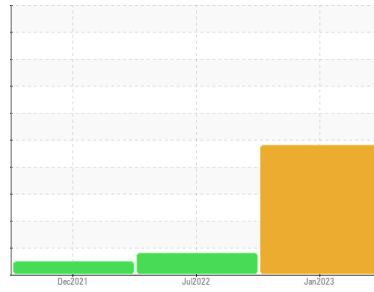




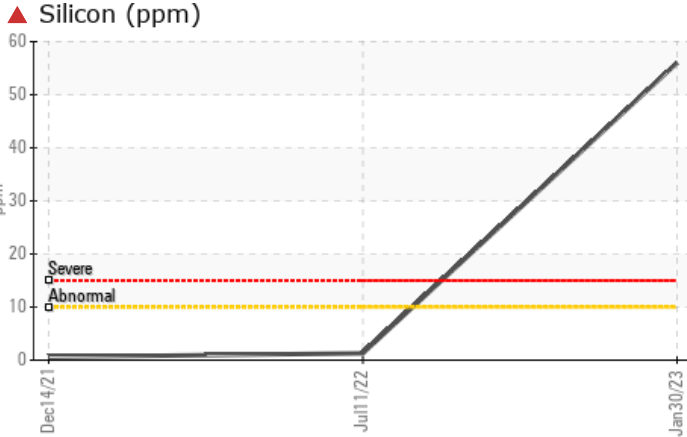
PROBLEM SUMMARY

Machine Id
PORT STEERING (S/N 115841-080001)
 Component
Port Steering
 Fluid
CASTROL HYSPIN AWH-M ISO 32 (800 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY



RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 2 test kits, this testkit includes AN to determine the suitability of the fluid for continued use. this testkit includes Particle Count to determine the ISO cleanliness of the fluid.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ATTENTION	NORMAL
Silicon	ppm	ASTM D5185(m)	>10	▲ 56	1	<1

Customer Id: HORIZONKJG
 Sample No.: WC0474211
 Lab Number: 02541873
 Test Package: MAR 1



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
Resample	MISSED	Mar 17 2023	?	We recommend an early resample to monitor this condition.
Contact Required	---	---	?	Please contact your representative for information regarding the proper sampling kits for your service.
Alert	MISSED	Mar 17 2023	?	NOTE: We recommend using MAR 2 test kits,
Information Required	MISSED	Mar 17 2023	?	Please specify the component make and model with your next sample.
Check Seals	MISSED	Mar 17 2023	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

WEAR



11 Jul 2022 Diag: Kevin Marson

No corrective action is recommended at this time. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 2 test kits, this testkit includes AN to determine the suitability of the fluid for continued use. this testkit includes Particle Count to determine the ISO cleanliness of the fluid. Lead ppm levels are noted. All other component wear rates are normal. There is no indication of any contamination in the fluid. The condition of the fluid is acceptable for the time in service (unconfirmed).

view report



NORMAL



14 Dec 2021 Diag: Wes Davis

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 2 test kits, this testkit includes AN to determine the suitability of the fluid for continued use. All component wear rates are normal. There is no indication of any contamination in the fluid. The condition of the fluid is acceptable for the time in service (unconfirmed).

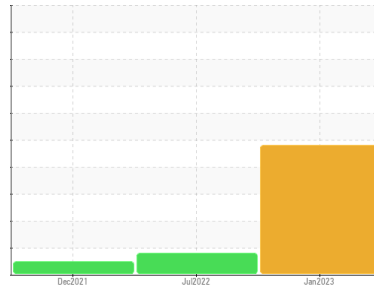
view report





OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
PORT STEERING (S/N 115841-080001)
 Component
Port Steering
 Fluid
CASTROL HYSPIIN AWH-M ISO 32 (800 LTR)

DIAGNOSIS

▲ Recommendation

Check seals and/or filters for points of contaminant entry. The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 2 test kits, this testkit includes AN to determine the suitability of the fluid for continued use. this testkit includes Particle Count to determine the ISO cleanliness of the fluid.

Wear

All component wear rates are normal.

▲ Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

The fluid is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0474211	WC0474242	WC0643446
Sample Date	Client Info		30 Jan 2023	11 Jul 2022	14 Dec 2021
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	Not Changd	Not Changd
Sample Status			SEVERE	ATTENTION	NORMAL

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >60	3	46	8
Chromium	ppm	ASTM D5185(m) >12	0	0	0
Nickel	ppm	ASTM D5185(m) >6	0	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >4	0	<1	<1
Lead	ppm	ASTM D5185(m) >12	<1	15	<1
Copper	ppm	ASTM D5185(m) >30	<1	3	2
Tin	ppm	ASTM D5185(m)	0	<1	<1
Antimony	ppm	ASTM D5185(m)	0	<1	<1
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	<1	0

ADDITIVES

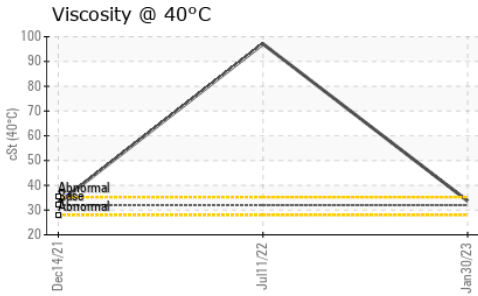
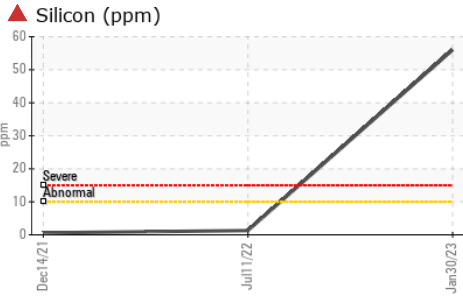
	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	2	<1
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	<1	<1	2
Calcium	ppm	ASTM D5185(m)	43	3	46
Phosphorus	ppm	ASTM D5185(m)	409	493	384
Zinc	ppm	ASTM D5185(m)	455	14	426
Sulfur	ppm	ASTM D5185(m)	4294	9978	3801
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >10	▲ 56	1	<1
Sodium	ppm	ASTM D5185(m)	0	1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	0	<1



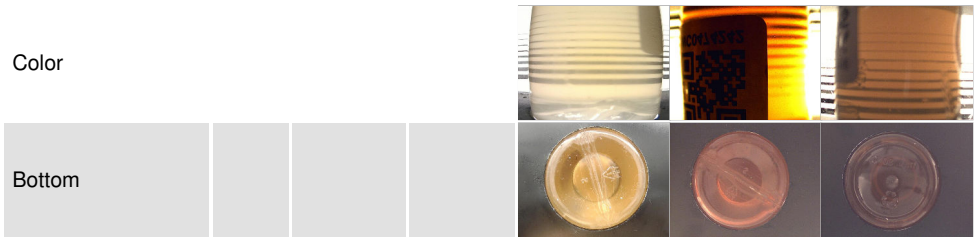
OIL ANALYSIS REPORT



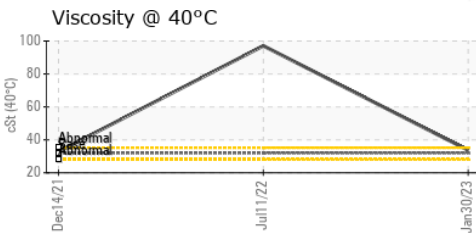
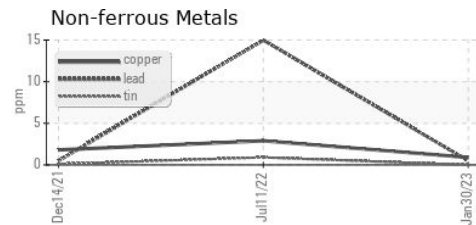
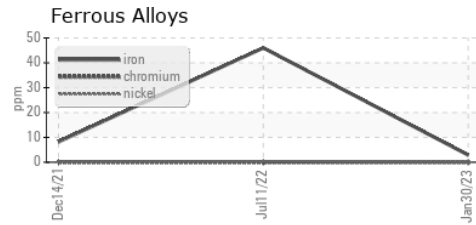
VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	VLITE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*		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)	32.0	33.7	97.1	32.8

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Horizon Maritime Services Ltd. - K.J. Gardner**
Sample No. : WC0474211 **Received** : 27 Feb 2023 101 Research Drive, Main Floor
Lab Number : **02541873** **Tested** : 27 Feb 2023 Dartmouth, NS
Unique Number : 5538878 **Diagnosed** : 28 Feb 2023 - Kevin Marson CA B2Y 4T6
Test Package : MAR 1 Contact: Engine Room

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.

chiefeng.kjgardner@horizonmaritime.com

T:
F: