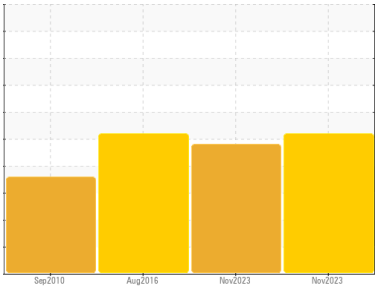
PROBLEM SUMMARY

Area
COR
Machine Id
LONGTUR1RUNHUB
Component
Turbine
Fluid
SHELL TURBO T ISO 68 (200 LTR)

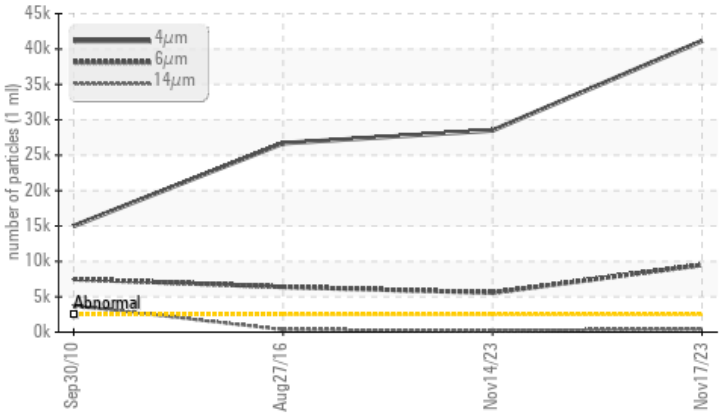
Sample Rating Trend



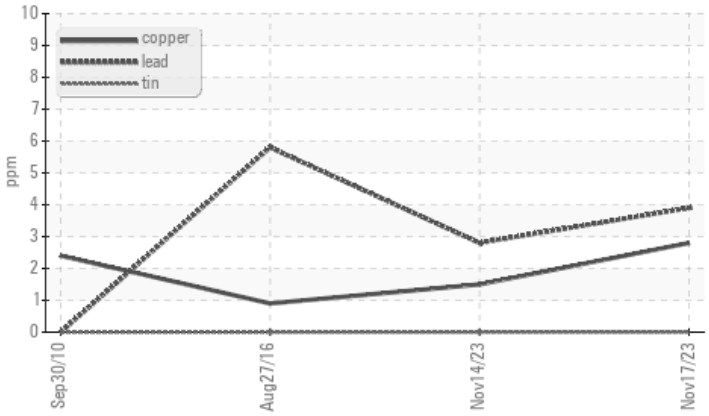
ISO

COMPONENT CONDITION SUMMARY

Particle Trend



Non-ferrous Metals



RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Lead	ppm	ASTM D5185(m)	>3	▲ **4**	3	▲ 6
Particles >4µm		ASTM D7647	>2500	⬢ **41148**	⬢ 28503	⬢ 26689
Particles >6µm		ASTM D7647	>640	⬢ **9501**	⬢ 5574	⬢ 6392
Particles >14µm		ASTM D7647	>80	▲ **403**	▲ 257	▲ 350
Particles >21µm		ASTM D7647	>20	▲ **89**	▲ 67	▲ 77
Oil Cleanliness		ISO 4406 (c)	>18/16/13	⬢ **23/20/16**	⬢ 22/20/15	⬢ 22/20/16

Customer Id: ALGMIS
Sample No.: WC0790717
Lab Number: 02605898
Test Package: IND 2

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
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

14 Nov 2023 Diag: Kevin Marson

ISO

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible. 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

27 Aug 2016 Diag: Kevin Marson

ISO

We advise that you check all areas where contaminants can enter the system. The oil change at the time of sampling has been noted. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.Lead ppm levels are abnormal. Particles >6µm are severely high. Particles >4µm are severely high. Oil Cleanliness is severe. Particles >14µm are abnormally high. Particles >21µm are abnormally high. The water content is negligible. 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

30 Sep 2010 Diag: Kevin Marson

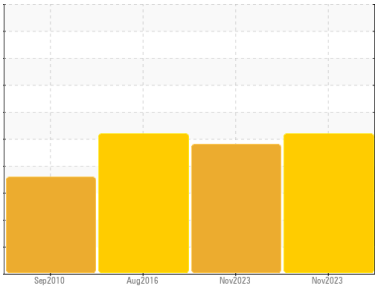
WATER

We advise that you check for the source of water entry. We advise that you follow the water drain-off procedure for this component, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.The iron level is abnormal. There is a high concentration of water present in the oil. There is a high amount of particulates (5 to >100 microns in size) present in the oil. a light concentration of dirt & debris was filtered from the sample. The oil viscosity is lower than normal.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
COR
Machine Id
LONGTUR1RUNHUB
Component
Turbine
Fluid
SHELL TURBO T ISO 68 (200 LTR)

DIAGNOSIS

Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

Wear

Lead ppm levels are abnormal.

Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water content is negligible.

Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0790717**	WC0790716	WC965004
Sample Date		Client Info		**17 Nov 2023**	14 Nov 2023	27 Aug 2016
Machine Age	mths	Client Info		**311**	311	223
Oil Age	mths	Client Info		**128**	128	39
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>10	**<1**	<1	3
Chromium	ppm	ASTM D5185(m)	>3	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>3	**<1**	<1	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>3	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>3	▲ **4**	3	▲ 6
Copper	ppm	ASTM D5185(m)	>4	**3**	2	<1
Tin	ppm	ASTM D5185(m)	>3	**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

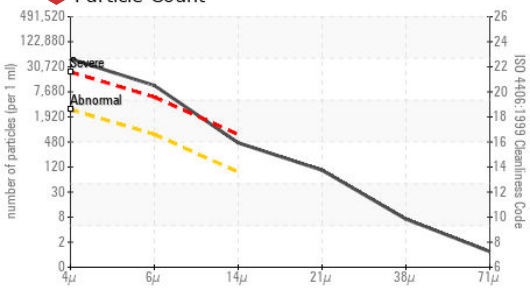
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**0**	0	<1
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	<1
Magnesium	ppm	ASTM D5185(m)		**0**	<1	0
Calcium	ppm	ASTM D5185(m)		**1**	1	<1
Phosphorus	ppm	ASTM D5185(m)		**5**	2	1
Zinc	ppm	ASTM D5185(m)		**3**	1	2
Sulfur	ppm	ASTM D5185(m)		**62**	57	113
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>10	**0**	0	<1
Sodium	ppm	ASTM D5185(m)		**4**	4	5
Potassium	ppm	ASTM D5185(m)	>20	**3**	2	0
Water	%	ASTM D6304*	>0.03	**0.00**	0.00	0.00
ppm Water	ppm	ASTM D6304*	>300	**0**	0	0.00

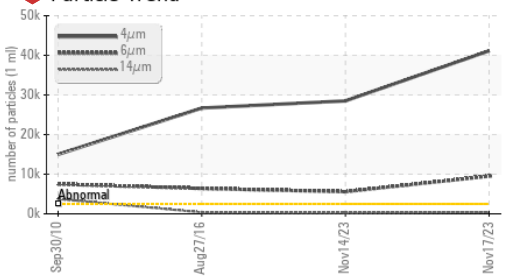
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	● **41148**	● 28503	● 26689
Particles >6µm		ASTM D7647	>640	● **9501**	● 5574	● 6392
Particles >14µm		ASTM D7647	>80	▲ **403**	▲ 257	▲ 350
Particles >21µm		ASTM D7647	>20	▲ **89**	▲ 67	▲ 77
Particles >38µm		ASTM D7647	>4	**6**	▲ 8	3
Particles >71µm		ASTM D7647	>3	**1**	2	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	● **23/20/16**	● 22/20/15	● 22/20/16

OIL ANALYSIS REPORT

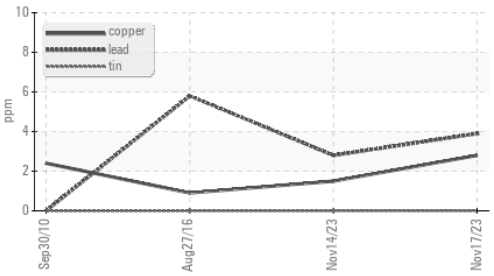
Particle Count



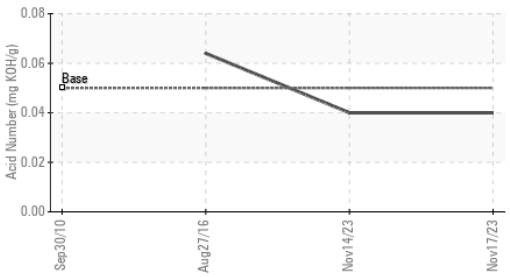
Particle Trend



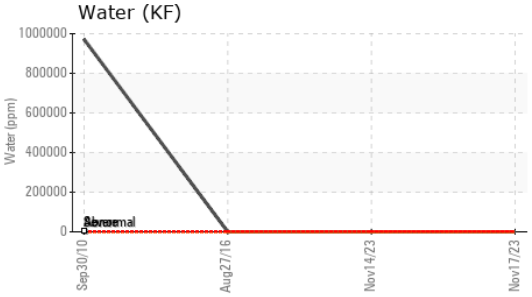
Non-ferrous Metals



Acid Number



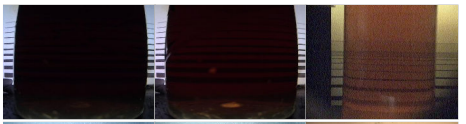
Water (KF)



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	.05	**0.04**	0.04	0.064

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*	>0.03	**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	**66.3**	67.3	66.8

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

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **ALGONQUIN POWER SYSTEMS INC.**
Sample No. : WC0790717 **Recieved** : 02 Jan 2024 354 DAVIS ROAD
Lab Number : 02605898 **Diagnosed** : 03 Jan 2024 OAKVILLE, ON
Unique Number : 5706984 **Diagnostician** : Kevin Marson CA L6J 2X1
Test Package : IND 2 Contact: Antonino Champ Fernando

To discuss this sample report, contact Customer Service at 1-800-268-2131. antoninoChamp.fernando@algonquinpower.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (905)465-7065
Validity of results and interpretation are based on the sample and information as supplied. F: x: