



VOLVO

OIL ANALYSIS REPORT

| | |
|-----------------|-----------------|
| WEAR | ABNORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |



Machine Id
VOLVO L90H 625046

Component
Diesel Engine

Fluid
VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (--- GAL)

RECOMMENDATION

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

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | VCP428798 | VCP417366 | VCP385335 |
| Sample Date | | Client Info | | 08 Feb 2024 | 12 Jun 2023 | 16 Sep 2022 |
| Machine Age | hrs | Client Info | | 3603 | 3112 | 2470 |
| Oil Age | hrs | Client Info | | 0 | 500 | 500 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Not Changd |
| Sample Status | | | | ABNORMAL | ABNORMAL | ABNORMAL |

WEAR

The aluminum level is abnormal. All other component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 32 | 20 | 14 |
| Chromium | ppm | ASTM D5185m | >10 | 3 | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >10 | <1 | 0 | 1 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >10 | ▲ 27 | ▲ 30 | ▲ 26 |
| Lead | ppm | ASTM D5185m | >20 | <1 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >15 | 2 | 2 | 2 |
| Tin | ppm | ASTM D5185m | >10 | 1 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

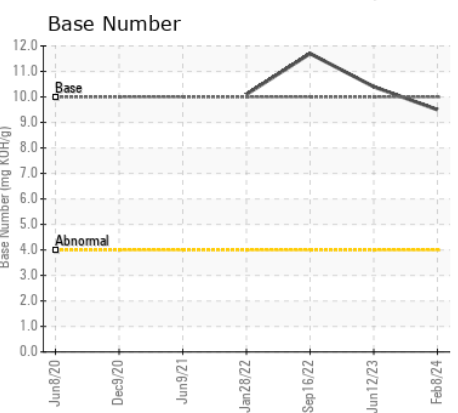
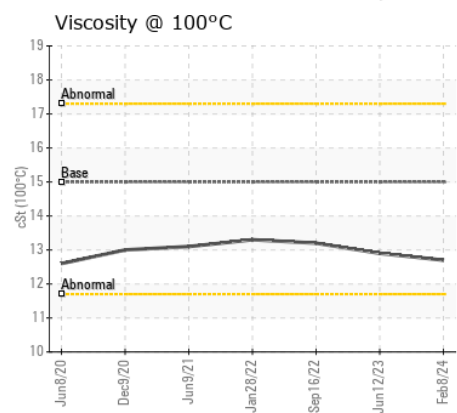
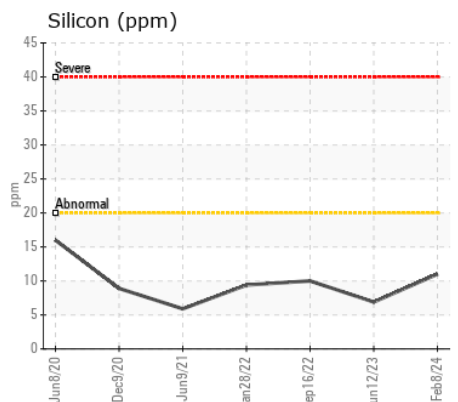
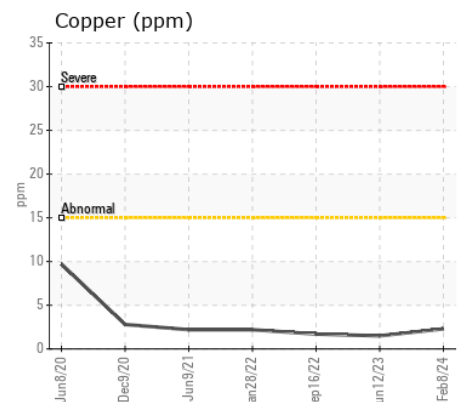
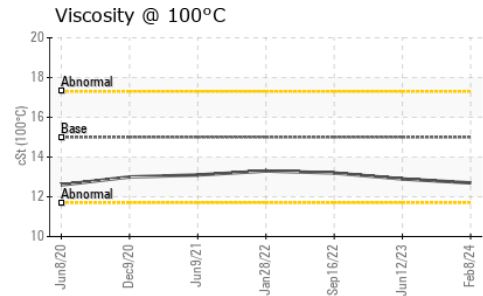
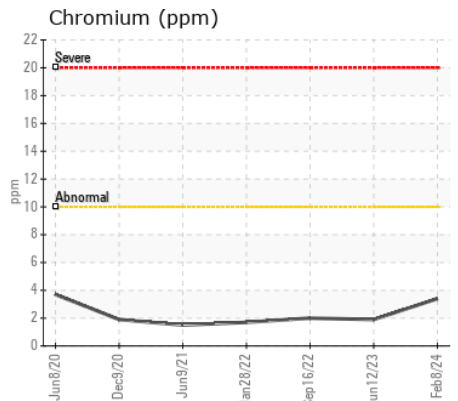
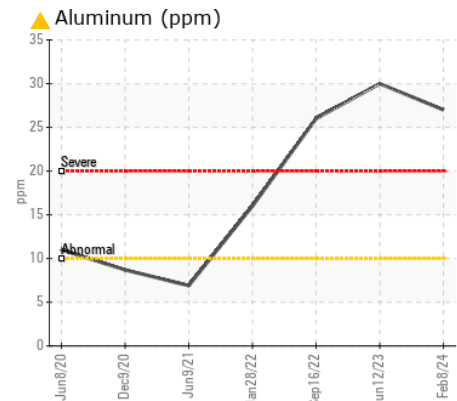
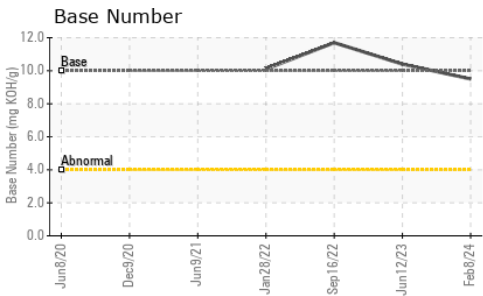
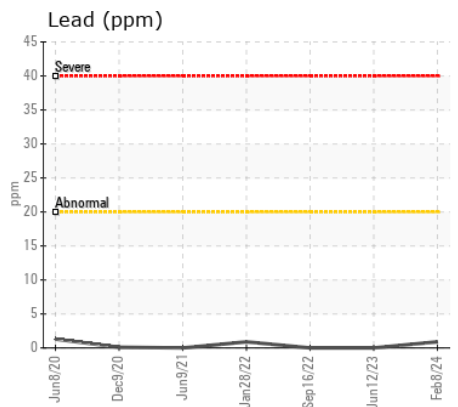
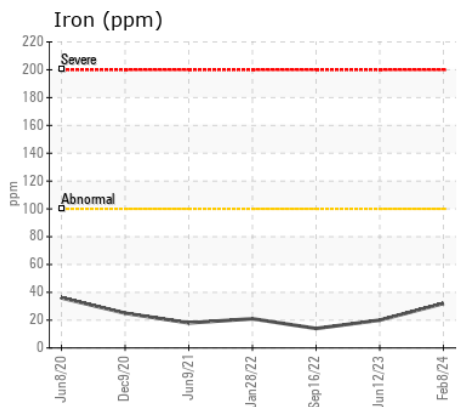
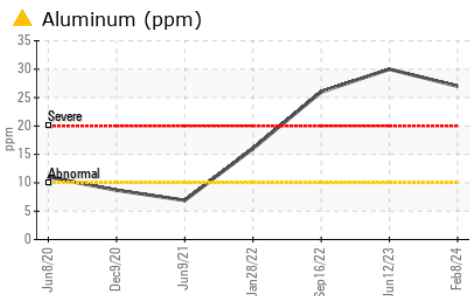
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 11 | 7 | 10 |
| Potassium | ppm | ASTM D5185m | >20 | 1 | 2 | 6 |
| Fuel | | WC Method | >6.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.5 | 0.6 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.3 | 9.1 | 8.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.3 | 22.9 | 23.8 |
| 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 |

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.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | | 2 | 2 | 3 |
| Boron | ppm | ASTM D5185m | 2.5 | 27 | 22 | 23 |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0.7 | 45 | 39 | 38 |
| Manganese | ppm | ASTM D5185m | 0.0 | <1 | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | 256 | 516 | 482 | 509 |
| Calcium | ppm | ASTM D5185m | 2057 | 1794 | 1585 | 1681 |
| Phosphorus | ppm | ASTM D5185m | 935 | 1003 | 847 | 941 |
| Zinc | ppm | ASTM D5185m | 1223 | 1157 | 1039 | 1125 |
| Sulfur | ppm | ASTM D5185m | 4079 | 3058 | 3177 | 3177 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 19.4 | 21.4 | 21.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10 | 9.5 | 10.4 | 11.7 |
| Visc @ 100°C | cSt | ASTM D445 | 15.0 | 12.7 | 12.9 | 13.2 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VCP428798 **Received** : 13 Feb 2024
Lab Number : 06086927 **Tested** : 13 Feb 2024
Unique Number : 10874372 **Diagnosed** : 14 Feb 2024 - Sean Felton
Test Package : MOB 1 (Additional Tests: TBN)

RIPA AND ASSOCIATES
 10149 FISHER AVENUE
 TAMPA, FL
 US 33619
 Contact: PM Services
 PMServices@ripaconstruction.com

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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