

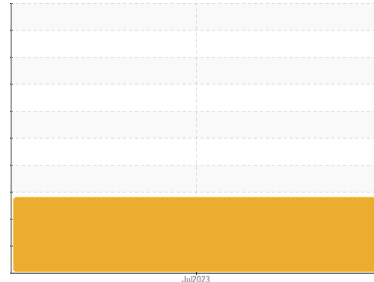
OIL ANALYSIS REPORT

Sample Rating Trend

VISCOSITY



Machine Id
LIEBHERR A934C 059594
Component
Diesel Engine
Fluid
PETRO CANADA DURON HP 15W40 (--- GAL)



DIAGNOSIS

▲ Recommendation

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

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

▲ Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The oil viscosity is lower than typical, possibly indicating the addition of lighter grade oil.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info | | PCA0100301 | --- | --- |
| Sample Date | Client Info | | 08 Jul 2023 | --- | --- |
| Machine Age | hrs | Client Info | 20695 | --- | --- |
| Oil Age | hrs | Client Info | 540 | --- | --- |
| Oil Changed | Client Info | | Changed | --- | --- |
| Sample Status | | | ATTENTION | --- | --- |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|--------|-----------|------------|------------|----------|----------|
| Glycol | WC Method | | NEG | --- | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >66 | 7 | --- | --- |
| Chromium | ppm | ASTM D5185m >4 | 0 | --- | --- |
| Nickel | ppm | ASTM D5185m >4 | 0 | --- | --- |
| Titanium | ppm | ASTM D5185m | <1 | --- | --- |
| Silver | ppm | ASTM D5185m >3 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m >8 | 1 | --- | --- |
| Lead | ppm | ASTM D5185m >10 | <1 | --- | --- |
| Copper | ppm | ASTM D5185m >74 | 1 | --- | --- |
| Tin | ppm | ASTM D5185m >4 | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185m | <1 | --- | --- |
| Cadmium | ppm | ASTM D5185m | 0 | --- | --- |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|---------------|----------|----------|
| Boron | ppm | ASTM D5185m | <1 | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | ▲ 31 | --- | --- |
| Manganese | ppm | ASTM D5185m | <1 | --- | --- |
| Magnesium | ppm | ASTM D5185m | ▲ 528 | --- | --- |
| Calcium | ppm | ASTM D5185m | ▲ 614 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | ▲ 715 | --- | --- |
| Zinc | ppm | ASTM D5185m | ▲ 896 | --- | --- |
| Sulfur | ppm | ASTM D5185m | ▲ 2456 | --- | --- |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|------------|----------|----------|
| Silicon | ppm | ASTM D5185m >15 | 4 | --- | --- |
| Sodium | ppm | ASTM D5185m | 2 | --- | --- |
| Potassium | ppm | ASTM D5185m >20 | 4 | --- | --- |
| Fuel | % | ASTM D3524 >5 | 0.5 | --- | --- |

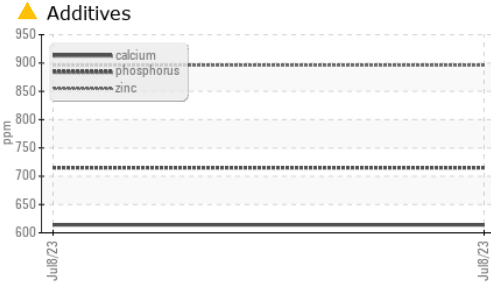
INFRA-RED

| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 >3 | 0.5 | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 >20 | 5.5 | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 16.6 | --- | --- |

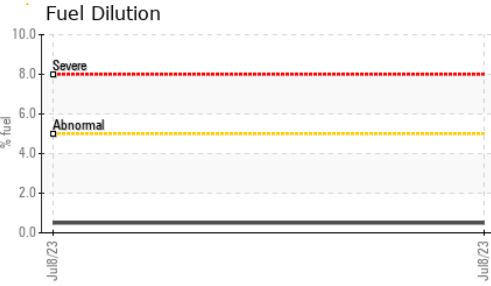
FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 9.3 | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8 | 5.1 | --- | --- |

OIL ANALYSIS REPORT

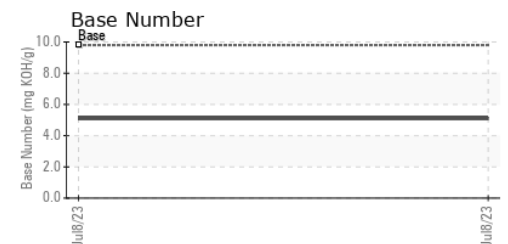
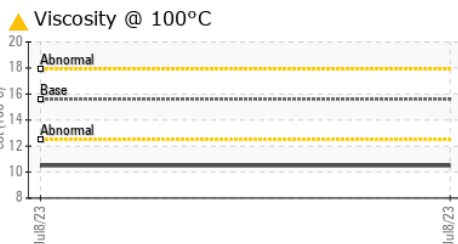
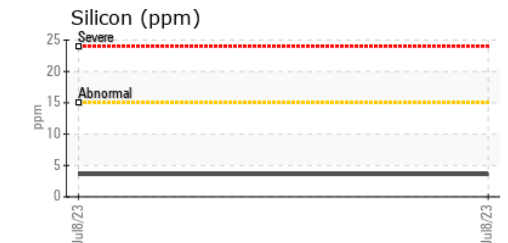
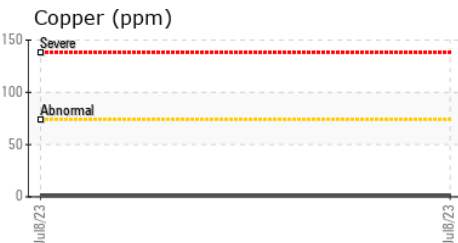
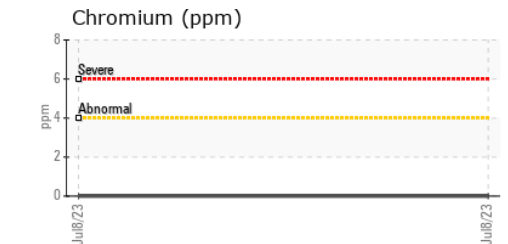
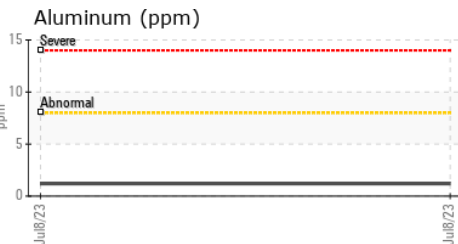
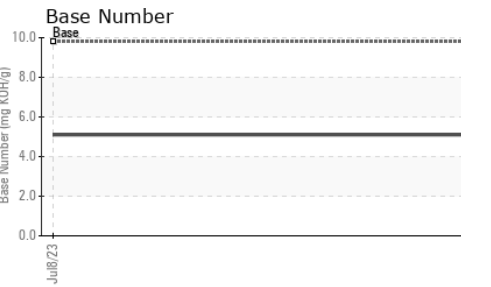
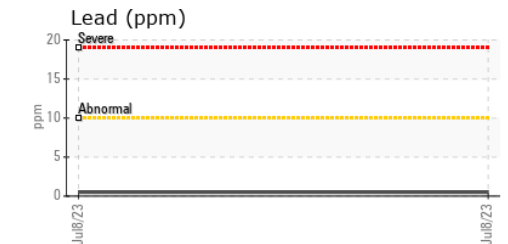
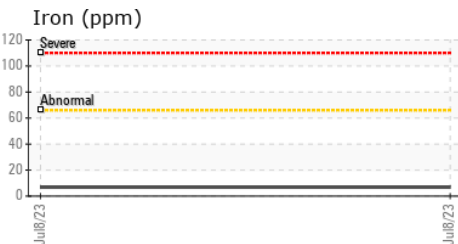
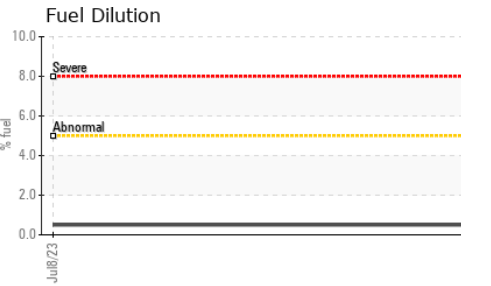


| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- |
| Precipitate | scalar | *Visual | NONE | NONE | --- |
| 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 | --- |
| Free Water | scalar | *Visual | | NEG | --- |



| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.6 | ▲ 10.5 | --- |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0100301 **Received** : 13 Jul 2023
Lab Number : 05897146 **Diagnosed** : 17 Jul 2023
Unique Number : 10552956 **Diagnostician** : Jonathan Hester
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, TBN)

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 * - 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)