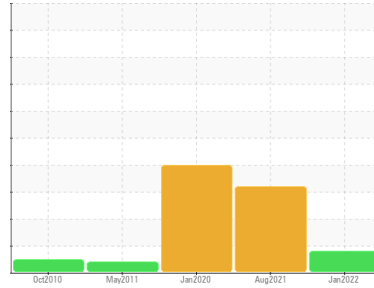


PROBLEM SUMMARY

Sample Rating Trend



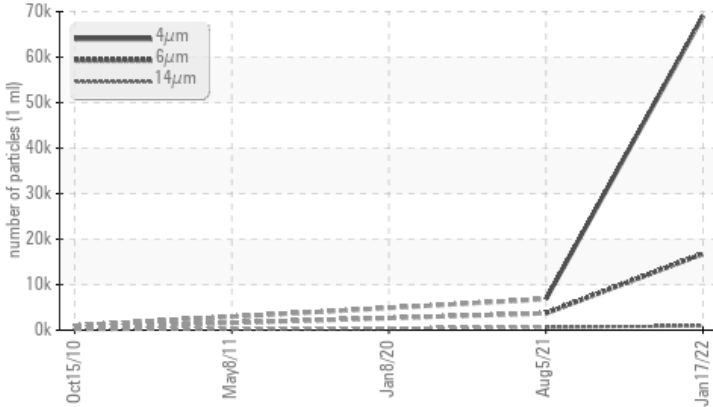
ISO



Machine Id
A-03
Component
Wind Turbine Gearbox
Fluid
ROYAL PURPLE SYNFILM GT 320 (65 GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	ABNORMAL	ABNORMAL
Particles >6µm	ASTM D7647	>5000	▲ 16793	3717	---
Particles >14µm	ASTM D7647	>640	▲ 925	633	---
Oil Cleanliness	ISO 4406 (c)	>--/19/16	▲ 23/21/17	20/19/16	---

Customer Id: MITWHI
Sample No.: MHI019873
Lab Number: 05466743
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.
Resample	---	---	?	Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

HISTORICAL DIAGNOSIS

05 Aug 2021 Diag: Jonathan Hester

WATER



Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. We advise that you follow the water drain-off procedure for this component. All component wear rates are normal. Excessive free water present. There is a light concentration of water present in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid.

[view report](#)



08 Jan 2020 Diag: Doug Bogart

WATER



We advise that you follow the water drain-off procedure for this component. We advise an early resample to confirm this situation. There is too much water present in this sample to perform a particle count. All component wear rates are normal. Free water present. The AN level is acceptable for this fluid.

[view report](#)



08 May 2011 Diag: Jonathan Hester

VIS DEBRIS



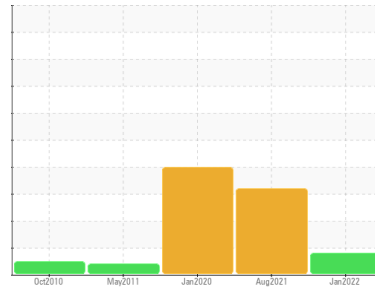
We were unable to perform a particle count due to a high concentration of particles present in this sample. We recommend you service the filters on this component. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. PQ index is elevated. High concentration of visible dirt/debris present in the oil. The condition of oil is suitable for further service.

[view report](#)



OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id
A-03
Component
Wind Turbine Gearbox
Fluid
ROYAL PURPLE SYNFILM GT 320 (65 GAL)

DIAGNOSIS

Recommendation

Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

Fluid Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION	method	limit/base	current	history1	history2
Sample Number	Client Info		MHI019873	MHI019951	MHI008515
Sample Date	Client Info		17 Jan 2022	05 Aug 2021	08 Jan 2020
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			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS	method	limit/base	current	history1	history2
PQ	ASTM D8184	>200	23	54	21
Iron	ppm	ASTM D5185m	>200	9	6
Chromium	ppm	ASTM D5185m		0	0
Nickel	ppm	ASTM D5185m		<1	<1
Titanium	ppm	ASTM D5185m		0	0
Silver	ppm	ASTM D5185m		0	0
Aluminum	ppm	ASTM D5185m		0	0
Lead	ppm	ASTM D5185m		0	0
Copper	ppm	ASTM D5185m	>75	20	28
Tin	ppm	ASTM D5185m		0	0
Antimony	ppm	ASTM D5185m		0	0
Vanadium	ppm	ASTM D5185m		0	0
Cadmium	ppm	ASTM D5185m		0	0

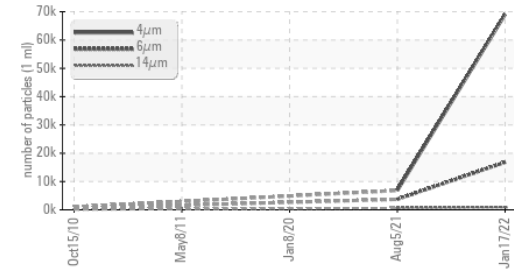
ADDITIVES	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<1	<1
Barium	ppm	ASTM D5185m		0	0
Molybdenum	ppm	ASTM D5185m		6	6
Manganese	ppm	ASTM D5185m		0	0
Magnesium	ppm	ASTM D5185m	90	0	0
Calcium	ppm	ASTM D5185m		0	<1
Phosphorus	ppm	ASTM D5185m		61	59
Zinc	ppm	ASTM D5185m		0	0
Sulfur	ppm	ASTM D5185m		15541	14777

CONTAMINANTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	<1	<1
Sodium	ppm	ASTM D5185m		0	0
Potassium	ppm	ASTM D5185m	>20	<1	<1
Water	%	ASTM D6304	>0.1	0.003	0.209
ppm Water	ppm	ASTM D6304	>1000	26.9	2090

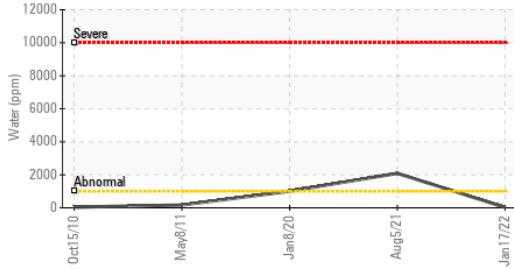
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647			69036	6823
Particles >6µm	ASTM D7647	>5000		16793	3717
Particles >14µm	ASTM D7647	>640		925	633
Particles >21µm	ASTM D7647	>160		133	213
Particles >38µm	ASTM D7647	>40		6	33
Particles >71µm	ASTM D7647	>10		0	3
Oil Cleanliness	ISO 4406 (c)	>--/19/16		23/21/17	20/19/16

OIL ANALYSIS REPORT

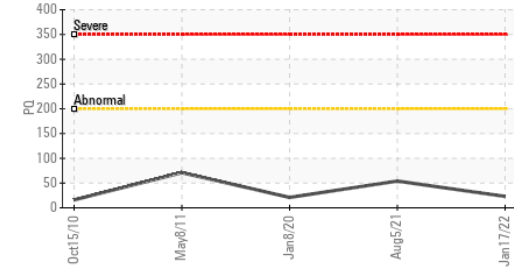
Particle Trend



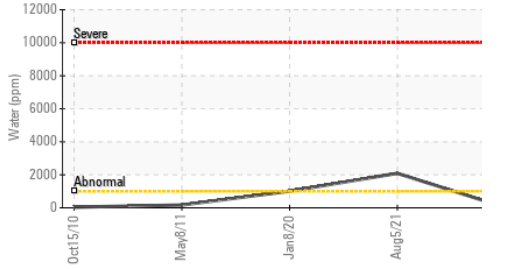
Water (KF)



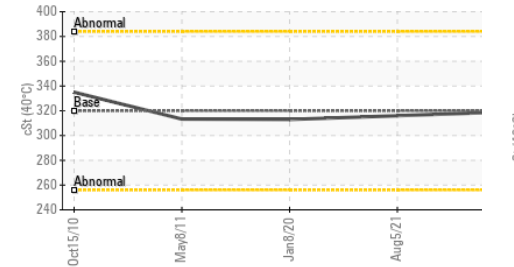
PQ



Water (KF)



Viscosity @ 40°C



FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045 0.25	0.45	0.44	0.438

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual NONE	LIGHT	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	LIGHT	NONE	LIGHT
Sand/Dirt	scalar	*Visual NONE	NONE	NONE	NONE
Appearance	scalar	*Visual NORML	NORML	NORML	▲ LAYRD
Odor	scalar	*Visual NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual >0.1	NEG	0.2%	0.2%
Free Water	scalar	*Visual	NEG	▲ 5.0	▲ 1.0

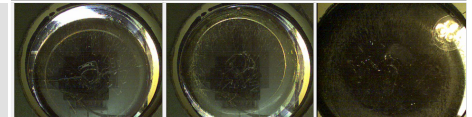
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	319	316	313

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color

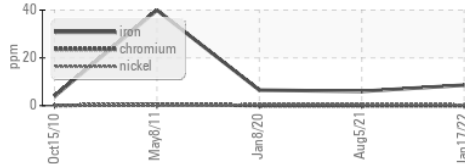


Bottom

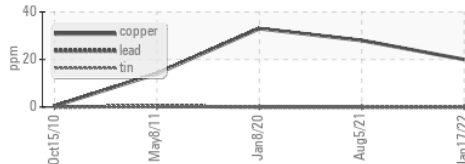


GRAPHS

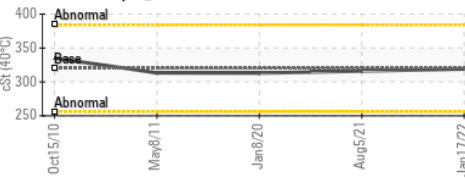
Ferrous Alloys



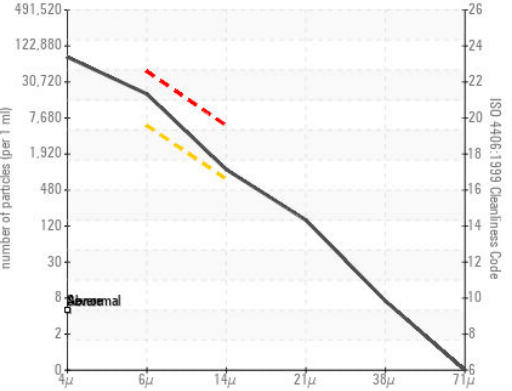
Non-ferrous Metals



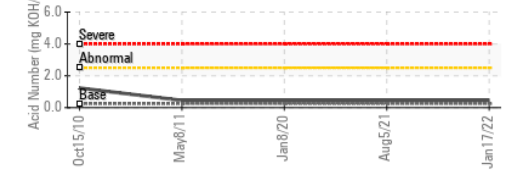
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MHI019873 **Received** : 14 Feb 2022
Lab Number : 05466743 **Diagnosed** : 15 Feb 2022
Unique Number : 9850956 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

DIAMOND WTG - WHITE DEER SITE - MPS WD
 PO BOX 872
 WHITE DEER, TX
 US 79097
 Contact: WESLEY CAMPBELL
 wesley.campbell@diamondwtg.com
 T: (806)883-1051
 F: (806)883-2004

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)