



# VOLVO

## OIL ANALYSIS REPORT

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



Area

[701681]

Machine Id

**VOLVO L110H 631226**

Component

**Hydraulic System**

Fluid

**VOLVO SUPER HYDRAULIC OIL 46 (--- GAL)**

### RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

### WEAR

All component wear rates are normal.

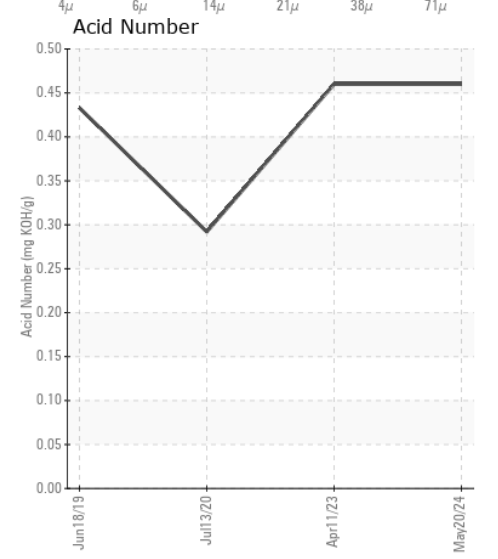
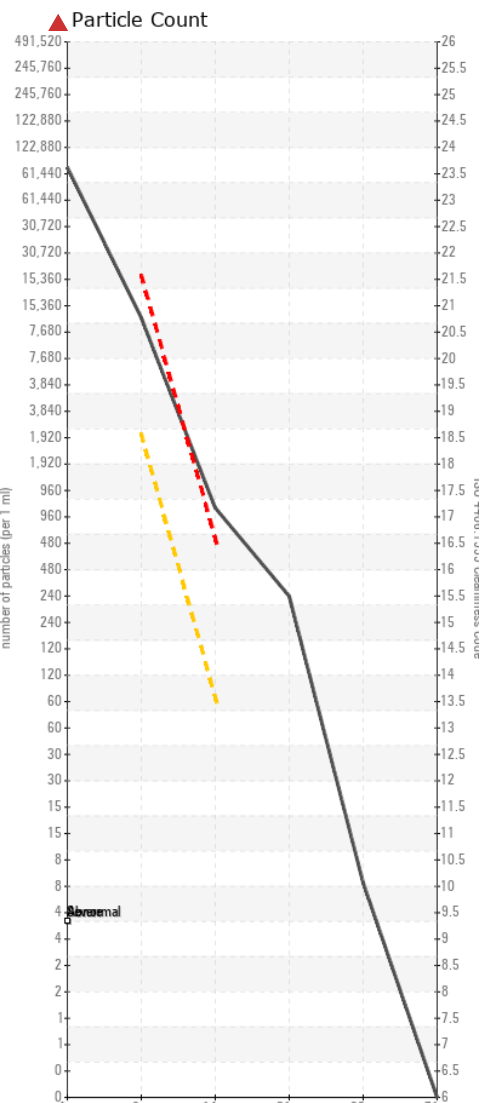
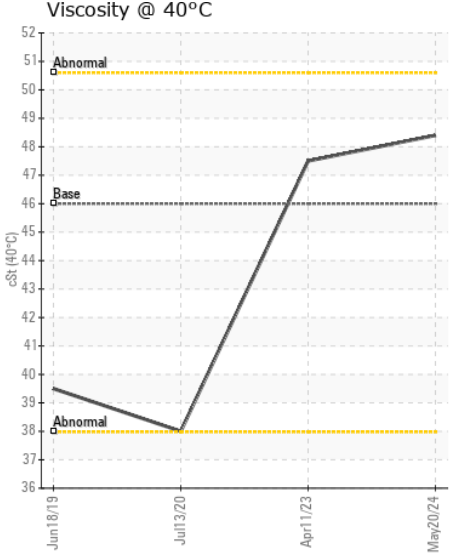
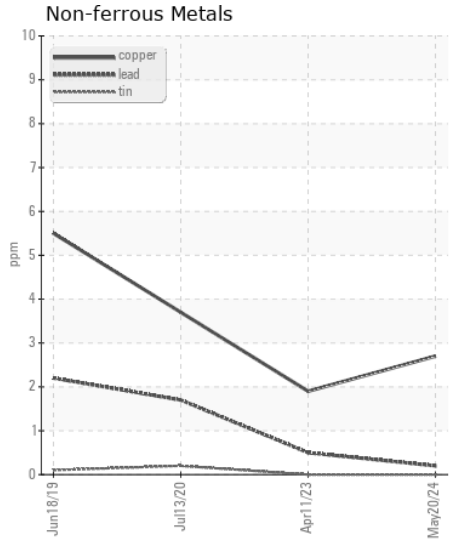
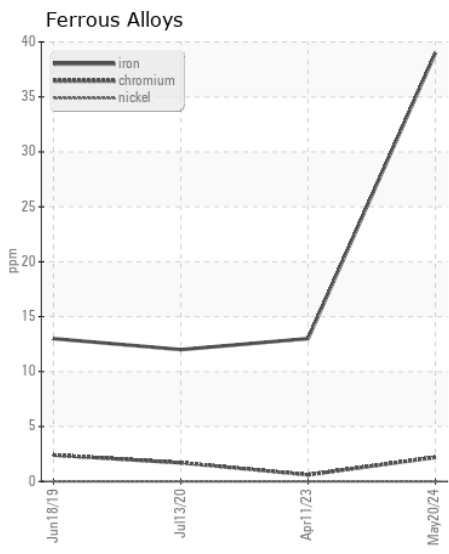
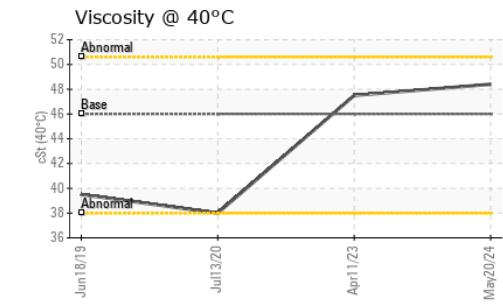
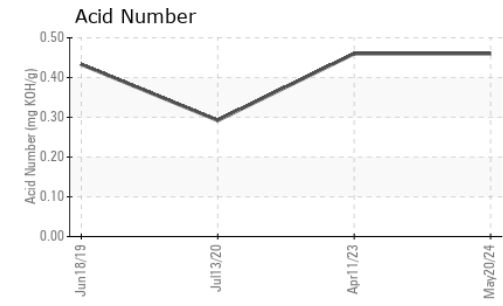
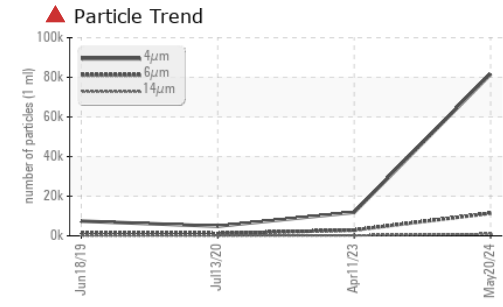
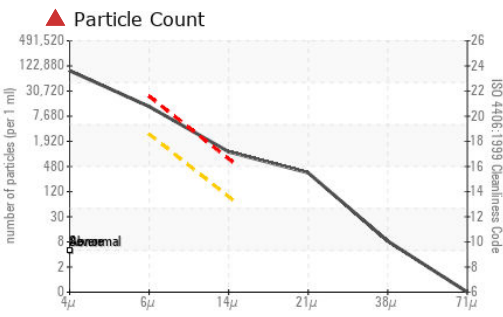
### CONTAMINATION

There is a high amount of particulates (2 to 100 microns in size) present in the oil.

### FLUID CONDITION

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| Test             | UOM      | Method       | Limit/Abn | Current     | History1    | History2    |
|------------------|----------|--------------|-----------|-------------|-------------|-------------|
| Sample Number    |          | Client Info  |           | VCP438521   | VCP420271   | VCP274709   |
| Sample Date      |          | Client Info  |           | 20 May 2024 | 11 Apr 2023 | 13 Jul 2020 |
| Machine Age      | hrs      | Client Info  |           | 13441       | 11460       | 5614        |
| Oil Age          | hrs      | Client Info  |           | 1441        | 2000        | 0           |
| Filter Age       | hrs      | Client Info  |           | 0           | 0           | 0           |
| Oil Changed      |          | Client Info  |           | Not Chngd   | Not Chngd   | Changed     |
| Filter Changed   |          | Client Info  |           | Not Chngd   | Changed     | Changed     |
| Sample Status    |          |              |           | SEVERE      | ABNORMAL    | ABNORMAL    |
| Iron             | ppm      | ASTM D5185m  | >50       | 39          | 13          | 12          |
| Chromium         | ppm      | ASTM D5185m  | >20       | 2           | <1          | 2           |
| Nickel           | ppm      | ASTM D5185m  | >10       | 0           | 0           | 0           |
| Titanium         | ppm      | ASTM D5185m  |           | 0           | 0           | 0           |
| Silver           | ppm      | ASTM D5185m  |           | 0           | 0           | 0           |
| Aluminum         | ppm      | ASTM D5185m  | >20       | <1          | 0           | <1          |
| Lead             | ppm      | ASTM D5185m  | >20       | <1          | <1          | 2           |
| Copper           | ppm      | ASTM D5185m  | >150      | 3           | 2           | 4           |
| Tin              | ppm      | ASTM D5185m  | >20       | 0           | 0           | <1          |
| Vanadium         | ppm      | ASTM D5185m  |           | 0           | 0           | 0           |
| White Metal      | scalar   | *Visual      | NONE      | NONE        | NONE        | NONE        |
| Yellow Metal     | scalar   | *Visual      | NONE      | NONE        | NONE        | NONE        |
| Silicon          | ppm      | ASTM D5185m  | >20       | 6           | 5           | ▲ 26        |
| Potassium        | ppm      | ASTM D5185m  | >20       | 11          | <1          | <1          |
| Water            |          | WC Method    | >0.1      | NEG         | NEG         | NEG         |
| Particles >4µm   |          | ASTM D7647   |           | 81630       | 11848       | 4854        |
| Particles >6µm   |          | ASTM D7647   | >2500     | ▲ 11394     | ● 2877      | 1170        |
| Particles >14µm  |          | ASTM D7647   | >80       | ▲ 946       | ▲ 207       | ● 107       |
| Particles >21µm  |          | ASTM D7647   | >20       | ▲ 298       | ● 38        | ● 30        |
| Particles >38µm  |          | ASTM D7647   | >4        | ● 7         | 1           | 1           |
| Particles >71µm  |          | ASTM D7647   | >3        | 0           | 0           | 0           |
| Oil Cleanliness  |          | ISO 4406 (c) | >-/18/13  | ▲ 24/21/17  | ▲ 21/19/15  | ● 19/17/14  |
| Silt             | scalar   | *Visual      | NONE      | NONE        | NONE        | NONE        |
| Debris           | scalar   | *Visual      | NONE      | NONE        | NONE        | LIGHT       |
| 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         |
| Sodium           | ppm      | ASTM D5185m  |           | 3           | <1          | 2           |
| Boron            | ppm      | ASTM D5185m  | 14        | 0           | 0           | 1           |
| Barium           | ppm      | ASTM D5185m  | 0.0       | 0           | 0           | 0           |
| Molybdenum       | ppm      | ASTM D5185m  | 0.0       | 4           | 2           | 1           |
| Manganese        | ppm      | ASTM D5185m  | 0.0       | <1          | 0           | 0           |
| Magnesium        | ppm      | ASTM D5185m  | 2.6       | 6           | 9           | 5           |
| Calcium          | ppm      | ASTM D5185m  | 49        | 67          | 103         | 90          |
| Phosphorus       | ppm      | ASTM D5185m  | 354       | 369         | 351         | 334         |
| Zinc             | ppm      | ASTM D5185m  | 419       | 446         | 466         | 420         |
| Sulfur           | ppm      | ASTM D5185m  | 3719      | 2061        | 1928        | 4379        |
| Acid Number (AN) | mg KOH/g | ASTM D8045   |           | 0.46        | 0.46        | 0.292       |
| Visc @ 40°C      | cSt      | ASTM D445    | 46        | 48.4        | 47.5        | 38.0        |



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : VCP438521 **Received** : 16 Jul 2024  
**Lab Number** : 06237703 **Tested** : 22 Jul 2024  
**Unique Number** : 11126537 **Diagnosed** : 22 Jul 2024 - Wes Davis  
**Test Package** : MOB 2

**RIPA AND ASSOCIATES**  
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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)