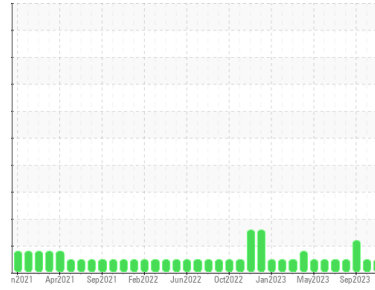




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area

**Detroit**

Machine Id

**[Detroit] Oil - Starboard Reduction Gear**

Component

**Starboard Reduction Gear**

Fluid

**SAE 30W (35 GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

### Wear

All 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>WC0804904</b>	WC0769343	WC0769301
Sample Date	Client Info		<b>06 Nov 2023</b>	09 Oct 2023	11 Sep 2023
Machine Age	hrs	Client Info	<b>25931</b>	25344	24818
Oil Age	hrs	Client Info	<b>742</b>	155	5017
Oil Changed		Client Info	<b>N/A</b>	Changed	N/A
Sample Status			<b>NORMAL</b>	NORMAL	ABNORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	<b>6</b>	7	34
Chromium	ppm	ASTM D5185m >10	<b>0</b>	0	<1
Nickel	ppm	ASTM D5185m >10	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m >25	<b>&lt;1</b>	0	<1
Lead	ppm	ASTM D5185m >100	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >50	<b>9</b>	9	63
Tin	ppm	ASTM D5185m >10	<b>&lt;1</b>	0	1
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>27</b>	31	32
Barium	ppm	ASTM D5185m	<b>0</b>	1	0
Molybdenum	ppm	ASTM D5185m	<b>14</b>	15	14
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	1
Magnesium	ppm	ASTM D5185m	<b>212</b>	215	235
Calcium	ppm	ASTM D5185m	<b>2844</b>	2812	3304
Phosphorus	ppm	ASTM D5185m	<b>885</b>	881	995
Zinc	ppm	ASTM D5185m	<b>984</b>	979	1107
Sulfur	ppm	ASTM D5185m	<b>6096</b>	6165	8704

## CONTAMINANTS

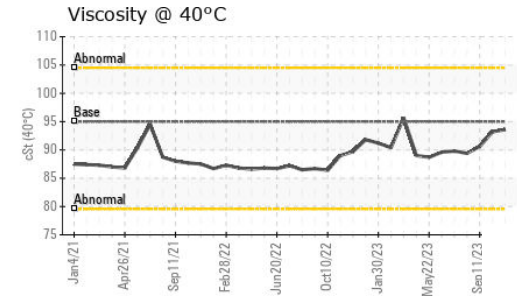
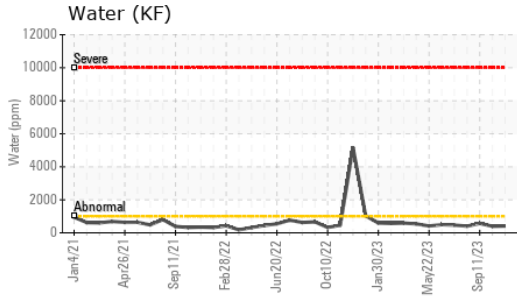
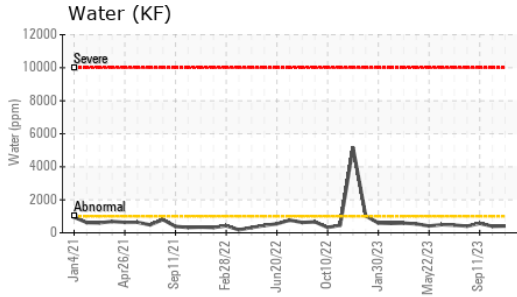
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	<b>4</b>	5	4
Sodium	ppm	ASTM D5185m	<b>2</b>	2	4
Potassium	ppm	ASTM D5185m >20	<b>0</b>	0	1
Water	%	ASTM D6304 >0.1	<b>0.041</b>	0.039	0.057
ppm Water	ppm	ASTM D6304 >1000	<b>410.9</b>	396.8	571.7

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>1.01</b>	1.42	▲ 1.985



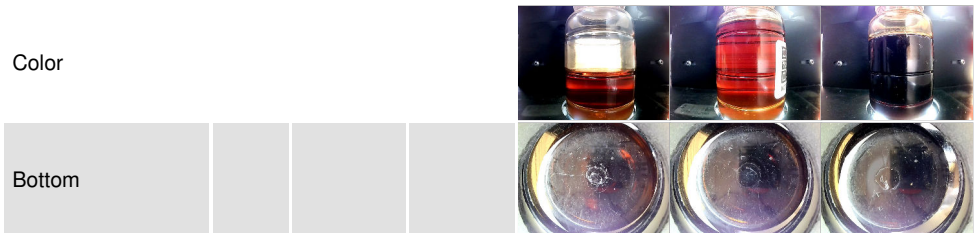
# OIL ANALYSIS REPORT



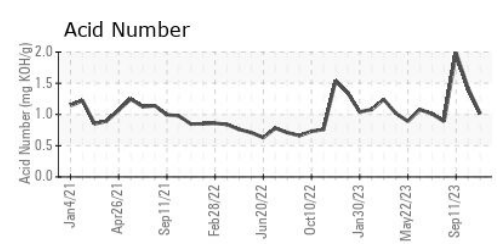
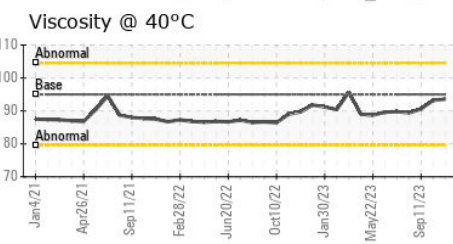
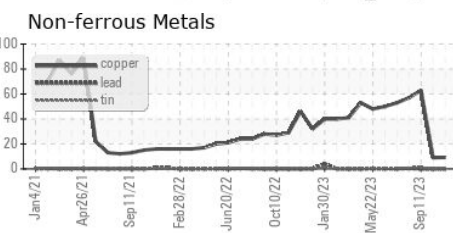
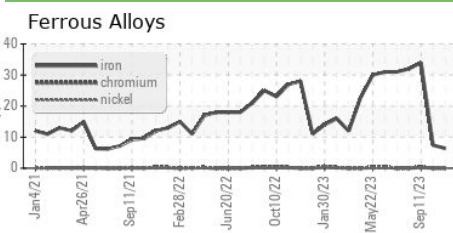
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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	95.0	<b>93.6</b>	93.2	90.6

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0804904 **Received** : 15 Nov 2023  
**Lab Number** : **06008434** **Diagnosed** : 16 Nov 2023  
**Unique Number** : 10742196 **Diagnostician** : Wes Davis  
**Test Package** : IND 2 ( Additional Tests: KF )

**MARATHON PETROLEUM CO.**  
 101 12TH ST  
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 US 41169  
 Contact: CORY GUMBERT  
 cagumbert@marathonpetroleum.com  
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 F: x:

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)