

# **OIL ANALYSIS REPORT**

# G5-01111 Approved Boat (FRC) (S/N SSEDC 01111)

# Fluid VOLVO ULTRA DIESEL ENGINE OIL 15W4

## DIAGNOSIS

Diesel Engine

Machine Id

#### Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

## Wear

Metal levels are typical for a new component breaking in.

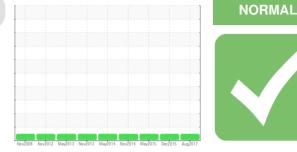
## Contamination

There is no indication of any contamination in the component.

#### Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	,					$\checkmark$							
VDS-3 (10 LTR)													
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2							
Sample Number		Client Info		WC62007373	WC62006448	WC62006429							
Sample Date		Client Info		11 Aug 2017	15 Dec 2015	15 May 2015							
Machine Age	hrs	Client Info		142	115	176							
Dil Age	hrs	Client Info		0	0	0							
Oil Changed		Client Info		Not Changd	Changed	Not Changd							
Sample Status				NORMAL	NORMAL	NORMAL							
CONTAMINATION	l i	method	limit/base	current	history1	history2							
<sup>=</sup> uel		WC Method	>6.0	<1.0	<1.0	<1.0							
Water		WC Method	>0.2	NEG	NEG	NEG							
Glycol		WC Method		NEG	NEG	NEG							
WEAR METALS		method	limit/base	current	history1	history2							
ron	ppm	ASTM D5185(m)	>100	4	4	3							
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1							
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1							
Titanium	ppm	ASTM D5185(m)		<1	0	<1							
Silver	ppm	ASTM D5185(m)	>2	0	0	0							
Aluminum	ppm	ASTM D5185(m)	>25	1	1	1							
_ead	ppm	ASTM D5185(m)	>40	2	<1	<1							
Copper	ppm	ASTM D5185(m)	>330	2	1	1							
Гin	ppm	ASTM D5185(m)	>15	<1	<1	<1							
Antimony	ppm	ASTM D5185(m)		1	2	1							
Vanadium	ppm	ASTM D5185(m)		0	0	0							
Beryllium	ppm	ASTM D5185(m)		0	0	0							
Cadmium	ppm	ASTM D5185(m)		0	0	0							
ADDITIVES		method	limit/base	current	history1	history2							
Boron	ppm	ASTM D5185(m)	2.5	1	1	1							
Barium	ppm	ASTM D5185(m)	0.0	<1	<1	0							
Volybdenum	ppm	ASTM D5185(m)	0.7	38	38	38							
Vanganese	ppm	ASTM D5185(m)	0.0	<1	<1	<1							
Magnesium	ppm	ASTM D5185(m)	256	803	813	758							
Calcium	ppm	ASTM D5185(m)	2057	1170	1209	1140							
Phosphorus	ppm	ASTM D5185(m)	935	994	1029	1022							
Zinc	ppm	ASTM D5185(m)	1223	1198	1241	1171							
Sulfur	ppm	ASTM D5185(m)	4079	3115	3142	3169							
Lithium	ppm	ASTM D5185(m)		<1	<1	<1							
CONTAMINANTS		method	limit/base	current	history1	history2							
Silicon	ppm	ASTM D5185(m)	>25	10	8	9							
Sodium	ppm	ASTM D5185(m)		6	2	1							
Potassium	ppm	ASTM D5185(m)	>20	2	1	1							
INFRA-RED		method	limit/base	current	history1	history2							
Soot %	%	ASTM D7844*	>3	0	0	0							
Nitration	Abs/cm	ASTM D7624*		7.0	5.9	5.9							
Sulfation	Abs/.1mm	ASTM D7415*		19.7	16.6	16.5							



Sample Rating Trend



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nd)		FLUID DEGRADA	ATION	method	limit/base	current	history1	history
		Oxidation	Abs/.1mm	ASTM D7414*		12.5	12.4	12.9
		Base Number (BN)	mg KOH/g	ASTM D2896*	10	8.67	9.34	10.6
		· · ·			limit/base	current	history1	history
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1/25/1	v15/1 c15/1							
Ma Ma	Ma Au							
							NEG	NEG
	and the filment of the second	Free Water	scalar	Visual*		NEG	NEG	NEG
And a state of the	N D D D D D D D D D D D D D D D D D D D	FLUID PROPERT	IES	method	limit/base	current	history1	history
14 H	/15	Visc @ 100°C	cSt	ASTM D7279(m)	15.0	13.8	13.6	14.1
May25, Nov8,	May15, Dec15, Aug11,	GRAPHS						
		Ferrous Alloys						
		50						
		40 nickel						
		30						
		ā-20-						
			_					
2 4 4 1 1 1		V13 V13 V08 0	41.	2 2 2	1			
ay25/1 Jov8/1	ay15/1 ec15/1	Nov24, Nov25, Nov15,	May25,	May15, Dec15/	Aug11			
M. M.	M De			4 1	-			
		30 copper 1						
		25 - lead						
		20						
	and the second	10						
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			14	15 15	11			
25/14 25/14	15/15	Vov24/ Vov25/ May4/ Iov15/	flay25/	hay15/ lec15/	Aug 11,			
May. No	Dec		2	2 1	4	Dage Number	-	
		19 Abnormal			12.0	base Number		
					;⊜10.0	Base		
		17- 916			HOX 8.0			
		Base	1		<u>ل</u> بع 6.0			
					4.0			
		Abnormal 13			<u>د المعامم</u> 2.0			
		12			0.0	L		
		/24/08 /25/12 15/13	25/14	15/15	71/11	/24/08 /25/12 /y4/13	/15/13 /25/14 /8/14	May15/15 Dec15/15
		Nov Nov Nov	May	May	Aug	Nov. Mar	Nov Mayi No	May
CALA								
Testing Accreditation No. 1005019						CCGS G	RIFFON, PO BOX 10	00, 401 KING Prescott
ISO 17025:2017 Accredited			Diagn		Aug 2017 - Kevi	n Marson		CA K6V
	Unique Number							
Laboratory	Test Package	: MAR 2 ( Additional Te contact Customer Servi	sts: Visu	al)	-		Contact Laurie.Bosley@	: Laurie Bo
	Testing Accreditation No. 1005218	C C C Liston C Liston Liston Liston C Liston	Base Number (BN) VISUAL White Metal Precipitate Sit Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPERT Visc @ 100°C GRAPHS Ferrous Alloys Odor Emulsified Water Free Water Fuelow Metal Precipitate Sit Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fuelow Metal Precipitate Sit Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fuelow Alloys Visc @ 100°C Other Uscosity @ 100°C Other Visc @ 100°C C Other Sample No. WearCheck - C8-1175 WearCheck - C8-1175	Base Number (BN) mgKOHg VISUAL White Metal scalar Yellow Metal scalar Precipitate scalar Site scalar Sand/Dirt scalar Appearance scalar Odor scalar Free Water scalar HUID PROPERTIES Visc @ 100°C cSt GRAPHS Viscosity @ 100°C Uscosity @ 100°C Uscosity @ 100°C Uscosity @ 100°C Uscosity @ 100°C Uscosity @ 100°C Wiscosity @ 100°C Wiscosity @ 100°C Sample No. WearCheck - C8-1175 Appleby WearCheck - C8-1175 Appleby WearCheck - C8-1175 Appleby WearCheck - C8-1175 Appleby WearCheck - C8-1175 Appleby	Base Number (BN) mgK0Hig ASTM D22995 VISUAL method White Metal scalar Visual* Yellow Metal scalar Visual* Precipitate scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Precipitate scalar Visual* Debris scalar Visual* Precipitate scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Precipitate scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Debris scalar Visual* Precipitate scalar Visual* Debris scalar Visual* De	Base Number (BN) mg/KHg ASTM D2396' 10 VISUAL method imit/base Visual* NONE Sand/Dirt Scalar Visual* NORML Code Sand/Dirt Scalar Visual* NORML Code Sand/Dirt Scalar Visual* NORML Code Sand/Dirt Scalar Visual* NORML Sand/Dirt Scalar Visual* NORML Code Sand/Dirt Scalar Visual* NORML Sand/Dirt Scalar Visual* NORML Code Sand/Dirt Scalar Visual* NORML Sand/Dirt Scalar Visual* NORML Code Sand/Dirt	Base Number (BN) inskHig ASTM D2350 <sup>1</sup> 10 8.67 VISUAL inskHoase current White Metal scalar Visual <sup>1</sup> NONE NONE Precipite scalar Visual <sup>1</sup> NONE NONE Site scalar Visual <sup>1</sup> NONE NONE Site scalar Visual <sup>1</sup> NONE NONE Site scalar Visual <sup>1</sup> NONE NONE Sand/Dit scalar Visual <sup>1</sup> NONE NONE NONE Sand/Dit scalar Visual <sup>1</sup> NONE NONE NORML	Base Number (BN) mrKHig ASIM D2895 10 8.67 9.34 VISUAL method imit/base current history1 White Weilal scalar Visual* NONE NONE NONE Precipitate scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Appearance scalar Visual* NONE NONE Codor scalar Visual* NONE NONE Precipitate scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Debris scalar Visual* NONE NONE Appearance scalar Visual* NORML NORML Emulsified Water scalar Visual* NORML NORML Nor ferrous Alloys  Viscostiv @ 100°C cst ASIM 07278m 15.0 13.8 13.6 GRAPHS Ferrous Alloys  Viscostiv @ 100°C  Wiscostiv @ 100°C 

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Contact/Location: Laurie Bosley - GRIFFON Page 2 of 2