



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**VOLVO 110087**

Component  
**Diesel Engine**

Fluid  
**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>KLMFA13344</b>	KLMFA13354	KLMFA13446
Sample Date		Client Info		<b>01 Dec 2014</b>	03 Dec 2013	14 Oct 2013
Machine Age	mls	Client Info		<b>2461375</b>	2370834	2342421
Oil Age	mls	Client Info		<b>90541</b>	61678	33265
Filter Age	mls	Client Info		<b>12353</b>	61678	33265
Oil Changed		Client Info		<b>Not Changd</b>	Changed	Not Changd
Filter Changed		Client Info		<b>Not Changd</b>	Changed	Not Changd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>50</b>	85	54
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	2	1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>5</b>	7	6
Lead	ppm	ASTM D5185m	>40	<b>5</b>	7	6
Copper	ppm	ASTM D5185m	>330	<b>21</b>	27	17
Tin	ppm	ASTM D5185m	>15	<b>0</b>	1	2
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

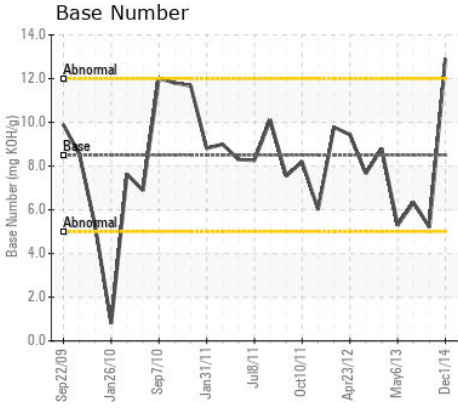
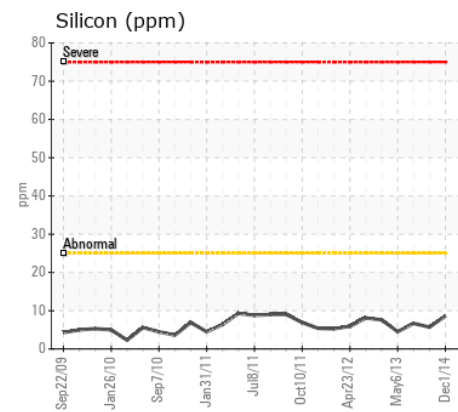
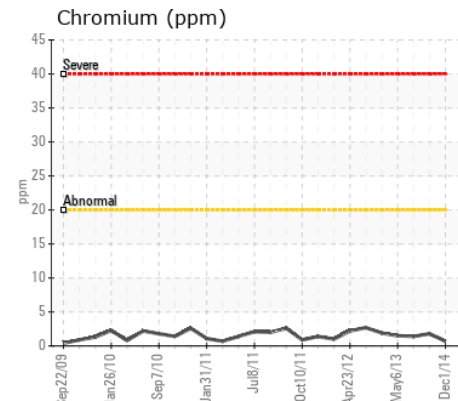
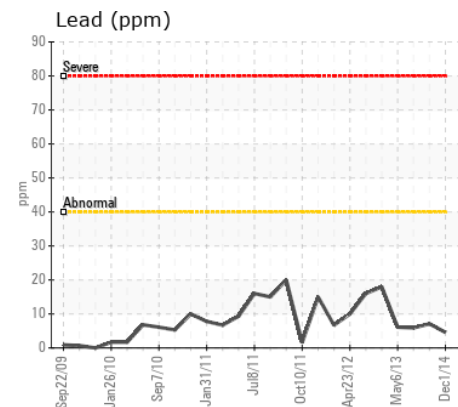
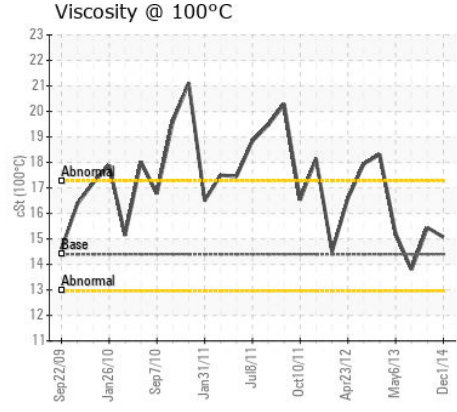
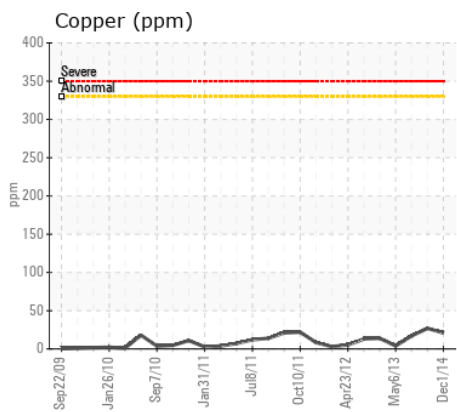
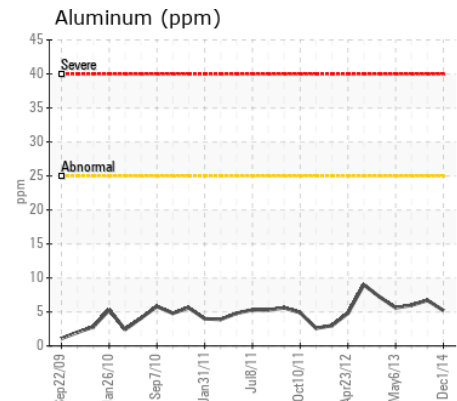
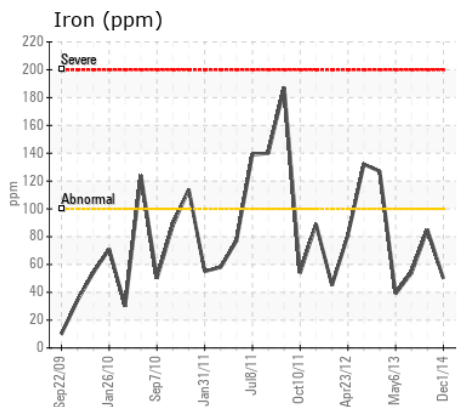
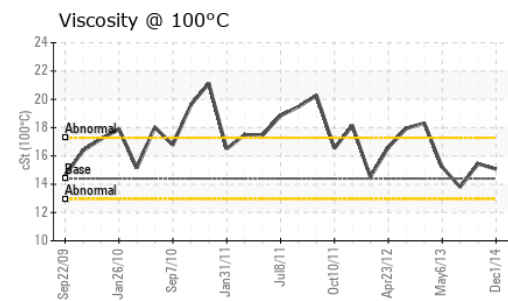
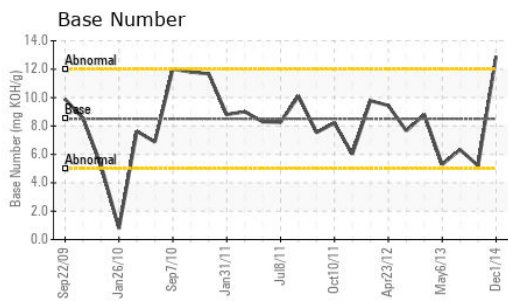
There is no indication of any contamination in the component.

Silicon	ppm	ASTM D5185m	>25	<b>9</b>	6	7
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	0	3
Fuel		WC Method	>6.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	2.2	1.2
Nitration	Abs/cm	*ASTM D7624		<b>4.</b>	11.	8.
Sulfation	Abs/.1mm	*ASTM D7415		<b>14.</b>	29.	22.
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**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.

Sodium	ppm	ASTM D5185m		<b>40</b>	45	42
Boron	ppm	ASTM D5185m	250	<b>103</b>	52	44
Barium	ppm	ASTM D5185m	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>96</b>	93	99
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	450	<b>450</b>	355	376
Calcium	ppm	ASTM D5185m	3000	<b>1920</b>	1775	1876
Phosphorus	ppm	ASTM D5185m	1150	<b>1167</b>	1077	1241
Zinc	ppm	ASTM D5185m	1350	<b>1422</b>	1322	1475
Sulfur	ppm	ASTM D5185m	4250	<b>3735</b>	1836	3090
Oxidation	Abs/.1mm	*ASTM D7414		<b>7.</b>	25.	16.
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>12.91</b>	5.20	6.33
Visc @ 100°C	cSt	ASTM D445	14.4	<b>15.07</b>	15.44	13.8



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KLMFA13344 **Received** : 08 Dec 2014  
**Lab Number** : 03639976 **Diagnosed** : 09 Dec 2014  
**Unique Number** : 6837955 **Diagnostician** : Don Baldrige  
**Test Package** : MOB 2

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Certificate L2367  
 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)