

Area **Findlay** [Findlay] Oil - Starboard Reduction Gear

Starboard Reduction Gear Fluid MARATHON SAE 40 (80 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

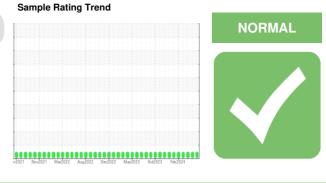
All component wear rates are normal.

Contamination

The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition

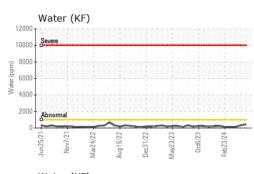
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

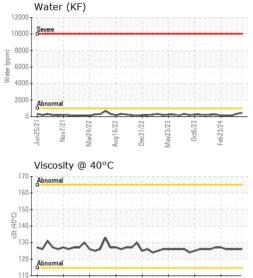


SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0874698	WC0874645	WC0874732
Sample Date		Client Info		18 Jun 2024	14 May 2024	23 Apr 2024
Machine Age	hrs	Client Info		28114	27778	27355
Oil Age	hrs	Client Info		15895	15559	25136
Oil Changed		Client Info		Filtered	Filtered	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>150	26	26	16
Chromium	ppm	ASTM D5185m	>10	0	<1	0
Nickel	ppm	ASTM D5185m	>10	<1	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>25	1	<1	<1
Lead	ppm	ASTM D5185m	>100	0	0	<1
Copper	ppm	ASTM D5185m	>50	3	3	6
Tin	ppm	ASTM D5185m	>10	0	0	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 20	history1 20	history2 17
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	20	20	17
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	20 0	20 0	17 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50	20 0 49	17 0 47
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1	20 0 49 <1	17 0 47 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1 767	20 0 49 <1 727	17 0 47 <1 706
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1 767 896	20 0 49 <1 727 899	17 0 47 <1 706 837
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1 767 896 887	20 0 49 <1 727 899 849	17 0 47 <1 706 837 828
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1 767 896 887 980	20 0 49 <1 727 899 849 933	17 0 47 <1 706 837 828 923
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		20 0 50 <1 767 896 887 980 2999	20 0 49 <1 727 899 849 933 2911	17 0 47 <1 706 837 828 923 2830
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	20 0 50 <1 767 896 887 980 2999 current	20 0 49 <1 727 899 849 933 2911 history1	17 0 47 <1 706 837 828 923 2830 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	20 0 50 <1 767 896 887 980 2999 current 3	20 0 49 <1 727 899 849 933 2911 history1 3	17 0 47 <1 706 837 828 923 2830 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base >50	20 0 50 <1 767 896 887 980 2999 current 3 5	20 0 49 <1 727 899 849 933 2911 history1 3 4	17 0 47 <1 706 837 828 923 2830 history2 2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >50 >20	20 0 50 <1 767 896 887 980 2999 current 3 5 2	20 0 49 <1 727 899 849 933 2911 history1 3 4 2	17 0 47 <1 706 837 828 923 2830 bistory2 2 5 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >50 >20 >0.1	20 0 50 <1 767 896 887 980 2999 <u>current</u> 3 5 2 2 0.043	20 0 49 <1 727 899 849 933 2911 history1 3 4 2 2 0.033	17 0 47 <1 706 837 828 923 2830 history2 2 2 5 <1 0.012



OIL ANALYSIS REPORT





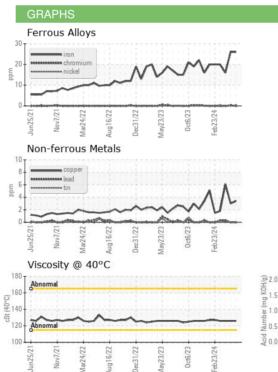
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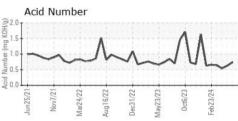
ar24/22

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	LIGHT	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 PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		126	126	126
SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						

Bottom

eb23/24





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. Sample No. : WC0874698 Received : 25 Jun 2024 101 12TH ST Lab Number : 06219787 Tested : 26 Jun 2024 CATLETTSBURG, KY Unique Number : 11097984 Diagnosed : 26 Jun 2024 - Wes Davis US 41169 Test Package : IND 2 (Additional Tests: KF) Contact: SHAWN MCCLASKEY Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. stmcclaskey@marathonpetroleum.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (606)739-2416 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: x:

Report Id: MARCAT [WUSCAR] 06219787 (Generated: 06/28/2024 02:34:30) Rev: 1

Submitted By: M/V FINDLAY

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