

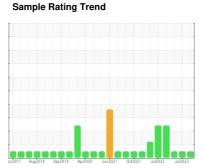
# **OIL ANALYSIS REPORT**



COLORADO/443/EG - SKID STEER 53.134L [COLORADO^443^EG - SKID STEER]

**Diesel Engine** 

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)





# DIAGNOSIS

# Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

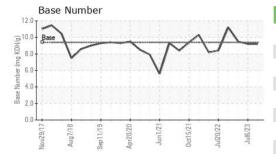
# **Fluid Condition**

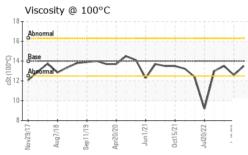
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|   | MATION  | method  | limit/base                               | current   | history1  | history2  |
|---|---|---|--|---|---|---|
| Sample Number   |   | Client Info   |  | WC0859594   | WC0823206   | WC0766146   |
| Sample Date   |   | Client Info   |  | 05 Dec 2023   | 06 Jul 2023   | 13 Mar 2023   |
| Machine Age   | hrs   | Client Info   |  | 6193  | 5948  | 5679  |
| Oil Age   | hrs   | Client Info   |  | 0   | 0   | 0   |
| Oil Changed   |   | Client Info   |  | Changed   | Changed   | Changed   |
| Sample Status   |   |   |  | NORMAL  | NORMAL  | NORMAL  |
| CONTAMINATION   | V   | method  | limit/base                               | current   | history1  | history2  |
| Fuel  |   | WC Method   | >5                                       | <1.0  | <1.0  | <1.0  |
| Water   |   | WC Method   | >0.2                                     | NEG   | NEG   | NEG   |
| Glycol  |   | WC Method   |  | NEG   | NEG   | NEG   |
| WEAR METALS   |   | method  | limit/base                               | current   | history1  | history2  |
| Iron  | ppm   | ASTM D5185m   | >100                                     | 10  | 11  | 12  |
| Chromium  | ppm   | ASTM D5185m   | >20                                      | <1  | <1  | <1  |
| Nickel  | ppm   | ASTM D5185m   | >2                                       | 0   | 0   | 0   |
| Titanium  | ppm   | ASTM D5185m   |  | 0   | <1  | <1  |
| Silver  | ppm   | ASTM D5185m   | >2                                       | 0   | 0   | 0   |
| Aluminum  | ppm   |   | >25                                      | 3   | 4   | 5   |
| Lead  | ppm   | ASTM D5185m   | >40                                      | 0   | 0   | 0   |
| Copper  | ppm   |   | >330                                     | <1  | 1   | 2   |
| Tin   | ppm   | ASTM D5185m   | >15                                      | 0   | 0   | <1  |
| Vanadium  | ppm   | ASTM D5185m   | >10                                      | 0   | 0   | 0   |
| Cadmium   | ppm   | ASTM D5185m   |  | 0   | 0   | 0   |
| ADDITIVES   | ррш   | method  | limit/base                               | current   | history1  | history2  |
|   |   |   |  |   | •   | · ·   |
| Boron   | ppm   | ASTM D5185m   | 0  | 54  | 46  | 54  |
| Barium  | ppm   | ASTM D5185m   |  | 0   | 0   | 0   |
| Molybdenum  | ppm   | ASTM D5185m   | 0  | 46  | 44  | 42  |
| Manganese   | ppm   | ACTM DE10Em   |  |   |   |   |
| Magazium  |   | ASTM D5185m   |  | 0   | <1  | <1  |
| Magnesium   | ppm   | ASTM D5185m   | 0  | 565   | 506   | 526   |
| Calcium   | ppm   | ASTM D5185m<br>ASTM D5185m  | 0  | 565<br>1784   | 506<br>1767   | 526<br>1794   |
| Calcium<br>Phosphorus   | ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0  | 565<br>1784<br>748  | 506<br>1767<br>739  | 526<br>1794<br>719  |
| Calcium<br>Phosphorus<br>Zinc   | ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0  | 565<br>1784<br>748<br>1008  | 506<br>1767<br>739<br>929   | 526<br>1794<br>719<br>906   |
| Calcium<br>Phosphorus<br>Zinc<br>Sulfur   | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   |  | 565<br>1784<br>748  | 506<br>1767<br>739  | 526<br>1794<br>719<br>906<br>2707   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS   | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method   | limit/base                               | 565<br>1784<br>748<br>1008<br>2382<br>current   | 506<br>1767<br>739<br>929<br>2309<br>history1   | 526<br>1794<br>719<br>906<br>2707<br>history2   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon   | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method<br>ASTM D5185m  | limit/base                               | 565<br>1784<br>748<br>1008<br>2382<br>current   | 506<br>1767<br>739<br>929<br>2309<br>history1   | 526<br>1794<br>719<br>906<br>2707<br>history2   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium  | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>Method<br>ASTM D5185m<br>ASTM D5185m   | limit/base >25                           | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8  | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1  | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon   | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method<br>ASTM D5185m  | limit/base >25                           | 565<br>1784<br>748<br>1008<br>2382<br>current   | 506<br>1767<br>739<br>929<br>2309<br>history1   | 526<br>1794<br>719<br>906<br>2707<br>history2   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium  | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>Method<br>ASTM D5185m<br>ASTM D5185m   | limit/base >25                           | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8  | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1  | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium                                      | ppm<br>ppm<br>ppm<br>ppm                                | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  | limit/base >25 >20                       | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8<br>4                                       | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1  | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12<br>1  |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED                            | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                  | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m   | limit/base >25 >20 limit/base >3         | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8<br>4<br>1                                  | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1<br>2                                   | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12<br>1<br>0                                   |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm           | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method ASTM D5185m  Method  *ASTM D7844                                | limit/base >25 >20 limit/base >3         | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8<br>4<br>1<br>current                       | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1<br>2<br>history1<br>0.3                | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12<br>1<br>0<br>history2                       |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>Abs/cm | ASTM D5185m                         | limit/base >25 >20 limit/base >3 >20     | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8<br>4<br>1<br>current<br>0.2<br>8.4         | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1<br>2<br>history1<br>0.3<br>8.8         | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12<br>1<br>0<br>history2<br>0.1                |
| Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>Abs/cm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D7844  *ASTM D7624  *ASTM D7415 | limit/base >25 >20 limit/base >3 >20 >30 | 565<br>1784<br>748<br>1008<br>2382<br>current<br>8<br>4<br>1<br>current<br>0.2<br>8.4<br>23.3 | 506<br>1767<br>739<br>929<br>2309<br>history1<br>8<br><1<br>2<br>history1<br>0.3<br>8.8<br>23.8 | 526<br>1794<br>719<br>906<br>2707<br>history2<br>12<br>1<br>0<br>history2<br>0.1<br>8.0<br>23.5 |



# **OIL ANALYSIS REPORT**

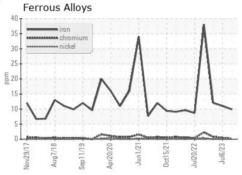


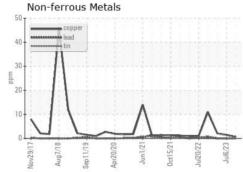


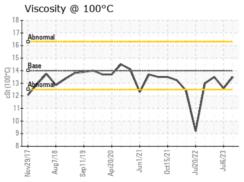
| VISUAL                  |        | method  | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Yellow Metal            | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Precipitate             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| 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    |
| <b>Emulsified Water</b> | scalar | *Visual | >0.2       | NEG     | NEG      | NEG      |
| Free Water              | scalar | *Visual |            | NEG     | NEG      | NEG      |

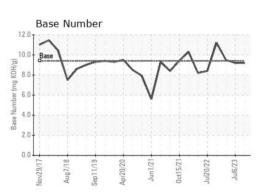
| FLUID PROPERTIES |     | method    |    |      |      | history2 |
|------------------|-----|-----------|----|------|------|----------|
| Visc @ 100°C     | cSt | ASTM D445 | 14 | 13.5 | 12.6 | 13.5     |

# **GRAPHS**













Laboratory Sample No. Lab Number Unique Number : 10779719

: WC0859594 : 06029928

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Dec 2023 Diagnosed : 12 Dec 2023

Diagnostician : Wes Davis

Test Package : CONST ( 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)

SHERWOOD CONSTRUCTION CO INC

3219 WEST MAY ST WICHITA, KS US 67213

Contact: DOUG KING doug.king@sherwood.net

T: (316)617-3161 F: x: