



OIL ANALYSIS REPORT

| | |
|-----------------|-----------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | ATTENTION |

Machine Id
A23101
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0886839 | WC0691623 | WC0626802 |
| Sample Date | | Client Info | | 23 Feb 2024 | 08 Jul 2023 | 14 Feb 2023 |
| Machine Age | mls | Client Info | | 117239 | 81097 | 56316 |
| Oil Age | mls | Client Info | | 0 | 81097 | 24000 |
| Filter Age | mls | Client Info | | 0 | 81097 | 24000 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ATTENTION | NORMAL | ATTENTION |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 27 | 25 | 72 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | <1 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 3 | 5 | 17 |
| Lead | ppm | ASTM D5185m | >40 | 2 | 1 | 6 |
| Copper | ppm | ASTM D5185m | >330 | 30 | 56 | 173 |
| Tin | ppm | ASTM D5185m | >15 | 3 | 2 | 8 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

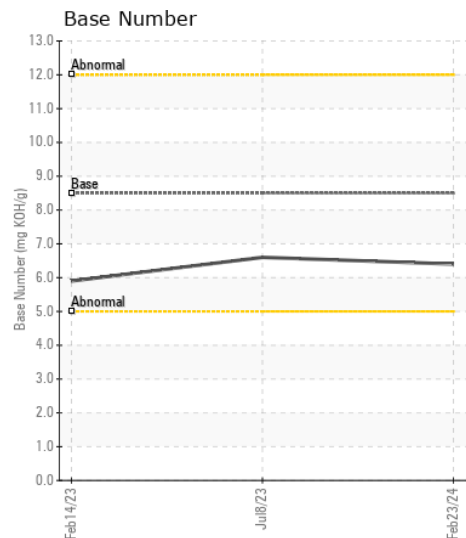
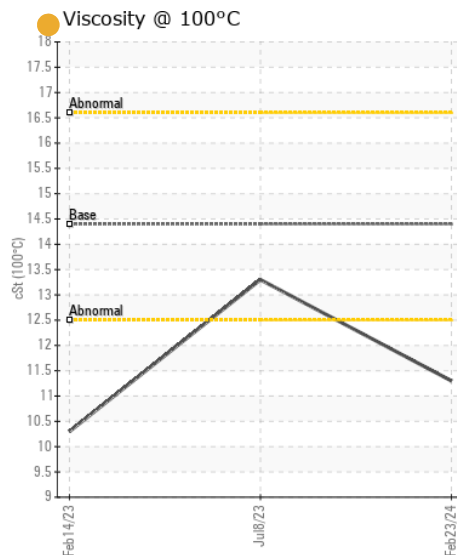
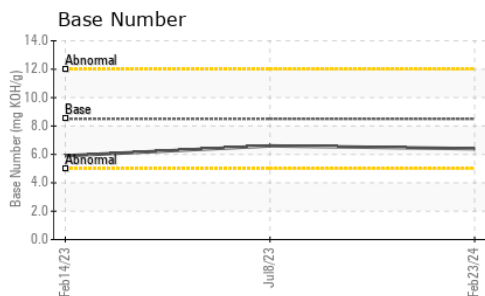
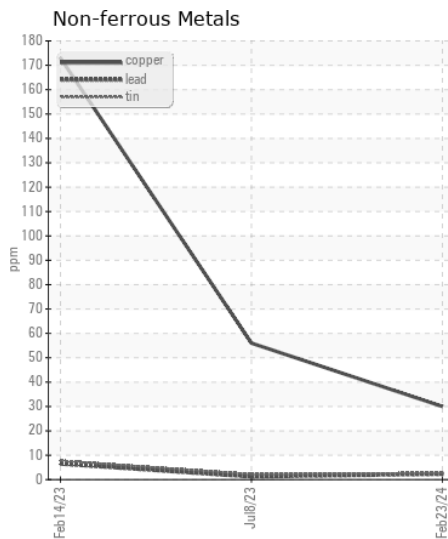
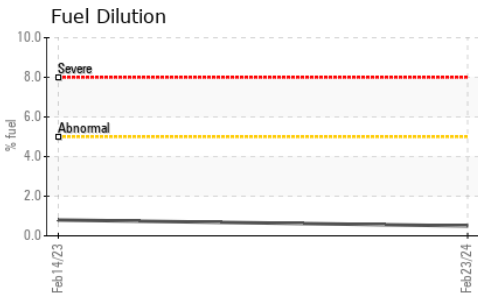
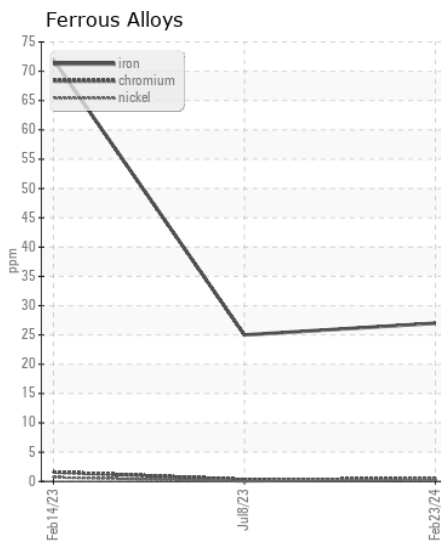
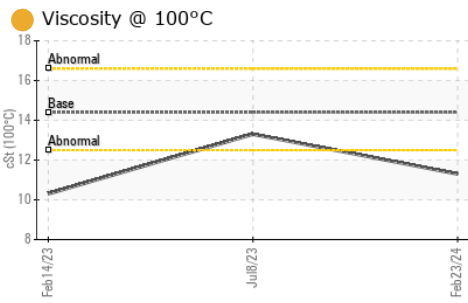
Fuel content negligible. There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 6 | 7 | 35 |
| Potassium | ppm | ASTM D5185m | >20 | 5 | 8 | 45 |
| Fuel | % | ASTM D3524 | >5 | 0.5 | <1.0 | 0.8 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 1.2 | 0.9 | 1.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.4 | 8.7 | 12.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.3 | 22.1 | 26.2 |
| 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 oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | >158 | 2 | 0 | 6 |
| Boron | ppm | ASTM D5185m | 250 | 4 | 32 | 29 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 57 | 68 | 95 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | 5 |
| Magnesium | ppm | ASTM D5185m | 450 | 794 | 417 | 747 |
| Calcium | ppm | ASTM D5185m | 3000 | 1103 | 1697 | 1489 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 845 | 984 | 677 |
| Zinc | ppm | ASTM D5185m | 1350 | 1149 | 1176 | 855 |
| Sulfur | ppm | ASTM D5185m | 4250 | 2560 | 3182 | 2401 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 16.5 | 18.2 | 25.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 6.4 | 6.6 | 5.9 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 11.3 | 13.3 | 10.3 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0886839 **Received** : 01 Mar 2024
Lab Number : 06105851 **Tested** : 05 Mar 2024
Unique Number : 10909348 **Diagnosed** : 05 Mar 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

CARCO TRANSPORTATION
 2801 MIDLAND BLVD.
 FORT SMITH, AR
 US 72904
 Contact: RON BALL
 rball@carcotrans.com
 T: (479)441-3228
 F:

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)