



# OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Machine Id  
**WESTERN STAR 118787**

Component  
**Front Diesel Engine**

Fluid  
**SAE 15W40 (11 GAL)**

## RECOMMENDATION

We advise that you check for possible coolant leak. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>KLMFA12069</b>	KLMFA13460	KLMFA13372
Sample Date		Client Info		<b>27 May 2014</b>	20 Jan 2014	29 Nov 2013
Machine Age	mls	Client Info		<b>716101</b>	682878	654129
Oil Age	mls	Client Info		<b>558782</b>	525559	496810
Filter Age	mls	Client Info		<b>240005</b>	206782	178033
Oil Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

The iron level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>▲ 161</b>	116	145
Chromium	ppm	ASTM D5185m	>20	<b>3</b>	2	3
Nickel	ppm	ASTM D5185m	>2	<b>1</b>	1	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>9</b>	5	6
Lead	ppm	ASTM D5185m	>40	<b>24</b>	4	2
Copper	ppm	ASTM D5185m	>330	<b>16</b>	8	9
Tin	ppm	ASTM D5185m	>15	<b>4</b>	1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

Sodium and/or potassium levels are high.

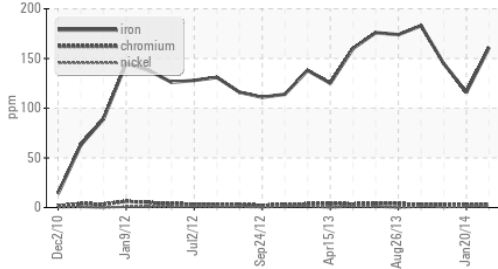
Silicon	ppm	ASTM D5185m	>25	<b>8</b>	5	7
Potassium	ppm	ASTM D5185m	>20	<b>▲ 84</b>	35	35
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.5	0
Nitration	Abs/cm	*ASTM D7624		<b>6.</b>	11.	3.
Sulfation	Abs/.1mm	*ASTM D7415		<b>16.</b>	25.	11.
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	>0.1	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

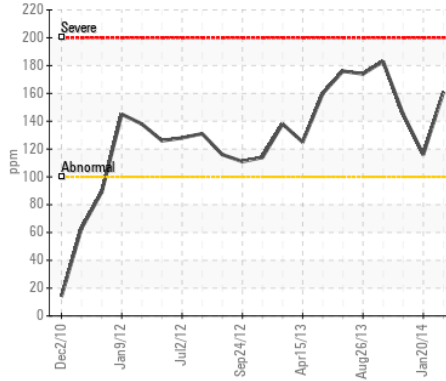
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		<b>6</b>	4	5
Boron	ppm	ASTM D5185m		<b>147</b>	154	157
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>80</b>	75	83
Manganese	ppm	ASTM D5185m		<b>4</b>	1	<1
Magnesium	ppm	ASTM D5185m		<b>350</b>	338	353
Calcium	ppm	ASTM D5185m		<b>1633</b>	1642	1620
Phosphorus	ppm	ASTM D5185m		<b>997</b>	969	959
Zinc	ppm	ASTM D5185m		<b>1216</b>	1101	1215
Sulfur	ppm	ASTM D5185m		<b>683</b>	3075	1509
Oxidation	Abs/.1mm	*ASTM D7414		<b>13.</b>	26.	6.
Base Number (BN)	mg KOH/g	ASTM D2896		<b>10.04</b>	6.19	11.25
Visc @ 100°C	cSt	ASTM D445	14.5	<b>15.73</b>	14.67	14.4

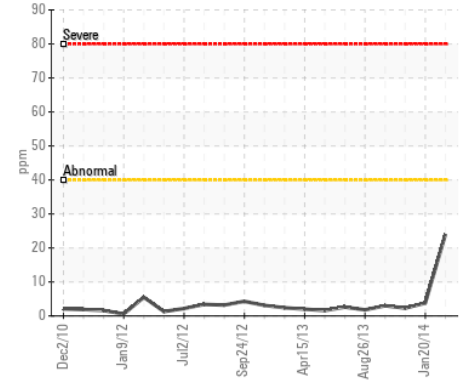
▲ Ferrous Alloys



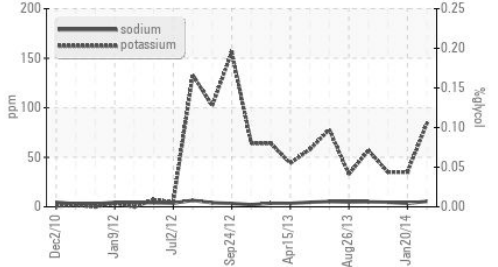
▲ Iron (ppm)



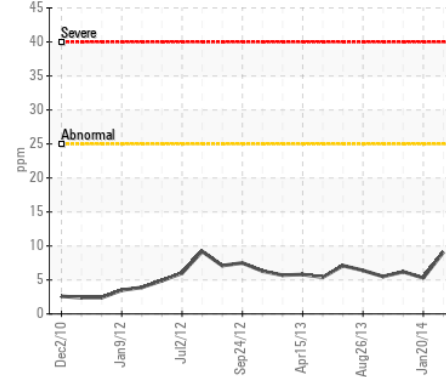
Lead (ppm)



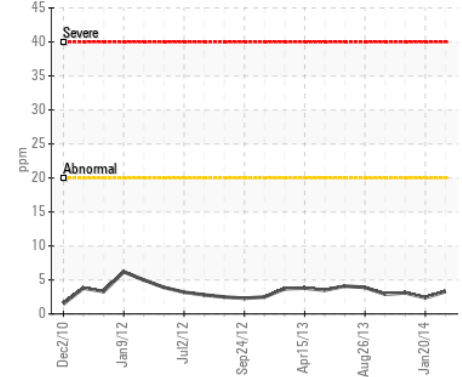
Glycol Contamination



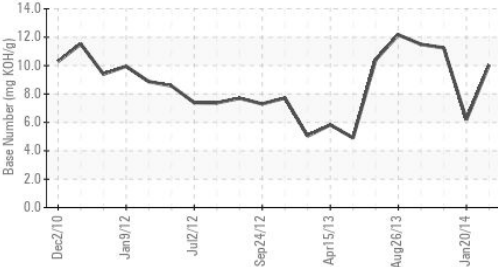
Aluminum (ppm)



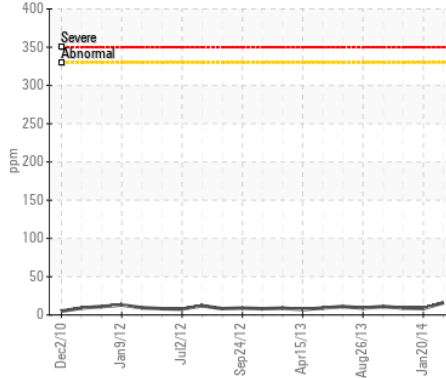
Chromium (ppm)



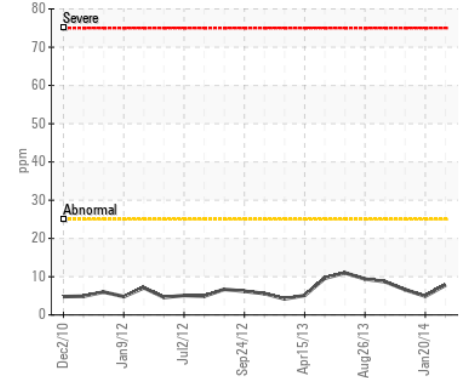
Base Number



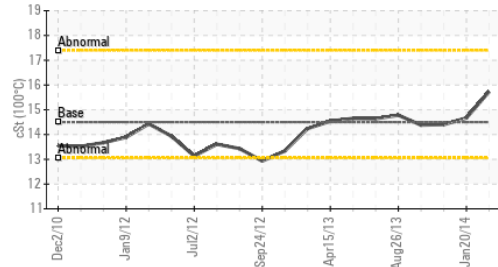
Copper (ppm)



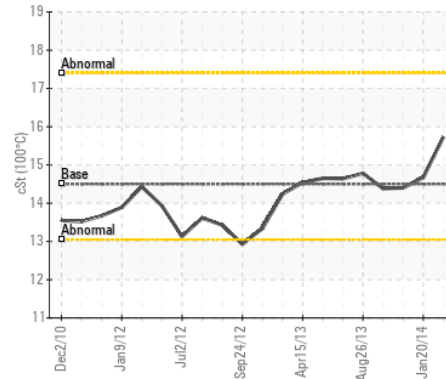
Silicon (ppm)



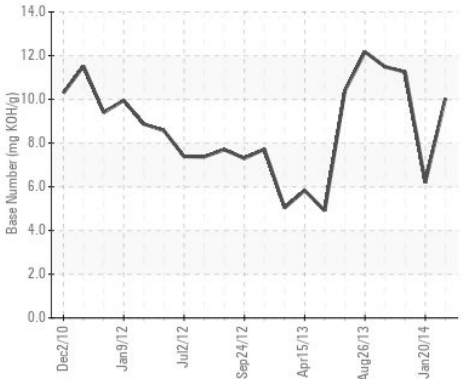
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : KLMFA12069 **Received** : 02 Jun 2014  
**Lab Number** : 03514777 **Diagnosed** : 04 Jun 2014  
**Unique Number** : 6637661 **Diagnostician** : Jonathan Hester  
**Test Package** : MOB 2 ( Additional Tests: Glycol, PQ )

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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)