



OIL ANALYSIS REPORT

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

Machine Id
INGERSOLL RAND SD70D 000765 (S/N 146291)

Component
Diesel Engine

Fluid
CASTROL VECTON 15W40 CK4 (3 GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0800390 | WC0664796 | WC0401614 |
| Sample Date | | Client Info | | 09 Feb 2024 | 03 Jun 2022 | 29 Apr 2020 |
| Machine Age | hrs | Client Info | | 10959 | 10562 | 10190 |
| Oil Age | hrs | Client Info | | 397 | 372 | 500 |
| Filter Age | hrs | Client Info | | 397 | 372 | 500 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | SEVERE | SEVERE | SEVERE |

WEAR

Cylinder, crank, or cam shaft wear is indicated. Exhaust valve wear is indicated.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------------|--------------|
| Iron | ppm | ASTM D5185m | >90 | ▲ 219 | 29 | ▲ 491 |
| Chromium | ppm | ASTM D5185m | >20 | ▲ 29 | 4 | ▲ 114 |
| Nickel | ppm | ASTM D5185m | >2 | ▲ 3 | 0 | 3 |
| Titanium | ppm | ASTM D5185m | >2 | 3 | <1 | 20 |
| Silver | ppm | ASTM D5185m | >2 | <1 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | ● 62 | ● 8 | ● 565 |
| Lead | ppm | ASTM D5185m | >40 | 6 | 4 | 13 |
| Copper | ppm | ASTM D5185m | >330 | 149 | 11 | 66 |
| Tin | ppm | ASTM D5185m | >15 | 4 | 2 | 3 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

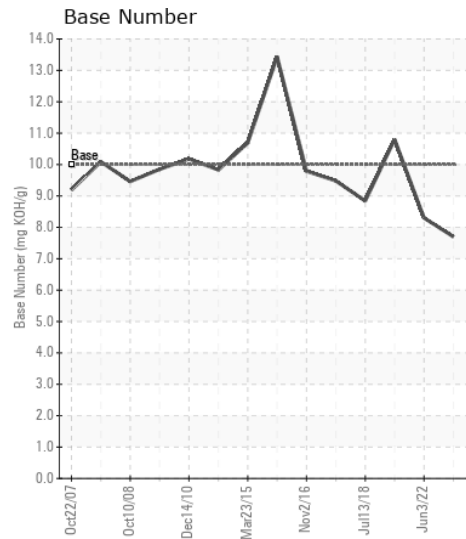
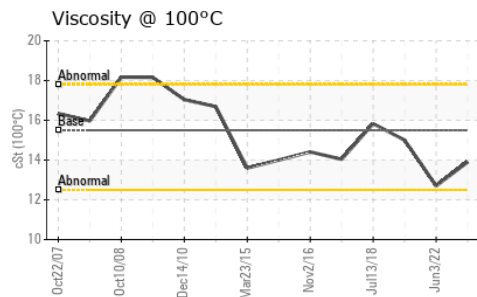
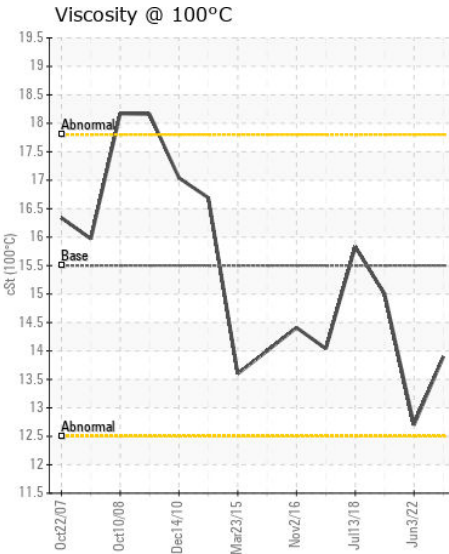
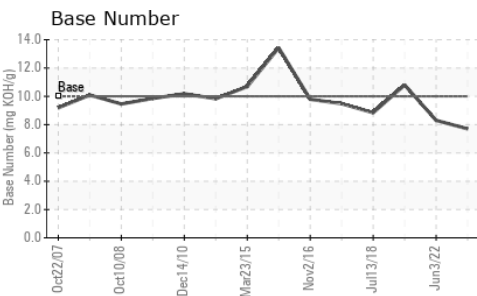
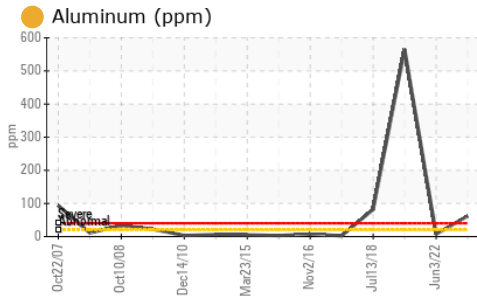
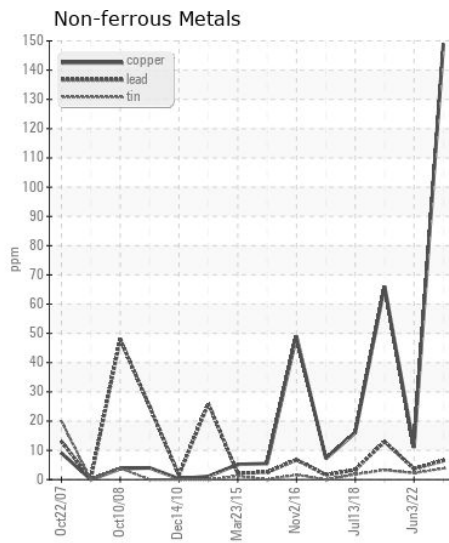
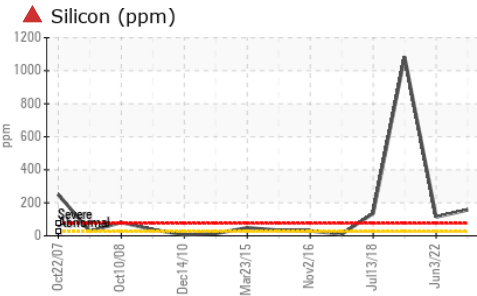
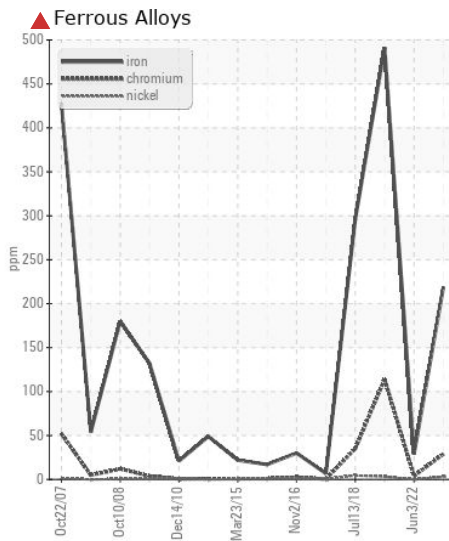
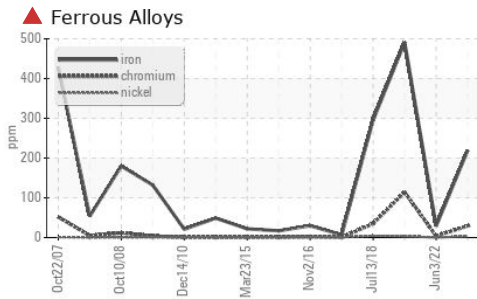
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|--------------|---------------|
| Silicon | ppm | ASTM D5185m | >25 | ▲ 157 | ▲ 114 | ▲ 1082 |
| Potassium | ppm | ASTM D5185m | >20 | 24 | 28 | ▲ 117 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >6 | 1.1 | 0.3 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 12.2 | 7.1 | 13.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.8 | 19.1 | 27 |
| 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 |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

| | | | | | | |
|------------------|----------|-------------|------|-------------|------|------|
| Sodium | ppm | ASTM D5185m | | 10 | 12 | 28 |
| Boron | ppm | ASTM D5185m | | 36 | 142 | 64 |
| Barium | ppm | ASTM D5185m | | 1 | <1 | 3 |
| Molybdenum | ppm | ASTM D5185m | | 91 | 66 | 65 |
| Manganese | ppm | ASTM D5185m | | 4 | 2 | 10 |
| Magnesium | ppm | ASTM D5185m | | 168 | 346 | 1115 |
| Calcium | ppm | ASTM D5185m | | 2061 | 1810 | 1789 |
| Phosphorus | ppm | ASTM D5185m | | 935 | 966 | 1068 |
| Zinc | ppm | ASTM D5185m | | 1182 | 1153 | 1263 |
| Sulfur | ppm | ASTM D5185m | | 3046 | 3308 | 3620 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 19.1 | 14.5 | 25 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10 | 7.7 | 8.3 | 10.8 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 13.9 | 12.7 | 15.0 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0800390 **Received** : 27 Feb 2024
Lab Number : 06102249 **Tested** : 28 Feb 2024
Unique Number : 10900479 **Diagnosed** : 29 Feb 2024 - Sean Felton
Test Package : CONST (Additional Tests: TBN)

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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)