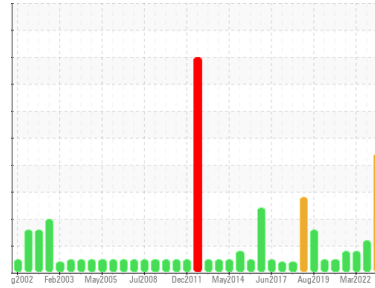




PROBLEM SUMMARY

Sample Rating Trend



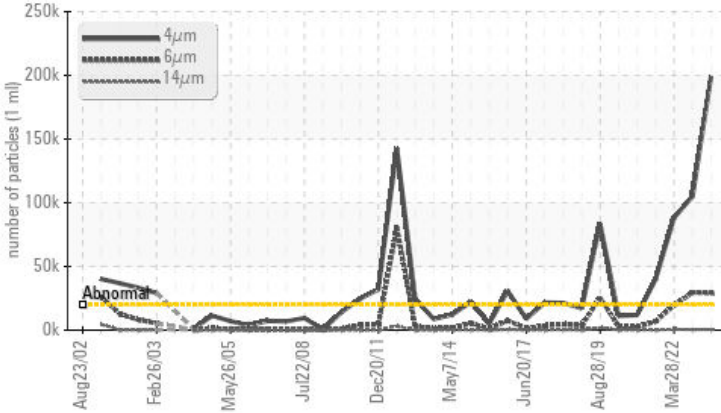
WEAR PARTICLES



Area
WQR [100000152302]
 Machine Id
RAWDGEAR (S/N 481-305-009-1-1)
 Component
Reduction Gear
 Fluid
MOBIL MOBILGEAR 600 XP 220 (280 LTR)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. No other corrective action is recommended at this time.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	ABNORMAL	ABNORMAL
Ferrous Rubbing	Scale 0-10	ASTM D7684*	▲ 5	■ 4	■ 4
Ferrous Rolling	Scale 0-10	ASTM D7684*	▲ 3	■ 2	■ 2
Particles >4µm		ASTM D7647 >20000	▲ 198865	▲ 105022	▲ 88175
Particles >6µm		ASTM D7647 >5000	▲ 29061	▲ 29508	▲ 19344
Oil Cleanliness		ISO 4406 (c) >21/19/16	▲ 25/22/16	▲ 24/22/16	▲ 24/21/16

Customer Id: ALGMIS
 Sample No.: WC0906689
 Lab Number: 02625783
 Test Package: IND 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
Change Filter	---	---	?	We recommend you service the filters on this component.
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 Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

06 Oct 2022 Diag: Kevin Marson

ISO



We recommend you service the filters on this component. 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. Particles >4µm are abnormally high. Particles >6µm and oil cleanliness are abnormally high. 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



28 Mar 2022 Diag: Kevin Marson

ISO



We recommend you service the filters on this component. 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. Particles >4µm are abnormally high. Particles >6µm are abnormally high. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



18 Oct 2021 Diag: Kevin Marson

ISO



We recommend you service the filters on this component. 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. There is a light amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

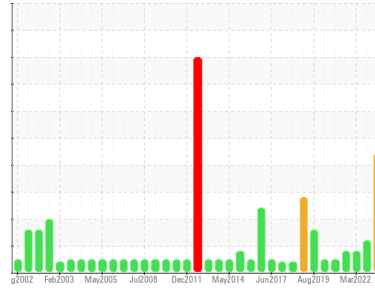
view report





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR PARTICLES



Area
WQR [1000000152302]
 Machine Id
RAWDGEAR (S/N 481-305-009-1-1)
 Component
Reduction Gear
 Fluid
MOBIL MOBILGEAR 600 XP 220 (280 LTR)

DIAGNOSIS

▲ Recommendation

Check seals and/or filters for points of contaminant entry. 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. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. No other corrective action is recommended at this time.

▲ Wear

Wear particle analysis indicates that the ferrous rolling and ferrous rubbing particles are marginal. All other component wear rates are normal.

▲ Contaminants

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

Oil 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		WC0906689	WC0548091	WC0429608
Sample Date	Client Info		26 Mar 2024	06 Oct 2022	28 Mar 2022
Machine Age	mths	Client Info	360	336	336
Oil Age	mths	Client Info	4	25	18
Oil Changed	Client Info		Not Changed	Not Changed	Not Changed
Sample Status			SEVERE	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		17	10	7
Iron	ppm	ASTM D5185(m) >150	40	73	43
Chromium	ppm	ASTM D5185(m) >10	<1	<1	<1
Nickel	ppm	ASTM D5185(m) >10	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >25	<1	2	2
Lead	ppm	ASTM D5185(m) >100	0	<1	0
Copper	ppm	ASTM D5185(m) >50	<1	<1	<1
Tin	ppm	ASTM D5185(m) >10	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

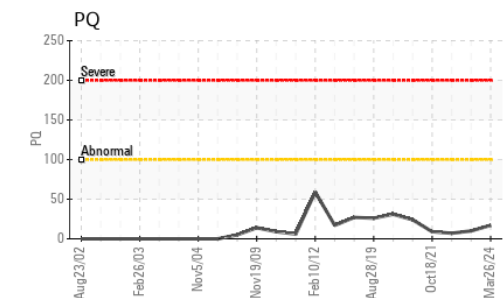
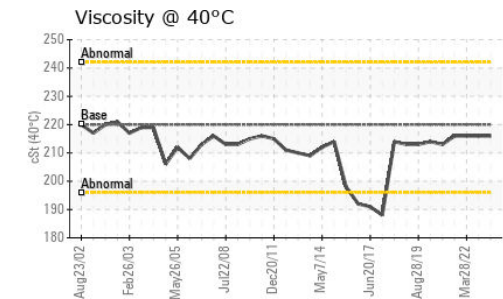
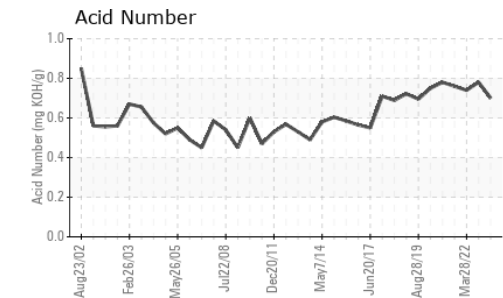
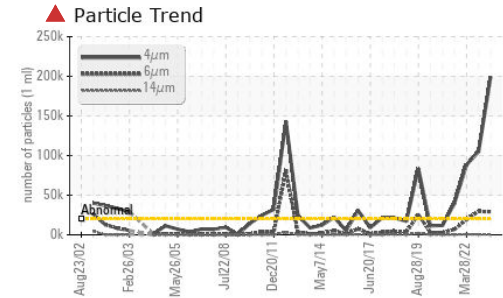
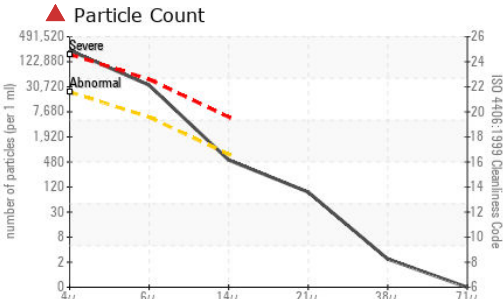
	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	27	31	31
Barium	ppm	ASTM D5185(m)	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	<1	0	<1
Calcium	ppm	ASTM D5185(m)	1	4	4
Phosphorus	ppm	ASTM D5185(m)	305	357	337
Zinc	ppm	ASTM D5185(m)	3	12	11
Sulfur	ppm	ASTM D5185(m)	14096	15977	15832
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >50	<1	3	3
Sodium	ppm	ASTM D5185(m)	<1	<1	0
Potassium	ppm	ASTM D5185(m) >20	<1	0	<1



OIL ANALYSIS REPORT



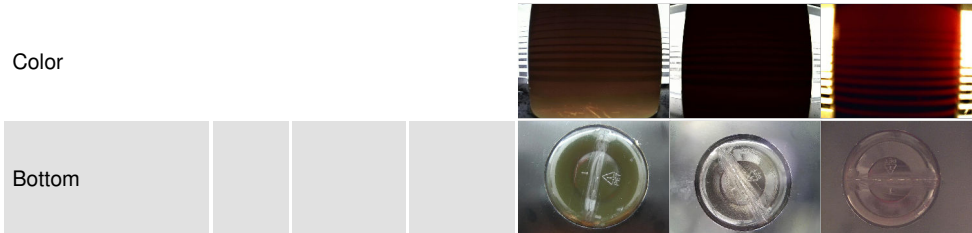
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	▲ 198865	▲ 105022	▲ 88175
Particles >6µm	ASTM D7647	>5000	▲ 29061	▲ 29508	▲ 19344
Particles >14µm	ASTM D7647	>640	469	502	599
Particles >21µm	ASTM D7647	>160	80	96	96
Particles >38µm	ASTM D7647	>40	2	3	4
Particles >71µm	ASTM D7647	>10	0	0	0
Oil Cleanliness	ISO 4406 (c)	>21/19/16	▲ 25/22/16	▲ 24/22/16	▲ 24/21/16

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*		0.70	0.78	0.74

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	NONE	NONE	VLITE
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*	>0.1	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)	220	216	216	216

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0906689
Lab Number : 02625783
Unique Number : 5750902
Test Package : IND 3 (Additional Tests: TAN Man)

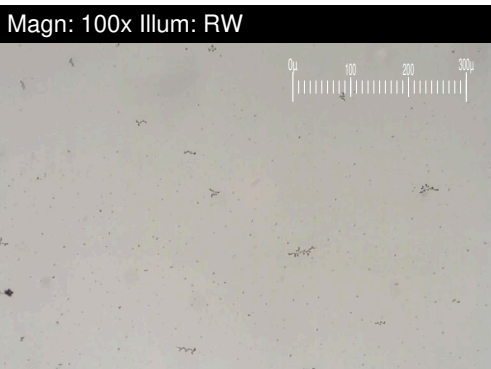
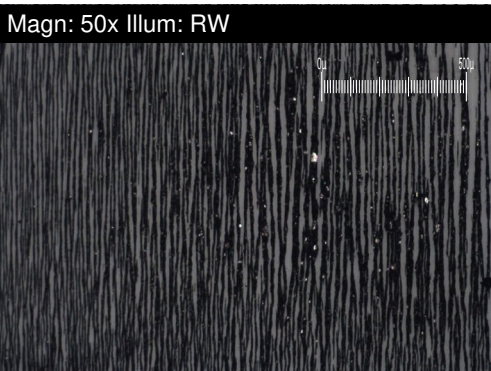
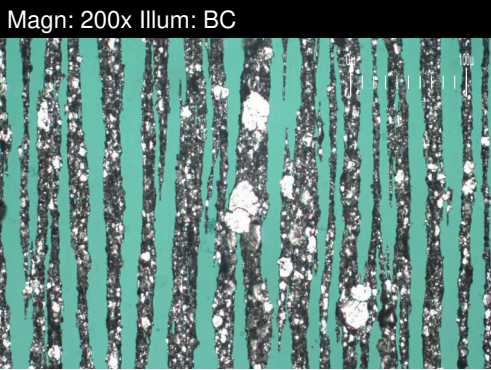
ALGONQUIN POWER SYSTEMS INC.
 354 DAVIS ROAD
 OAKVILLE, ON
 CA L6J 2X1
 Contact: Antonino Champ Fernando
 antoninoChamp.fernando@algonquinpower.com
 T: (905)465-7065
 F: x:

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.



FERROGRAPHY REPORT

Area
WQR [1000000152302]
 Machine Id
RAWDGEAR (S/N 481-305-009-1-1)
 Component
Reduction Gear
 Fluid
MOBIL MOBILGEAR 600 XP 220 (280 LTR)

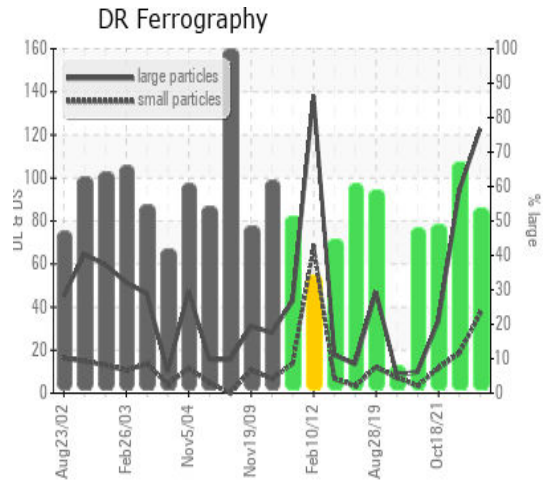


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		122.9	94.1	---
Small Particles		DR-Ferr*		37.0	18.6	---
Total Particles		DR-Ferr*	>---	159.9	112.7	---
Large Particles Percentage	%	DR-Ferr*		53.7	67	---
Severity Index		DR-Ferr*		10557	7105	---

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		▲ 5	■ 4	■ 4
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		▲ 3	■ 2	■ 2
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*			■ 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*				
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

Wear particle analysis indicates that the ferrous rolling and ferrous rubbing particles are marginal. All other component wear rates are normal.



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