

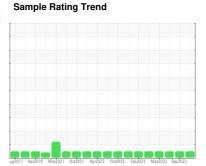
OIL ANALYSIS REPORT

WMR-Plymouth VOLVO L150H 5394



Component **Diesel Engine**

VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (14 GAL)





NORMAL

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

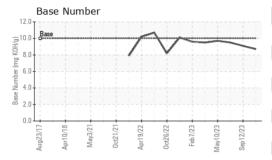
Fluid Condition

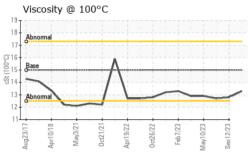
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info DJJ0015295 DJJ0008929 DJJ0015264	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date							
Machine Age hrs Client Info 14611 14253 13918	•						
Oil Age	•	hre					
Colient Info Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL							
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	•	1113					
Fuel			Ciletit IIIIO		_		
Fuel							
Water Glycol WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >200 0 0 2 Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >5 <1 0 0 Silver ppm ASTM D5185m >5 <1 0 0 Silver ppm ASTM D5185m >40 0 <1 0 0 Silver ppm ASTM D5185m >40 0 <1 0 0 Aluminum ppm ASTM D5185m >20 0 <1 0 0 Copper ppm ASTM D5185m >20 0 <1 0 0 Caddnium ppm ASTM D5185m >20 0 0 0 0 ADDITIVES		N					
WEAR METALS	Fuel		WC Method	>6.0			
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >200 0 0 2 Chromium ppm ASTM D5185m >20 0 <1	Water		WC Method	>0.2		NEG	
Description Description	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>200	0	0	2
Titanium	Chromium	ppm	ASTM D5185m	>20	0	<1	0
Silver	Nickel	ppm	ASTM D5185m	>5	<1	0	0
Aluminum ppm ASTM D5185m >30 1 2 <1 Lead ppm ASTM D5185m >40 0 <1	Titanium	ppm	ASTM D5185m		<1	0	0
Lead	Silver	ppm	ASTM D5185m	>2	<1	0	0
Copper ppm ASTM D5185m >20 0 <1 0 Tin ppm ASTM D5185m >20 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0.0 0 0 0 Barium ppm ASTM D5185m 0.0 0 0 0 Molybdenum ppm ASTM D5185m 0.0 0 0 0 Manganese ppm ASTM D5185m 0.0 <1	Aluminum	ppm	ASTM D5185m	>30	1	2	<1
Trin	Lead	ppm	ASTM D5185m	>40	0	<1	0
Trin	Copper	ppm	ASTM D5185m	>20	0	<1	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2.5 6 7 4 Barium ppm ASTM D5185m 0.0 0 0 0 Molybdenum ppm ASTM D5185m 0.7 57 69 56 Manganese ppm ASTM D5185m 0.0 <1 <1 <1 Magnesium ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m >20 2 3		ppm	ASTM D5185m	>20	0	0	0
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2.5 6 7 4 Barium ppm ASTM D5185m 0.0 0 0 0 Molybdenum ppm ASTM D5185m 0.0 <1	Vanadium		ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 2.5 6 7 4	Cadmium				0	0	0
Barium ppm ASTM D5185m 0.0 0 0 0 Molybdenum ppm ASTM D5185m 0.7 57 69 56 Manganese ppm ASTM D5185m 0.0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0.7 57 69 56 Manganese ppm ASTM D5185m 0.0 <1 <1 <1 Magnesium ppm ASTM D5185m 256 899 957 934 Calcium ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >3	Boron	ppm	ASTM D5185m	2.5	6	7	4
Manganese ppm ASTM D5185m 0.0 <1 <1 <1 Magnesium ppm ASTM D5185m 256 899 957 934 Calcium ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m >20 2 3 2 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0.0</td><th>0</th><td>0</td><td>0</td></t<>	Barium	ppm	ASTM D5185m	0.0	0	0	0
Magnesium ppm ASTM D5185m 256 899 957 934 Calcium ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m >20 21 1 2 Potassium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m	0.7	57	69	56
Calcium ppm ASTM D5185m 2057 936 1123 1037 Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 20 2 1 2 Potassium ppm ASTM D5185m >20 <1	Manganese	ppm	ASTM D5185m	0.0	<1	<1	<1
Phosphorus ppm ASTM D5185m 935 1003 1052 983 Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1	Magnesium	ppm	ASTM D5185m	256	899	957	934
Zinc ppm ASTM D5185m 1223 1176 1256 1194 Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m	2057	936	1123	1037
Sulfur ppm ASTM D5185m 4079 3037 3749 3604 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m	935	1003	1052	983
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m	1223	1176	1256	1194
Silicon ppm ASTM D5185m >20 2 3 2 Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.6 5.5 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Sulfur	ppm	ASTM D5185m	4079	3037	3749	3604
Sodium ppm ASTM D5185m 2 1 2 Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.6 5.5 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.6 5.5 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Silicon	ppm	ASTM D5185m	>20	2	3	2
INFRA-RED	Sodium	ppm	ASTM D5185m		2	1	2
Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.6 5.5 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Potassium	ppm	ASTM D5185m	>20	<1	<1	0
Nitration Abs/cm *ASTM D7624 >20 5.6 5.5 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 18.0 18.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Nitration	Abs/cm	*ASTM D7624	>20	5.6	5.5	5.6
Oxidation Abs/.1mm *ASTM D7414 >25 13.0 13.4 14.4	Sulfation						
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	13.4	14.4
	Base Number (BN)	mg KOH/g			8.7	9.1	9.5



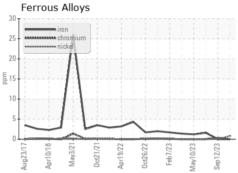
OIL ANALYSIS REPORT

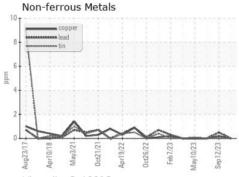


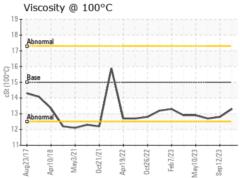


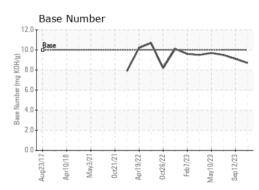
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPER	HES	method	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.0	13.3	12.8	12.7













Certificate L2367

Laboratory Sample No. Lab Number **Unique Number**

: DJJ0015295 : 06012189 : 10751333

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received

: 20 Nov 2023 Diagnosed : 21 Nov 2023 Diagnostician : Don Baldridge

Test Package : CONST (Additional Tests: TBN)

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)

WESTERN METALS RECYCLING - SALT LAKE CITY

4221 WEST 700 SOUTH SALT LAKE CITY, UT US 84104

Contact: TIMOTHY SHEFFIELD timothy.sheffield@wmrecycling.com

T: (801)373-4225

F: (801)975-9590

Contact/Location: TIMOTHY SHEFFIELD - WESSALUT