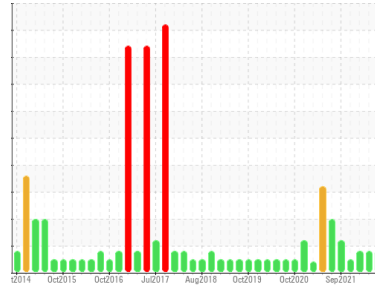




OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id
STEIGER 4

Component
Diesel Engine

Fluid
ALPHA MEGA MOLY 15W40 (11 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | WC0617459 | WC0617455 | WC0617454 |
| Sample Date | Client Info | 11 May 2023 | 03 Oct 2022 | 29 Jul 2022 |
| Machine Age | hrs | 3051 | 2573 | 2384 |
| Oil Age | hrs | 223 | 189 | 469 |
| Oil Changed | Client Info | Changed | Oil Added | Changed |
| Sample Status | | ABNORMAL | MARGINAL | ABNORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|------------|------------|----------|----------|
| Glycol | WC Method | NEG | NEG | 0.0 |

WEAR METALS

| method | limit/base | current | history1 | history2 | |
|----------|------------|------------------|--------------|----------|-----|
| Iron | ppm | ASTM D5185m >86 | 31 | 27 | 65 |
| Chromium | ppm | ASTM D5185m >3 | 1 | <1 | 2 |
| Nickel | ppm | ASTM D5185m >3 | 0 | 0 | 2 |
| Titanium | ppm | ASTM D5185m >2 | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m >2 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m >15 | 2 | 2 | 4 |
| Lead | ppm | ASTM D5185m >16 | 3 | 3 | 8 |
| Copper | ppm | ASTM D5185m >250 | 7 | 7 | 18 |
| Tin | ppm | ASTM D5185m >2 | <1 | 0 | 4 |
| Antimony | ppm | ASTM D5185m | --- | --- | --- |
| Vanadium | ppm | ASTM D5185m | <1 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 | |
|------------|------------|-------------|--------------|----------|------|
| Boron | ppm | ASTM D5185m | 2 | 0 | 6 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 138 | 5 | 37 |
| Manganese | ppm | ASTM D5185m | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 16 | 14 | 19 |
| Calcium | ppm | ASTM D5185m | 4605 | 4132 | 4070 |
| Phosphorus | ppm | ASTM D5185m | 1190 | 911 | 911 |
| Zinc | ppm | ASTM D5185m | 1314 | 1026 | 1077 |
| Sulfur | ppm | ASTM D5185m | 5717 | 4594 | 4588 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 | |
|-----------|------------|-----------------|--------------|----------|-------|
| Silicon | ppm | ASTM D5185m >35 | 10 | 5 | 29 |
| Sodium | ppm | ASTM D5185m | 8 | 10 | 10 |
| Potassium | ppm | ASTM D5185m >20 | 3 | 0 | 7 |
| Fuel | % | ASTM D3524 >5 | ▲ 5.0 | ▲ 3.6 | ▲ 5.9 |

INFRA-RED

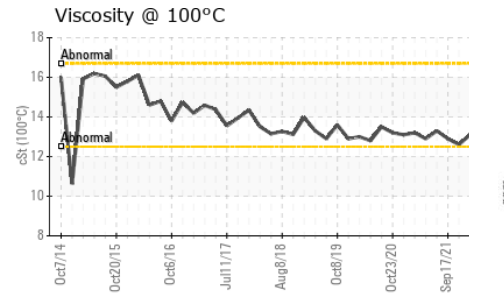
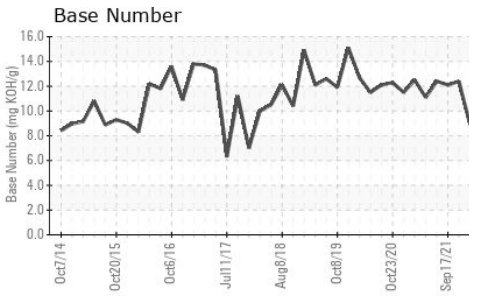
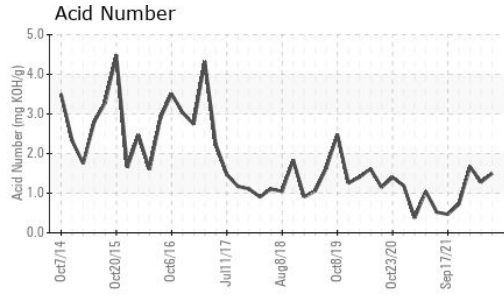
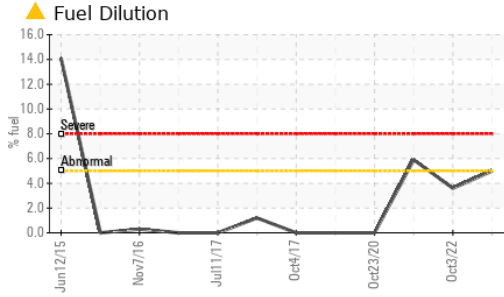
| method | limit/base | current | history1 | history2 | |
|-----------|------------|-----------------|-------------|----------|------|
| Soot % | % | *ASTM D7844 >3 | 0.4 | 0.3 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 14.4 | 12.8 | 15.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 43.2 | 42.9 | 45.8 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 | |
|------------------|------------|-----------------|--------------|----------|------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 47.1 | 47.3 | 50.0 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.50 | 1.28 | 1.67 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 12.81 | 10.8 | 8.93 |



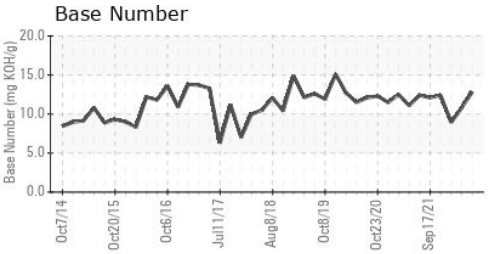
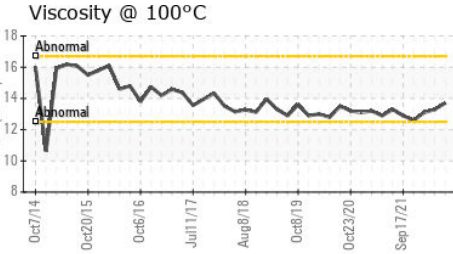
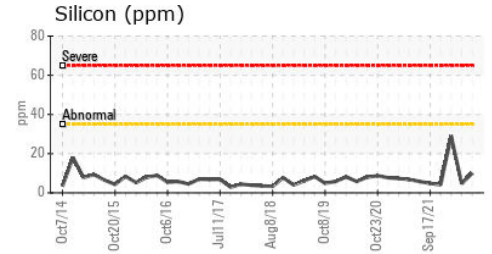
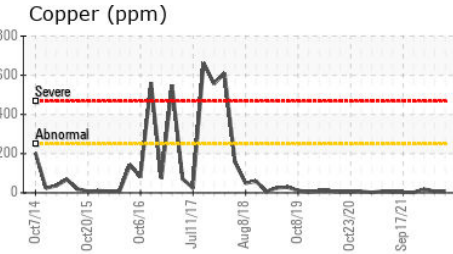
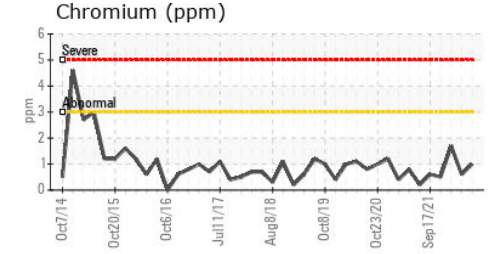
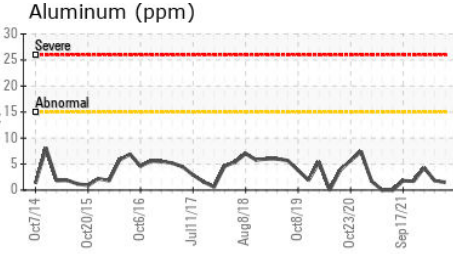
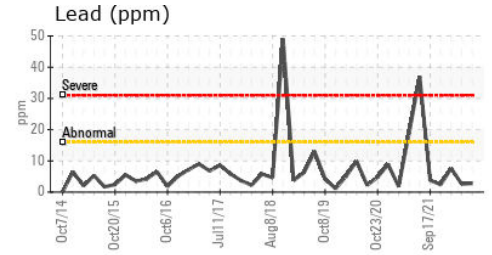
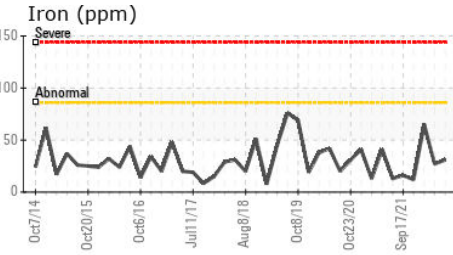
OIL ANALYSIS REPORT



| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 13.7 | 13.3 | 13.1 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0617459 **Received** : 01 Jun 2023
Lab Number : 05862427 **Diagnosed** : 05 Jun 2023
Unique Number : 10496892 **Diagnostician** : Don Baldrige
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

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 F: (318)552-8876

Certificate L2367
 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)