

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

### RECOMMENDATION

We advise that you check all areas where dirt can enter the system. 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. (Customer Sample Comment: System flushed and new oil added. )

#### WEAR

All component wear rates are normal.

## CONTAMINATION

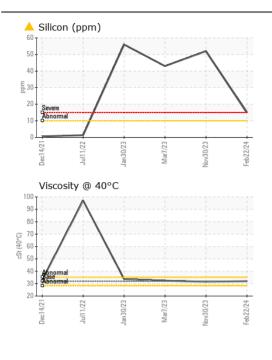
There is a moderate concentration of dirt present in the fluid.

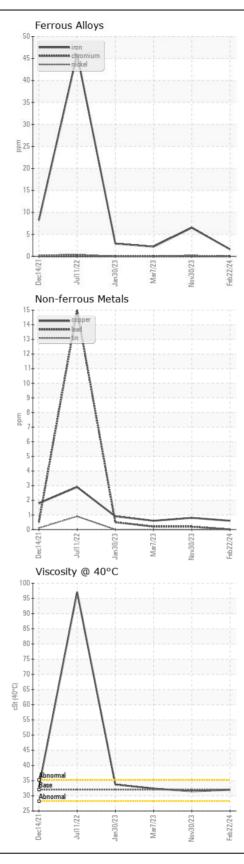
# FLUID CONDITION

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

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Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0787199	WC0787174	WC0787170
Sample Date		Client Info		22 Feb 2024	30 Nov 2023	07 Mar 2023
Machine Age	hrs	Client Info		34406	0	0
Oil Age	hrs	Client Info		34406	0	1
Filter Age	hrs	Client Info		600	0	1
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Filter Changed		Client Info		Changed	None	Changed
Sample Status				ABNORMAL	SEVERE	SEVERE
Iron	ppm	ASTM D5185(m)	>60	2	6	2
Chromium	ppm	ASTM D5185(m)	>12	0	0	0
Nickel	ppm	ASTM D5185(m)	>6	0	<1	0
Titanium	ppm	ASTM D5185(m)	20	0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>4	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>12	0	<1	<1
Copper	ppm	ASTM D5185(m)	>30	<1	<1	<1
Tin	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185(m)	>10	<b>1</b> 5	<b>▲</b> 52	<b>4</b> 3
Potassium	ppm ppm	ASTM D5185(m)	>10 >20	▲ 15 <1	▲ 52 1	1
Potassium Water	ppm	ASTM D5185(m) WC Method	>20	▲ 15 <1 NEG	▲ 52 1 NEG	1 NEG
Potassium Water Silt	ppm scalar	ASTM D5185(m) WC Method Visual*	>20 NONE	▲ 15 <1 NEG NONE	▲ 52 1 NEG VLITE	1 NEG NONE
Potassium Water Silt Debris	ppm scalar scalar	ASTM D5185(m) WC Method Visual* Visual*	>20 NONE NONE	15 <1 NEG NONE NONE	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> </ul>	1 NEG NONE NONE
Potassium Water Silt Debris Sand/Dirt	ppm scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual*	>20 NONE NONE NONE	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NONE</li> </ul>	1 NEG NONE NONE
Potassium Water Silt Debris Sand/Dirt Appearance	ppm scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual*	>20 NONE NONE NONE NORML	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> </ul>	1 NEG NONE NONE NORE
Potassium Water Silt Debris Sand/Dirt Appearance Odor	ppm scalar scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual*	>20 NONE NONE NONE	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	1 NEG NONE NONE NORE NORML
Potassium Water Silt Debris Sand/Dirt Appearance	ppm scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual*	>20 NONE NONE NONE NORML	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> </ul>	1 NEG NONE NONE NORE
Potassium Water Silt Debris Sand/Dirt Appearance Odor	ppm scalar scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual*	>20 NONE NONE NONE NORML	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	1 NEG NONE NONE NORE NORML
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	ppm scalar scalar scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual*	>20 NONE NONE NONE NORML	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>	1 NEG NONE NONE NORML NORML NEG
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NEG NONE NONE NONE NORML NORML NEG <1	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> </ul>	1 NEG NONE NONE NORML NORML NEG
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NEG NONE NONE NORE NORML NORML NEG <1 0	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	<ul> <li>15</li> <li>&lt;1</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> </ul>	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	ppm scalar scalar scalar scalar scalar ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NEG NONE NONE NORML NORML NEG <1 0 0 0 0	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> <li>0</li> <li>0</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0 0
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NONE NONE NONE NORML NORML NORML 0 0 0 0	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0 0 0 0
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NONE NONE NONE NORML NORML NORML 0 0 0 <1	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> <li>0</li> <li>0</li> <li>&lt;1</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0 0 0 0 0 0 0
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NONE NONE NONE NORML NORML NORML 0 0 0 <1 0 0 <1 70	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>45</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0 0 0 0 0 0 0 1 49
Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 NONE NONE NONE NORML	15 <1 NONE NONE NONE NORML NORML NORML 0 <1 0 <1 <1 <0 <1 <0 <1 <1 <0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	<ul> <li>52</li> <li>1</li> <li>NEG</li> <li>VLITE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>&lt;1</li> <li>0</li> <li>0</li> <li>0</li> <li>&lt;1</li> <li>45</li> <li>390</li> </ul>	1 NEG NONE NONE NORML NORML NEG <1 <1 0 0 0 0 0 0 0 0 49 415

Submitted By: Engine Room





: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Horizon Maritime Services Ltd. - K.J. Gardner : WC0787199 Received : 05 Mar 2024 101 Research Drive, Main Floor Lab Number : 02620033 Tested : 05 Mar 2024 Dartmouth, NS Unique Number : 5737143 Diagnosed : 06 Mar 2024 - Kevin Marson CA B2Y 4T6 Contact: Engine Room chiefeng.kjgardner@horizonmaritime.com T: F:

Accredited Laboratory Test Package : MAR 1 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.

Laboratory

Sample No.

Report Id: HORIZONKJG [WCAMIS] 02620033 (Generated: 03/06/2024 06:54:11) Rev: 1

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