



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

| | |
|-----------------|----------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | MARGINAL |

Machine Id
MB-CO. M2 CDRL B1 (S/N 15-1864)
 Component
Rear Diesel Engine
 Fluid
VALVOLINE PREMIUM BLUE (40 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 | | TR06011665 | --- | --- |
| Sample Date | | Client Info | | 19 Nov 2023 | --- | --- |
| Machine Age | hrs | Client Info | | 569 | --- | --- |
| Oil Age | hrs | Client Info | | 569 | --- | --- |
| Filter Age | hrs | Client Info | | 569 | --- | --- |
| Oil Changed | | Client Info | | Changed | --- | --- |
| Filter Changed | | Client Info | | Changed | --- | --- |
| Sample Status | | | | MARGINAL | --- | --- |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|------|-----|-----|
| Iron | ppm | ASTM D5185m | >100 | 11 | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | 0 | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | <1 | --- | --- |
| Titanium | ppm | ASTM D5185m | | 0 | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | <1 | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | 0 | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | 9 | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | --- | --- |
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |

CONTAMINATION

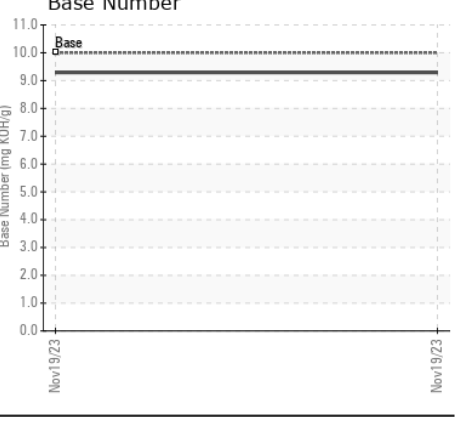
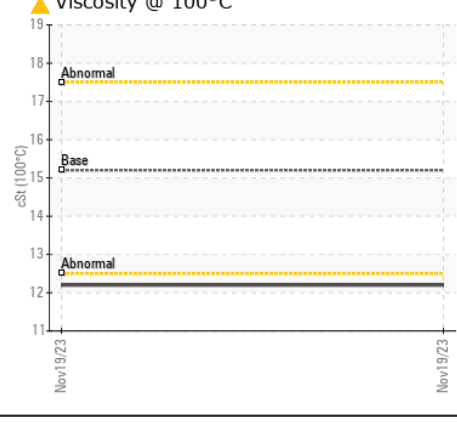
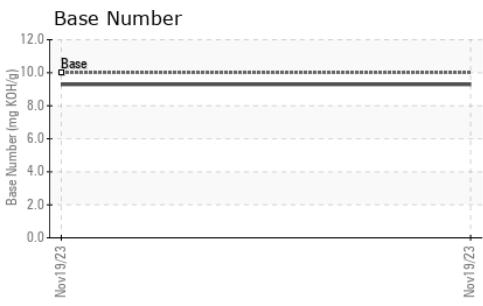
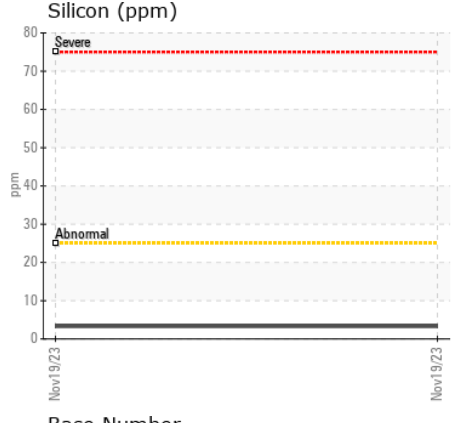
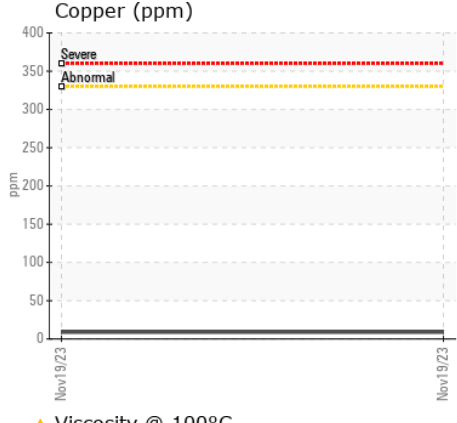
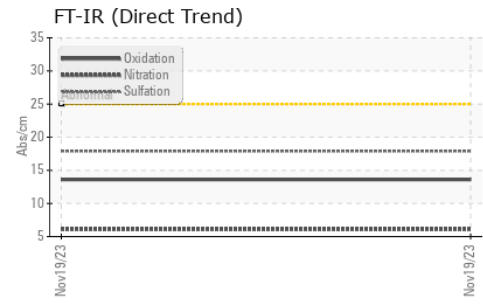
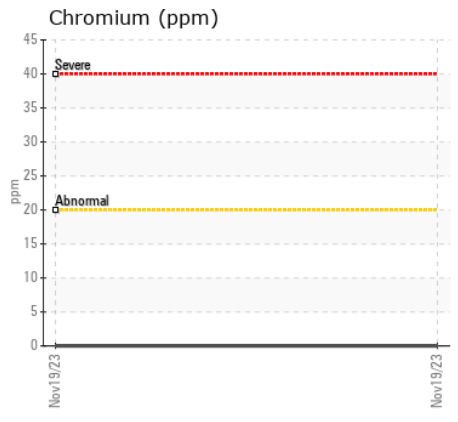
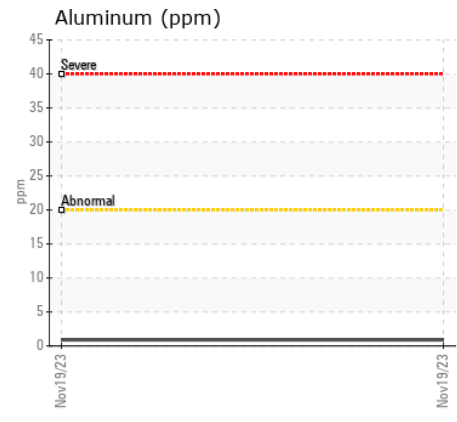
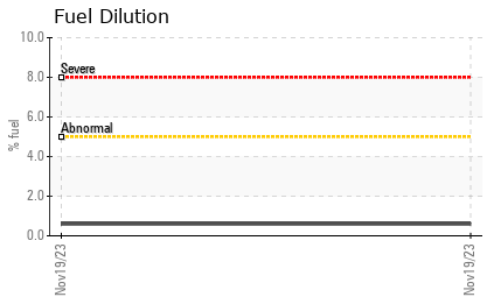
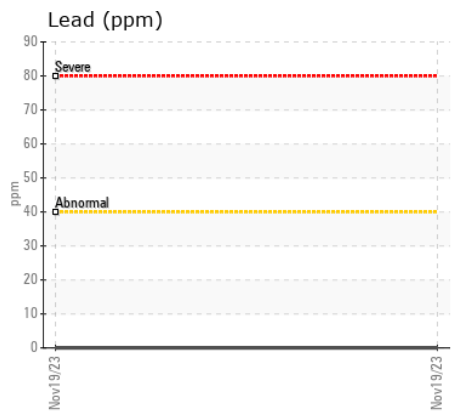
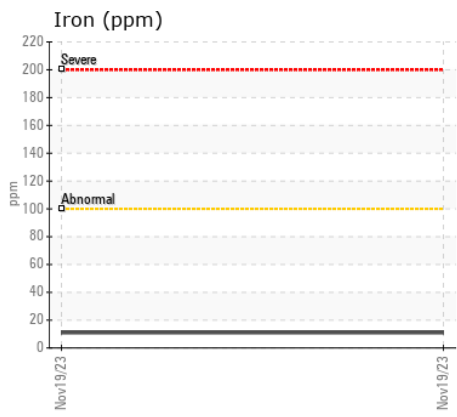
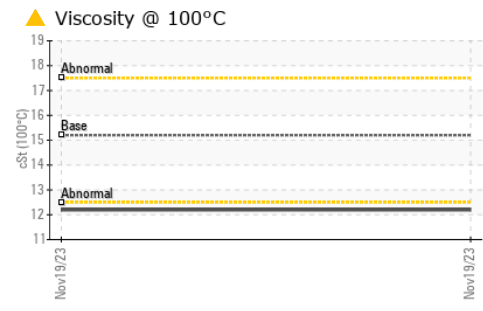
Fuel content negligible. There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|-------|-----|-----|
| Silicon | ppm | ASTM D5185m | >25 | 3 | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | 1 | --- | --- |
| Fuel | % | ASTM D3524 | >5 | 0.6 | --- | --- |
| Water | | WC Method | >0.2 | NEG | --- | --- |
| Glycol | | WC Method | | NEG | --- | --- |
| Soot % | % | *ASTM D7844 | >3 | 0.1 | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 6.1 | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 17.9 | --- | --- |
| 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 | --- | --- |

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 | | 3 | --- | --- |
| Boron | ppm | ASTM D5185m | 2.9 | 3 | --- | --- |
| Barium | ppm | ASTM D5185m | 0.1 | 6 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 0.0 | 48 | --- | --- |
| Manganese | ppm | ASTM D5185m | | 3 | --- | --- |
| Magnesium | ppm | ASTM D5185m | 18 | 800 | --- | --- |
| Calcium | ppm | ASTM D5185m | 2936 | 1176 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 998 | 988 | --- | --- |
| Zinc | ppm | ASTM D5185m | 1095 | 1176 | --- | --- |
| Sulfur | ppm | ASTM D5185m | 5469 | 2952 | --- | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 13.6 | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.0 | 9.29 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 15.2 | ▲ 12.2 | --- | --- |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06011665 **Received** : 17 Nov 2023
Lab Number : 06011665 **Tested** : 21 Nov 2023
Unique Number : 10750809 **Diagnosed** : 22 Nov 2023 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

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To discuss this sample report, contact Customer Service at 1-800-827-0711.

* - 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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F: