OIL ANALYSIS REPORT

## (ZZONE3) BRUCE A/2/33120 2-33120-P4-PM Up Guide Brg

Upper Guide Bearing<br>MOBIL DTE 746 (--- GAL)



## DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## Wear

The Direct-Reading Ferrographic data (DL, DS, \%large) is normal. All component wear rates are normal.

## Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

## Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORM | ATION | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sample Number |  | Client Info |  | WC0871656 | WC0871704 | Wc |
| Sample Date |  | Client Info |  | 13 Mar 2024 | 04 Jan 2024 | 02 Oct 2023 |
| Machine Age | hrs | Client Info |  | 0 | 0 | 0 |
| Oil Age | hrs | Client Info |  | 0 | 0 | 0 |
| Oil Changed |  | Client Info |  | N/A | N/A | N/A |
| Sample Status |  |  |  | NORMAL | NORMAL | NORMAL |
| WEAR METALS |  | method | limitbase | current | history 1 | history2 |
| Iron | ppm | ASTM D5185(m) | >1 | 0 | 0 | 0 |
| Chromium | ppm | ASTM D5185(m) | $>1$ | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >1 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | $>5$ | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) |  | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | $>1$ | 0 | <1 | 0 |
| Lead | ppm | ASTM D5185(m) | >3 | 0 | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | $>1$ | 0 | 0 | <1 |
| Tin | ppm | ASTM D5185(m) | >1 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |


| DR-FERROGRAPHY | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Large Particles | DR-Ferr* |  | 5.3 | 0.7 | 0.8 |
| Small Particles | DR-Ferr* |  | 3.7 | 0.5 | 0.7 |
| Total Particles | DR-Ferr* | >--- | 9 | 1.2 | 1.5 |
| Large Particles Percentage \% | DR-Ferr* |  | 17.8 | 16.7 | 6.7 |
| Severity Index | DR-Ferr* |  | 8 | 0 | 0 |


| ADDITIVES |  | method | limitbase | current | history1 | history2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Boron | ppm | ASTM D5185(m) |  | 0 | 0 | <1 |
| Barium | ppm | ASTM D5185(m) |  | 0 | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) |  | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) |  | <1 | 0 | 0 |
| Calcium | ppm | ASTM D5185(m) |  | 0 | <1 | 0 |
| Phosphorus | ppm | ASTM D5185(m) |  | 1 | 0 | <1 |
| Zinc | ppm | ASTM D5185(m) |  | 2 | <1 | <1 |
| Sulfur | ppm | ASTM D5185(m) |  | 19 | 0 | 18 |
| Lithium | ppm | ASTM D5185(m) |  | <1 | <1 | <1 |
| CONTAMINANTS |  | method | limitbase | current | history1 | history2 |
| Silicon | ppm | ASTM D5185(m) | >5 | 0 | <1 | <1 |
| Sodium | ppm | ASTM D5185(m) | $>5$ | 0 | 0 | 0 |
| Potassium | ppm | ASTM D5185(m) | >20 | 0 | 4 | 0 |
| Water | \% | ASTM D6304* | $>0.005$ | 0.000 | 0.002 | 0.001 |
| ppm Water | ppm | ASTM D6304* | >50 | 0 | 21 | 12.6 |

## OIL ANALYSIS REPORT



| FLUID CLEANLINESS | method | limitbase | current | history1 | history2 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Particles $\boldsymbol{> 4 \mu \mathrm { m }}$ | ASTM D7647 | $>5000$ | $\mathbf{1 3 2 6}$ | 1629 | 597 |  |
| Particles $>6 \mu \mathrm{~m}$ |  | ASTM D7647 | $>1300$ | $\mathbf{4 0 0}$ | 515 | 207 |
| Particles $>14 \mu \mathrm{~m}$ | ASTM D7647 | $>320$ | $\mathbf{3 2}$ | 28 | 17 |  |
| Particles $>21 \mu \mathrm{~m}$ |  | ASTM D7647 | $>80$ | $\mathbf{6}$ | 5 | 3 |
| Particles $>38 \mu \mathrm{~m}$ | ASTM D7647 | $>20$ | $\mathbf{1}$ | 0 | 0 |  |
| Particles $>71 \mu \mathrm{~m}$ |  | ASTM D7647 | $>4$ | $\mathbf{1}$ | 0 | 0 |
| Oil Cleanliness | STO 4406 (c) | $>19 / 17 / 15$ | $\mathbf{1 8 / 1 6 / 1 2}$ | $18 / 16 / 12$ | $16 / 15 / 11$ |  |


FLUID DEGRADATION method limitbase current history1 history2

| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.10 | $\mathbf{0 . 0 5}$ | 0.07 | 0.08 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| VISUAL |  | method | limit/base | current | history1 | history2 |  |
| White Metal | scalar | Visual $^{*}$ | NONE | NONE | NONE | NONE |  |
| Yellow Metal | scalar | Visual $^{*}$ | NONE | NONE | NONE | NONE |  |
| Precipitate | scalar | Visual $^{*}$ | NONE | NONE | NONE | NONE |  |
| 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 | $>0.005$ | NEG | NEG | NEG |  |
| Free Water | scalar | Visual |  |  | NEG | NEG | NEG |


| FLUID PROPERTIES | method | limitbase | current | history1 | history2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Visc @ $40^{\circ} \mathrm{C}$ | cSt | ASTM D7279(m) | 44.0 | $\mathbf{3 3 . 0}$ | 33.0 | 33.1 |
| SAMPLE IMAGES |  | method | limitbase | current | history1 | history2 |

Color



| CALA | Laboratory <br> Sample No. | : WearCheck-C8-1175 Appleby Line, Burlington, ON L7L 5H9 |
| :--- | :--- | :--- | :--- |
| Ras |  |  |

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> Validity of results and interpretation are based on the sample and information as supplied.

