

OIL ANALYSIS REPORT

Sample Rating Trend





Area

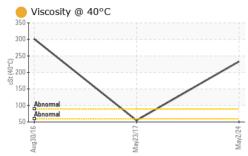
[W05004186] VOLVO A40F 11613 Component Rear Axle

Fluid VOLVO SUPER GEAR OIL 75W-80-GO102 (10 GAL)

monitor. (Customer Sample Comment: W05004186)Middinine AgeInitsOnertified100201054100Wear All component wear rates are normal.Oil AgehrsClient Info2000000Oil ChangedClient InfoChangedChangedChangedChangedChangedChangedAll component wear rates are normal.CONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.2NEGNEGNEGFluid Condition The oil viscosity is higher than normal. Confirm oilIronppmASTM D5185m>3403954	DIAGNOSIS	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
The old hange at the time of sampling has been invexed to monitor. Classing the meet service interval to monitor. Classing the meet ser	Recommendation	Sample Number		Client Info		ML0001010	VCP192275	VCP195666
Machine Age Inter Cliant Intio 1992 6189 1180 Worsinic (Classmore Sample Commet: Oil Age Inter Client Intio 2000 0 0 Wars All component wer rates are normal. Camped Client Intio 2000 NCRMAL NORMAL Contamination There is no indication of any contamination in the oil. CORTAMINATION Wars Wars Victor NCR NEG NEG NEG NEG NEG NCR The is no indication of any contamination in the oil. CORTAMINATION Wars Wars Victor NCR				Client Info		02 May 2024	23 May 2017	30 Aug 2016
Monitor (Caustioner Sample Comment: Wear All component wear rates are normal. Oil / Age / Ims Citient Info 2000 0 0 Mear All component wear rates are normal. Contamination ATTENTION NORMAL NORMAL NORMAL Contamination There is no indication of any contamination in the oil. Fuid Condition method Isonthase current Netry Netry Netry The oil viscosity is higher than normal. Continual type. Fuid Condition method Isonthase current Netry Netry Netry Silver pp ASTM 05186 >5.2 1 <1 <1 <1 The oil viscosity is higher than normal. Continual type. pp ASTM 05186 >5 1 <1 <1 <1 Silver pp ASTM 05186 >5 1 <1 <1 <1 Silver pp ASTM 05186 >2 0 0 <1 Concominum pp ASTM 05186 >2 1 <1 <1 Colore pp <td< th=""><th>noted. Resample at the next service interval to</th><th></th><th>hrs</th><th></th><th></th><th></th><th></th><th>÷</th></td<>	noted. Resample at the next service interval to		hrs					÷
Outcome Clanaged Clanaged Changed Changed Changed Changed Changed Changed NDRMAL NDRMAL All component war rates are normal. CONTAMINATION method Unitability NORMAL NDRMAL NDRMAL There is no indication of any contamination in the oil. Fluid Condition method Imitability Scarned NEG	monitor. (Customer Sample Comment:	-						
Sample Status ATTENTION NORMAL NORMAL Alcomponent wear rates are normal. Contrantifian read-base current testay nearons Fluid Condition Three is no indication of any contamination in the oil. Water W6 Method o.2. NEG NEG NEG Fluid Vacobity is higher than normal. Confirm oil in the oil vacobity is higher than normal. Confirm oil normal. Normal ppn AStill 05186 >5.4 -1 <1 <1 The oil vacobity is higher than normal. Confirm oil type. ppn AStill 05186 >5.4 0 0 0 Silver ppn AStill 05185 >2.2 0 -1 1 0 0 Silver ppn AStill 05185 >2.2 0	W05004186)	-						
Contamination method method method outside NEG NEG NEG There is on indication of any contamination in toil. Fuid Condition method fuid base current NetG NEG		-				-	Ũ	
There is in indication of any contamination in the isi. Water WC Method >0.2 NEG NEG NEG Fluid Condition Tron ppm ASTM D5565 >3.40 3 9 5.4 The oil viscosity is higher than normal. Contirmal type. ppm ASTM D5565 >2.0 0.0 <1 <1 Nicel ppm ASTM D5565 >2.0 0.0 <1 <1 Nicel ppm ASTM D5565 0.0 0.0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <t< th=""><th>•</th><th>CONTAMINATION</th><th>٧</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	•	CONTAMINATION	٧	method	limit/base	current	history1	history2
Fund constraint ppm ASTM D3186m >34.0 3 9 54 The oil viscosity is higher than normal. Confirm oil type. ppm ASTM D3186m >2 0 0 <1 Nickel ppm ASTM D3186m >2 0 0 <1 Nickel ppm ASTM D3186m >22 0 0 0 Aluminium ppm ASTM D3186m >22 2 <1 0 0 Aluminium ppm ASTM D3186m >22 2 <1 0 0 Aluminium ppm ASTM D3186m >22 <1 <1 2 Anitmony ppm ASTM D3186m >2 <1 <1 2 Anitmony ppm ASTM D3186m <1 <1 <1 2 Anitmony ppm ASTM D3186m <1 <1 <1 2 Anitmony ppm ASTM D3186m <263 130 119 Barium	There is no indication of any contamination in the			WC Method	>0.2	NEG	NEG	NEG
Chromium ppm ASTM D515m >5	Fluid Condition	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D515m >2 0 0 <1	The oil viscosity is higher than normal. Confirm oil	Iron	ppm	ASTM D5185m	>340	3	9	54
Titanium ppm ASTM 0518m 1 0 1 Silver ppm ASTM 0518m >22 2 -1 0 Lead ppm ASTM 0518m >22 2 -1 0 Lead ppm ASTM 0518m >2 -1 -1 2 Copper ppm ASTM 0518m >5 0 0 0 Vanadium ppm ASTM 0518m >5 0 0 0 Camimony ppm ASTM 0518m - 0 0 0 0 ADDITIVES method limit/base current historyt historyt historyt Barium ppm ASTM 0518m 0 0 0 0 1 Calcium ppm ASTM 0518m 1 -1 -1 2 Marganese ppm ASTM 0518m 1 -1 1 2 1 2	type.	Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
SilverppmASTM DS185n MS1MD S185n MS1MD S185n 		Nickel	ppm	ASTM D5185m	>2	0	0	<1
AluminumppmASTM D5185n>222<1		Titanium	ppm	ASTM D5185m		<1	0	<1
LeadppmASTM D5185m>4000CopperppmASTM D5185m>10<11<1<1<1TinppmASTM D5185m>500AntimonyppmASTM D5185m<5500VanadiumppmASTM D5185m<5600CadmiumppmASTM D5185m<10000ADDTTIVESmethodImitbasecurrenthistory1history2BoronppmASTM D5185m263130119BariumppmASTM D5185m4<1<1ManganeseppmASTM D5185m25<11CalciumppmASTM D5185m25<11156PhosphorusppmASTM D5185m100622697682ZincppmASTM D5185m100622782SuiforppmASTM D5185m1610212SoliumppmASTM D5185m20100VISUALmethodImitbasecurrenthistory1history2VisualppmASTM D5185m20122CONTAMINANTSmethodImitbasecurrenthistory1history2VisualppmASTM D5185m2.0100VisualppmASTM D5185m2.0100Dotassiumppm		Silver	ppm	ASTM D5185m		0	0	0
Copper ppm ASTM D5185m >10 <1		Aluminum	ppm	ASTM D5185m	>22	2	<1	0
Copper ppm ASTM DS185m >10 <1		Lead	ppm	ASTM D5185m	>4	0	0	0
TinppmASTM D5185m>2<1		Copper	ppm	ASTM D5185m	>10	<1	<1	<1
Antimony Vanadium opmASTM D5185m>500Vanadium opmASTM D5185m<1000ASTM D5185mVanadium ASTM D5185mVariation Imit/base000ADDIT/VESmethodimit/basecurrenthistory1history1BoronppmASTM D5185m263130119BariumppmASTM D5185m4<1<1MolydodenumppmASTM D5185m4<1<1MagnesiumppmASTM D5185m<1<11GalciumppmASTM D5185m<25<11CalciumppmASTM D5185m15824156PhosphorusppmASTM D5185m10062269768ZincppmASTM D5185m9422078SulfurppmASTM D5185m9422078SulfurppmASTM D5185m>20100VisualppmASTM D5185m>20100VisualppmASTM D5185m>20100VisualNONENONENONENONENONENONENONEVelow Metalscalar"VisualNONENONENONENONENONEVelow Metalscalar"VisualNONENONENONENONENONEVelow Metalscalar"VisualNONENONENONENONENONE <th></th> <th></th> <th>ppm</th> <th>ASTM D5185m</th> <th>>2</th> <th><1</th> <th><1</th> <th>2</th>			ppm	ASTM D5185m	>2	<1	<1	2
VanadiumppmASTM D5185m<1		Antimony		ASTM D5185m	>5		0	
CadmiumppmASTM D5185m000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m263130119BariumppmASTM D5185m000MolybdenumppmASTM D5185m4<1<1ManganeseppmASTM D5185m25<11CalciumppmASTM D5185m25<11CalciumppmASTM D5185m10062269768ZincppmASTM D5185m1006222878SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory2SiliconppmASTM D5185m>2010PotassiumppmASTM D5185m2010VISUALmethodlimit/basecurrenthistory2White Metalscalar"VisualNONENONENONEVisualscalar"VisualNONENONENONENONESilitscalar"VisualNONENONENONENONENONESilitscalar"VisualNONENONENONENONENONESilitscalar"VisualNONENONENONENONENONEOdorscalar"VisualNONENONENONENONENONENonescalar"VisualNONE <th></th> <th>•</th> <th></th> <th></th> <th></th> <th><1</th> <th>0</th> <th>0</th>		•				<1	0	0
BoronppmASTM D5185m263130119BariumppmASTM D5185m000MolybdenumppmASTM D5185m4<1<1MagnesseppmASTM D5185m25<11MagnesumppmASTM D5185m25<11CalciumppmASTM D5185m10062269768ZincppmASTM D5185m10062269768SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>20100VisualppmASTM D5185m>20100VisUALmethodlimit/basecurrenthistory1history2SodiumppmASTM D5185m>20100VisUALmethodlimit/basecurrenthistory1history2White Metalscalar'VisualNONENONENONENONEYellow Metalscalar'VisualNONENONENONENONESiliscalar'VisualNONENONENONENONEPrecipitatescalar'VisualNONENONENONENONESand/Diritscalar'VisualNONENONENONENONEAppearance		Cadmium		ASTM D5185m			0	0
BariumppmASTM D5185m000MolybdenumppmASTM D5185m4<1<1ManganeseppmASTM D5185m<1<12MagnesiumppmASTM D5185m<25<11CalciumppmASTM D5185m15824156PhosphorusppmASTM D5185m10062269768ZincppmASTM D5185m10062269768SulfurppmASTM D5185m20482338822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>20100VISUALmethodlimit/basecurrenthistory1history2VisitalNONENONENONENONENONENONEVisitalscalarVisualNONENONENONENONEVisitalscalarVisualNONENONENONENONESiltscalarVisualNONENONENONENONEDebrisscalarVisualNONENONENONENONESand/DirtscalarVisualNONENONENONENONEAppearancescalarVisualNORMLNORMLNORMLNORMLAbipearancescalarVisualNORMLNORMLNORMLAbipearance <td< th=""><th></th><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>		ADDITIVES		method	limit/base	current	history1	history2
BariumppmASTM D5185m000MolybdenumppmASTM D5185m4<1<1ManganeseppmASTM D5185m<1<12MagnesiumppmASTM D5185m25<11CalciumppmASTM D5185m15824156PhosphorusppmASTM D5185m10062269768ZincppmASTM D5185m10062269768SulfurppmASTM D5185m10062269768SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>20100VISUALppmASTM D5185m>20100VISUALppmASTM D5185m>20100VisualNONENONENONENONENONENONEVisualscalarVisualNONENONENONENONEVisualscalarVisualNONENONENONENONESiltscalarVisualNONENONENONENONEDebrisscalarVisualNONENONENONENONEAstm D5185mScalarVisualNONENONENONENONEDebrisscalarVisualNONE <th></th> <th>Boron</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>263</th> <th>130</th> <th>119</th>		Boron	ppm	ASTM D5185m		263	130	119
MolybdenumppmASTM D5185m4<1		Barium		ASTM D5185m			0	0
ManganeseppmASTM D5185m<1		Molybdenum				4	<1	<1
MagnesiumppmASTM D5185m25<1				ASTM D5185m		<1	<1	2
CalciumppmASTM D5185m15824156PhosphorusppmASTM D5185m10062269763ZincppmASTM D5185m942278SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>160212PotassiumppmASTM D5185m>20100VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORML		0				25		
PhosphorusppmASTM D5185m10062269768ZincppmASTM D5185m942278SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>160212PotassiumppmASTM D5185m>20100VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEVellow Metalscalar*VisualNONENONENONENONESitiscalar*VisualNONENONENONENONENONESitiscalar*VisualNONENONENONENONENONEObrinsscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORML		-					24	156
ZincppmASTM D5185m942278SulfurppmASTM D5185m220482838822028CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>160212SodiumppmASTM D5185m>160212PotassiumppmASTM D5185m>20100VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONENONEVelow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML		Phosphorus					2269	
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SodiumppmASTM D5185m002<1		CONTAMINANTS		method	limit/base	current	history1	history2
SodiumppmASTM D5185m002<1		Silicon	ppm	ASTM D5185m	>160	2	1	2
PotassiumppmASTM D5185m>20100VISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONELIGHTYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONENONESiltscalar*VisualNONENONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENORMLAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualSolar>0.2NEGNEGNEG				ASTM D5185m			2	<1
White Metalscalar*VisualNONENONENONELIGHTYellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		Potassium	ppm	ASTM D5185m	>20	1	0	0
Yellow Metalscalar*VisualNONENONENONENONENONEPrecipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		VISUAL		method	limit/base	current	history1	history2
Precipitatescalar*VisualNONENONENONENONENONESiltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
Precipitatescalar*VisualNONENONENONENONENONENONESiltscalar*VisualNONENONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Siltscalar*VisualNONENONENONENONENONEDebrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		Precipitate		*Visual				
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEG		Silt	scalar	*Visual		NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEG		Debris	scalar	*Visual				NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEG		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar *Visual NORML NORML NORML NORML Emulsified Water scalar *Visual >0.2 NEG NEG								
Emulsified Water scalar *Visual >0.2 NEG NEG NEG								
	Report Id: VOLVO0002 [WUSCAR] 06174370 (Generated: 05/16/2024 1							



OIL ANALYSIS REPORT



FLUID PROPER	TIES r	method	limit/base	current	history1	history2
Visc @ 40°C	cSt AS	STM D445		e 233	54.86	301.4
SAMPLE IMAGE	S r	method	limit/base	current	history1	history2
Color				no image	no image	no image
Bottom				no image	no image	no image
GRAPHS						
Ferrous Alloys						
50 - iron						
40-						
³⁵ = 30						
25 20						
15-						
5	\					
0 L	1		24			
Aug30/16	May23/17		May2/24			
Non-ferrous Meta	ls					
9 - copper						
8 tin						
6						
5						
3						
1						
			24			
Aug30/16	May23/17		May2/24			
Piscosity @ 40°C						
350						
300						
250			1			
200		/				
150		/				
100 - Abnormal	$\langle /$					
50 Abnormal	$\mathbf{Y}_{\mathbf{z}}$					
Aug30/16	May23/17		May2/24			
: WearCheck USA - 50 : ML0001010	1 Madison A Received	we., Cary, d •∩o	NC 27513 May 2024	MCCLUN	G-LOGAN EQUIPMEI	NT CO - MANASSA UARRY ROA
: 06174370	Tested	: 10	May 2024			IANASSAS, V
: 11020423 : CONST	Diagnos	ed : 13 M	May 2024 - Do	n Baldridge	Contact: MI	US 2011 KE MAYHUG



Test Package : CONST Certificate 12367 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)

: 13 May 2024 - Don Baldridge US 20110 Contact: MIKE MAYHUGH MMAYHUGH@MCCLUNG-LOGAN.COM T: (703)393-7344 F: (703)393-7844

Submitted By: DARRELL ANDES

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