

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

NOT GIVEN WC0922345

Component Starboard Genset Fluid **DIESEL ENGINE OIL SAE 40 (--- GAL)**

Recommendation

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

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0922345		
Sample Date		Client Info		10 May 2024		
Machine Age	hrs	Client Info		12822		
Oil Age	hrs	Client Info		12822		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINATION	J	method	limit/base	current	history1	history2
Fuel	•	WC Method	>4.0	<1.0		motory
Water		WC Method	>4.0	<1.0 NEG		
Glycol		WC Method	>0.1	NEG		
-		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	7		
Chromium	ppm	ASTM D5185m	>4	<1		
Nickel	ppm	ASTM D5185m	>2	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>5	0		
Aluminum	ppm	ASTM D5185m	>12	6		
Lead	ppm	ASTM D5185m	>17	0		
Copper	ppm	ASTM D5185m	>70	<1		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 404	history1	history2
	ppm ppm					
Boron		ASTM D5185m	250	404		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	404 <1		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	404 <1 127		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	404 <1 127 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	404 <1 127 <1 682		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	404 <1 127 <1 682 1836	 	
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	250 10 100 450 3000 1150	404 <1 127 <1 682 1836 840		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	404 <1 127 <1 682 1836 840 977	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	404 <1 127 <1 682 1836 840 977 3305		
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	250 10 100 450 3000 1150 1350 4250 limit/base >25	404 <1 127 <1 682 1836 840 977 3305 current	 history1	 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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25	404 <1 127 <1 682 1836 840 977 3305 current 11	 history1 	 history2
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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	404 <1 127 <1 682 1836 840 977 3305 current 11 2	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	404 <1 127 <1 682 1836 840 977 3305 current 11 2 0	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base	404 <1 127 <1 682 1836 840 977 3305 current 11 2 0 current	 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base	404 <1 127 <1 682 1836 840 977 3305 current 11 2 0 current 0.1	 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <i>limit/base</i> >25 >216 >20	404 <1 127 <1 682 1836 840 977 3305 current 11 2 0 current 0.1 7.4	 history1 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >216 >20 Imit/base >20	404 <1 127 <1 682 1836 840 977 3305 <u>current</u> 11 2 0 <u>current</u> 0.1 7.4 22.5	 history1 history1	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 20 216 >216 >20 20 imit/base >20 >30	404 <1 127 <1 682 1836 840 977 3305 current 11 2 0 current 0.1 7.4 22.5 current	 history1 history1 history1 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1	history2
Oxidation	White Metal	scalar	*Visual	NONE	NONE		
station Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE		
25 - 2000 million - 20000 million - 20000 million -	Precipitate	scalar	*Visual	NONE	NONE		
up 20	Silt	scalar	*Visual	NONE	NONE		
15-	Debris		*Visual	NONE	NONE		
10-		scalar					
24 t	Sand/Dirt	scalar	*Visual	NONE NORML	NONE		
May10/24	Appearance	scalar	*Visual		NORML		
N N	Odor Emulsified Water	scalar	*Visual	NORML	NORML		
Base Number		scalar	*Visual	>0.1	NEG		
14.0 12.0 Abnormal	Free Water	scalar	*Visual		NEG		
() 12.0 - General	FLUID PROPER	TIES	method	limit/base	current	history1	history2
Ĕ 8.0	Visc @ 100°C	cSt	ASTM D445	14.4	13.3		
	GRAPHS						
2.0+	Ferrous Alloys						
0.0	10 iron						
May 0.24	s_ chromium						
May - w	nickel						
Viscosity @ 100°C	Б- Е						
18	E						
17 Abnormal							
16- G	2						
() 0 15 8 888 3 14	0						
10	0/24.			0/24 .			
Abnomal	May10/24			May10/24			
11	Non-ferrous Meta	ls					
May10.24	10 copper 1						
₩av.	8 -						
	tin j						
	6						
	E 4						
	2						
	0						
	10/24			10/24			
	Mayl			May1			
	Viscosity @ 100°C	Base Number					
	10 T 14.0 T						
	17 Abnormal			12.0	Abnormal		
	16-			(^B H)			
	0 15 Base			(0,110.0 HOX But 38.0 Jacob Monte 4.0 Reg 4.0	Base C		
	()-00() 35 14			a 6.0	Abarrat		
				₩ ₩ ₩ 40.	Abnormal		
	13 Abnormal			2.0-			
	11						
	0/24				0/24		0/24 -
	May10/24			May10/24	May10/24		May10/24
	: WearCheck USA - 50				ASSOC	ATED TERMIN	ALS - CRANE
ANAB Sample No. Lab Number	: WC0922345 : 06183700	Recei Teste		7 May 2024 I May 2024		C	CONVENT, LA
		Diagr		May 2024 - We	es Davis		US 70723
Certificate L2367 Test Package	: FLEET	-		-			GREG JOSEY
To discuss this sample report,					gjos	sey@associated	
• - Denotes test methods that a Statements of conformity to sp						·2012) E. (T:
		on the SII	ipie accepta			$\frac{2012}{100000000000000000000000000000000$	225)562-3515

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