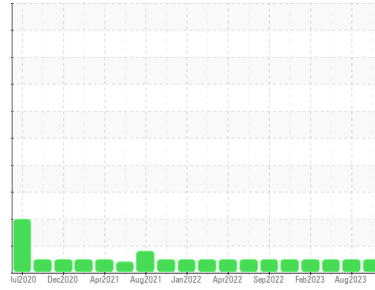




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
INTERNATIONAL 5012906

Component
Diesel Engine

Fluid
VALVOLINE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected 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 | | | IL0034292 | IL05934656 | IL05853013 |
| Sample Date | Client Info | | | 01 Nov 2023 | 03 Aug 2023 | 11 May 2023 |
| Machine Age | mls | Client Info | | 308128 | 298646 | 282672 |
| Oil Age | mls | Client Info | | 0 | 0 | 0 |
| Oil Changed | Client Info | | | Changed | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---------------|-----------|--------|------------|------------|----------|----------|
| 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 | 15 | 21 | 28 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 0 | 1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 5 | 6 | 9 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 1 | 1 | 0 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|------------|-----|-------------|------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 39 | 49 | 66 | 25 |
| Barium | ppm | ASTM D5185m | 1 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 49 | 92 | 88 | 63 |
| Manganese | ppm | ASTM D5185m | 1 | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 616 | 694 | 639 | 919 |
| Calcium | ppm | ASTM D5185m | 1554 | 1366 | 1578 | 1444 |
| Phosphorus | ppm | ASTM D5185m | 899 | 849 | 994 | 881 |
| Zinc | ppm | ASTM D5185m | 1069 | 1028 | 1236 | 1147 |
| Sulfur | ppm | ASTM D5185m | 2624 | 2550 | 3514 | 3227 |

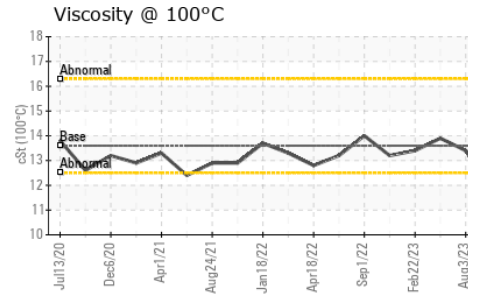
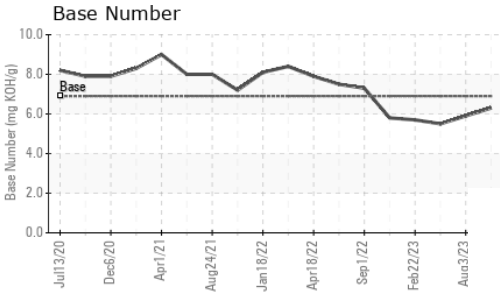
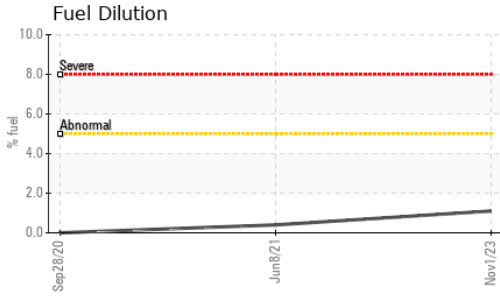
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|--------------|-----|-------------|------------|------------|----------|----------|
| Silicon | ppm | ASTM D5185m | >25 | 6 | 6 | 7 |
| Sodium | ppm | ASTM D5185m | | 2 | 3 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | 2 | 2 | 3 |
| Fuel | % | ASTM D3524 | >5 | 1.1 | <1.0 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|-----------|----------|-------------|------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 | >3 | 0.4 | 0.6 | 0.8 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.7 | 11.6 | 14.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.5 | 24.6 | 27.4 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 18.5 | 21.6 | 28.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 6.9 | 6.3 | 5.9 | 5.5 |



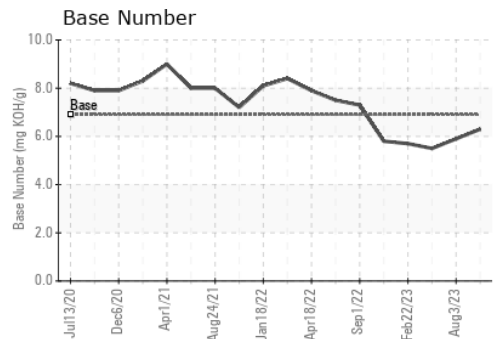
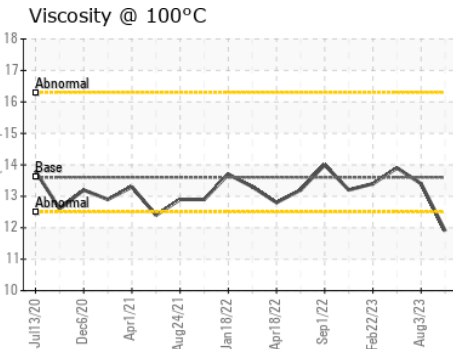
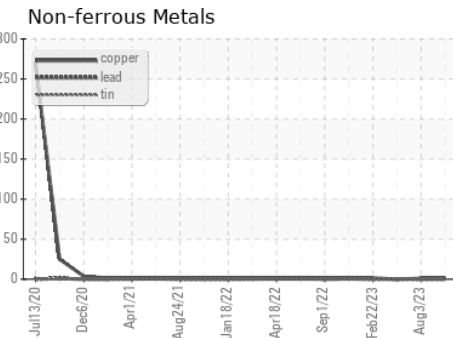
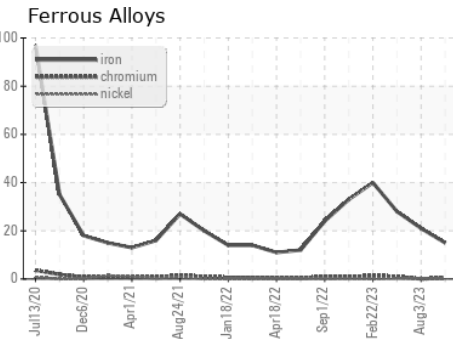
OIL ANALYSIS REPORT



| 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 | 13.6 | 11.9 | 13.4 | 13.9 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : IL0034292 **Received** : 20 Nov 2023
Lab Number : 06011970 **Diagnosed** : 22 Nov 2023
Unique Number : 10751114 **Diagnostician** : Wes Davis
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

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)

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