

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **R&M DD-5-29 C0144 - TROLLEY (S/N 1695709506)** Gearbox

Gearbox Fluid

{not provided} (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

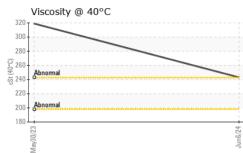
Fluid Condition

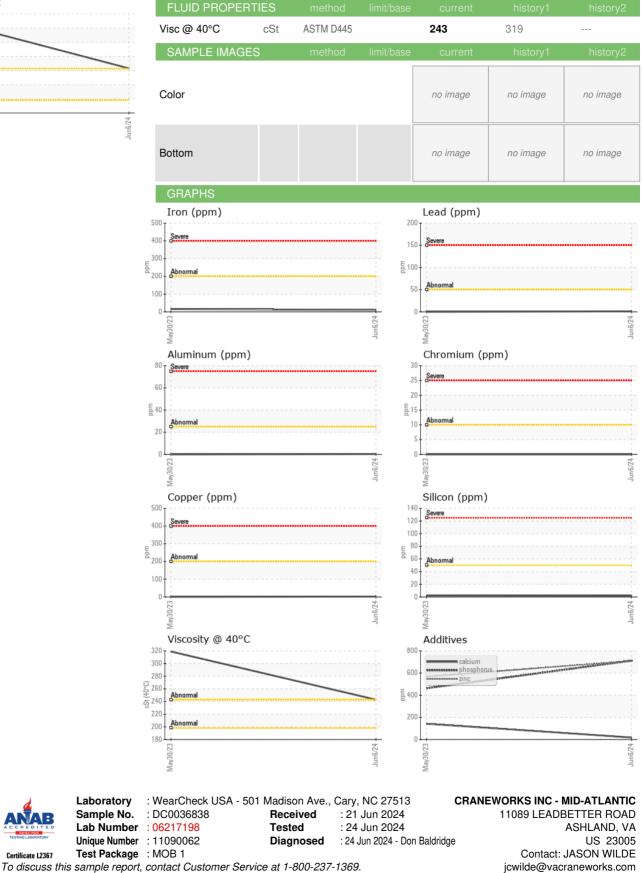
The condition of the oil is acceptable for the time in service.

| Sample NumberSample DateIMachine AgehrsOil AgehrsOil ChangedISample StatusICONTAMINATIONVaterWaterWEAR METALSIronppmChromiumppmNickelppmSilverppmAluminumppmCopperppmTinppmCadmiumppmBoronppmBariumppmManganeseppmMagnesiumppmCalciumppmPhosphorusppmZincppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m | limit/base >0.2 limit/base >200 >10 >10 >10 >25 >50 >200 >10 >10 | DC0036838 06 Jun 2024 0 N/A NORMAL 0 Current 9 0 Current 0 0 4 1 0 0 1 1 2 2 3 1 1 2 3 1 1 1 2 3 1 1 1 2 1 1 1 1 | DC0029167 30 May 2023 0 Not Changd NORMAL NEG NEG 16 0 0 16 0 0 4 16 0 0 0 16 0 0 0 16 0 0 0 16 0 0 0 0 0 | history2 history2 - |
|---|--|---|---|---|--|
| Machine AgehrsOil AgehrsOil ChangedhrsOil Changedsample StatusSample StatusrCONTAMINATIONWaterpmWEAR METALSIronppmChromiumppmNickelppmTitaniumppmAluminumppmLeadppmCopperppmTinppmCadmiumppmBoronppmBariumppmManganeseppmMagnesiumppmCalciumppmPhosphorusppmZincppm | Client Info Client Info Client Info Client Info WC Method WC Method ASTM D5185m ASTM D5185m | >0.2 limit/base >200 >10 >10 >25 >50 >200 >10 >10 | 0 0 N/A NORMAL Current NEG 0 current 9 0 c1 0 c1 1 2 c1 1 2 c1 0 0 0 c1 1 1 2 c1 0 0 0 c current current | 0 0 Not Changd NORMAL history1 NEG history1 16 0 0 <1 0 0 0 <1 0 0 0 <1 0 0 0 <1 0 0 0 0 | history2 history2 |
| Machine AgehrsOil AgehrsOil Changedsample StatusSample StatusICONTAMINATIONWaterWEAR METALSIronppmChromiumppmNickelppmTitaniumppmSilverppmAluminumppmLeadppmCopperppmTinppmVanadiumppmCadmiumppmBoronppmBariumppmMalganeseppmMagnesiumppmCalciumppmPhosphorusppmZincppm | Client Info Client Info Client Info Client Info WC Method WC Method ASTM D5185m ASTM D5185m | >0.2 limit/base >200 >10 >10 >25 >50 >200 >10 >10 | 0 N/A NORMAL Current NEG 0 0 <1 0 0 <1 1 1 2 <1 1 2 <1 0 0 0 <1 1 1 2 <1 0 0 0 <1 1 0 0 0 <1 1 0 0 0 0 <1 1 0 0 0 0 | 0 0 Not Changd NORMAL history1 NEG history1 16 0 0 <1 0 0 0 <1 0 0 0 <1 0 0 0 <1 0 0 0 0 | history2 history2 |
| Oil ChangedSample StatusCONTAMINATIONWaterWEAR METALSIronppmChromiumppmChromiumppmSilverppmAluminumppmLeadppmCopperppmTinppmCadmiumppmBoronppmBariumppmMalganeseppmMagnesiumppmCalciumppmCalciumppmCalciumppmCalciumppmZincppm | Client Info method WC Method ASTM D5185m ASTM D5185m | >0.2 limit/base >200 >10 >10 >25 >50 >200 >10 >10 | N/A NORMAL Current NEG 9 0 4 1 0 0 4 1 1 2 4 1 1 2 4 1 1 2 4 1 0 0 0 0 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 2 1 | Not Changd NORMAL history1 NEG history1 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 history1 0 | history2 history2 - |
| Oil ChangedSample StatusCONTAMINATIONWaterWEAR METALSIronppmChromiumppmChromiumppmSilverppmAluminumppmLeadppmCopperppmTinppmCadmiumppmBoronppmBariumppmMalganeseppmMagnesiumppmCalciumppmCalciumppmCalciumppmZincppm | method WC Method ASTM D5185m ASTM D5185m Method ASTM D5185m | >0.2 limit/base >200 >10 >10 >25 >50 >200 >10 >10 | NORMAL current NEG 9 0 <1 0 <1 1 2 <1 1 2 <1 0 0 0 current 4 2 <1 0 0 0 0 0 0 0 0 0 0 0 0 0 | NORMAL history1 NEG history1 16 0 0 0 0 0 0 <1 | history2 history2 history2 history2 |
| CONTAMINATION Water WEAR METALS Iron ppm Chromium ppm Chromium ppm Nickel ppm Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Cadmium ppm Boron ppm Barium ppm Malganese ppm Magnesium ppm Phosphorus ppm | WC Method method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m MSTM D5185m Control of the | >0.2 limit/base >200 >10 >10 >25 >50 >200 >10 >10 | current 9 0 <1 0 <1 1 2 <1 0 <1 0 <1 0 0 <1 0 0 <1 | history1 NEG history1 16 0 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 history1 0 | history2 history2 |
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| WEAR METALSIronppmChromiumppmNickelppmNickelppmTitaniumppmSilverppmAluminumppmLeadppmCopperppmTinppmVanadiumppmCadmiumppmBoronppmBariumppmMolybdenumppmMaganeseppmMagnesiumppmCalciumppmZincppm | method ASTM D5185m ASTM D5185m | limit/base >200 >10 >10 >25 >50 >200 >10 | Current 9 0 <1 0 <1 0 <1 1 2 <1 0 0 0 current <1 | history1 16 0 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 history1 | history2 |
| Iron ppm Chromium ppm Nickel ppm Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Cadmium ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Zinc ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | >200 >10 >10 >25 >50 >200 >10 | 9 0 <1 0 0 <1 1 2 <1 0 0 0 0 <i>current</i> | 16 0 0 <1 0 0 0 0 <1 0 <1 0 <1 0 0 <1 0 history1 0 | history2 |
| ChromiumppmNickelppmNitaniumppmSilverppmAluminumppmLeadppmCopperppmTinppmCadmiumppmCadmiumppmBoronppmBariumppmMolybdenumppmManganeseppmCalciumppmZincppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m | >10 >10 >25 >50 >200 >10 | 0 <1 0 <1 1 2 <1 0 0 0 <i>current</i> | 0 0 <1 0 0 0 <1 0 <1 0 <1 0 history1 0 | history2 |
| NickelppmTitaniumppmSilverppmAluminumppmLeadppmCopperppmTinppmCadmiumppmADDITIVESBoronppmBariumppmMolybdenumppmMaganeseppmCalciumppmZincppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | >10 >25 >50 >200 >10 | <1 0 0 <1 1 2 <1 0 0 0 0 <i>current</i> | 0 <1 0 0 <1 0 <1 0 <1 0 history1 | history2 |
| Titanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Cadmium ppm ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Manganese ppm Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m MSTM D5185m ASTM D5185m ASTM D5185m | >25 >50 >200 >10 | 0 0 <1 1 2 <1 0 0 0 0 <i>current</i> | <1 0 0 0 <1 0 <1 0 0 history1 0 | history2 |
| Silver ppm Aluminum ppm Lead ppm Copper ppm Tin ppm Vanadium ppm Cadmium ppm ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | >50 >200 >10 | 0 <1 1 2 <1 0 0 0 <i>current</i> | 0 0 <1 0 <1 0 0 history1 0 | history2 |
| AluminumppmLeadppmCopperppmTinppmVanadiumppmCadmiumppmADDITIVESBoronppmBariumppmMolybdenumppmMagnesiumppmCalciumppmPhosphorusppmZincppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m | >50 >200 >10 | <1 1 2 <1 0 0 current <1 | 0 0 <1 0 <1 0 history1 0 | history2 |
| Lead ppm Copper ppm Tin ppm Vanadium ppm Cadmium ppm ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m | >50 >200 >10 | 1 2 <1 0 0 current <1 | 0 <1 0 <1 0 history1 | history2 |
| Copper ppm Tin ppm Vanadium ppm Cadmium ppm ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m | >200 >10 | 2 <1 0 0 current <1 | <1 0 <1 0 history1 0 | history2 |
| TinppmVanadiumppmCadmiumppmCadmiumppmADDITIVESppmBoronppmBariumppmMolybdenumppmManganeseppmMagnesiumppmPhosphorusppmZincppm | ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m | >10 | <1 0 0 current <1 | 0 <1 0 history1 | history2 |
| TinppmVanadiumppmCadmiumppmCadmiumppmADDITIVESppmBoronppmBariumppmMolybdenumppmManganeseppmMagnesiumppmPhosphorusppmZincppm | ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m | | 0 0 current <1 | <1 0 history1 0 | history2 |
| Cadmium ppm ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m method ASTM D5185m ASTM D5185m | limit/base | 0 current <1 | 0 history1 0 | history2 |
| ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | method ASTM D5185m ASTM D5185m | limit/base | current <1 | history1 0 | history2 |
| Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m ASTM D5185m | limit/base | <1 | 0 | |
| BariumppmMolybdenumppmManganeseppmMagnesiumppmCalciumppmPhosphorusppmZincppm | ASTM D5185m | | | | |
| Molybdenum ppm Manganese ppm Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | | | 0 | 0 | |
| ManganeseppmMagnesiumppmCalciumppmPhosphorusppmZincppm | ASTM D5185m | | - | 0 | |
| Magnesium ppm Calcium ppm Phosphorus ppm Zinc ppm | 10111 2010011 | | 0 | 0 | |
| Calcium ppm Phosphorus ppm Zinc ppm | ASTM D5185m | | 1 | <1 | |
| Phosphorus ppm Zinc ppm | ASTM D5185m | | 11 | 0 | |
| Zinc ppm | ASTM D5185m | | 18 | 142 | |
| | ASTM D5185m | | 711 | 462 | |
| | ASTM D5185m | | 709 | 567 | |
| Sulfur ppm | ASTM D5185m | | 14209 | 15679 | |
| CONTAMINANTS | method | limit/base | current | history1 | history2 |
| Silicon ppm | ASTM D5185m | >50 | 2 | 2 | |
| Sodium ppm | ASTM D5185m | | 3 | 3 | |
| Potassium ppm | ASTM D5185m | >20 | 2 | 0 | |
| VISUAL | method | limit/base | current | history1 | history2 |
| White Metal scala | ar *Visual | NONE | NONE | NONE | |
| Yellow Metal scala | ar *Visual | NONE | NONE | NONE | |
| Precipitate scala | ar *Visual | NONE | NONE | NONE | |
| Silt scala | ar *Visual | NONE | NONE | NONE | |
| Debris scala | ar *Visual | NONE | NONE | NONE | |
| Sand/Dirt scala | ar *Visual | NONE | NONE | NONE | |
| Appearance scala | ar *Visual | NORML | NORML | NORML | |
| Odor scala | ar *Visual | NORML | NORML | NORML | |
| Emulsified Water scala | | >0.2 | | NEO | |
| Free Water scala | ar *Visual | ~ · · · L | NEG | NEG | |



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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)

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Certificate 12367

Contact/Location: JASON WILDE - CRAASHMA

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