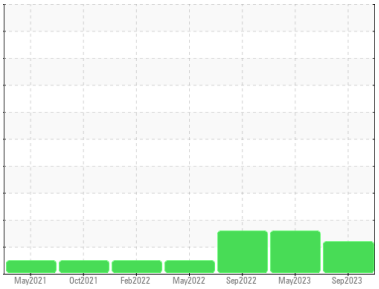
# PROBLEM SUMMARY

Area
## (C-GMNM)
Machine Id
## [C-GMNM] BEECHCRAFT KINGAIR BEB200 PCE-94301
Component
**Left Jet Turbine**
Fluid
**EASTMAN TURBO OIL 2380 (12 QTS)**

**Sample Rating Trend**




**VISUAL METAL**

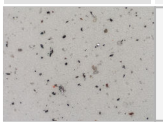
## COMPONENT CONDITION SUMMARY

No relevant graphs to display

## RECOMMENDATION

We advise that you check for visible metal particles in the oil. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **MARGINAL** | ABNORMAL | ABNORMAL |
| White Metal | scalar | Visual* | NONE | ▲ **VLITE** | NONE | NONE |
| PrtFilter | | | |  | *no image* | *no image* |

**Customer Id:** FASWIN
**Sample No.:** WC0852085
**Lab Number:** 02588269
**Test Package:** AVI 3

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Fluid | --- | --- | ? | We recommend that you drain the oil from the component if this has not already been done. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Check For Visual Metal | --- | --- | ? | We advise that you check for visible metal particles in the oil. |

## HISTORICAL DIAGNOSIS

**15 May 2023 Diag: Kevin Marson**

DIRT

Check seals and/or filters for points of contaminant entry. We recommend an early resample to monitor this condition.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. Elemental level of silicon (Si) above normal indicating ingress of seal material. The water content is negligible. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

**12 Sep 2022 Diag: Kevin Marson**

DIRT

Check seals and/or filters for points of contaminant entry. We recommend an early resample to monitor this condition.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. Elemental level of silicon (Si) above normal indicating ingress of seal material. The water content is negligible. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

**25 May 2022 Diag: Kevin Marson**

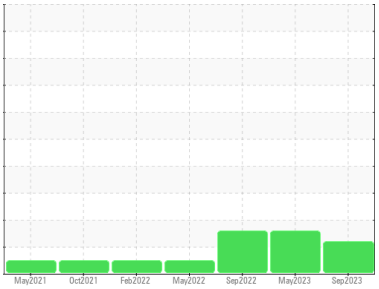
NORMAL

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system. The water content is negligible. There is no indication of any contamination in the oil. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend




**VISUAL METAL**

Area
## (C-GMNM)
Machine Id
## [C-GMNM] BEECHCRAFT KINGAIR BEB200 PCE-94301
Component
**Left Jet Turbine**
Fluid
**EASTMAN TURBO OIL 2380 (12 QTS)**

## DIAGNOSIS

**Recommendation**

We advise that you check for visible metal particles in the oil. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

**Wear**

Light concentration of visible metal present. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.

**Contaminants**

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

**Oil Condition**

The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0852085** | WC0817296 | WC0740150 |
| Sample Date | | Client Info | | **28 Sep 2023** | 15 May 2023 | 12 Sep 2022 |
| TSN | hrs | Client Info | | **11963** | 10696 | 11363 |
| TSO | hrs | Client Info | | **1587** | 1387 | 784 |
| Oil Age | hrs | Client Info | | **1587** | 1387 | 784 |
| Oil Changed | | Client Info | | **N/A** | Not Changd | N/A |
| Sample Status | | | | **MARGINAL** | ABNORMAL | ABNORMAL |

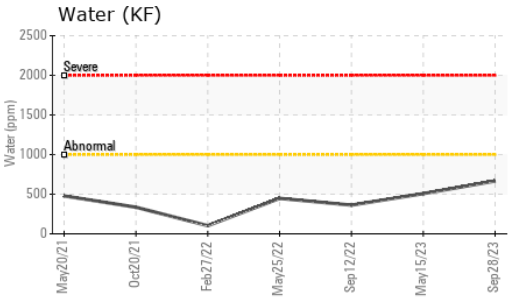
| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >8 | **0** | 0 | 0 |
| Chromium | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >2 | **<1** | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >3 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >3 | **<1** | 0 | 0 |
| Tin | ppm | ASTM D5185(m) | >2 | **0** | <1 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | <1 | <1 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

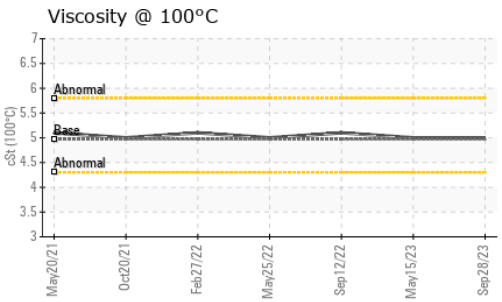
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **<1** | <1 | 1 |
| Barium | ppm | ASTM D5185(m) | 0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Calcium | ppm | ASTM D5185(m) | 0 | **<1** | 0 | 0 |
| Phosphorus | ppm | ASTM D5185(m) | 2500 | **2572** | 2607 | 2089 |
| Zinc | ppm | ASTM D5185(m) | 0 | **2** | 1 | 2 |
| Sulfur | ppm | ASTM D5185(m) | 0 | **4** | 2 | 212 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

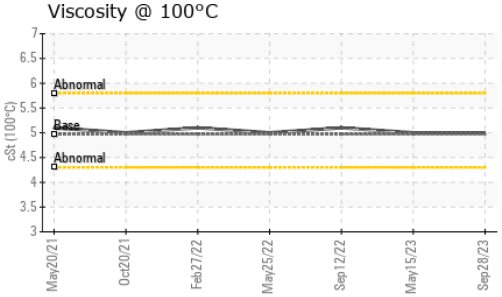
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >8 | **4** | ▲ 11 | ▲ 8 |
| Sodium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | **0** | 0 | <1 |
| Water | % | ASTM D6304* | >0.1 | **0.066** | 0.050 | 0.036 |
| ppm Water | ppm | ASTM D6304* | >1000 | **666.4** | 507.1 | 362.0 |

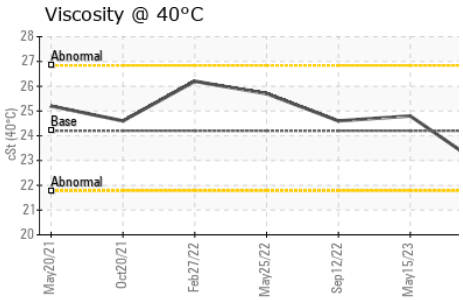
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.43 | **0.29** | 0.33 | 0.25 |

# OIL ANALYSIS REPORT



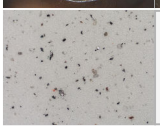



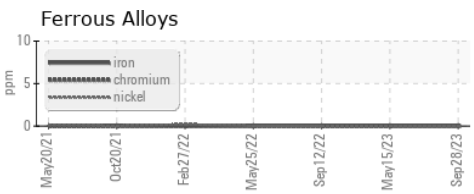



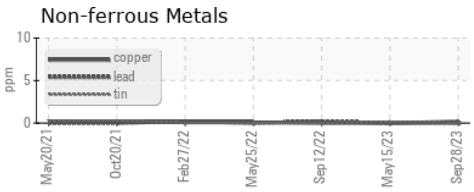

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | ▲ **VLITE** | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Silt | scalar | Visual* | NONE | **NONE** | NONE | NONE |
| Debris | scalar | Visual* | NONE | **NONE** | NONE | VLITE |
| 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* | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

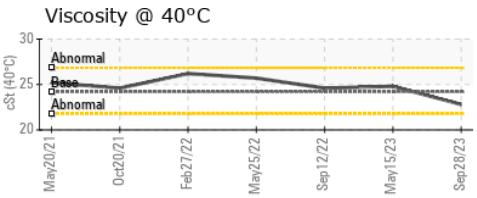
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 24.2 | **22.8** | 24.8 | 24.6 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 4.97 | **5** | 5 | 5.1 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 134 | **152** | 130 | 140 |

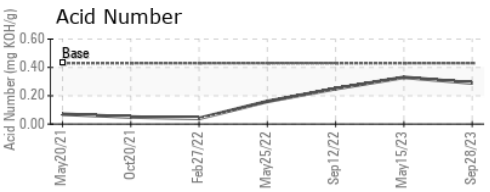
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |
| PrtFilter | | |  | *no image* | *no image* |

## GRAPHS




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0852085 **Received** : 11 Oct 2023
**Lab Number** : 02588269 **Diagnosed** : 12 Oct 2023
**Unique Number** : 5657335 **Diagnostician** : Kevin Marson
**Test Package** : AVI 3 ( Additional Tests: Bottom, BottomAnalysis, FilterPatch )

*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.*

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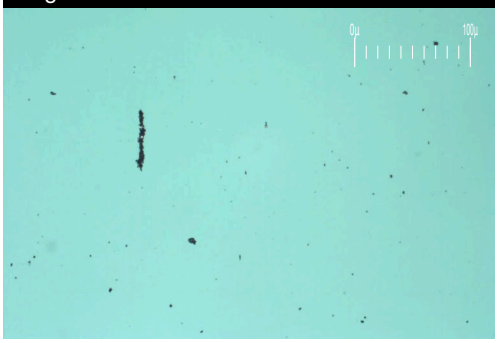
# FERROGRAPHY REPORT

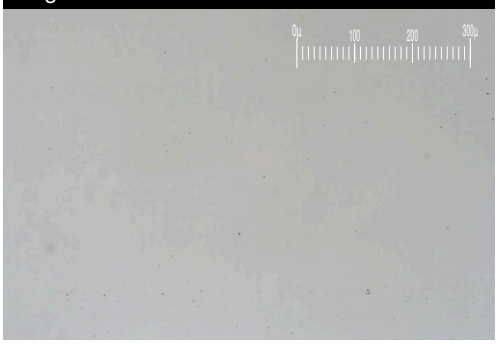
Area
## (C-GMNM)
Machine Id
## [C-GMNM] BEECHCRAFT KINGAIR BEB200 PCE-94301
Component
**Left Jet Turbine**
Fluid
**EASTMAN TURBO OIL 2380 (12 QTS)**

Magn: 200x Illum: BC



Magn: 50x Illum: RW

Magn: 100x Illum: RW

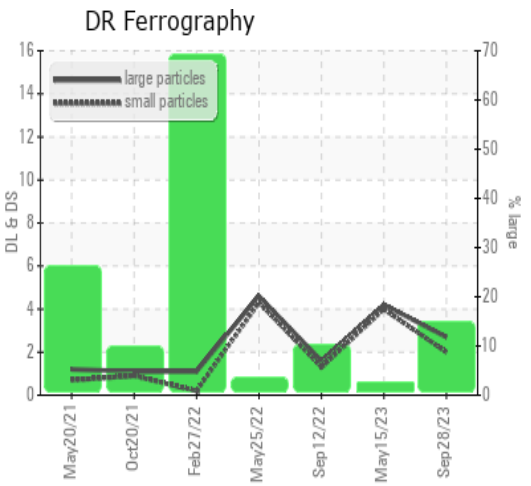


| DR-FERROGRAPHY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Large Particles | | DR-Ferr* | | **2.7** | 4.2 | 1.6 |
| Small Particles | | DR-Ferr* | | **2.0** | 4.0 | 1.3 |
| Total Particles | | DR-Ferr* | >--- | **4.7** | 8.2 | 2.9 |
| Large Particles Percentage | % | DR-Ferr* | | **14.9** | 2.4 | 10.3 |
| Severity Index | | DR-Ferr* | | **2** | 1 | 0 |

| FERROGRAPHY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Ferrous Rubbing | Scale 0-10 | ASTM D7684* | | **2** | 1 | 1 |
| Ferrous Sliding | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Cutting | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Rolling | Scale 0-10 | ASTM D7684* | | **1** | 1 | |
| Ferrous Break-in | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Spheres | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Black Oxides | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Red Oxides | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Corrosive | Scale 0-10 | ASTM D7684* | | | | |
| 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* | | | | |
| 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* | | **1** | 1 | 1 |

### WEAR

Light concentration of visible metal present. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



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