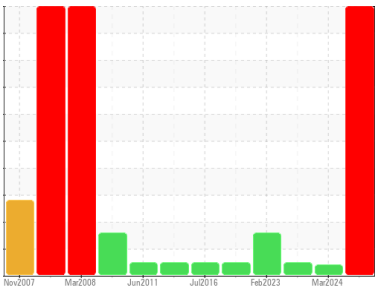
PROBLEM SUMMARY

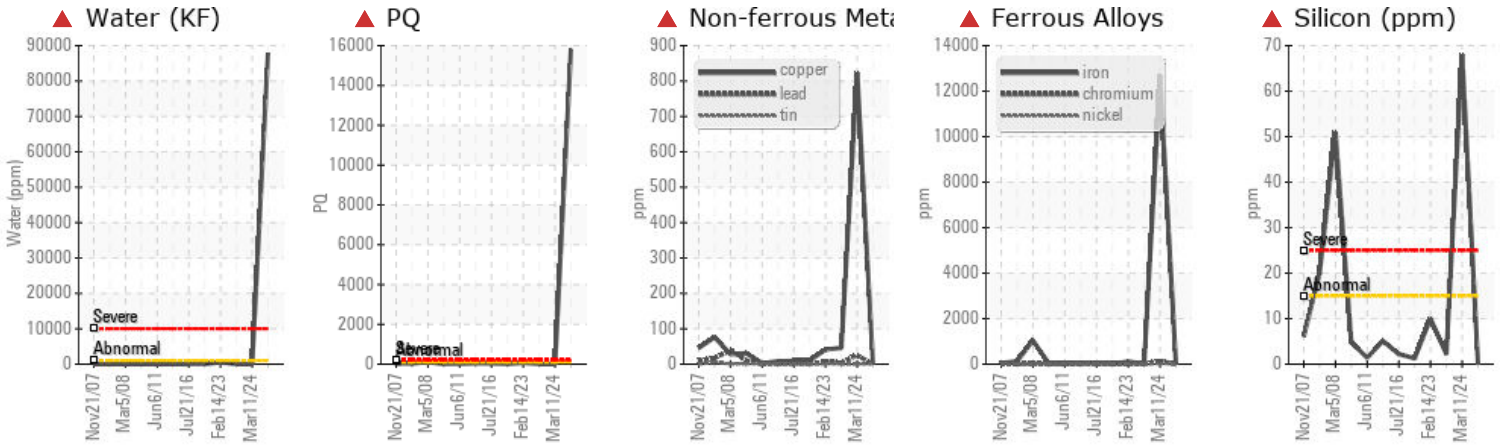
Sample Rating Trend



WEAR

Area
62 BOILER FEEDWATER
Machine Id
#6 FEEDWATER PUMP OUTBOARD BEARING (S/N 622125)
Component
Outboard Bearing
Fluid
ESSO NUTO H ISO 68 (2 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We advise that you check all areas where dirt 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 recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 100 Gear Oil. Please confirm the oil type and grade on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	NORMAL
PQ		ASTM D8184*		▲ **15797**	0	0
Iron	ppm	ASTM D5185(m)	>20	▲ **12672**	0	20
Chromium	ppm	ASTM D5185(m)	>2	▲ **134**	0	<1
Nickel	ppm	ASTM D5185(m)	>2	▲ **21**	0	<1
Lead	ppm	ASTM D5185(m)	>25	▲ **25**	0	4
Copper	ppm	ASTM D5185(m)	>5	▲ **823**	1	46
Silicon	ppm	ASTM D5185(m)	>15	▲ **68**	0	2
Water	%	ASTM D6304*	>0.1	▲ **8.775**	---	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **87754**	---	---
Emulsified Water	scalar	Visual*	>0.1	▲ **1%**	NEG	NEG
Visc @ 40°C	cSt	ASTM D7279(m)	68.8	▲ **115**	▲ 30.3	65.3

Customer Id: STANAC
Sample No.: WC
Lab Number: 02622370
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 Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 100 Gear Oil. Please confirm the oil type and grade 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 dirt can enter the system.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.
Check Water Access	---	---	?	We advise that you check for the source of water entry.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

11 Mar 2024 Diag:

VISCOSITY

view report

06 Sep 2023 Diag: Kevin Marson

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

14 Feb 2023 Diag: Kevin Marson

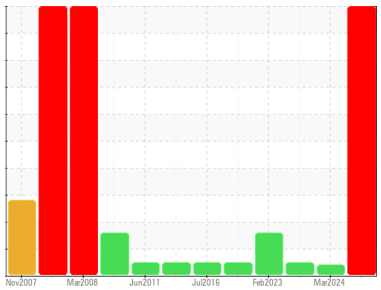
WEAR

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.Copper and iron ppm levels are noted. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. All other component wear rates are normal. The water content is negligible. There is no indication of any contamination 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

Area
62 BOILER FEEDWATER
Machine Id
#6 FEEDWATER PUMP OUTBOARD BEARING (S/N 622125)
Component
Outboard Bearing
Fluid
ESSO NUTO H ISO 68 (2 LTR)

DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. Check seals and/or filters for points of contaminant entry. We advise that you check all areas where dirt 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 recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. The fluid was specified as ESSO NUTO H ISO 68, however, a fluid match indicates that this fluid is ISO 100 Gear Oil. Please confirm the oil type and grade on your next sample.

Wear

Chromium and copper and iron and nickel ppm levels are severe. PQ levels are severe. Lead ppm levels are abnormal. Aluminum ppm levels are noted. Bearing wear is indicated. There is a possible bearing failure in progress. The very high ferrous density (PQ) index indicates that severe wear is occurring.

Contamination

There is a high concentration of water present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

Fluid Condition

Viscosity of sample indicates oil is within ISO 100 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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		**WC**	WC	WC
Sample Date		Client Info		**11 Mar 2024**	11 Mar 2024	06 Sep 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	ABNORMAL	NORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		▲ **15797**	0	0
Iron	ppm	ASTM D5185(m)	>20	▲ **12672**	0	20
Chromium	ppm	ASTM D5185(m)	>2	▲ **134**	0	<1
Nickel	ppm	ASTM D5185(m)	>2	▲ **21**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	0	0
Aluminum	ppm	ASTM D5185(m)	>5	● **64**	<1	<1
Lead	ppm	ASTM D5185(m)	>25	▲ **25**	0	4
Copper	ppm	ASTM D5185(m)	>5	▲ **823**	1	46
Tin	ppm	ASTM D5185(m)	>15	**0**	<1	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

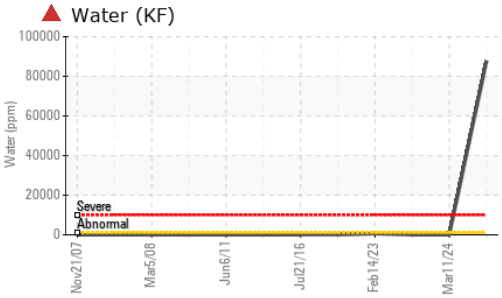
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**11**	0	0
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	0
Manganese	ppm	ASTM D5185(m)		**95**	0	<1
Magnesium	ppm	ASTM D5185(m)	5	**<1**	<1	1
Calcium	ppm	ASTM D5185(m)	50	**19**	55	34
Phosphorus	ppm	ASTM D5185(m)	330	**228**	364	366
Zinc	ppm	ASTM D5185(m)	420	● **137**	447	354
Sulfur	ppm	ASTM D5185(m)	3100	**6232**	3442	6214
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	▲ **68**	0	2
Sodium	ppm	ASTM D5185(m)		**5**	0	8
Potassium	ppm	ASTM D5185(m)	>20	**2**	<1	1
Water	%	ASTM D6304*	>0.1	▲ **8.775**	---	---
ppm Water	ppm	ASTM D6304*	>1000	▲ **87754**	---	---

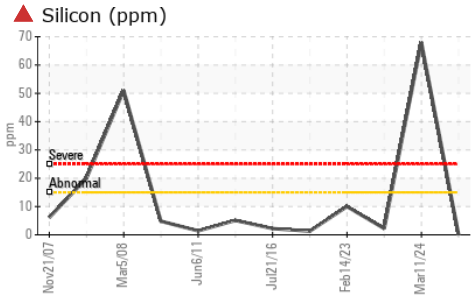
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	.40	**1.40**	0.41	0.29

OIL ANALYSIS REPORT

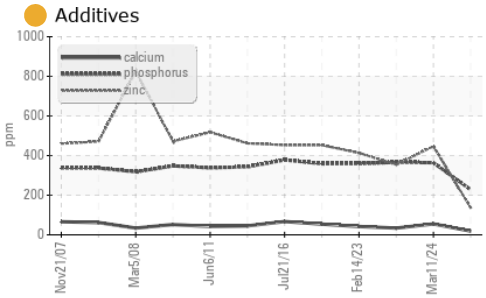
Water (KF)



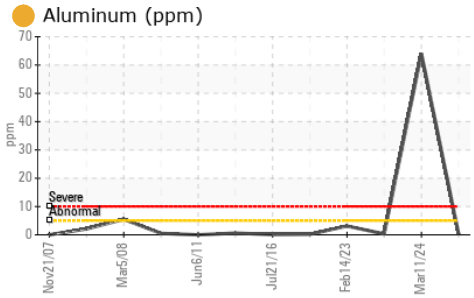
Silicon (ppm)



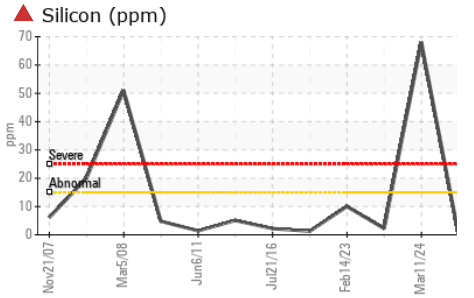
Additives



Aluminum (ppm)

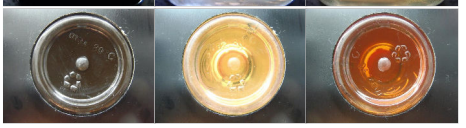


Silicon (ppm)



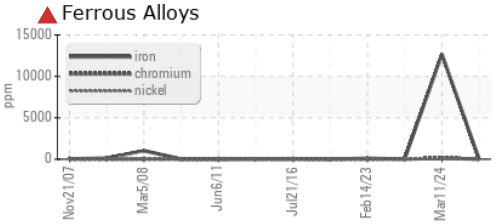
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	VLITE
Sand/Dirt	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	▲ **1%**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	68.8	▲ **115**	▲ 30.3	65.3

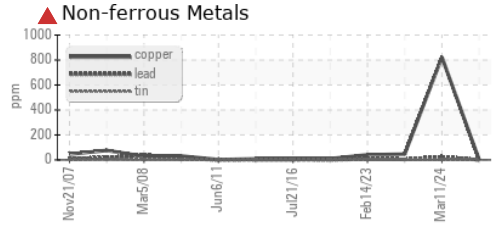
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

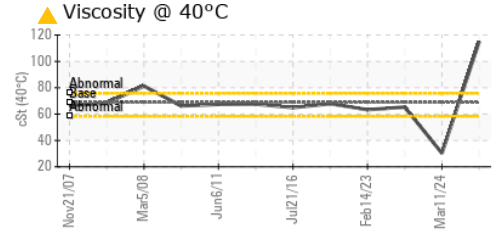
Ferrous Alloys



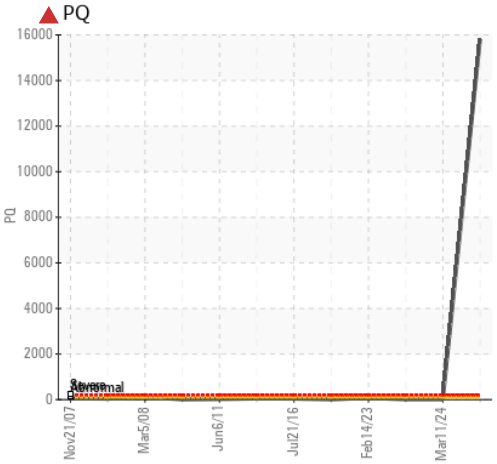
Non-ferrous Metals



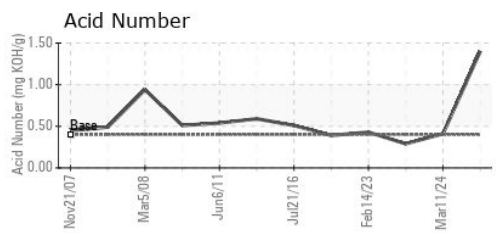
Viscosity @ 40°C



PQ



Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC
Lab Number : 02622370
Unique Number : 5747489
Test Package : IND 2 (Additional Tests: KF, TAN Man)

Received : 15 Mar 2024
Tested : 15 Mar 2024
Diagnosed : 17 Mar 2024 - Kevin Marson

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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