



VOLVO

OIL ANALYSIS REPORT

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



Area

[587216]

Machine Id

VOLVO L90H 624518

Component

Diesel Engine

Fluid

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

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | VCP454580 | VCP446388 | VCP318558 |
| Sample Date | | Client Info | | 14 Jun 2024 | 12 Apr 2024 | 22 Sep 2023 |
| Machine Age | hrs | Client Info | | 14969 | 14537 | 13591 |
| Oil Age | hrs | Client Info | | 0 | 0 | 13591 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >200 | 10 | 13 | 13 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | <1 | 2 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | 5 | 4 | 3 |
| Lead | ppm | ASTM D5185m | >40 | <1 | 1 | <1 |
| Copper | ppm | ASTM D5185m | >20 | <1 | 2 | 3 |
| Tin | ppm | ASTM D5185m | >20 | <1 | 2 | 2 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

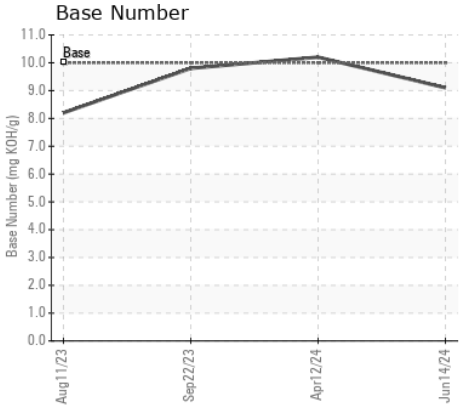
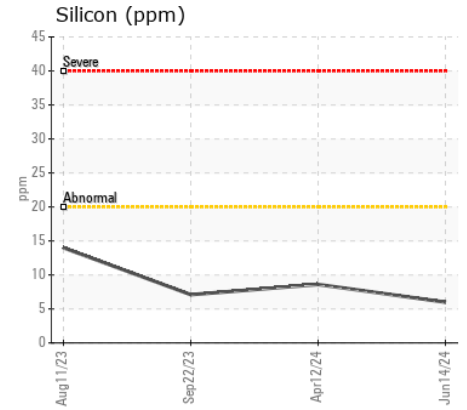
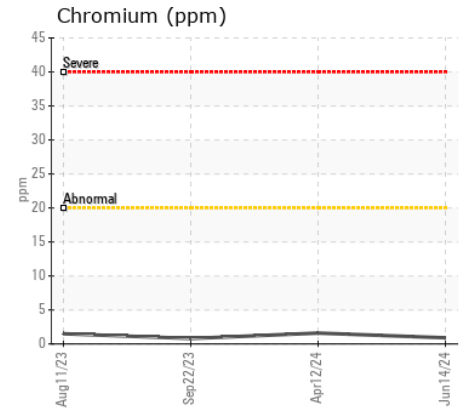
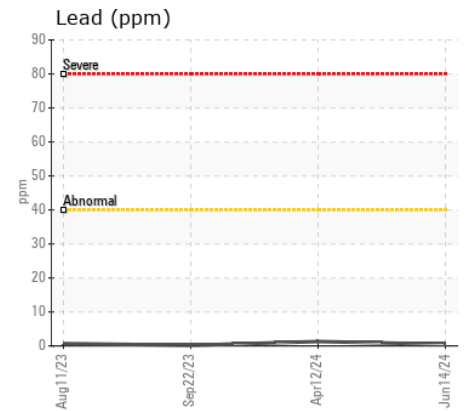
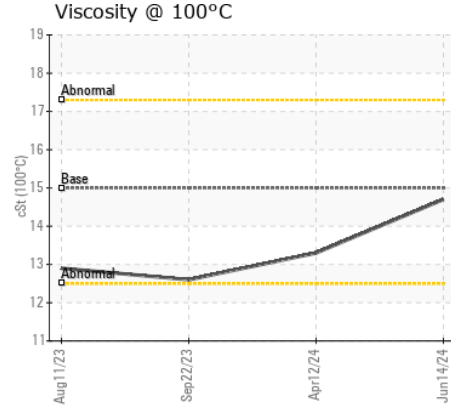
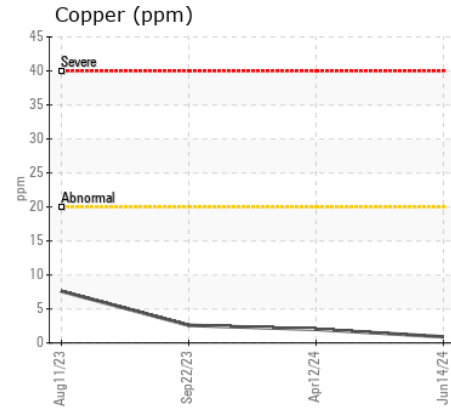
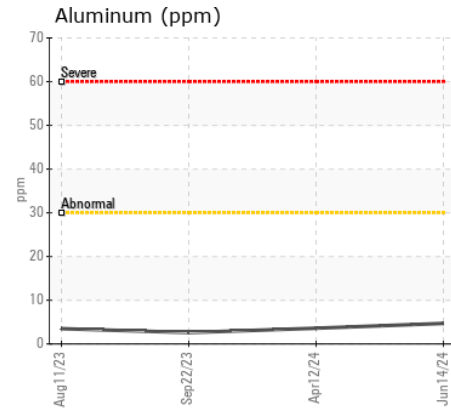
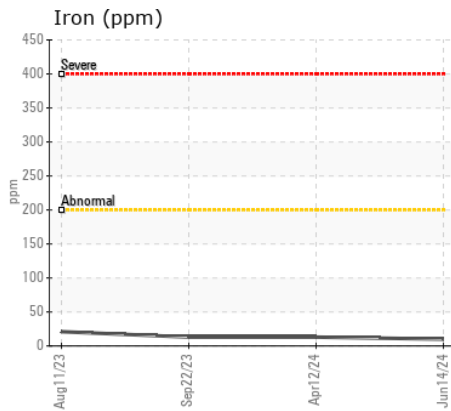
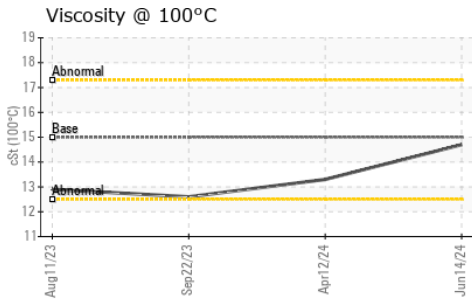
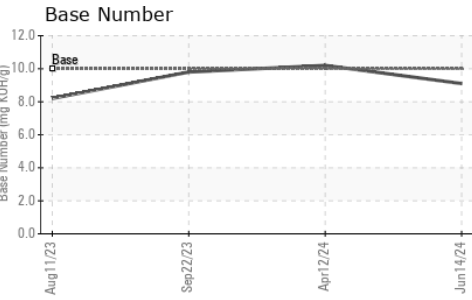
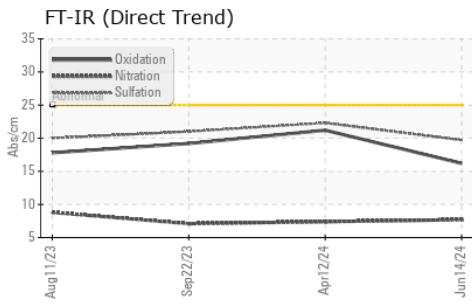
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 6 | 9 | 7 |
| Potassium | ppm | ASTM D5185m | >20 | 2 | 2 | 2 |
| Fuel | | WC Method | >6.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.2 | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 7.7 | 7.4 | 7.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.7 | 22.3 | 21.0 |
| 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 | >0.2 | NEG | NEG | NEG |

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.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | | 5 | 2 | 3 |
| Boron | ppm | ASTM D5185m | 2.5 | 4 | 38 | 38 |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | <1 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0.7 | 57 | 44 | 59 |
| Manganese | ppm | ASTM D5185m | 0.0 | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 256 | 957 | 502 | 581 |
| Calcium | ppm | ASTM D5185m | 2057 | 1201 | 1713 | 1863 |
| Phosphorus | ppm | ASTM D5185m | 935 | 1040 | 1012 | 1017 |
| Zinc | ppm | ASTM D5185m | 1223 | 1316 | 1123 | 1280 |
| Sulfur | ppm | ASTM D5185m | 4079 | 3329 | 3292 | 3791 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 16.2 | 21.2 | 19.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10 | 9.1 | 10.2 | 9.8 |
| Visc @ 100°C | cSt | ASTM D445 | 15.0 | 14.7 | 13.3 | 12.6 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VCP454580 **Received** : 27 Jun 2024
Lab Number : 06221982 **Tested** : 27 Jun 2024
Unique Number : 11100179 **Diagnosed** : 28 Jun 2024 - Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

FORESTRY RESOURCES
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 F:

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)