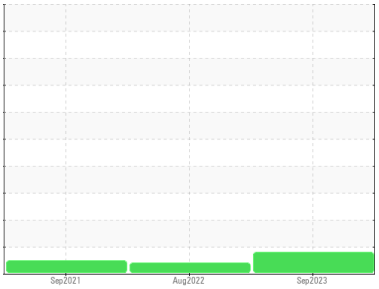
PROBLEM SUMMARY

Sample Rating Trend

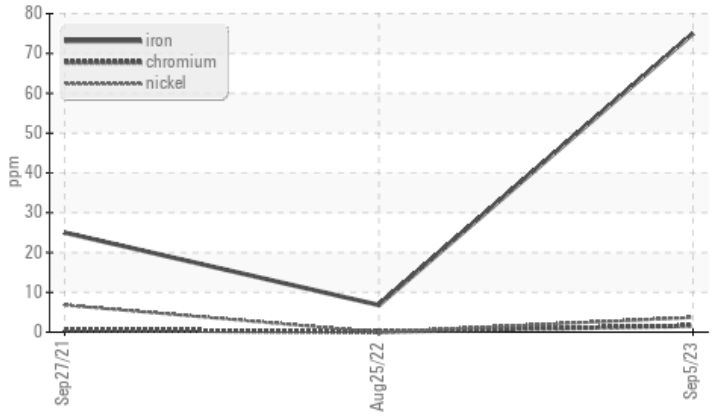


WEAR

Machine Id
40-210L
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Ferrous Alloys



RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ATTENTION	NORMAL
Iron	ppm	ASTM D5185m	>51	▲ **75**	7	25

Customer Id: MANTUL
Sample No.: WC0750316
Lab Number: 05966957
Test Package: CONST

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 Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.

HISTORICAL DIAGNOSIS

25 Aug 2022 Diag: Jonathan Hester

VISCOSITY

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

27 Sep 2021 Diag: Don Baldridge

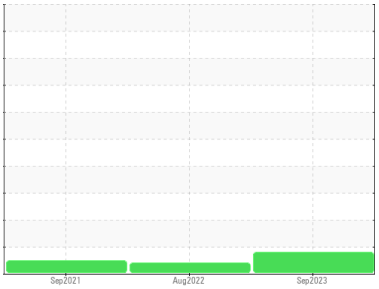
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
40-210L
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS

Recommendation
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

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

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

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		**WC0750316**	WC0733283	WC0549054
Sample Date		Client Info		**05 Sep 2023**	25 Aug 2022	27 Sep 2021
Machine Age	hrs	Client Info		**2521**	1794	1256
Oil Age	hrs	Client Info		**0**	0	300
Oil Changed		Client Info		**Changed**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	**<1.0**	0.5	<1.0
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	▲ **75**	7	25
Chromium	ppm	ASTM D5185m	>11	**2**	<1	<1
Nickel	ppm	ASTM D5185m	>5	**4**	0	7
Titanium	ppm	ASTM D5185m		**<1**	0	<1
Silver	ppm	ASTM D5185m	>3	**0**	<1	<1
Aluminum	ppm	ASTM D5185m	>31	**3**	2	4
Lead	ppm	ASTM D5185m	>26	**<1**	<1	<1
Copper	ppm	ASTM D5185m	>26	**4**	5	3
Tin	ppm	ASTM D5185m	>4	**1**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**<1**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**157**	<1	237
Barium	ppm	ASTM D5185m	10	**0**	0	<1
Molybdenum	ppm	ASTM D5185m	100	**244**	1	238
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**790**	13	777
Calcium	ppm	ASTM D5185m	3000	**1412**	1031	1426
Phosphorus	ppm	ASTM D5185m	1150	**813**	730	821
Zinc	ppm	ASTM D5185m	1350	**1026**	437	964
Sulfur	ppm	ASTM D5185m	4250	**2831**	1116	2439

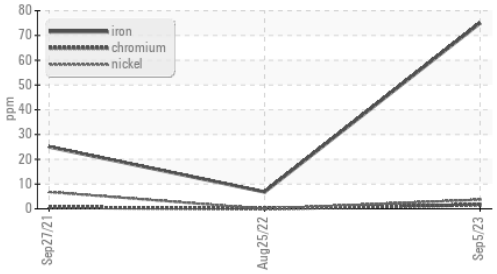
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	**11**	2	6
Sodium	ppm	ASTM D5185m	>158	**2**	0	2
Potassium	ppm	ASTM D5185m	>20	**<1**	2	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.5**	0	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**9.3**	3.7	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.9**	15.7	21.4

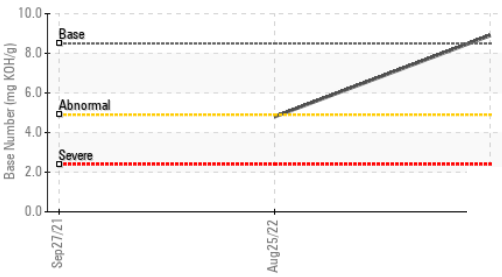
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.5**	5.1	16
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**8.9**	4.8	---

OIL ANALYSIS REPORT

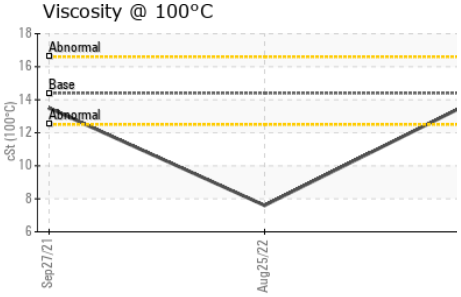
Ferrous Alloys



Base Number



Viscosity @ 100°C

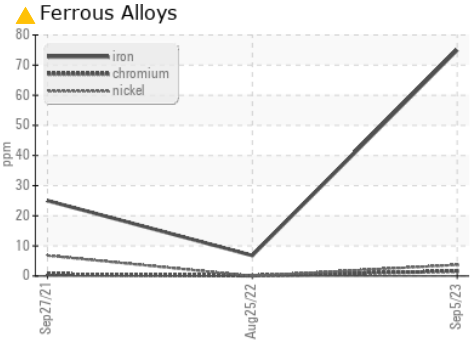


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

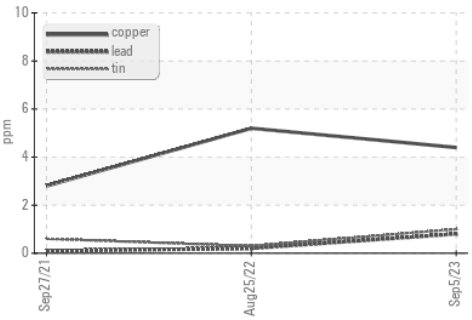
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.1**	▲ 7.6	13.5

GRAPHS

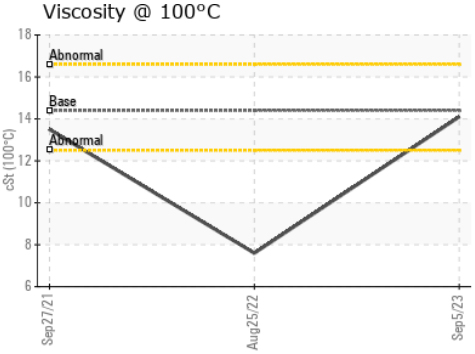
Ferrous Alloys



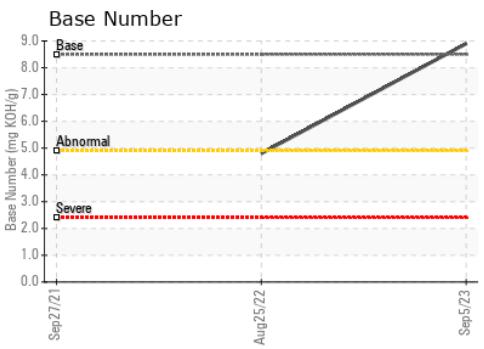
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0750316
Lab Number : 05966957
Unique Number : 10673508
Test Package : CONST (Additional Tests: TBN)

Received : 02 Oct 2023
Diagnosed : 04 Oct 2023
Diagnostician : Jonathan Hester

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)

MANHATTAN ROAD AND BRIDGE
5601 S 122ND E AVE
TULSA, OK
US 74146
Contact: BEN CALDWELL
kevin.marson@wearcheck.com
T: (918)728-5749
F:

Report Id: MANTUL [WUSCAR] 05966957 (Generated: 10/05/2023 05:10:48) Rev: 1

Submitted By: JAMES STEELMON