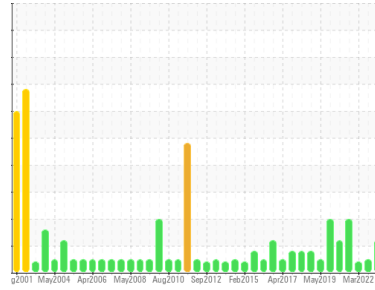




# OIL ANALYSIS REPORT

## Sample Rating Trend



ISO



Area  
**EQR [152306]**  
 Machine Id  
**LOUPGEN2BRGTHREX**  
 Component  
**Thrust Bearing**  
 Fluid  
**SHELL TURBO T ISO 68 (5 LTR)**

### DIAGNOSIS

#### Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

#### Wear

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

#### Contaminants

There is a light amount of silt (particulates < 14 microns in size) present in the oil.

#### Oil Condition

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

Particle Filter (Magn: 200 x)



### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0548060</b>	WC0659849	WC0548050
Sample Date	Client Info		<b>14 Mar 2024</b>	13 Sep 2023	31 Mar 2022
Machine Age	mths	Client Info	<b>340</b>	334	316
Oil Age	mths	Client Info	<b>41</b>	35	17
Oil Changed	Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status			<b>ATTENTION</b>	NORMAL	ATTENTION

### CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>2	<b>NEG</b>	NEG	NEG

### WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		<b>0</b>	---	0
Iron	ppm	ASTM D5185(m) >85	<b>0</b>	<1	0
Chromium	ppm	ASTM D5185(m) >20	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m) >40	<b>&lt;1</b>	0	0
Lead	ppm	ASTM D5185(m) >60	<b>17</b>	16	9
Copper	ppm	ASTM D5185(m) >7	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185(m) >40	<b>&lt;1</b>	<1	<1
Antimony	ppm	ASTM D5185(m)	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>0</b>	0	0

### ADDITIVES

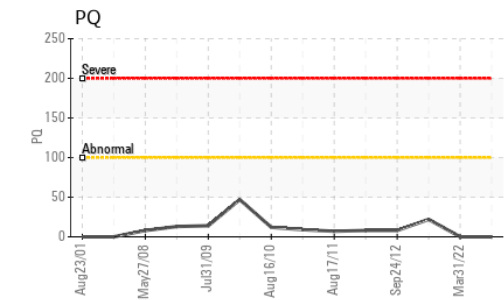
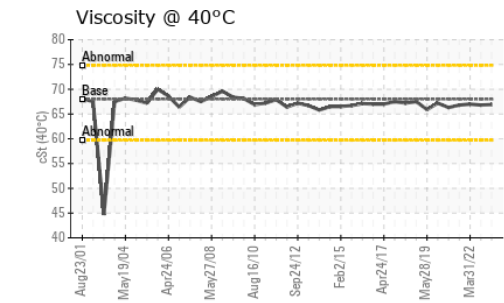
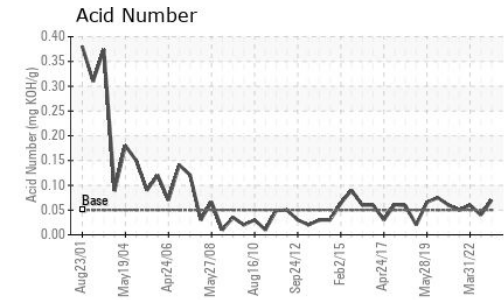
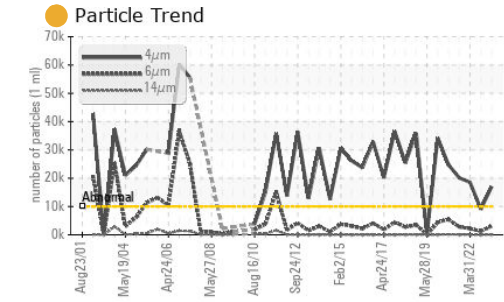
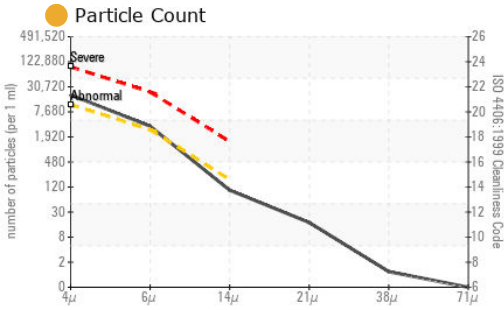
	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<b>0</b>	0	<1
Barium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185(m)	<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)	<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)	<b>0</b>	<1	0
Calcium	ppm	ASTM D5185(m)	<b>&lt;1</b>	4	<1
Phosphorus	ppm	ASTM D5185(m)	<b>0</b>	2	<1
Zinc	ppm	ASTM D5185(m)	<b>8</b>	11	6
Sulfur	ppm	ASTM D5185(m)	<b>13</b>	34	29
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	0
Sodium	ppm	ASTM D5185(m)	<b>0</b>	<1	0
Potassium	ppm	ASTM D5185(m) >20	<b>&lt;1</b>	<1	<1



# OIL ANALYSIS REPORT



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **ALGONQUIN POWER SYSTEMS INC.**  
**Sample No.** : WC0548060 **Received** : 18 Mar 2024 354 DAVIS ROAD  
**Lab Number** : 02622723 **Tested** : 21 Mar 2024 OAKVILLE, ON  
**Unique Number** : 5747842 **Diagnosed** : 21 Mar 2024 - Kevin Marson CA L6J 2X1  
**Test Package** : IND 3 ( Additional Tests: BottomAnalysis, FilterPatch, PrtCount, PrtFilter, PrtMain) **Contact: Antonino Champ Fernando**  
 antoninoChamp.fernando@algonquinpower.com

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.

FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	● 17001	9043	● 18553
Particles >6µm	ASTM D7647	>2500	● 3028	1303	2195
Particles >14µm	ASTM D7647	>160	89	33	56
Particles >21µm	ASTM D7647	>40	15	6	9
Particles >38µm	ASTM D7647	>10	1	1	1
Particles >71µm	ASTM D7647	>3	0	1	0
Oil Cleanliness	ISO 4406 (c)	>20/18/14	● 21/19/14	20/18/12	● 21/18/13

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	.05	0.07	0.04	0.06

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*	>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)	68	66.9	66.8	67.0

SAMPLE IMAGES	method	limit/base	current	history1	history2
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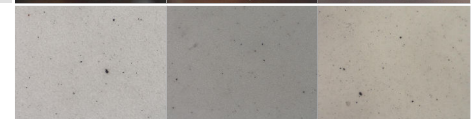
Color



Bottom



PrtFilter

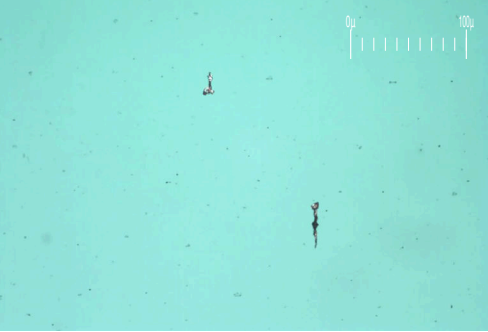




# FERROGRAPHY REPORT

Area  
**EQR [152306]**  
 Machine Id  
**LOUPGEN2BRGTHREX**  
 Component  
**Thrust Bearing**  
 Fluid  
**SHELL TURBO T ISO 68 (5 LTR)**

Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW



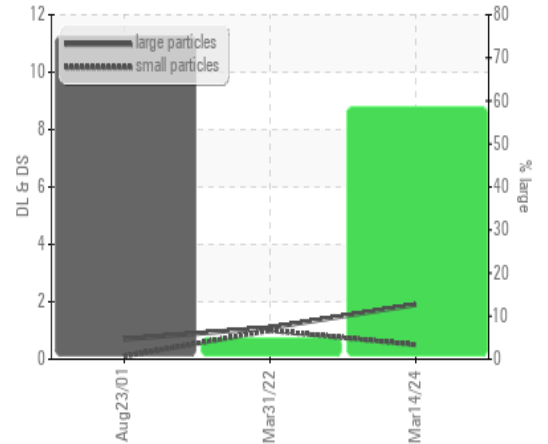
DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		<b>1.9</b>	---	1.1
Small Particles		DR-Ferr*		<b>0.5</b>	---	1.0
Total Particles		DR-Ferr*	>---	<b>2.4</b>	---	2.1
Large Particles Percentage	%	DR-Ferr*		<b>58.3</b>	---	4.8
Severity Index		DR-Ferr*		<b>3</b>	---	0

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		<b>1</b>		1
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		<b>1</b>		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*		<b>1</b>		1

## WEAR

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

## DR Ferrography



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