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 @ 40°C	cSt	ASTM D445	150	<b>116</b>	116	120

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0804873 **Received** : 06 Dec 2023  
**Lab Number** : 06026623 **Diagnosed** : 08 Dec 2023  
**Unique Number** : 10776414 **Diagnostician** : Jonathan Hester  
**Test Package** : IND 2 ( Additional Tests: KF )

**MARATHON PETROLEUM CO.**  
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 US 41169  
 Contact: CORY GUMBERT  
 cagumbert@marathonpetroleum.com  
 T: (606)585-3950  
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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)