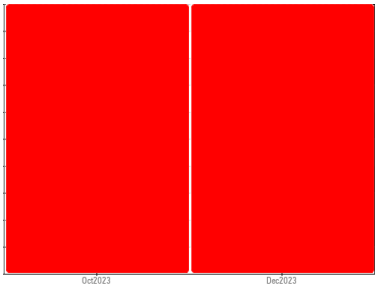
PROBLEM SUMMARY

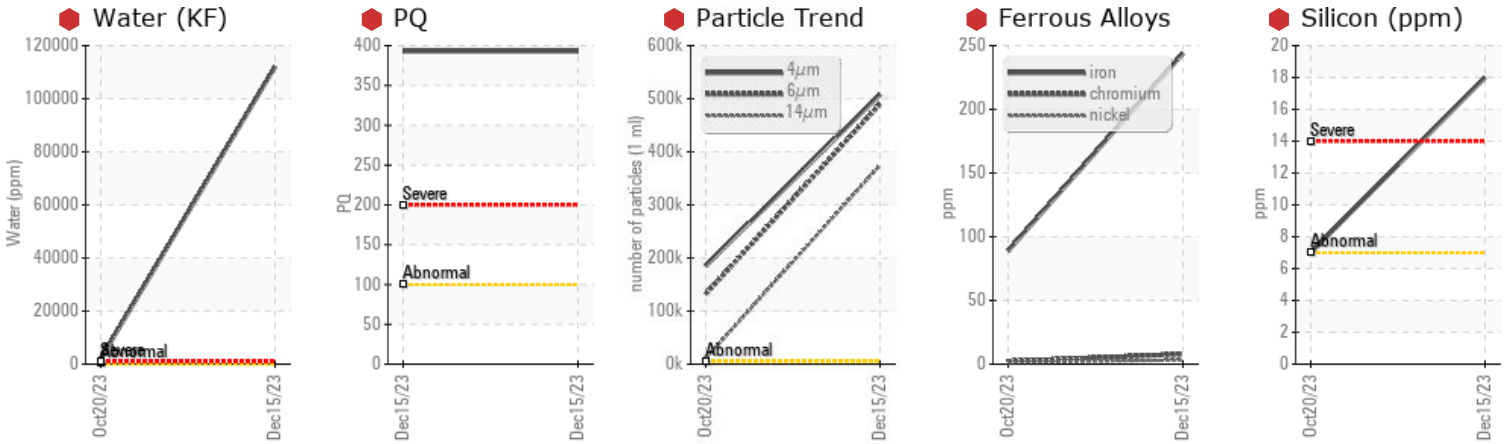
Sample Rating Trend



WEAR

Machine Id
BOW THRUSTER
Component
Bow Thruster
Fluid
GEAR OIL SAE 75W90 (1 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. 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. We recommend that you change the oil. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	---
PQ		ASTM D8184*		**393**	---	---
Iron	ppm	ASTM D5185(m)	>90	**244**	89	---
Aluminum	ppm	ASTM D5185(m)	>10	**13**	7	---
Lithium	ppm	ASTM D5185(m)		**6**	<1	---
Silicon	ppm	ASTM D5185(m)	>7	**18**	7	---
Water	%	ASTM D6304*	>0.2	**11.20**	0.212	---
ppm Water	ppm	ASTM D6304*		**112081**	2124.0	---
Particles >4µm		ASTM D7647	>5000	**507862**	185010	---
Particles >6µm		ASTM D7647	>1300	**489587**	131861	---
Particles >14µm		ASTM D7647	>160	**374601**	10990	---
Particles >21µm		ASTM D7647	>40	**282454**	1020	---
Particles >38µm		ASTM D7647	>10	**89081**	24	---
Particles >71µm		ASTM D7647	>3	**7573**	1	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**26/26/26**	25/24/21	---
Appearance	scalar	Visual*	NORML	**MILKY**	WGOIL	---
Emulsified Water	scalar	Visual*	>0.2	**.2%**	.5%	---
Visc @ 40°C	cSt	ASTM D7279(m)	109	**167**	98.6	---

Customer Id: SACREDBAY
Sample No.: WC0857899
Lab Number: 02604259
Test Package: MAR 2

To manage this report scan the QR code

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Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you change the oil.
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample.
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.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

ISO

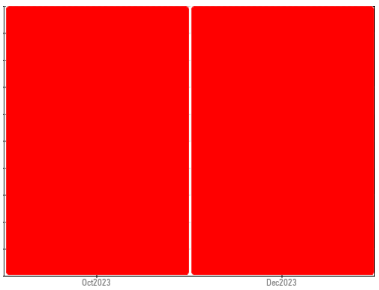
20 Oct 2023 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. 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 advise that you use off-line filtration with water adsorbent filters to attempt to remove the water from this oil. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Resample in 30-45 days to monitor this situation. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) GEAR OIL SAE 75W90. Please confirm.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. There is a moderate concentration of water present in the oil. Free water present. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
BOW THRUSTER
Component
Bow Thruster
Fluid
GEAR OIL SAE 75W90 (1 LTR)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. 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. We recommend that you change the oil. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

Iron ppm levels are severe. PQ levels are severe. Aluminum ppm levels are abnormal. The very high ferrous density (PQ) index indicates that severe wear is occurring.

Contamination

Lithium (Li) level abnormal at 6ppm., indicates possible grease contamination. There is a high amount of particulates (2 to 100 microns in size) present in the oil. There is a high concentration of water present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material and/or dirt. Abnormal water content and sodium(Na) level indicate possible sea water contamination.

Fluid Condition

Visc @ 40°C is abnormally high. Lithium ppm levels are abnormal. Sodium ppm levels are. Viscosity of sample indicates oil is within SAE 90 range, advise investigate. 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		**WC0857899**	WC0857888	---
Sample Date		Client Info		**15 Dec 2023**	20 Oct 2023	---
Machine Age	mths	Client Info		**2**	0	---
Oil Age	mths	Client Info		**0**	7	---
Oil Changed		Client Info		**Changed**	N/A	---
Sample Status				**SEVERE**	SEVERE	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**393**	---	---
Iron	ppm	ASTM D5185(m)	>90	**244**	89	---
Chromium	ppm	ASTM D5185(m)	>10	**8**	2	---
Nickel	ppm	ASTM D5185(m)	>10	**3**	1	---
Titanium	ppm	ASTM D5185(m)		**0**	0	---
Silver	ppm	ASTM D5185(m)		**<1**	<1	---
Aluminum	ppm	ASTM D5185(m)	>10	**13**	7	---
Lead	ppm	ASTM D5185(m)	>20	**2**	1	---
Copper	ppm	ASTM D5185(m)	>20	**3**	2	---
Tin	ppm	ASTM D5185(m)	>15	**0**	0	---
Antimony	ppm	ASTM D5185(m)		**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

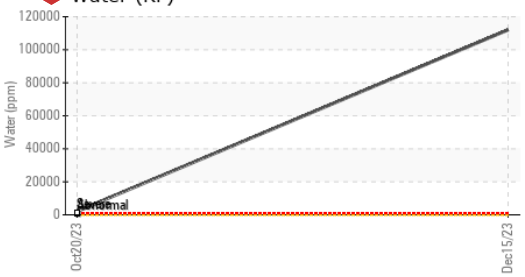
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	400	**12**	1	---
Barium	ppm	ASTM D5185(m)	200	**2**	3	---
Molybdenum	ppm	ASTM D5185(m)	12	**0**	0	---
Manganese	ppm	ASTM D5185(m)		**2**	<1	---
Magnesium	ppm	ASTM D5185(m)	12	**77**	15	---
Calcium	ppm	ASTM D5185(m)	150	**42**	25	---
Phosphorus	ppm	ASTM D5185(m)	1650	**781**	709	---
Zinc	ppm	ASTM D5185(m)	125	**201**	102	---
Sulfur	ppm	ASTM D5185(m)	22500	**15071**	15722	---
Lithium	ppm	ASTM D5185(m)		**6**	<1	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>7	**18**	7	---
Sodium	ppm	ASTM D5185(m)		**479**	21	---
Potassium	ppm	ASTM D5185(m)	>20	**19**	<1	---
Water	%	ASTM D6304*	>0.2	**11.20**	0.212	---
ppm Water	ppm	ASTM D6304*		**112081**	2124.0	---

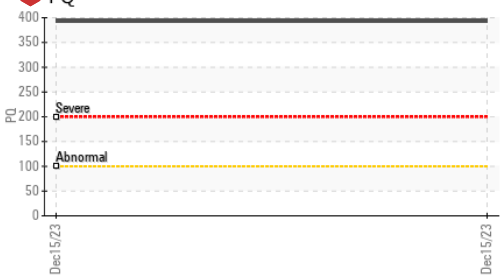
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	**507862**	185010	---
Particles >6µm	ASTM D7647	>1300	**489587**	131861	---
Particles >14µm	ASTM D7647	>160	**374601**	10990	---
Particles >21µm	ASTM D7647	>40	**282454**	1020	---
Particles >38µm	ASTM D7647	>10	**89081**	24	---
Particles >71µm	ASTM D7647	>3	**7573**	1	---
Oil Cleanliness	ISO 4406 (c)	>19/17/14	**26/26/26**	25/24/21	---

OIL ANALYSIS REPORT

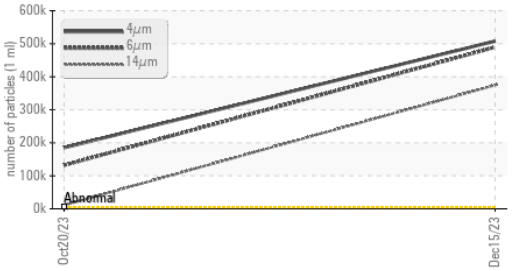
Water (KF)



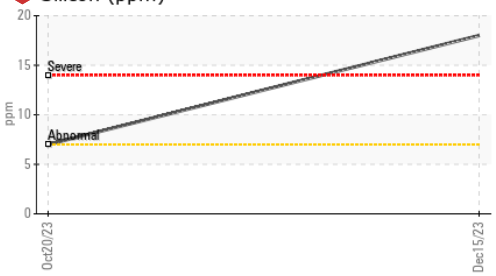
PQ



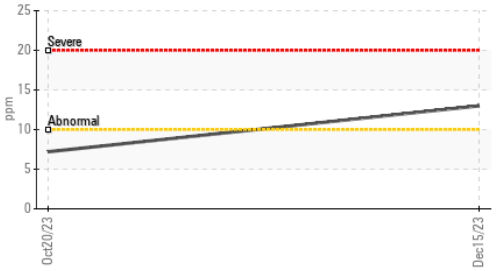
Particle Trend



Silicon (ppm)



Aluminum (ppm)



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	2.00	**1.45**	---	---

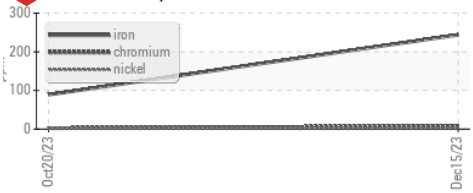
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	---
Silt	scalar	Visual*	NONE	**NONE**	VLITE	---
Debris	scalar	Visual*	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	---
Appearance	scalar	Visual*	NORML	▲ **MILKY**	▲ WGOIL	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	---
Emulsified Water	scalar	Visual*	>0.2	▲ **.2%**	▲ .5%	---
Free Water	scalar	Visual*		**NEG**	▲ 1%	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	109	▲ **167**	98.6	---

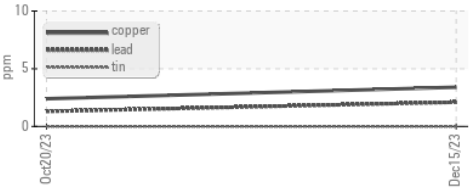
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*

GRAPHS

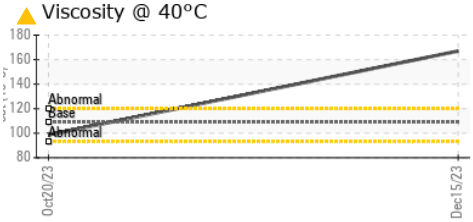
Ferrous Alloys



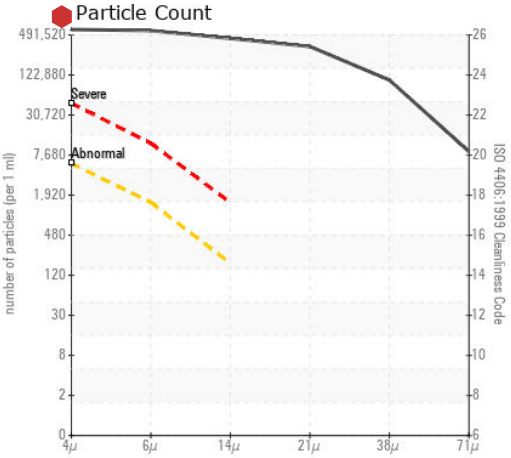
Non-ferrous Metals



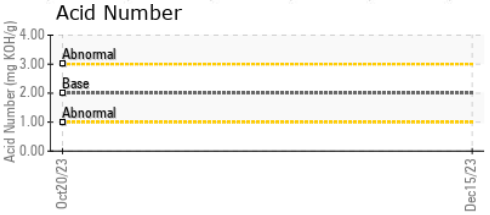
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0857899 **Recieved** : 19 Dec 2023
Lab Number : 02604259 **Diagnosed** : 21 Dec 2023
Unique Number : 5697344 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: KF, PQ, TAN Man)

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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