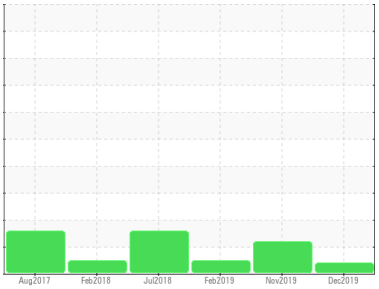
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
63
Machine Id
[63] A63 SPQ 1 Fire Pump
Component
Diesel Engine
Fluid
HIGH PERFORMANCE LUBRICANTS HDMO 5W30 (8 GAL)

DIAGNOSIS

▲ Recommendation
No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

▲ Fluid Condition
The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**HPL010309**	HPL010879	HPL004059
Sample Date		Client Info		**17 Dec 2019**	08 Nov 2019	01 Feb 2019
Machine Age	hrs	Client Info		**43**	41	0
Oil Age	hrs	Client Info		**4**	2	20
Oil Changed		Client Info		**Not Changd**	Not Changd	N/A
Sample Status				**ATTENTION**	ATTENTION	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<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
Iron	ppm	ASTM D5185m	>100	**18**	4	12
Chromium	ppm	ASTM D5185m	>20	**1**	<1	<1
Nickel	ppm	ASTM D5185m	>4	**<1**	0	<1
Titanium	ppm	ASTM D5185m	>3	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	**1**	1	4
Lead	ppm	ASTM D5185m	>40	**3**	<1	6
Copper	ppm	ASTM D5185m	>330	**72**	42	184
Tin	ppm	ASTM D5185m	>15	**0**	0	1
Antimony	ppm	ASTM D5185m		**0**	0	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	200	**42**	104	146
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m	85	**<1**	25	61
Manganese	ppm	ASTM D5185m		**<1**	0	1
Magnesium	ppm	ASTM D5185m	525	**722**	265	338
Calcium	ppm	ASTM D5185m	4300	**1291**	1768	3137
Phosphorus	ppm	ASTM D5185m	1000	**620**	769	719
Zinc	ppm	ASTM D5185m	1100	**724**	832	786
Sulfur	ppm	ASTM D5185m	20200	**2154**	1740	15836

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**6**	2	4
Sodium	ppm	ASTM D5185m		**3**	▲ 92	13
Potassium	ppm	ASTM D5185m	>20	**13**	<1	1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**2.1**	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**10.9**	4.2	6.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.2**	15.5	24.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**14.9**	8.8	15.9
Base Number (BN)	mg KOH/g	ASTM D2896	14.5	**7.21**	8.07	18.6

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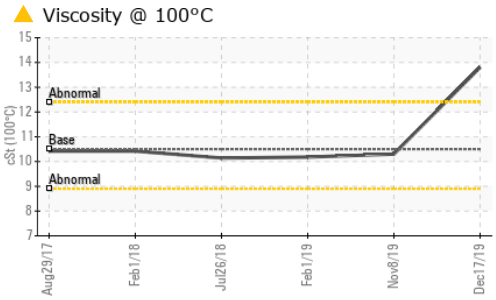
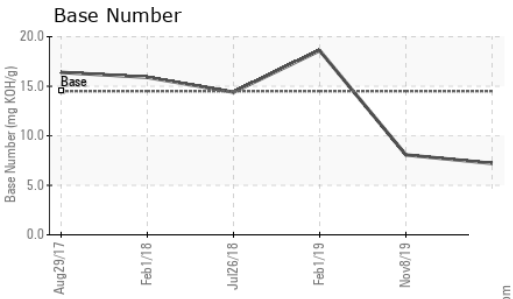
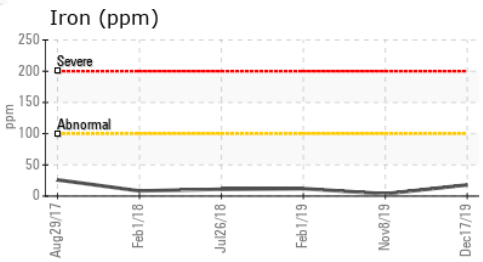


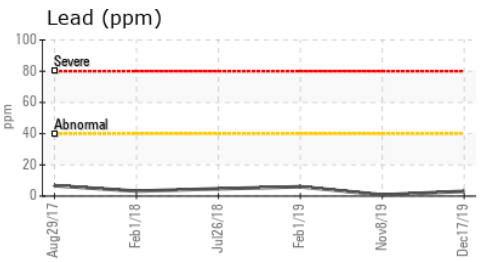


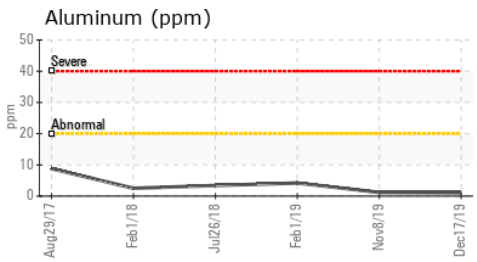
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

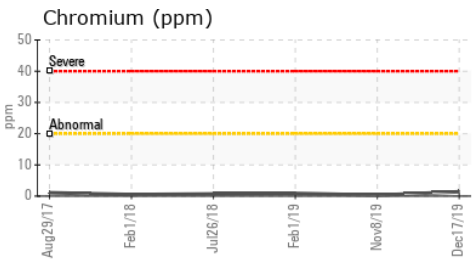
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.5	▲ **13.8**	10.3	10.18

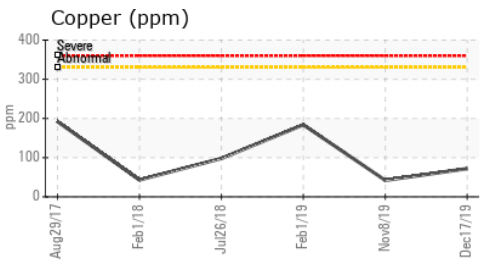
GRAPHS

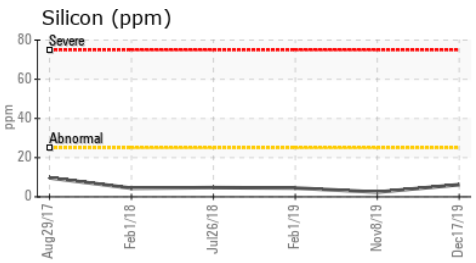


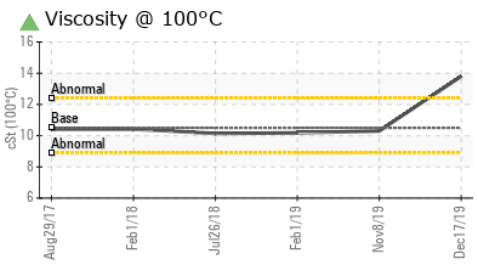


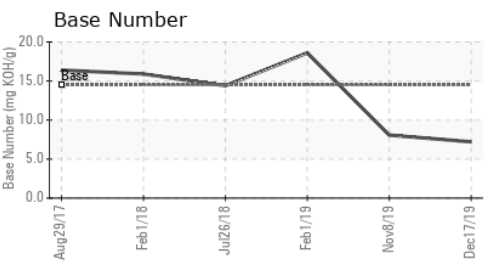












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HPL010309 **Recieved** : 14 Jan 2020
Lab Number : 04886960 **Diagnosed** : 15 Jan 2020
Unique Number : 8882003 **Diagnostician** : Jonathan Hester
Test Package : MOB 2

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)

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