



THE G. W. VAN KEPPEL CO.
Construction Equipment

OIL ANALYSIS REPORT

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



Machine Id
VOLVO L90H 230106 (S/N 625141)
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 | | VKC0001056 | VKC0000919 | VKC0000623 |
| Sample Date | | Client Info | | 28 Dec 2023 | 26 Jun 2023 | 09 Nov 2022 |
| Machine Age | hrs | Client Info | | 7037 | 6039 | 5045 |
| Oil Age | hrs | Client Info | | 300 | 1000 | 500 |
| Filter Age | hrs | Client Info | | 300 | 1000 | 500 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >200 | 2 | 6 | 7 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | 2 | 2 | 3 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 1 |
| Copper | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >20 | <1 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

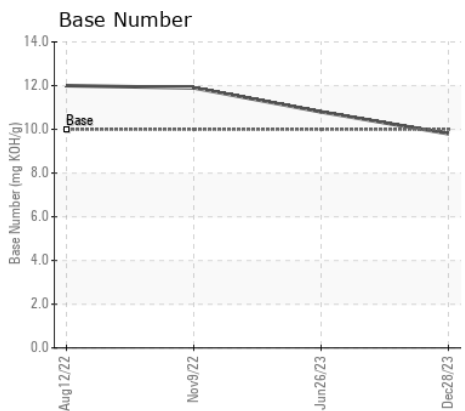
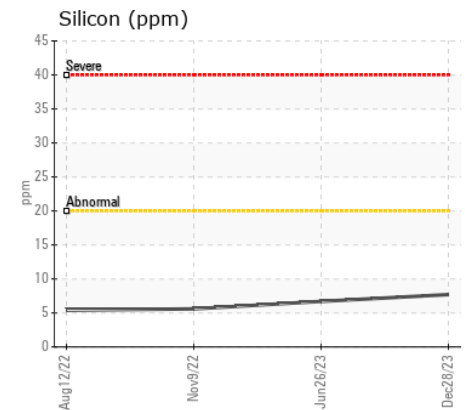
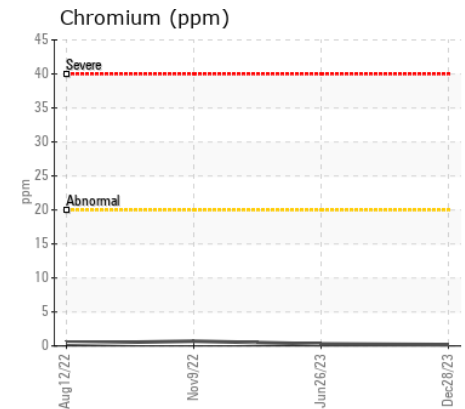
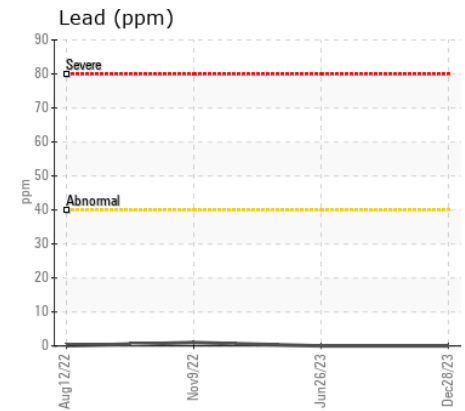
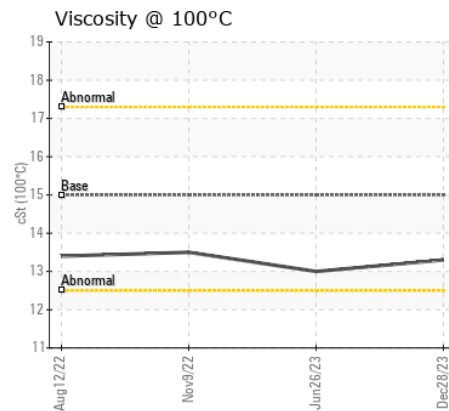
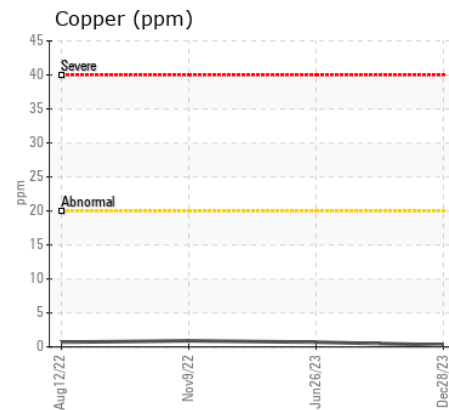
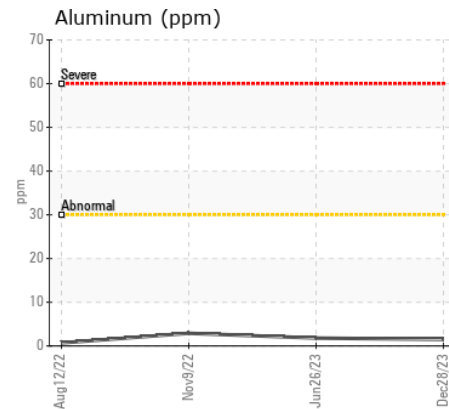
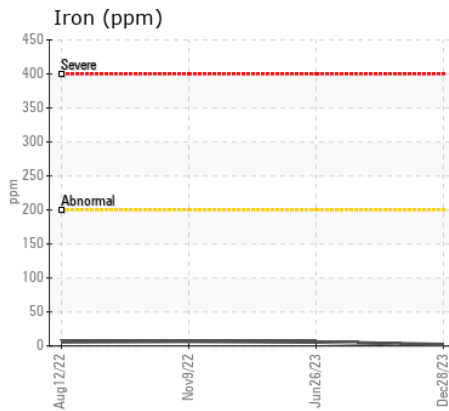
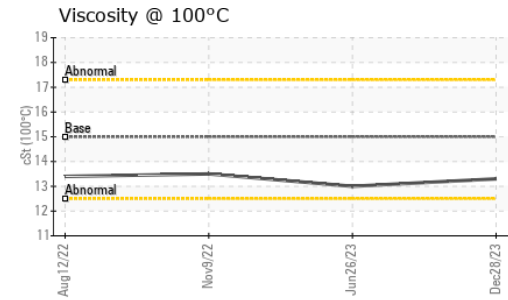
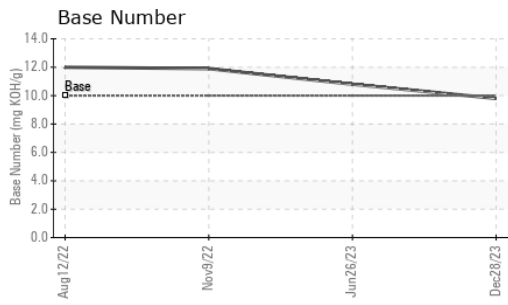
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 8 | 7 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | 1 | 2 | <1 |
| 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 | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 4.6 | 6.6 | 7.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.8 | 22.5 | 23.7 |
| 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 | | <1 | 0 | 3 |
| Boron | ppm | ASTM D5185m | 2.5 | 63 | 50 | 47 |
| Barium | ppm | ASTM D5185m | 0.0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0.7 | 36 | 43 | 47 |
| Manganese | ppm | ASTM D5185m | 0.0 | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 256 | 451 | 484 | 542 |
| Calcium | ppm | ASTM D5185m | 2057 | 1439 | 1684 | 1754 |
| Phosphorus | ppm | ASTM D5185m | 935 | 865 | 953 | 983 |
| Zinc | ppm | ASTM D5185m | 1223 | 1013 | 1130 | 1148 |
| Sulfur | ppm | ASTM D5185m | 4079 | 2794 | 3211 | 3514 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 18.8 | 20.7 | 21.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10 | 9.8 | 10.8 | 11.9 |
| Visc @ 100°C | cSt | ASTM D445 | 15.0 | 13.3 | 13.0 | 13.5 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VKC0001056 **Received** : 11 Jan 2024
Lab Number : 06058608 **Diagnosed** : 12 Jan 2024
Unique Number : 10829990 **Diagnostician** : Wes Davis
Test Package : MOBCE (Additional Tests: TBN)

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)

GW VAN KEPPEL CO
 1801 NORTH 9TH ST
 KANSAS CITY, KS
 US 66110
 Contact: PAT SAUSE
 psause@vankeppel.com
 T:
 F: (913)281-4815