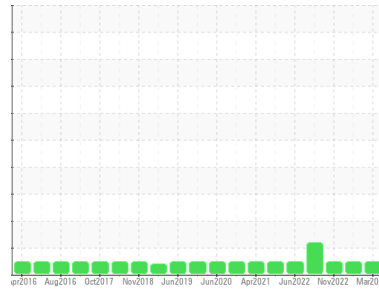




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**THUNDER SPIRIT [200005313]**  
 Machine Id  
**03WEA84029 (S/N 72802187431)**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**FUCHS RENOLIN UNISYN CLP 320 (--- LTR)**

## DIAGNOSIS

**Recommendation**  
 Resample at the next service interval to monitor.

**Wear**  
 All component wear rates are normal.

**Contamination**  
 There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

**Fluid Condition**  
 The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>NX014824</b>	NX013560	NX011669
Sample Date	Client Info		<b>11 Mar 2024</b>	14 Sep 2023	02 Nov 2022
Machine Age	hrs	Client Info	<b>16924</b>	53548	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>50	<b>14</b>	14	7
Iron	ppm	ASTM D5185m	>30	<b>23</b>	18
Chromium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1
Nickel	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0
Titanium	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	0
Aluminum	ppm	ASTM D5185m	>30	<b>2</b>	2
Lead	ppm	ASTM D5185m	>15	<b>1</b>	<1
Copper	ppm	ASTM D5185m	>10	<b>1</b>	<1
Tin	ppm	ASTM D5185m	>10	<b>1</b>	0
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>5</b>	6
Barium	ppm	ASTM D5185m		<b>0</b>	0
Molybdenum	ppm	ASTM D5185m		<b>64</b>	47
Manganese	ppm	ASTM D5185m		<b>1</b>	<1
Magnesium	ppm	ASTM D5185m		<b>&lt;1</b>	<1
Calcium	ppm	ASTM D5185m		<b>103</b>	81
Phosphorus	ppm	ASTM D5185m		<b>234</b>	219
Zinc	ppm	ASTM D5185m		<b>0</b>	0
Sulfur	ppm	ASTM D5185m		<b>3924</b>	4282

## CONTAMINANTS

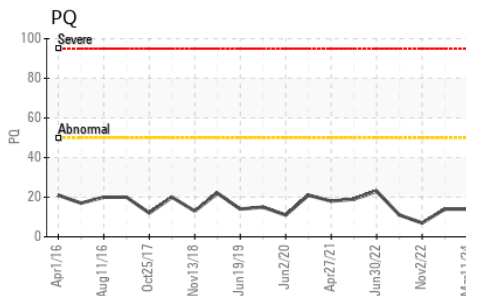
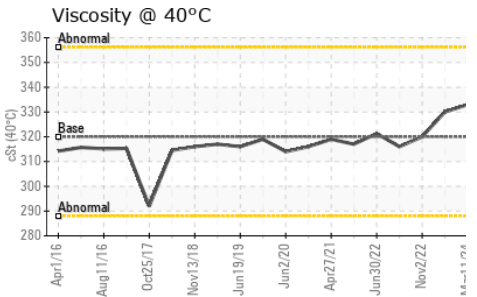
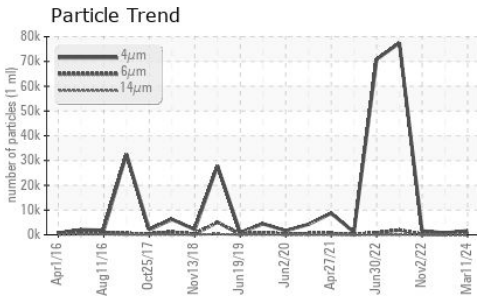
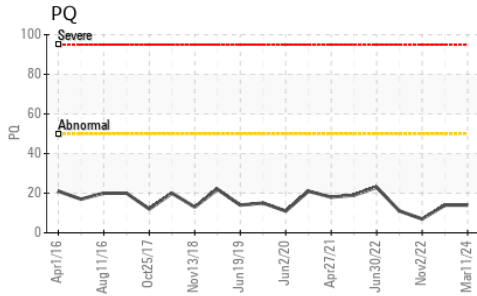
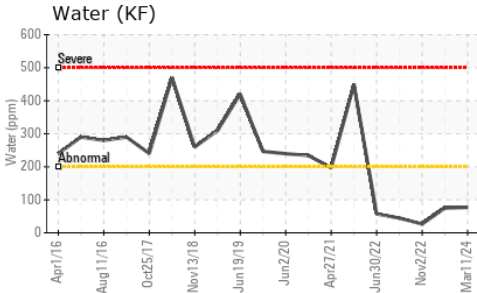
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+15	<b>2</b>	2
Sodium	ppm	ASTM D5185m		<b>2</b>	3
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	3
Water	%	ASTM D6304	>0.02	<b>0.007</b>	0.007
ppm Water	ppm	ASTM D6304	>200	<b>77</b>	75.2

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>1646</b>	736	1600
Particles >6µm	ASTM D7647	>320	<b>218</b>	151	262
Particles >14µm	ASTM D7647	>40	<b>13</b>	9	19
Particles >21µm	ASTM D7647	>10	<b>5</b>	3	4
Particles >38µm	ASTM D7647	>3	<b>0</b>	1	1
Particles >71µm	ASTM D7647	>3	<b>0</b>	1	0
Oil Cleanliness	ISO 4406 (c)	>--/15/12	<b>18/15/11</b>	17/14/10	18/15/11

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	<b>0.44</b>	0.31



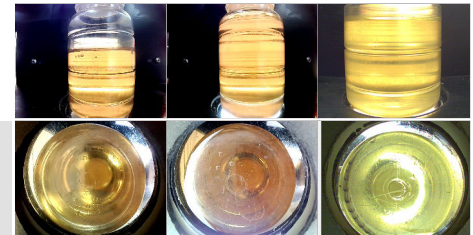
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.02	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	333	330

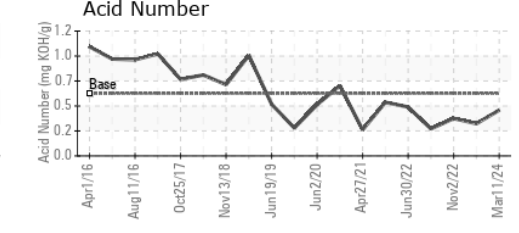
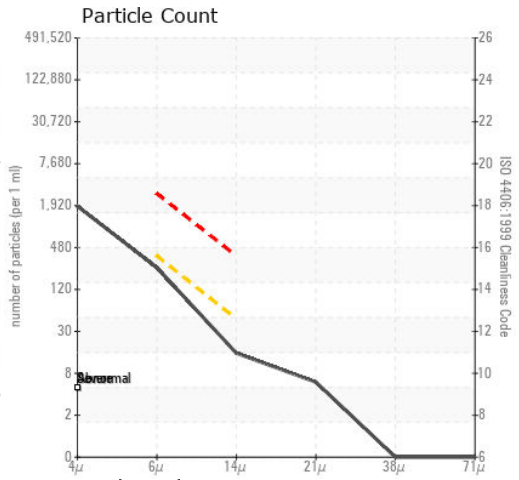
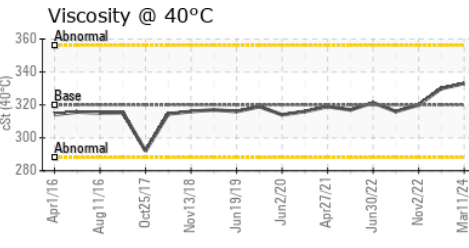
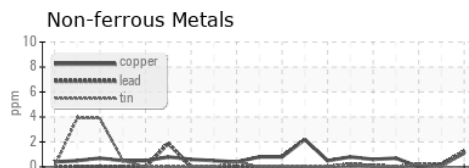
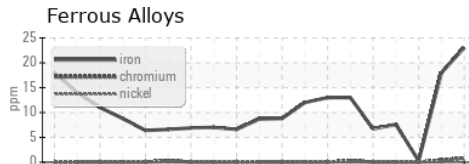
SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color

Bottom



## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : NX014824

Lab Number : 06135619

Unique Number : 10955084

Test Package : IND 2 ( Additional Tests: KF, PQ, PrtCount )

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)

Received : 01 Apr 2024

Tested : 03 Apr 2024

Diagnosed : 04 Apr 2024 - Don Baldrige

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