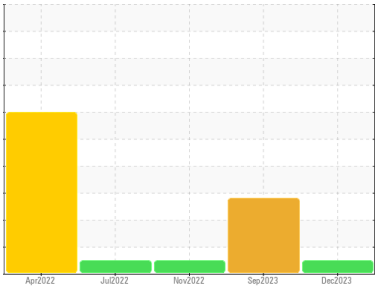
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**3**
Machine Id
## B1 Screw Motor
Component
**Gearbox**
Fluid
**{not provided} (--- LTR)**

## DIAGNOSIS

**Recommendation**
Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**
All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

**Contaminants**
There is no indication of any contamination in the oil.

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

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **CB0031417** | CB0031404 | CB0030796 |
| Sample Date | | Client Info | | **29 Dec 2023** | 11 Sep 2023 | 20 Nov 2022 |
| Machine Age | mths | Client Info | | **0** | 0 | 0 |
| Oil Age | mths | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **NORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |

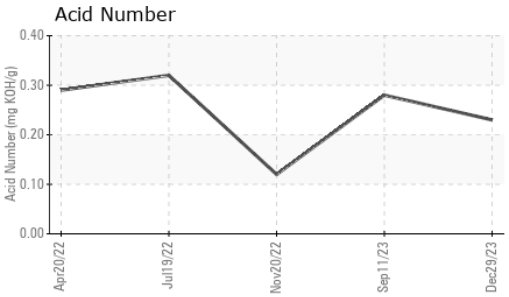
| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184* | | **0** | 0 | 0 |
| Iron | ppm | ASTM D5185(m) | >200 | **16** | 16 | 6 |
| Chromium | ppm | ASTM D5185(m) | >15 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >15 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >25 | **<1** | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >100 | **<1** | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >200 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >25 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | >5 | **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 |

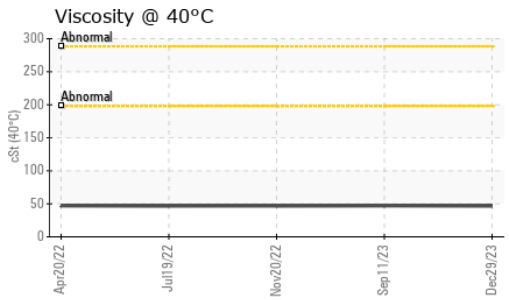
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | | **0** | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | | **0** | <1 | 0 |
| Manganese | ppm | ASTM D5185(m) | | **0** | <1 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | **<1** | <1 | 0 |
| Calcium | ppm | ASTM D5185(m) | | **3** | 4 | <1 |
| Phosphorus | ppm | ASTM D5185(m) | | **314** | 308 | 222 |
| Zinc | ppm | ASTM D5185(m) | | **6** | 7 | 63 |
| Sulfur | ppm | ASTM D5185(m) | | **294** | 251 | 200 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

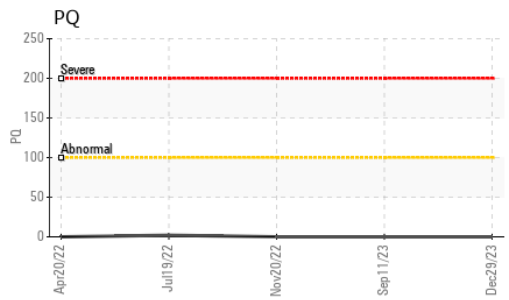
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >50 | **10** | 16 | 10 |
| Sodium | ppm | ASTM D5185(m) | | **0** | <1 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |

# OIL ANALYSIS REPORT

Safety Reliability Efficiency Sustainability for Industry.



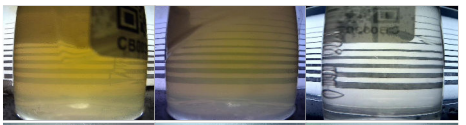




| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >20000 | **89795** | --- | --- |
| Particles >6µm | | ASTM D7647 | >5000 | **14618** | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | **289** | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | **34** | --- | --- |
| Particles >38µm | | ASTM D7647 | >40 | **3** | --- | --- |
| Particles >71µm | | ASTM D7647 | >10 | **1** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | **24/21/15** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | **0.23** | 0.28 | 0.12 |

| 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 | **VLITE** | VLITE | 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* | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | | **46.5** | 47.0 | 46.7 |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

CALA Testing Accreditation No. 1005078
ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : CB0031417
**Lab Number** : 02607847
**Unique Number** : 5708933
**Test Package** : IND 3 ( Additional Tests: PrtCount )

**Recieved** : 10 Jan 2024
**Diagnosed** : 16 Jan 2024
**Diagnostician** : Kevin Marson

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*

**TOYOTA MOTOR MANUFACTURING CANADA**
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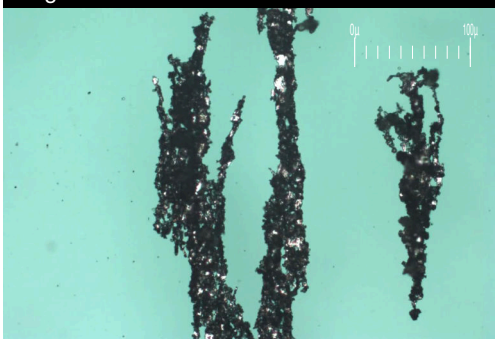
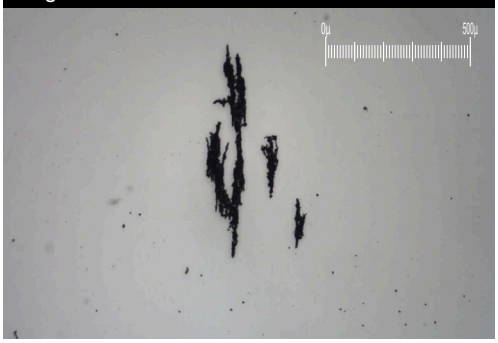
# FERROGRAPHY REPORT

Area
**3**
Machine Id
## B1 Screw Motor
Component
**Gearbox**
Fluid
**{not provided} (--- LTR)**

Magn: 200x Illum: BC



Magn: 50x Illum: RW



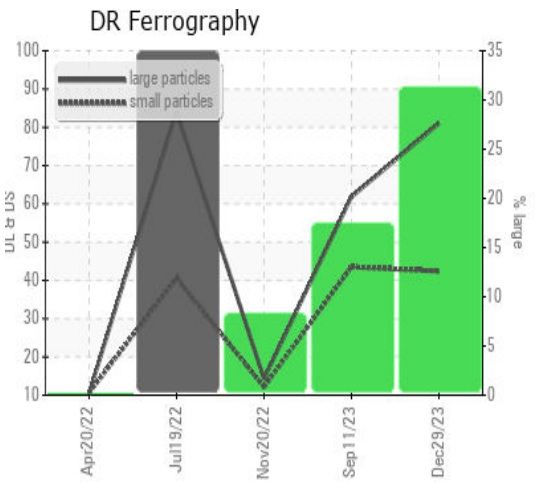
Magn: 100x Illum: RW

| DR-FERROGRAPHY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Large Particles | | DR-Ferr* | | **81.1** | 61.9 | 14.3 |
| Small Particles | | DR-Ferr* | | **42.4** | 43.5 | 12.1 |
| Total Particles | | DR-Ferr* | >--- | **123.5** | 105.4 | 26.4 |
| Large Particles Percentage | % | DR-Ferr* | | **31.3** | 17.5 | 8.3 |
| Severity Index | | DR-Ferr* | | **3139** | 1139 | 31 |

| FERROGRAPHY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Ferrous Rubbing | Scale 0-10 | ASTM D7684* | | **3** | 4 | 3 |
| Ferrous Sliding | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Cutting | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Rolling | Scale 0-10 | ASTM D7684* | | **1** | 2 | 1 |
| Ferrous Break-in | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Spheres | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Black Oxides | Scale 0-10 | ASTM D7684* | | **1** | | |
| Ferrous Red Oxides | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Corrosive | Scale 0-10 | ASTM D7684* | | **1** | 1 | 1 |
| Ferrous Other | Scale 0-10 | ASTM D7684* | | | | |
| Nonferrous Rubbing | Scale 0-10 | ASTM D7684* | | | | |
| Nonferrous Sliding | Scale 0-10 | ASTM D7684* | | | | |
| Nonferrous Cutting | Scale 0-10 | ASTM D7684* | | | | |
| Nonferrous Rolling | Scale 0-10 | ASTM D7684* | | | | |
| Nonferrous Other | Scale 0-10 | ASTM D7684* | | | | |
| Carbonaceous Material | Scale 0-10 | ASTM D7684* | | | | |
| Lubricant Degradation | Scale 0-10 | ASTM D7684* | | | 2 | |
| Sand/Dirt | Scale 0-10 | ASTM D7684* | | **1** | 1 | 1 |
| Fibres | Scale 0-10 | ASTM D7684* | | | | |
| Spheres | Scale 0-10 | ASTM D7684* | | | | |
| Other | Scale 0-10 | ASTM D7684* | | **2** | 2 | 2 |

### WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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