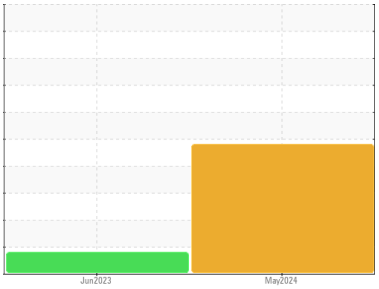
PROBLEM SUMMARY

Sample Rating Trend

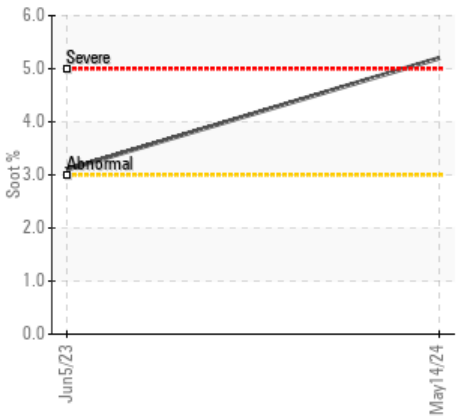


SOOT

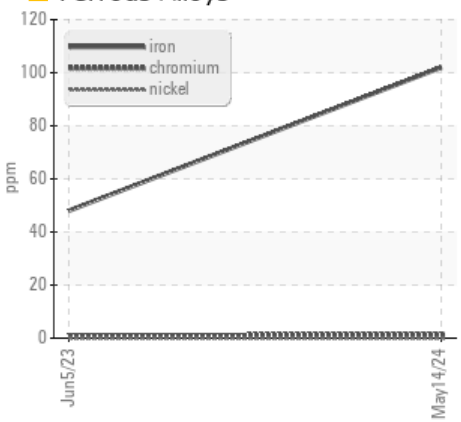
Machine Id
91
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

COMPONENT CONDITION SUMMARY

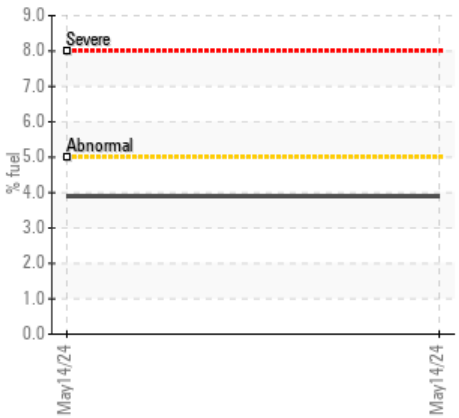
▲ Soot %



▲ Ferrous Alloys



▲ Fuel Dilution



RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	---
Iron	ppm	ASTM D5185m	>100	▲ **102**	48	---
Fuel	%	ASTM D3524	>5	▲ **3.9**	<1.0	---
Soot %	%	*ASTM D7844	>3	▲ **5.2**	▲ 3.1	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	▲ **2.1**	8.6	---

Customer Id: CASYANNC
Sample No.: WC0904715
Lab Number: 06183759
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.
Check Combustion	---	---	?	We advise that you check for faulty combustion, plugged air filters, or aftercoolers.

HISTORICAL DIAGNOSIS

SOOT

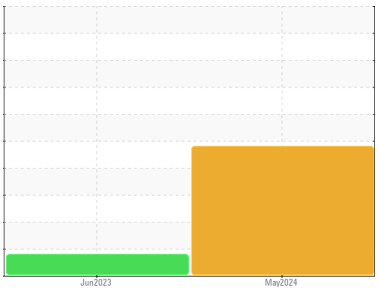
05 Jun 2023 Diag: Wes Davis

We recommend that you drain the oil from the component if this has not already been done. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.All component wear rates are normal. Light concentration of carbon/soot present in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



SOOT

Machine Id
91
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

DIAGNOSIS

Recommendation
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear
Cylinder, crank, or cam shaft wear is indicated.

Contamination
There is an abnormal amount of solids and carbon present in the oil. Light fuel dilution occurring.

Fluid Condition
The BN level is low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0904715**	WC0800000	---
Sample Date		Client Info		**14 May 2024**	05 Jun 2023	---
Machine Age	mls	Client Info		**233154**	229439	---
Oil Age	mls	Client Info		**0**	0	---
Oil Changed		Client Info		**Not Changd**	Not Changd	---
Sample Status				**SEVERE**	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	---
Glycol		WC Method		**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	▲ **102**	48	---
Chromium	ppm	ASTM D5185m	>20	**1**	1	---
Nickel	ppm	ASTM D5185m	>4	**0**	0	---
Titanium	ppm	ASTM D5185m		**2**	<1	---
Silver	ppm	ASTM D5185m	>3	**0**	0	---
Aluminum	ppm	ASTM D5185m	>20	**7**	4	---
Lead	ppm	ASTM D5185m	>40	**0**	0	---
Copper	ppm	ASTM D5185m	>330	**2**	<1	---
Tin	ppm	ASTM D5185m	>15	**<1**	0	---
Vanadium	ppm	ASTM D5185m		**0**	0	---
Cadmium	ppm	ASTM D5185m		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**56**	67	---
Barium	ppm	ASTM D5185m	10	**0**	0	---
Molybdenum	ppm	ASTM D5185m	100	**11**	9	---
Manganese	ppm	ASTM D5185m		**1**	<1	---
Magnesium	ppm	ASTM D5185m	450	**689**	697	---
Calcium	ppm	ASTM D5185m	3000	**1297**	1345	---
Phosphorus	ppm	ASTM D5185m	1150	**1061**	1058	---
Zinc	ppm	ASTM D5185m	1350	**1181**	1239	---
Sulfur	ppm	ASTM D5185m	4250	**4052**	4468	---

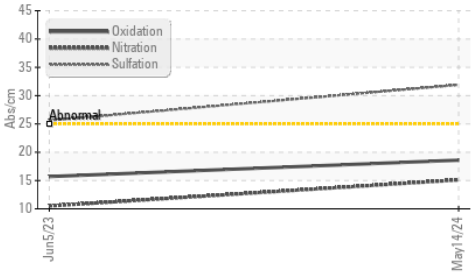
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**7**	6	---
Sodium	ppm	ASTM D5185m	>158	**3**	2	---
Potassium	ppm	ASTM D5185m	>20	**<1**	2	---
Fuel	%	ASTM D3524	>5	▲ **3.9**	<1.0	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ **5.2**	▲ 3.1	---
Nitration	Abs/cm	*ASTM D7624	>20	**15.1**	10.5	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	**31.9**	25.6	---

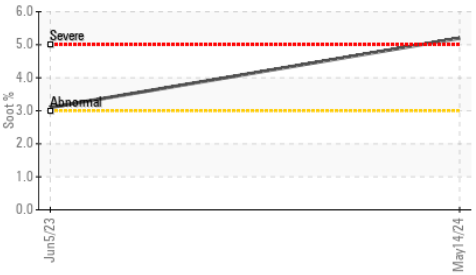
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.6**	15.7	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	▲ **2.1**	8.6	---

OIL ANALYSIS REPORT

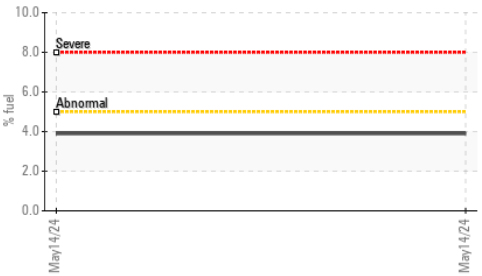
FT-IR (Direct Trend)



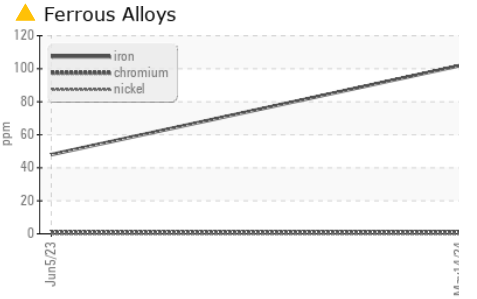
Soot %



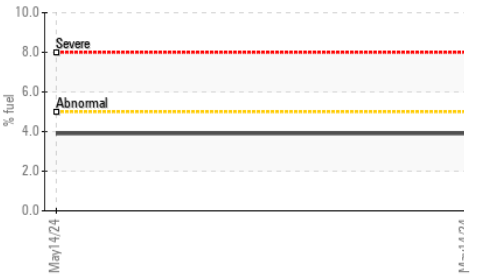
Fuel Dilution



Ferrous Alloys



Fuel Dilution

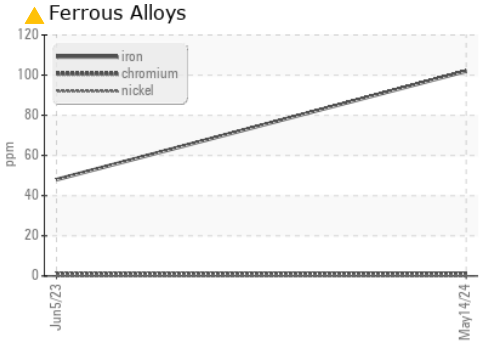


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	---
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	---
Silt	scalar	*Visual	NONE	**NONE**	NONE	---
Debris	scalar	*Visual	NONE	**NONE**	NONE	---
Sand/Dirt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

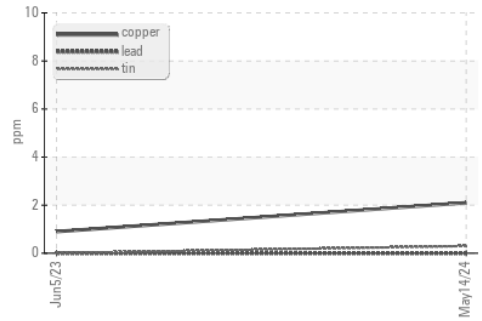
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.3**	13.9	---

GRAPHS

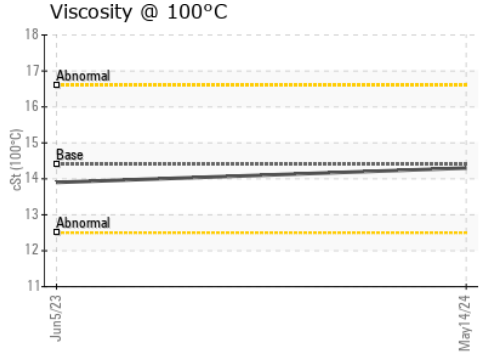
Ferrous Alloys



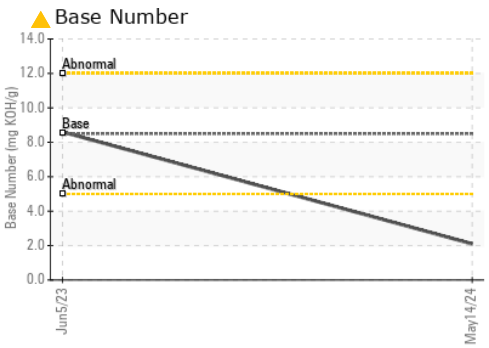
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0904715 **Received** : 17 May 2024
Lab Number : 06183759 **Tested** : 28 May 2024
Unique Number : 11035085 **Diagnosed** : 28 May 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FUELDILUTION, PercentFuel)

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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