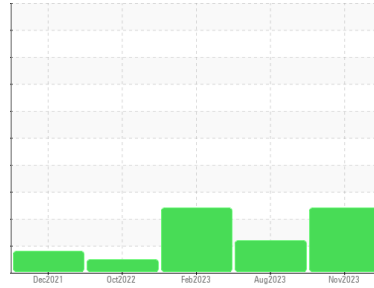




PROBLEM SUMMARY

Sample Rating Trend



GLYCOL



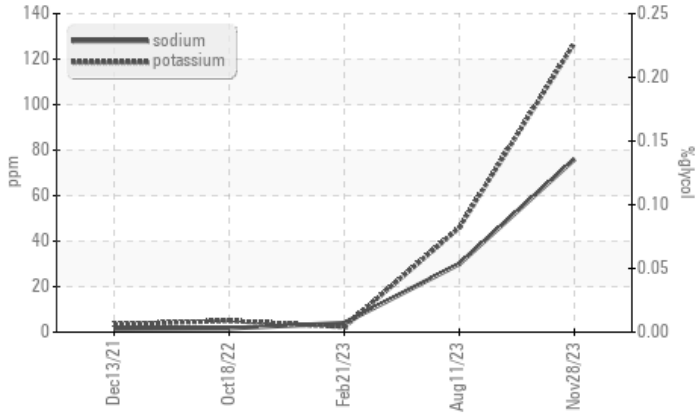
Machine Id
80-187

Component
Diesel Engine

Fluid
CONOCO PHILLIPS GUARDOL ECT 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Glycol Contamination



RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

| Sample Status | | | ABNORMAL | ABNORMAL | ABNORMAL |
|---------------|-----|-----------------|-----------------|----------|----------|
| Sodium | ppm | ASTM D5185m | ▲ 76 | 30 | 4 |
| Potassium | ppm | ASTM D5185m >20 | ▲ 127 | ▲ 46 | 2 |

Customer Id: MANTUL
 Sample No.: WC0793179
 Lab Number: 06027123
 Test Package: CONST



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---------------------|--------|------|---------|---|
| Change Fluid | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Change Filter | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Check Glycol Access | --- | --- | ? | We advise that you check for the source of the coolant leak. |

HISTORICAL DIAGNOSIS

11 Aug 2023 Diag: Jonathan Hester

GLYCOL



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Sodium and/or potassium levels are high. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

[view report](#)



21 Feb 2023 Diag: Sean Felton

DIRT



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. Resample at the next service interval to monitor. All other component wear rates are normal. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

[view report](#)



18 Oct 2022 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

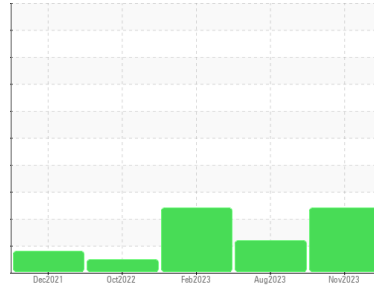
[view report](#)





OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id
80-187

Component
Diesel Engine

Fluid
CONOCO PHILLIPS GUARDOL ECT 15W40 (--- GAL)

DIAGNOSIS

▲ Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

▲ Contamination

Sodium and/or potassium levels are high.

▲ Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | WC0793179 | WC0793330 | WC0754836 |
| Sample Date | Client Info | | 28 Nov 2023 | 11 Aug 2023 | 21 Feb 2023 |
| Machine Age | hrs | Client Info | 7565 | 7303 | 6963 |
| Oil Age | hrs | Client Info | 7565 | 340 | 187 |
| Oil Changed | Client Info | | Changed | Changed | Changed |
| Sample Status | | | ABNORMAL | ABNORMAL | ABNORMAL |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|-------|-----------|------------|----------------|----------|----------|
| Fuel | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | WC Method | >0.2 | NEG | NEG | NEG |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >100 | 31 | 31 | 53 |
| Chromium | ppm | ASTM D5185m >20 | 1 | 2 | 4 |
| Nickel | ppm | ASTM D5185m >4 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m >3 | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m >20 | 4 | 7 | ▲ 13 |
| Lead | ppm | ASTM D5185m >40 | 3 | 3 | 2 |
| Copper | ppm | ASTM D5185m >330 | 3 | 5 | 8 |
| Tin | ppm | ASTM D5185m >15 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m 85 | 39 | 42 | 54 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 10 | 36 | 7 |
| Manganese | ppm | ASTM D5185m | <1 | <1 | 1 |
| Magnesium | ppm | ASTM D5185m 350 | 750 | 544 | 723 |
| Calcium | ppm | ASTM D5185m 1800 | 1439 | 1728 | 1366 |
| Phosphorus | ppm | ASTM D5185m 1000 | 1139 | 1093 | 1031 |
| Zinc | ppm | ASTM D5185m 1100 | 1328 | 1270 | 1207 |
| Sulfur | ppm | ASTM D5185m 3500 | 4087 | 4449 | 3822 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m >25 | 13 | 16 | ▲ 37 |
| Sodium | ppm | ASTM D5185m | ▲ 76 | 30 | 4 |
| Potassium | ppm | ASTM D5185m >20 | ▲ 127 | ▲ 46 | 2 |
| Glycol | % | *ASTM D2982 | NEG | NEG | NEG |

INFRA-RED

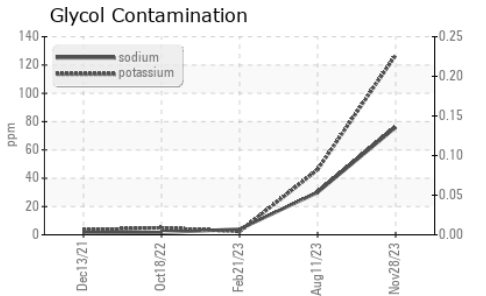
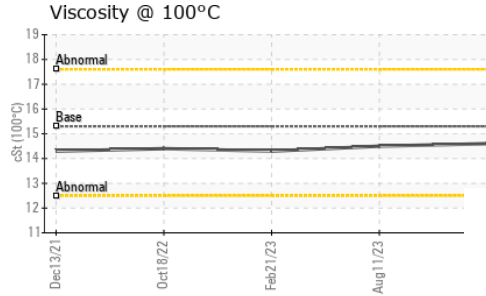
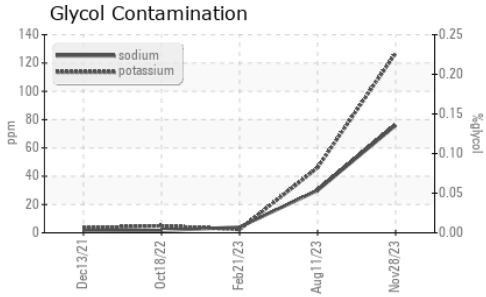
| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 >3 | 0.4 | 0.4 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 9.7 | 9.9 | 9.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 20.7 | 20.1 | 20.7 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 14.2 | 14.6 | 14.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.5 | 7.9 | 7.0 | 8.3 |



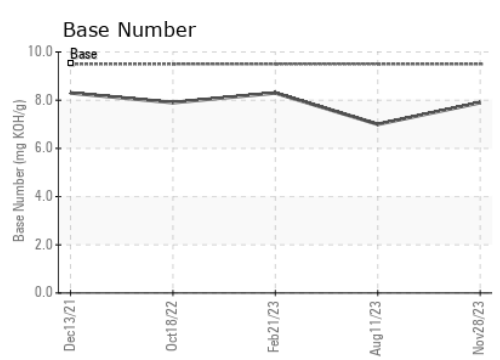
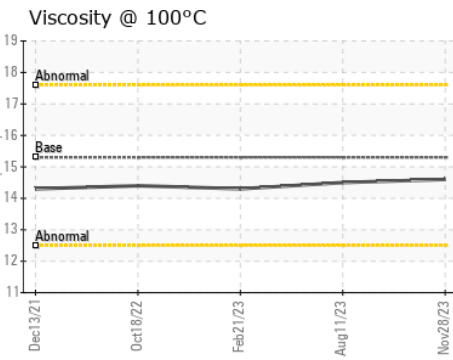
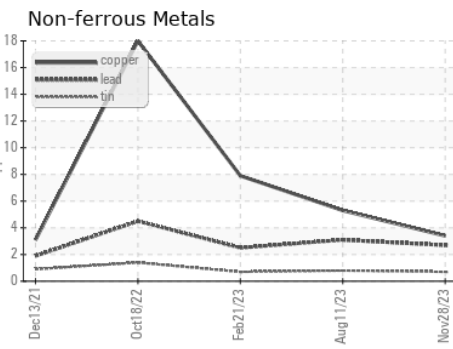
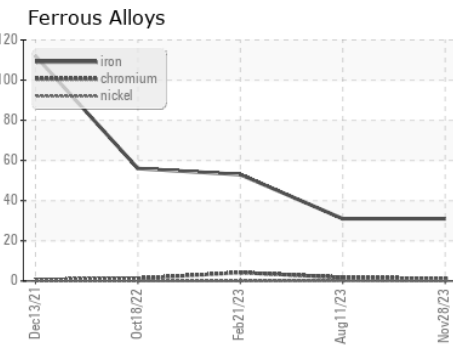
OIL ANALYSIS REPORT



| 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 | 15.3 | 14.6 | 14.5 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0793179 Received : 06 Dec 2023
 Lab Number : 06027123 Diagnosed : 11 Dec 2023
 Unique Number : 10776914 Diagnostician : Jonathan Hester
 Test Package : CONST (Additional Tests: Glycol, TBN)

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)

MANHATTAN ROAD AND BRIDGE
 5601 S 122ND E AVE
 TULSA, OK
 US 74146

Contact: BEN CALDWELL
 kevin.marson@wearcheck.com

T: (918)728-5749

F: