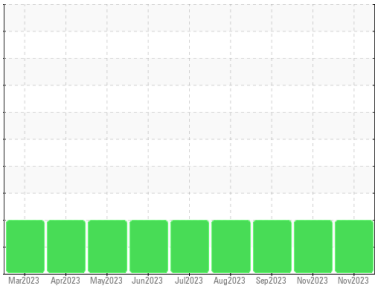
PROBLEM SUMMARY

Sample Rating Trend

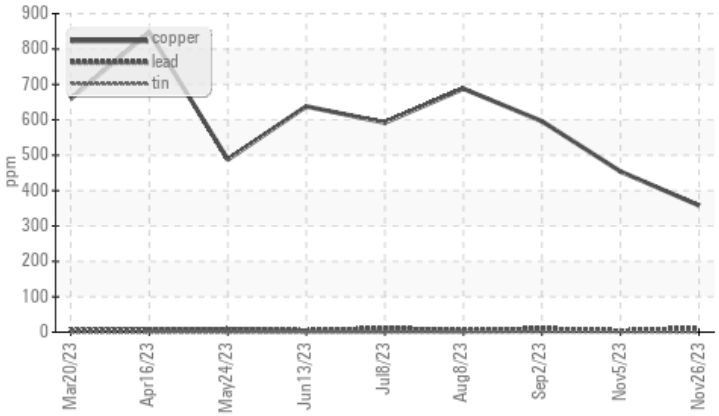


GLYCOL

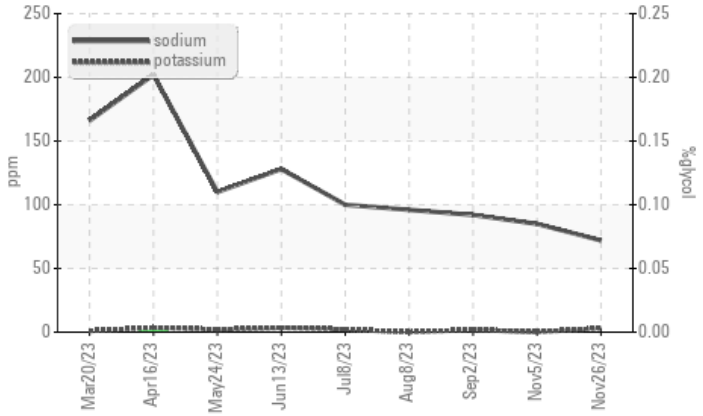
Area
Huntington
Machine Id
[Huntington] Oil - Port Main Engine
Component
Port Main Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (165 GAL)

COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals



▲ Glycol Contamination



RECOMMENDATION

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Copper	ppm	ASTM D5185m	>80	▲ **358**	▲ 454	▲ 596
Sodium	ppm	ASTM D5185m	>158	▲ **72**	▲ 85	▲ 92

Customer Id: MARCAT
Sample No.: WC0804872
Lab Number: 06026657
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

05 Nov 2023 Diag: Sean Felton

GLYCOL

No corrective action is recommended at this time. Resample at the next service interval to monitor.The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

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02 Sep 2023 Diag: Sean Felton

GLYCOL

No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

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08 Aug 2023 Diag: Jonathan Hester

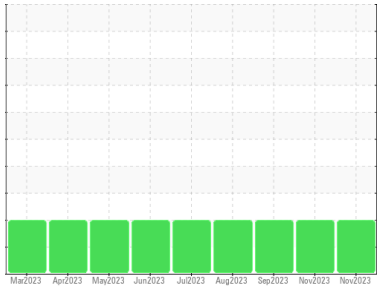
GLYCOL

No corrective action is recommended at this time. Resample at the next service interval to monitor.The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL

Area
Huntington
Machine Id
[Huntington] Oil - Port Main Engine
Component
Port Main Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (165 GAL)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
The copper level has decreased, but is still abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination
Sodium and/or potassium levels are high. Test for glycol is negative.

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 INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0804872**	WC0804877	WC0735518
Sample Date		Client Info		**26 Nov 2023**	05 Nov 2023	02 Sep 2023
Machine Age	hrs	Client Info		**18841**	18450	17471
Oil Age	hrs	Client Info		**0**	1043	0
Oil Changed		Client Info		**Not Changd**	Oil Added	Oil Added
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	**8**	7	6
Chromium	ppm	ASTM D5185m	>8	**0**	0	0
Nickel	ppm	ASTM D5185m	>2	**1**	0	0
Titanium	ppm	ASTM D5185m	>3	**0**	0	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>15	**2**	2	<1
Lead	ppm	ASTM D5185m	>18	**12**	4	10
Copper	ppm	ASTM D5185m	>80	▲ **358**	▲ 454	▲ 596
Tin	ppm	ASTM D5185m	>14	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**27**	29	35
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**81**	86	91
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**991**	907	951
Calcium	ppm	ASTM D5185m	3000	**1256**	1210	1348
Phosphorus	ppm	ASTM D5185m	1150	**934**	833	891
Zinc	ppm	ASTM D5185m	1350	**1124**	1066	1084
Sulfur	ppm	ASTM D5185m	4250	**2517**	2607	3413

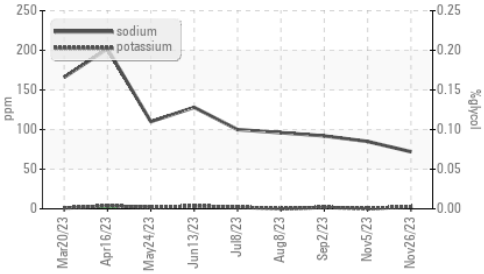
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**6**	3	4
Sodium	ppm	ASTM D5185m	>158	▲ **72**	▲ 85	▲ 92
Potassium	ppm	ASTM D5185m	>20	**3**	<1	2
Water	%	ASTM D6304	>0.1	**NEG**	NEG	NEG
Glycol	%	*ASTM D2982		**NEG**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.2**	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**9.3**	9.6	9.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.7**	22.0	21.0

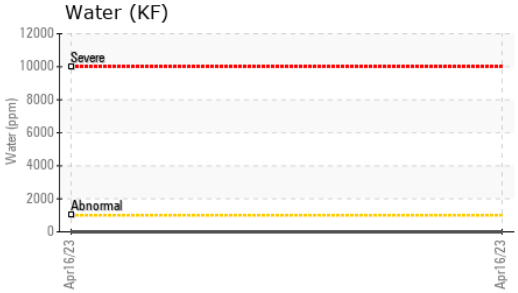
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.4**	18.5	17.3
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**8.95**	10.53	10.06

OIL ANALYSIS REPORT

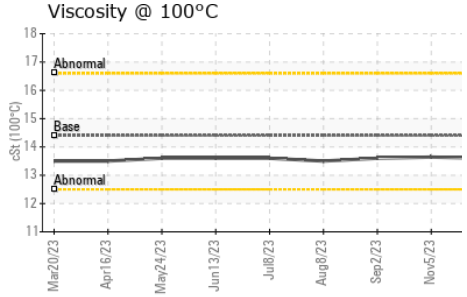
Glycol Contamination



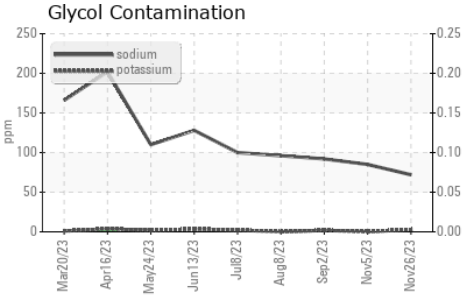
Water (KF)



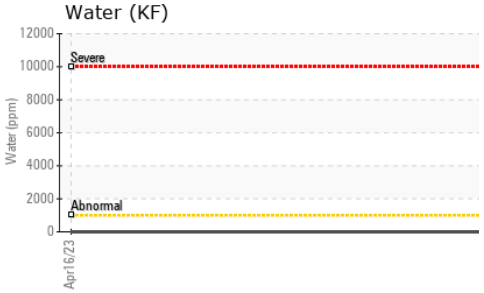
Viscosity @ 100°C



Glycol Contamination



Water (KF)

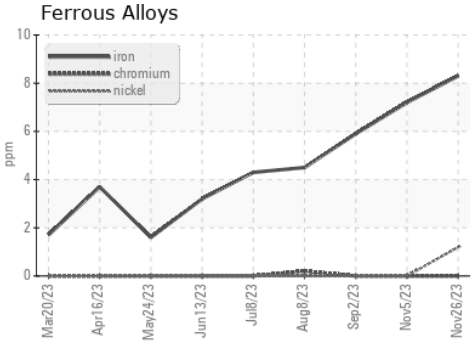


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

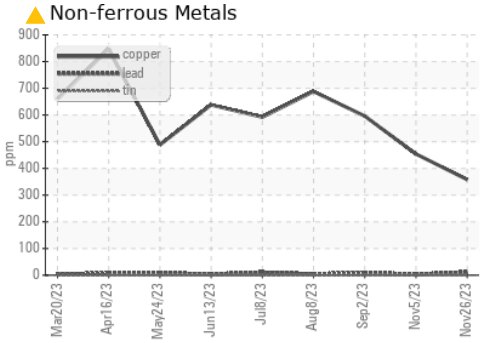
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**13.6**	13.64	13.6

GRAPHS

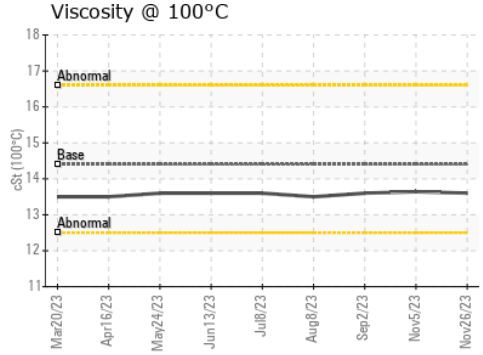
Ferrous Alloys



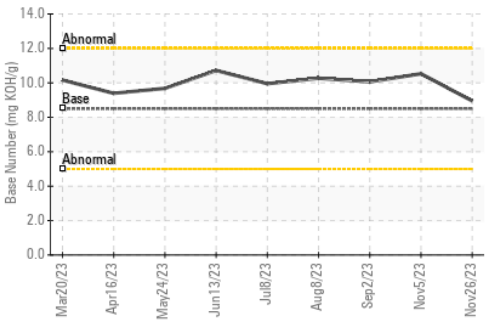
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0804872 **Received** : 06 Dec 2023
Lab Number : 06026657 **Diagnosed** : 07 Dec 2023
Unique Number : 10776448 **Diagnostician** : Sean Felton
Test Package : IND 2 (Additional Tests: Glycol, KF)

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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