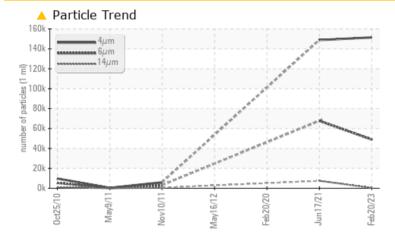


Machine Id **D-03** Component **Wind Turbine Gearbox** Fluid **ROYAL PURPLE SYNFILM GT 320 (65 GAL)**

COMPONENT CONDITION SUMMARY



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 >50	00 🔺 48954	67704				
Oil Cleanliness	ISO 4406 (c) >/	19/16 🔺 24/23/16	▲ 24/23/20				

Customer Id: MITWHI Sample No.: MHI021634 Lab Number: 05819590 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Angela Borella +1 800-237-1369 angela.borella@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	Descriptior			
Change Filter			?	Replace filte			
Resample			?	Replace filte			

n

Iter element and resample at later date. In case already attempted iness was not improved then proceed to replace oil.

ter element and resample at later date. In case already attempted ness was not improved then proceed to replace oil.

HISTORICAL DIAGNOSIS



17 Jun 2021 Diag: Jonathan Hester

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

20 Feb 2020 Diag: Doug Bogart



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.All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid.

16 May 2012 Diag: Doug Bogart





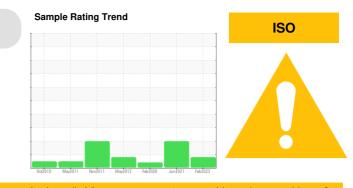
We were unable to perform a particle count due to a high concentration of particles present in this sample. We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.All component wear rates are normal. There is a high amount of visible silt present in the sample. The condition of oil is suitable for further service.







OIL ANALYSIS REPORT



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

DIAGNOSIS

Machine Id

A 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 NumberClient InfoMHI021343MHI023768MHI04393519Sample DateClient Info0000Machine AgehrsClient Info000Oil AgehrsClient Info000Oil ChangedTClient InfoN/AN/ANot ChangedSample StatusIIm/N/AABNORMALABNORMALABNORMALWEAR METALSmethodImit/basecurrenthistory1history2PQASTM 05165>3212026IronppmASTM 05165>3< <td>10011IronppmASTM 05165>310011SilverppmASTM 05165>3000000SilverppmASTM 05165>551411111100000AuminumppmASTM 05165>55000<</td>	10011IronppmASTM 05165>310011SilverppmASTM 05165>3000000SilverppmASTM 05165>551411111100000AuminumppmASTM 05165>55000<	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
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Machine AgehrsClient Info000Oil GhangedKrsClient InfoN/AN/ANot ChangedSample StatusCClient InfoN/AN/ANot ChangedSample StatusCTentholImil/baseCurrentHistory1History2PQASTM D8184>200212026IronppmASTM D5185m>30<110<11NickelppmASTM D5185m>30<100<11TitaniumppmASTM D5185m>300<00SilverppmASTM D5185m>300<1111TitaniumppmASTM D5185m>300<110CopperppmASTM D5185m>55-141411TinppmASTM D5185m>55-141411TinppmASTM D5185m>50000ASTM D5185m>5000000CadmiumppmASTM D5185m>10000ASTM D5185m>5000000ASTM D5185m>5011<1<<11TinppmASTM D5185m0000ASTM D5185m01<1<<11ASTM D5185m01<1<<11ASTM D5185m01<1<<11ASTM D5185m			Client Info		20 Feb 2023	17 Jun 2021	20 Feb 2020	
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Silicon ppm ASTM D5185m >+30 <1	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	90	<1 1 0 197	0 <1 0 228	0 <1 <1 217	
Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D6304 >0.1 0.012 0.005 0.006 ppm Water ppm ASTM D6304 >1000 122.6 51.0 60.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 ▲ 48954 ▲ 67704 Particles >6µm ASTM D7647 >640 386 7444 Particles >21µm ASTM D7647 >160 47 1188 Particles >38µm ASTM D7647 >40 0 78	Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	90	<1 1 0 197 0	0 <1 0 228 0	0 <1 <1 217 0	
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FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 151463 148867 Particles >6µm ASTM D7647 >5000 48954 67704 Particles >14µm ASTM D7647 >640 386 7444 Particles >21µm ASTM D7647 >160 47 1188 Particles >38µm ASTM D7647 >40 0 78	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base >+30	<1 1 0 197 0 7331 current <1 0	0 <1 0 228 0 5740 history1 2 0	0 <1 217 0 3904 history2 3	
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Particles >6μm ASTM D7647 >5000 ▲ 48954 ▲ 67704 Particles >14μm ASTM D7647 >640 386 7444 Particles >21μm ASTM D7647 >160 47 1188 Particles >38μm ASTM D7647 >40 0 78	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >+30 >20 >0.1	<1 1 0 197 0 7331 current <1 0 0 0 0 0.012	0 <1 0 228 0 5740 history1 2 0 <1 0.005	0 <1 <1 217 0 3904 history2 3 0 0 0 0.006	
Particles >14μm ASTM D7647 >640 386 ▲ 7444 Particles >21μm ASTM D7647 >160 47 ▲ 1188 Particles >38μm ASTM D7647 >40 0 ▲ 78	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D6304	limit/base >+30 >20 >0.1 >1000	<1 1 0 197 0 7331 current <1 0 0 0 0.012 122.6	0 <1 0 228 0 5740 history1 2 0 <1 0.005 51.0	0 <1 <1 217 0 3904 history2 3 0 0 0 0.006 60.1	
Particles >21μm ASTM D7647 >160 47 ▲ 1188 Particles >38μm ASTM D7647 >40 0 ▲ 78	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 MEthod	limit/base >+30 >20 >0.1 >1000	<1 1 0 197 0 7331 current <1 0 0 0 0.012 122.6 current	0 <1 0 228 0 5740 history1 2 0 <1 0.005 51.0 history1	0 <1 <1 217 0 3904 history2 3 0 0 0 0.006 60.1 history2	
Particles >38μm ASTM D7647 >40 0 478	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D6304	limit/base >+30 >20 >0.1 >1000 limit/base	<1 1 0 197 0 7331 current <1 0 0 0 0.012 122.6 current 151463	0 <1 0 228 0 5740 history1 2 0 <1 0.005 51.0 history1 148867	0 <1 <1 217 0 3904 history2 3 0 0 0 0.006 60.1 history2 	
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647	limit/base >+30 >20 >0.1 >1000 limit/base >5000	<1 1 0 197 0 7331 current <1 0 0 0 0 0 0.012 122.6 current 151463	0 <1 0 228 0 5740 history1 2 0 <1 0.005 51.0 history1 148867 ▲ 67704	0 <1 <1 217 0 3904 history2 3 0 0 0 0.006 60.1 history2 	
Particles >71μm ASTM D7647 >10 0 ▲ 11	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647	limit/base >+30 >20 >0.1 >1000 limit/base >5000 >640	<1 1 0 197 0 7331 current <1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 <1 0 228 0 5740 bistory1 2 0 <1 0.005 51.0 bistory1 148867 148867 148867 ▲ 67704	0 <1 <1 217 0 3904 history2 3 0 0 0.006 60.1 history2 	
	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	limit/base >+30 >20 >0.1 >1000 limit/base >5000 >640 >160	<1 1 0 197 0 7331 current <1 0 0 0 0 0.012 122.6 current 151463 ▲ 48954 386 47	0 <1 0 228 0 5740 bistory1 2 0 <1 0.005 51.0 bistory1 148867 148867 148867 4 67704 ▲ 7444 ▲ 1188	0 <1 <1 217 0 3904 history2 3 0 0 0.006 60.1 history2 	
Oil Cleanliness ISO 4406 (c) >/19/16 ▲ 24/23/16 ▲ 24/23/20	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	limit/base >+30 >20 >0.1 >1000 limit/base >5000 >640 >160 >40	<1 1 0 197 0 7331 current <1 0 0 0 0 0 0.012 122.6 current 151463 ▲8954 386 47 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 <1 0 228 0 5740 history1 2 0 <1 0.005 51.0 history1 148867 ▲ 67704 ▲ 7444 ▲ 1188 ▲ 78	0 <1 <1 217 0 3904 history2 3 0 0 0.006 60.1 history2 	



160k 1404

120k <u>ន</u>៍ 100

12000

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800 (maa)

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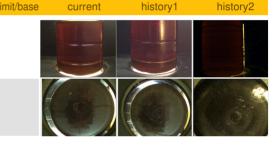
Abnorm

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OIL ANALYSIS REPORT

Particle Trend						
			FLUID DEGRADA	ATION	method	limit/base
4μm 6μm 14μm			Acid Number (AN)	mg KOH/g	ASTM D8045	0.25
		***	VISUAL		method	limit/base
	*****	and the second s	White Metal	scalar	*Visual	NONE
	And	19 19 19 19 19 19 19 19 19 19 19 19 19 1	Yellow Metal	scalar	*Visual	NONE
	a a a a a a a a a a a a a a a a a a a		Precipitate	scalar	*Visual	NONE
9/11.	6/12	0/20 - 7/21 -	Silt	scalar	*Visual	NONE
May9/11	May16/12	Feb20/20 Jun17/21 Feb20/23	Debris	scalar	*Visual	NONE
(145)			Sand/Dirt	scalar	*Visual	NONE
ter (KF)			Appearance	scalar	*Visual	NORML
			Odor	scalar	*Visual	NORML
			Emulsified Water	scalar	*Visual	>0.1
			Free Water	scalar	*Visual	
			FLUID PROPERT	TIES	method	limit/base
mal			Visc @ 40°C	cSt	ASTM D445	320
May9/11.	May16/12	Feb20/20 Jun17/21	SAMPLE IMAGES	S	method	limit/base
N N	Ma	Ju Ju				
Q			Color			
vere	1					

Bottom



history1

history1

LIGHT

NONE

NONE

NONE

LIGHT

NONE

NORML

NORML

history1

NEG

NEG

331

0.77

current

current

0.73

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

current

NEG

NEG

328

history2

history2

0.871

NONE

NONE

NONE

NONE

NONE

NORML

NORML

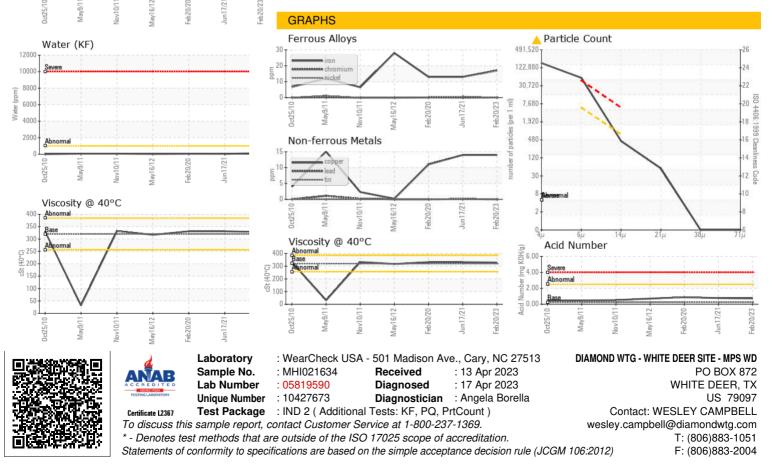
history2

NEG

NEG

331

MODER



Contact/Location: WESLEY CAMPBELL - MITWHI