



# PROBLEM SUMMARY

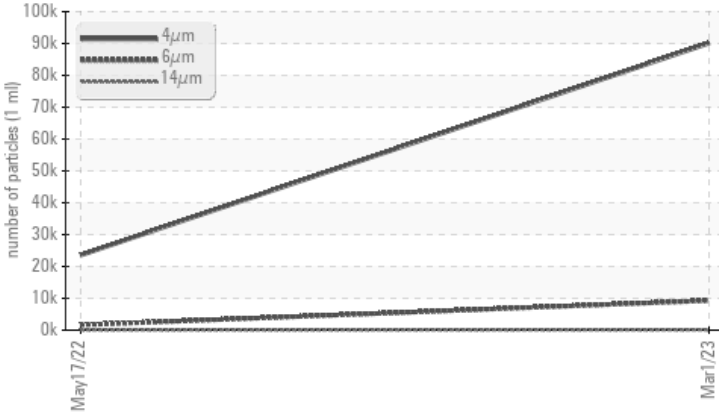
Area  
**IRON STAR [200006142]**  
 Machine Id  
**55WEA88317**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**GEAR OIL (PAO) ISO 320 (--- LTR)**

Sample Rating Trend



## COMPONENT CONDITION SUMMARY

▲ Particle Trend



## RECOMMENDATION

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

Sample Status			<b>ABNORMAL</b>	ABNORMAL	---
Particles >6µm	ASTM D7647	>320	▲ <b>9272</b>	▲ 1625	---
Particles >14µm	ASTM D7647	>40	▲ <b>79</b>	▲ 58	---
Particles >21µm	ASTM D7647	>10	▲ <b>15</b>	▲ 13	---
Oil Cleanliness	ISO 4406 (c)	>--/15/12	▲ <b>24/20/13</b>	▲ 22/18/13	---

Customer Id: NORDEX  
 Sample No.: NX05961235  
 Lab Number: 05961235  
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Don Baldrige +1  
[don.b505@comcast.net](mailto:don.b505@comcast.net)

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

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component if applicable.

## HISTORICAL DIAGNOSIS

17 May 2022 Diag: Doug Bogart

ISO



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 particulates present in the oil. 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



ISO



Area  
**IRON STAR [200006142]**  
 Machine Id  
**55WEA88317**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**GEAR OIL (PAO) ISO 320 (--- LTR)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

### 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. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>NX05961235</b>	NX05555936	---
Sample Date	Client Info		<b>01 Mar 2023</b>	17 May 2022	---
Machine Age	hrs	Client Info	<b>0</b>	0	---
Oil Age	hrs	Client Info	<b>0</b>	0	---
Oil Changed	Client Info		<b>N/A</b>	N/A	---
Sample Status			<b>ABNORMAL</b>	ABNORMAL	---

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>50	<b>15</b>	13	---
Iron	ppm	ASTM D5185m	>30	<b>15</b>	11
Chromium	ppm	ASTM D5185m	>3	<b>0</b>	0
Nickel	ppm	ASTM D5185m	>3	<b>0</b>	<1
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	<1
Aluminum	ppm	ASTM D5185m	>30	<b>0</b>	<1
Lead	ppm	ASTM D5185m	>15	<b>0</b>	<1
Copper	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	25	<b>6</b>	13
Barium	ppm	ASTM D5185m	12	<b>0</b>	0
Molybdenum	ppm	ASTM D5185m	5	<b>0</b>	0
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1
Magnesium	ppm	ASTM D5185m	25	<b>0</b>	0
Calcium	ppm	ASTM D5185m	25	<b>17</b>	8
Phosphorus	ppm	ASTM D5185m	375	<b>199</b>	216
Zinc	ppm	ASTM D5185m	25	<b>0</b>	0
Sulfur	ppm	ASTM D5185m	4900	<b>5672</b>	4693

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+15	<b>8</b>	9
Sodium	ppm	ASTM D5185m		<b>2</b>	1
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0
Water	%	ASTM D6304	>0.02	<b>0.001</b>	0.001
ppm Water	ppm	ASTM D6304	>200	<b>4.8</b>	2.8

## FLUID CLEANLINESS

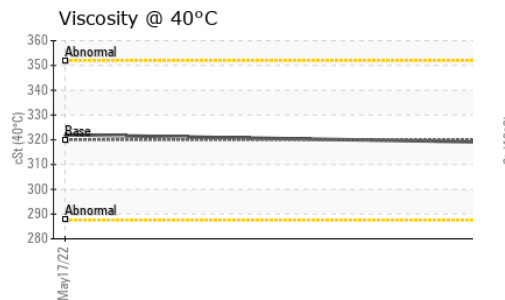
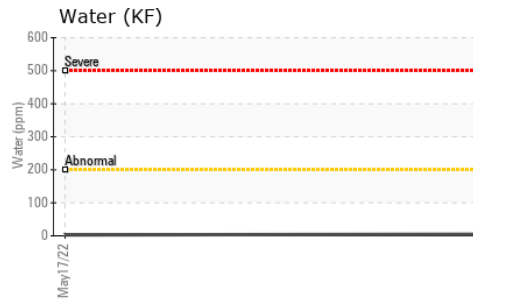
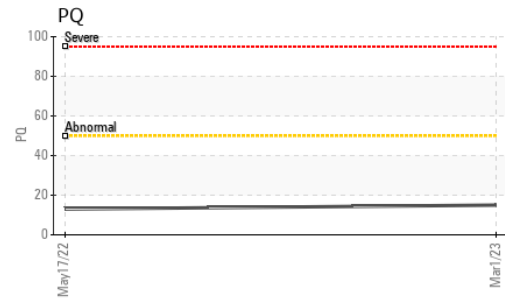
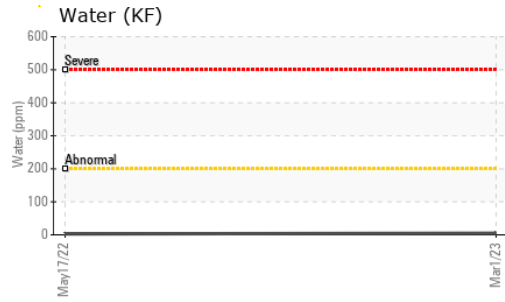
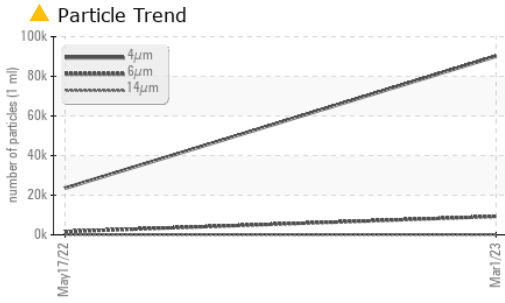
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>90110</b>	23538	---
Particles >6µm	ASTM D7647	>320	<b>▲ 9272</b>	▲ 1625	---
Particles >14µm	ASTM D7647	>40	<b>▲ 79</b>	▲ 58	---
Particles >21µm	ASTM D7647	>10	<b>▲ 15</b>	▲ 13	---
Particles >38µm	ASTM D7647	>3	<b>0</b>	0	---
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	---
Oil Cleanliness	ISO 4406 (c)	>--/15/12	<b>▲ 24/20/13</b>	▲ 22/18/13	---

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.10	<b>0.32</b>	0.40



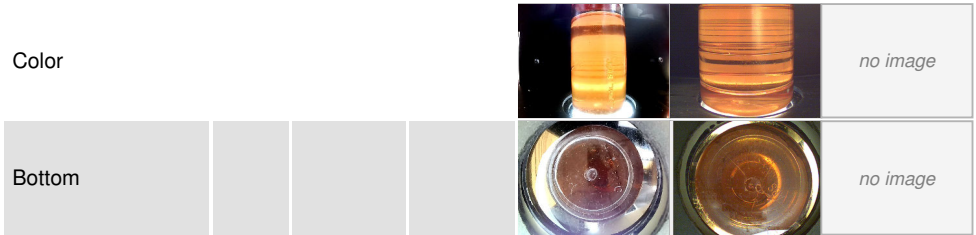
# OIL ANALYSIS REPORT



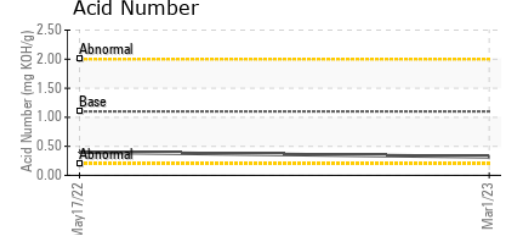
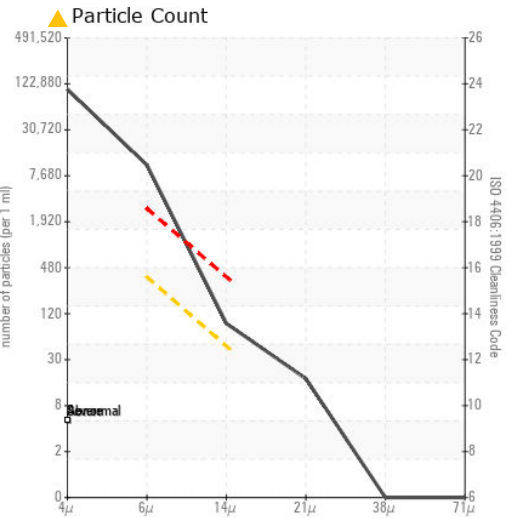
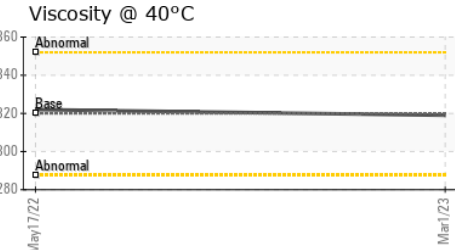
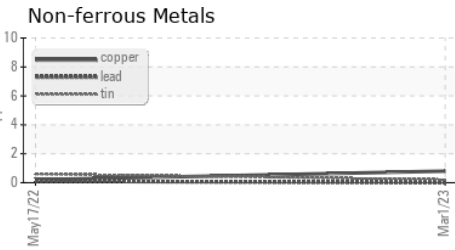
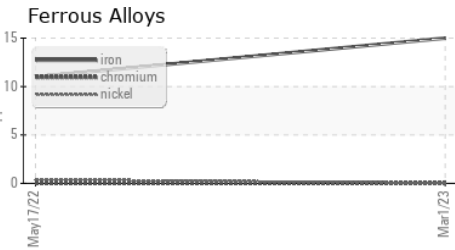
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	319	322

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : NX05961235 Received : 26 Sep 2023  
 Lab Number : 05961235 Diagnosed : 27 Sep 2023  
 Unique Number : 10662448 Diagnostician : Don Baldrige  
 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)

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