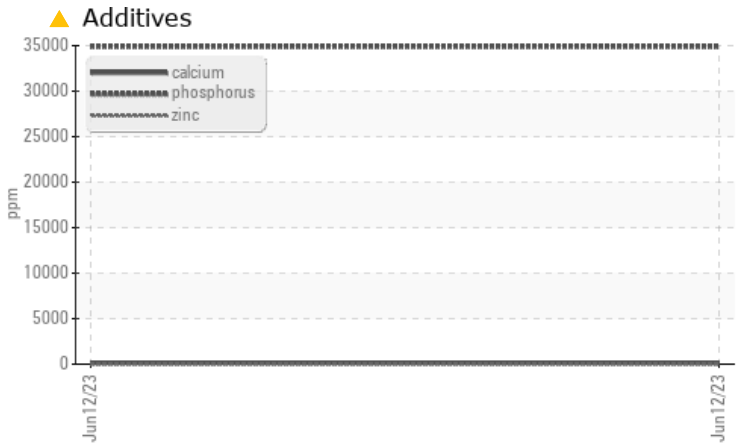
# PROBLEM SUMMARY

Sample Rating Trend


**ADDITIVES**

Machine Id
## [N617QX] BOMBARDIER CRJ700 N617QX
Component
**3 Hydraulic System**
Fluid
**SKYDROL LD-4 (--- GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ATTENTION** | --- | --- |
| Calcium | ppm | ASTM D5185(m) | 0 | ▲ **131** | --- | --- |
| Sulfur | ppm | ASTM D5185(m) | 1900 | ▲ **420** | --- | --- |

**Customer Id:** SMABRI
**Sample No.:** WC0813448
**Lab Number:** 02564572
**Test Package:** AVI 3

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

*To change component or sample information:*
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Information Required | --- | --- | ? | NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. |
| Check Fluid Source | --- | --- | ? | Confirm the source of the lubricant being utilized for top-up/fill. |

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend


**ADDITIVES**

Machine Id
## [N617QX] BOMBARDIER CRJ700 N617QX
Component
**3 Hydraulic System**
Fluid
**SKYDROL LD-4 (--- GAL)**

## DIAGNOSIS

**Recommendation**

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

**Wear**

All component wear rates are normal. 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. The system and fluid cleanliness is acceptable.

**Oil Condition**

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.

| SAMPLE INFORMATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0813448** | --- | --- |
| Sample Date | | Client Info | | **12 Jun 2023** | --- | --- |
| TSN | hrs | Client Info | | **37533** | --- | --- |
| TSO | hrs | Client Info | | **0** | --- | --- |
| Oil Age | hrs | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **Not Changd** | --- | --- |
| Sample Status | | | | **ATTENTION** | --- | --- |

| WEAR METALS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >20 | **<1** | --- | --- |
| Chromium | ppm | ASTM D5185(m) | >10 | **0** | --- | --- |
| Nickel | ppm | ASTM D5185(m) | >10 | **<1** | --- | --- |
| Titanium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Silver | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185(m) | >10 | **<1** | --- | --- |
| Lead | ppm | ASTM D5185(m) | >20 | **<1** | --- | --- |
| Copper | ppm | ASTM D5185(m) | >20 | **<1** | --- | --- |
| Tin | ppm | ASTM D5185(m) | >10 | **0** | --- | --- |
| Antimony | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Beryllium | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185(m) | | **<1** | --- | --- |

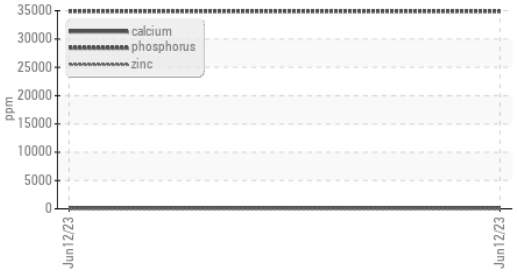
| ADDITIVES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **<1** | --- | --- |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | --- | --- |
| Manganese | ppm | ASTM D5185(m) | | **0** | --- | --- |
| Magnesium | ppm | ASTM D5185(m) | 0 | **<1** | --- | --- |
| Calcium | ppm | ASTM D5185(m) | 0 | ▲ **131** | --- | --- |
| Phosphorus | ppm | ASTM D5185(m) | 20000 | **34897** | --- | --- |
| Zinc | ppm | ASTM D5185(m) | 0 | **6** | --- | --- |
| Sulfur | ppm | ASTM D5185(m) | 1900 | ▲ **420** | --- | --- |
| Lithium | ppm | ASTM D5185(m) | | **<1** | --- | --- |

| CONTAMINANTS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >15 | **2** | --- | --- |
| Sodium | ppm | ASTM D5185(m) | | **8** | --- | --- |
| Potassium | ppm | ASTM D5185(m) | >20 | **35** | --- | --- |
| Water | % | ASTM D6304* | >0.6 | **0.206** | --- | --- |
| ppm Water | ppm | ASTM D6304* | >6000 | **2066.0** | --- | --- |

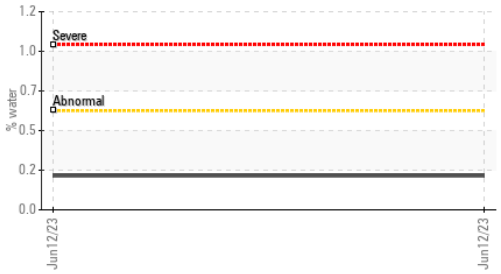
| FLUID CLEANLINESS | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Particles 5-15µm | count | NAS 1638 | >128000 | **15806** | --- | --- |
| Particles 15-25µm | count | NAS 1638 | >22800 | **1387** | --- | --- |
| Particles 25-50µm | count | NAS 1638 | >4050 | **594** | --- | --- |
| Particles 50-100µm | count | NAS 1638 | >720 | **73** | --- | --- |
| Particles >100µm | count | NAS 1638 | >128 | **0** | --- | --- |
| NAS 1638 | Class | NAS 1638 | >9 | **7** | --- | --- |

# OIL ANALYSIS REPORT

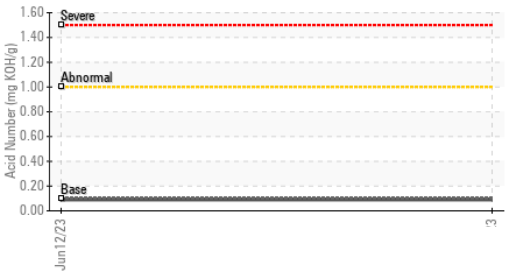
Additives



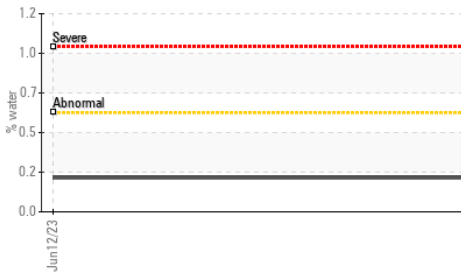

Water



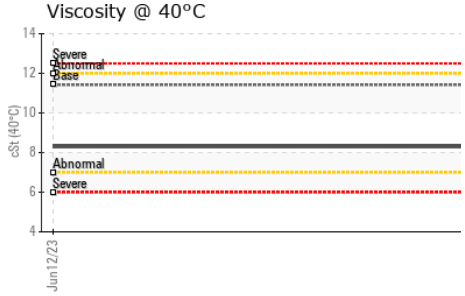

Acid Number




Water



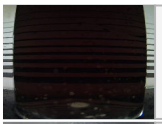

Viscosity @ 40°C




| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.10 | **0.09** | --- | --- |

| VISUAL | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| 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* | >0.6 | **NEG** | --- | --- |
| Free Water | scalar | Visual* | | **NEG** | --- | --- |

| FLUID PROPERTIES | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 11.42 | **8.3** | --- | --- |

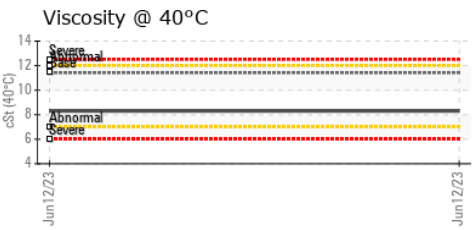
| SAMPLE IMAGES | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|
| Color | | |  | *no image* | *no image* |
| Bottom | | |  | *no image* | *no image* |

GRAPHS

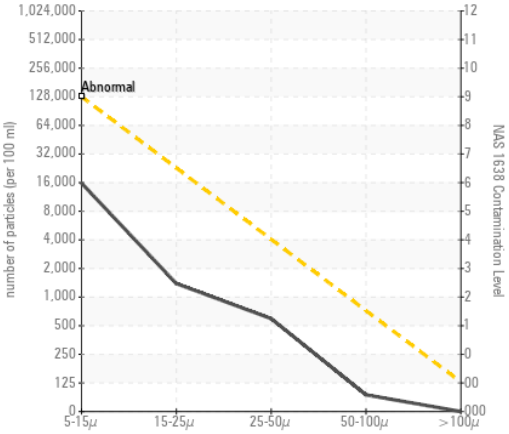
Ferrous Alloys


Non-ferrous Metals

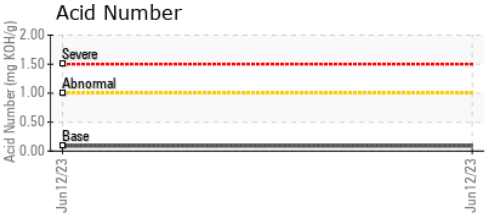

Viscosity @ 40°C




Particle Count




Acid Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0813448 **Received** : 15 Jun 2023
**Lab Number** : 02564572 **Diagnosed** : 20 Jun 2023
**Unique Number** : 5593613 **Diagnostician** : Kevin Marson
**Test Package** : AVI 3 ( Additional Tests: KF, PrtCount )

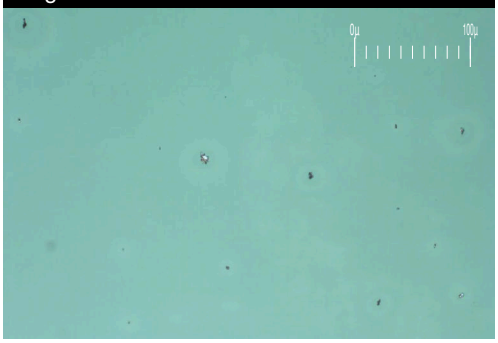
*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*

**SMART AVIATION**
775 COUNTY ROAD 64
BRIGHTON, ON
CA K0K 1H0
Contact: Mark Rinaldi
mark.rinaldi@smartams.ca
T: (343)645-4361
F:

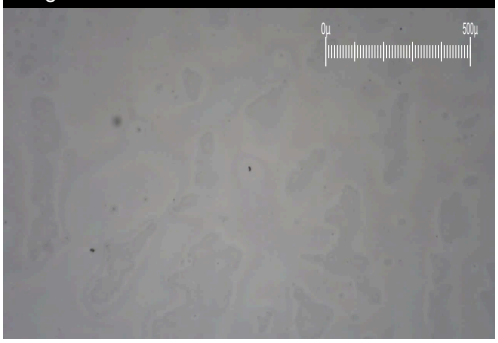
# FERROGRAPHY REPORT

Machine Id
## [N617QX] BOMBARDIER CRJ700 N617QX
Component
**3 Hydraulic System**
Fluid
**SKYDROL LD-4 (--- GAL)**

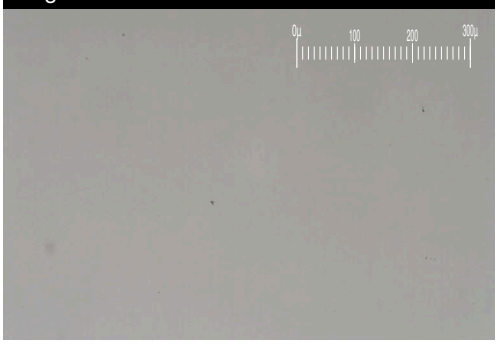
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

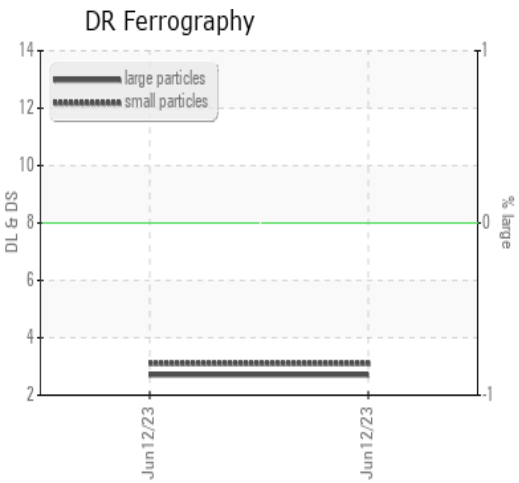


| DR-FERROGRAPHY | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Large Particles | | DR-Ferr* | | **2.7** | --- | --- |
| Small Particles | | DR-Ferr* | | **3.1** | --- | --- |
| Total Particles | | DR-Ferr* | >--- | **5.8** | --- | --- |
| Large Particles Percentage | % | DR-Ferr* | | **0** | --- | --- |
| Severity Index | | DR-Ferr* | | **1** | --- | --- |

| FERROGRAPHY | | method | limit/base | current | history 1 | history 2 |
|---|---|---|---|---|---|---|
| Ferrous Rubbing | Scale 0-10 | ASTM D7684* | | **1** | | |
| Ferrous Sliding | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Cutting | Scale 0-10 | ASTM D7684* | | | | |
| Ferrous Rolling | Scale 0-10 | ASTM D7684* | | **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* | | | | |
| Fibres | Scale 0-10 | ASTM D7684* | | | | |
| Spheres | Scale 0-10 | ASTM D7684* | | | | |
| Other | Scale 0-10 | ASTM D7684* | | **1** | | |

### WEAR

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



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