# OIL ANALYSIS REPORT

Sample Rating Trend


**WEAR**

Area
## RMR-Metropolis
Machine Id
## 5813 VOLVO L180H 5813
Component
**Diesel Engine**
Fluid
**{not provided} (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**▲ Wear**
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). All other metal levels are typical for a new component breaking in.

**▲ Contamination**
Light fuel dilution occurring.

**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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **DJJ06097447** | --- | --- |
| Sample Date | | Client Info | | **21 Feb 2024** | --- | --- |
| Machine Age | hrs | Client Info | | **526** | --- | --- |
| Oil Age | hrs | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **N/A** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.1 | **NEG** | --- | --- |
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **10** | --- | --- |
| Chromium | ppm | ASTM D5185m | >10 | **<1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >10 | **<1** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **0** | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >10 | **2** | --- | --- |
| Lead | ppm | ASTM D5185m | >20 | **2** | --- | --- |
| Copper | ppm | ASTM D5185m | >15 | ▲ **109** | --- | --- |
| Tin | ppm | ASTM D5185m | >10 | **2** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **84** | --- | --- |
| Barium | ppm | ASTM D5185m | | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | **78** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **2** | --- | --- |
| Magnesium | ppm | ASTM D5185m | | **63** | --- | --- |
| Calcium | ppm | ASTM D5185m | | **1863** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | **939** | --- | --- |
| Zinc | ppm | ASTM D5185m | | **1133** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | **3552** | --- | --- |

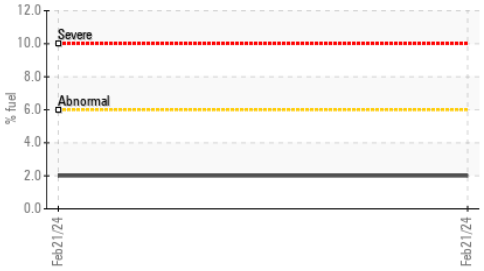
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **20** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **2** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **2** | --- | --- |
| Fuel | % | ASTM D3524 | >6.0 | ▲ **2.0** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.2** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.2** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.7** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.1** | --- | --- |

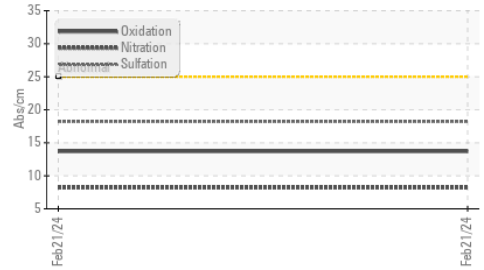
# OIL ANALYSIS REPORT

Fuel Dilution

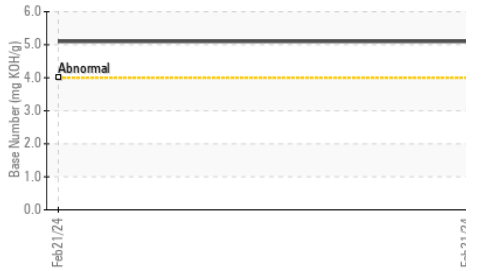



Non-ferrous Metals

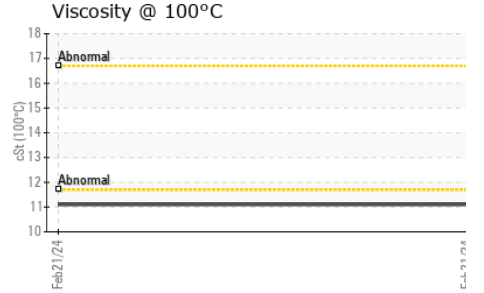

FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

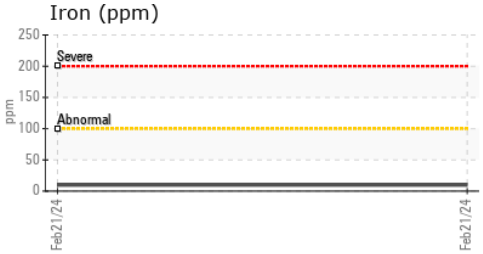



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt |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

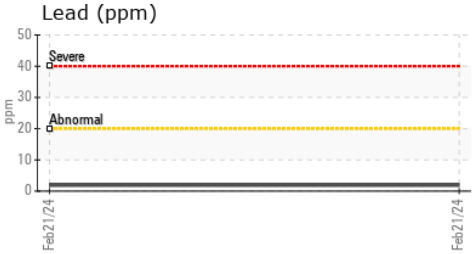
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **11.1** | --- | --- |

GRAPHS

Iron (ppm)

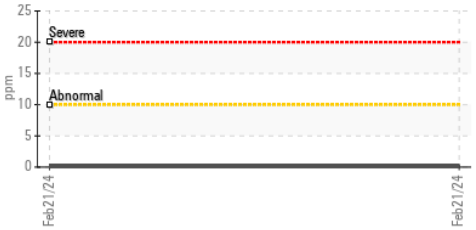



Lead (ppm)

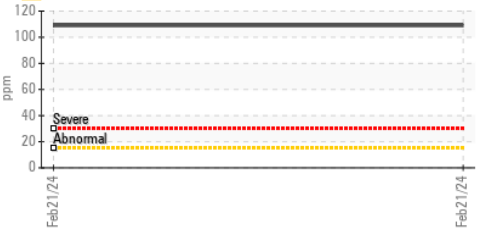



Aluminum (ppm)

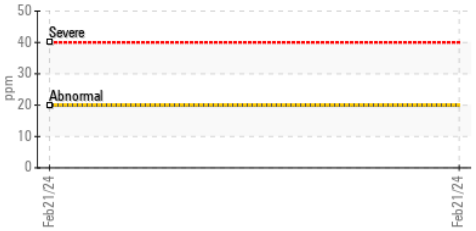

Chromium (ppm)



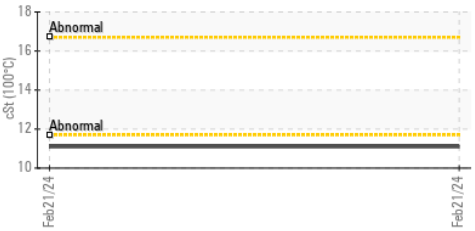

Copper (ppm)




Silicon (ppm)




Viscosity @ 100°C




Base Number


Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : DJJ06097447 **Received** : 22 Feb 2024
**Lab Number** : 06097447 **Tested** : 26 Feb 2024
**Unique Number** : 10890300 **Diagnosed** : 26 Feb 2024 - Sean Felton
**Test Package** : MOB 1 ( Additional Tests: FuelDilution, PercentFuel, TBN )

**RIVER METALS RECYCLING - ASHLAND**
1900 FRONT ST
ASHLAND, KY
US 41101
Contact: Service Manager

*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)*

T:
F:

Report Id: RIVASHKY [WUSCAR] 06097447 (Generated: 07/08/2024 15:58:57) Rev: 1

Contact/Location: Service Manager - RIVASHKY