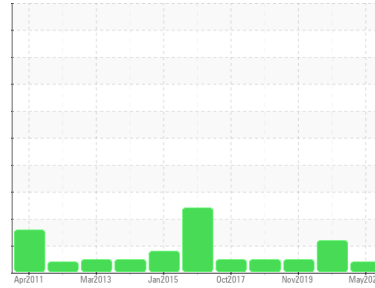


PROBLEM SUMMARY

Sample Rating Trend



VIS DEBRIS



Machine Id
A-61
Component
Wind Turbine Gearbox
Fluid
MITSUBISHI Daphne Alpha Winforce (--- LTR)

COMPONENT CONDITION SUMMARY

No relevant graphs to display

RECOMMENDATION

Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. We were unable to perform a particle count due to a high concentration of particles present in this sample.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ABNORMAL	NORMAL
Debris	scalar	*Visual	NONE	▲ MODER	VLITE	NONE

Customer Id: MITSANNM
Sample No.: MHI017905
Lab Number: 05000027
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@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.
Alert	---	---	?	We were unable to perform a particle count due to a high concentration of particles present in this sample.

HISTORICAL DIAGNOSIS

14 May 2020 Diag: Doug Bogart

ISO



Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. All component wear rates are normal. There is a high amount of particulates present in the oil. The AN level is acceptable for this fluid.

view report



06 Nov 2019 Diag: Doug Bogart

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. The amount and size of particulates present in the system are acceptable. 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



09 Nov 2018 Diag: Jonathan Hester

NORMAL



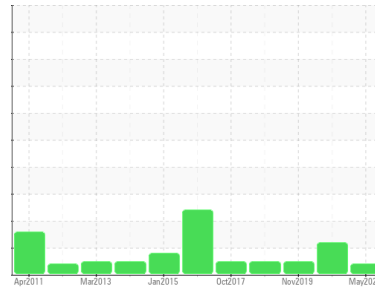
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable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

view report



OIL ANALYSIS REPORT

Sample Rating Trend



VIS DEBRIS



Machine Id
A-61
Component
Wind Turbine Gearbox
Fluid
MITSUBISHI Daphne Alpha Winforce (--- LTR)

DIAGNOSIS

Recommendation

Replace filter element and resample at later date. In case already attempted and cleanliness was not improved then proceed to replace oil. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

All component wear rates are normal.

Contamination

Moderate concentration of visible dirt/debris 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		MHI017905	MHI023599	MHI019095
Sample Date	Client Info		29 May 2020	14 May 2020	06 Nov 2019
Machine Age	hrs	Client Info	0	0	0
Oil Age	hrs	Client Info	95949	95639	91616
Oil Changed	Client Info		Not Changed	Not Changd	Not Changed
Sample Status			ABNORMAL	ABNORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>200	20	19	20	
Iron	ppm	ASTM D5185m	>200	22	23	20
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m		<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		<1	0	0
Aluminum	ppm	ASTM D5185m		<1	0	0
Lead	ppm	ASTM D5185m		0	<1	<1
Copper	ppm	ASTM D5185m	>75	3	4	6
Tin	ppm	ASTM D5185m		<1	<1	<1
Antimony	ppm	ASTM D5185m		6	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<1	<1	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	0	<1
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m		0	0	0
Calcium	ppm	ASTM D5185m		0	<1	0
Phosphorus	ppm	ASTM D5185m		303	305	308
Zinc	ppm	ASTM D5185m		2	0	14
Sulfur	ppm	ASTM D5185m		3748	4347	4575

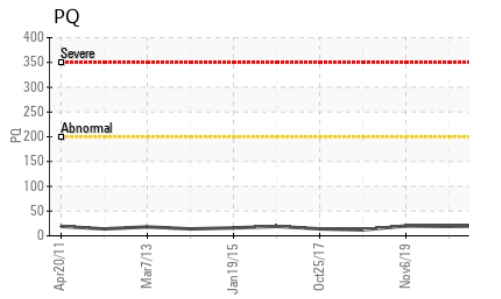
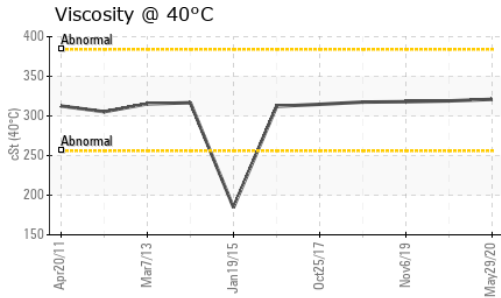
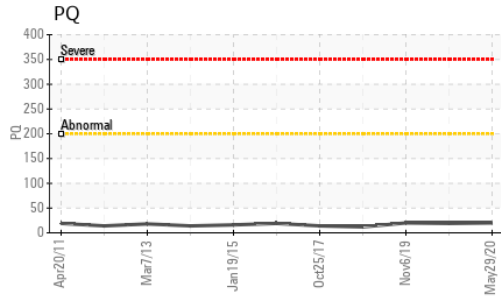
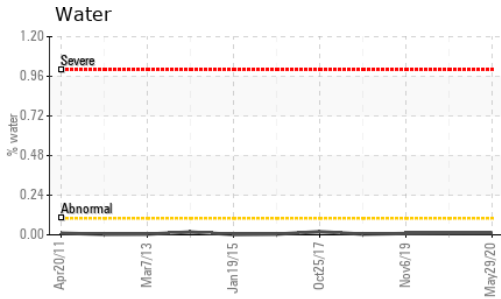
CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>+30	2	2	1
Sodium	ppm	ASTM D5185m		<1	0	0
Potassium	ppm	ASTM D5185m	>20	1	0	0
Water	%	ASTM D6304	>0.1	0.011	0.010	0.008
ppm Water	ppm	ASTM D6304	>1000	116.9	105.2	83.7

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		---	69224	35163
Particles >6µm	ASTM D7647	>5000	---	▲ 14367	3379
Particles >14µm	ASTM D7647	>640	---	▲ 1069	84
Particles >21µm	ASTM D7647	>160	---	▲ 258	26
Particles >38µm	ASTM D7647	>40	---	6	8
Particles >71µm	ASTM D7647	>10	---	0	2
Oil Cleanliness	ISO 4406 (c)	>--/19/16	---	▲ 23/21/17	22/19/14

OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.833	0.820	0.717

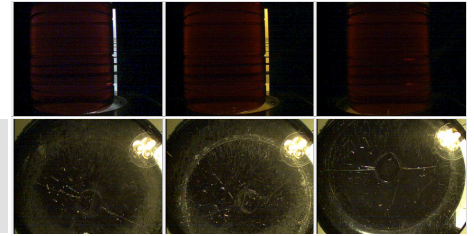
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	▲ MODER	VLITE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445		321	319	318

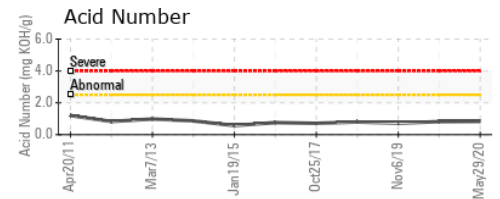
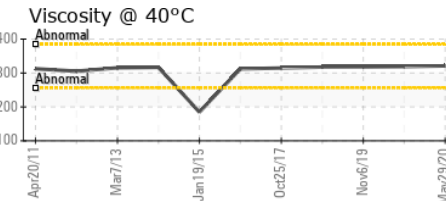
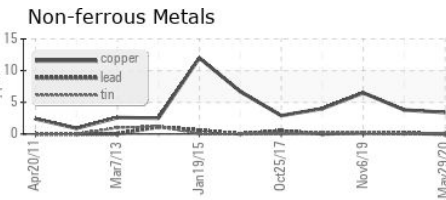
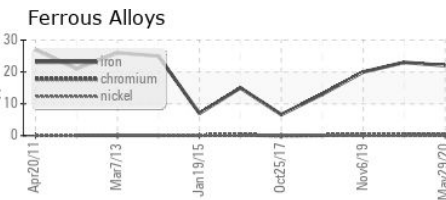
SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color

Bottom



GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MHI017905 **Received** : 16 Jun 2020
Lab Number : 05000027 **Diagnosed** : 19 Jun 2020
Unique Number : 9065180 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

DIAMOND WTG - ARAGONNE MESA SITE - MPS AM
 PO BOX 372
 SANTA ROSA, NM
 US 88435
 Contact: BOBBY VILLANUEVA
 bobby.villanueva@diamondwtg.com

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)

T: x:

F: x: