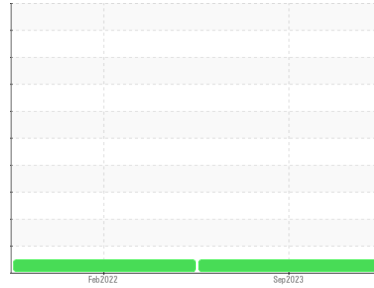




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
2642

Component
Diesel Engine

Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|--------------------|-------------|-------------|------------|--------------------|-------------|----------|
| Sample Number | Client Info | | | RW0004854 | RW0002449 | --- |
| Sample Date | Client Info | | | 12 Sep 2023 | 11 Feb 2022 | --- |
| Machine Age | hrs | Client Info | | 2436 | 520 | --- |
| Oil Age | hrs | Client Info | | 766 | 520 | --- |
| Oil Changed | Client Info | | | Changed | Changed | --- |
| Sample Status | | | | NORMAL | NORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---------------|-----------|--------|------------|----------------|----------|----------|
| Fuel | WC Method | >5 | | <1.0 | <1.0 | --- |
| Glycol | WC Method | | | NEG | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|-------------|-----|-------------|------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m | >100 | 36 | 64 | --- |
| Chromium | ppm | ASTM D5185m | >20 | 3 | 2 | --- |
| Nickel | ppm | ASTM D5185m | >4 | <1 | 1 | --- |
| Titanium | ppm | ASTM D5185m | | 0 | <1 | --- |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | 10 | 16 | --- |
| Lead | ppm | ASTM D5185m | >40 | 0 | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | 3 | 85 | --- |
| Tin | ppm | ASTM D5185m | >15 | <1 | 1 | --- |
| Antimony | ppm | ASTM D5185m | | --- | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|------------|-----|-------------|------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 250 | 4 | 49 | --- |
| Barium | ppm | ASTM D5185m | 10 | 2 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 100 | 64 | 7 | --- |
| Manganese | ppm | ASTM D5185m | | <1 | 4 | --- |
| Magnesium | ppm | ASTM D5185m | 450 | 913 | 770 | --- |
| Calcium | ppm | ASTM D5185m | 3000 | 1081 | 1392 | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | 965 | 740 | --- |
| Zinc | ppm | ASTM D5185m | 1350 | 1223 | 922 | --- |
| Sulfur | ppm | ASTM D5185m | 4250 | 3126 | 2459 | --- |

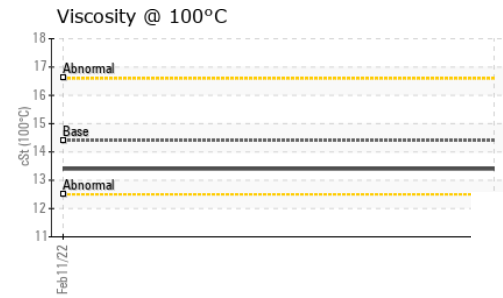
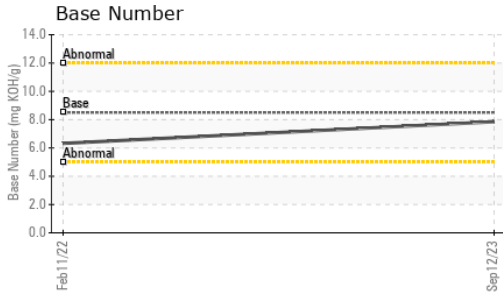
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|--------------|-----|-------------|------------|-----------|----------|----------|
| Silicon | ppm | ASTM D5185m | >25 | 8 | 27 | --- |
| Sodium | ppm | ASTM D5185m | >158 | 1 | 6 | --- |
| Potassium | ppm | ASTM D5185m | >20 | 26 | 30 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|-----------|----------|-------------|------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 | >3 | 1 | 0.7 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 11.3 | 12.3 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.1 | 24.8 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 18.7 | 19.6 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 7.85 | 6.32 | --- |



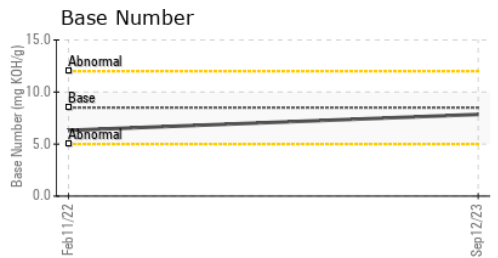
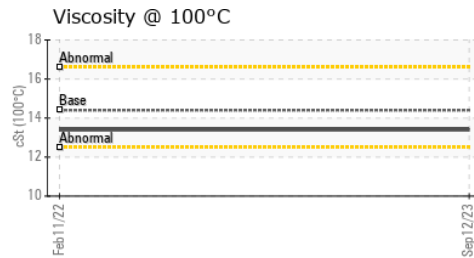
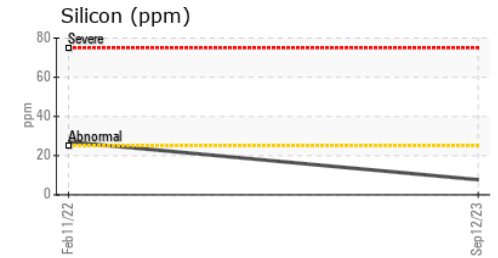
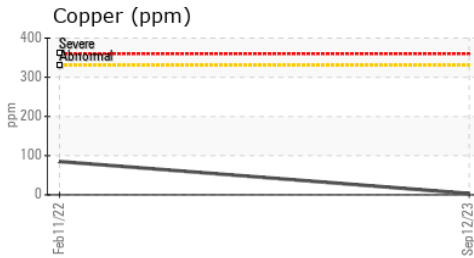
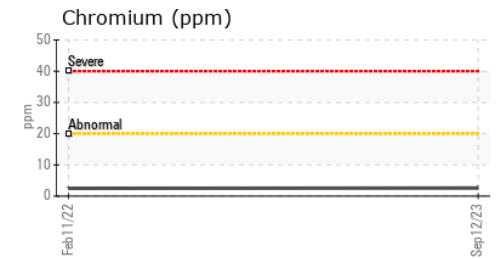
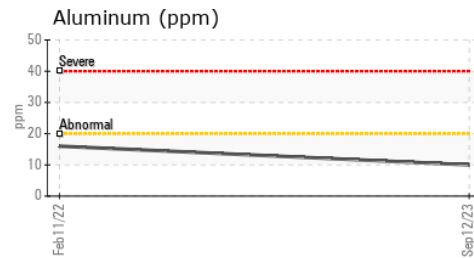
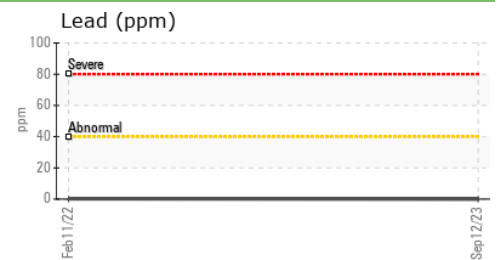
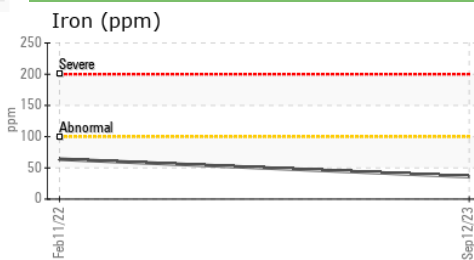
OIL ANALYSIS REPORT



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

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|-------------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.4 | 13.4 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0004854 **Received** : 28 Sep 2023
Lab Number : 05963689 **Diagnosed** : 29 Sep 2023
Unique Number : 10670240 **Diagnostician** : Wes Davis
Test Package : MOB 2

NEWKIRK ELECTRIC
 1875 ROBERTS ST.
 MUSKEGON, MI
 US 49442

Contact: ERIC KING
 ewking@newkirk-electric.com
 T: (231)206-6131
 F: (231)724-4090

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)