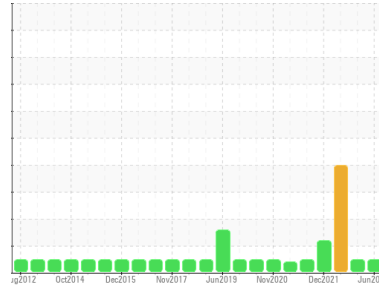




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**HINO [600380379]**  
 Machine Id  
**46WEA81864**

Component  
**Wind Turbine Gearbox**  
 Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination 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>NX05928206</b>	NX05700243	NX05602767
Sample Date	Client Info		<b>19 Jun 2023</b>	20 Oct 2022	02 May 2022
Machine Age	mths	Client Info	<b>0</b>	0	0
Oil Age	mths	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	ABNORMAL

## WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	<b>17</b>	7	22	
Iron	ppm	ASTM D5185m	>150	<b>8</b>	4	4
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	<1
Lead	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>50	<b>8</b>	7	10
Tin	ppm	ASTM D5185m	>10	<b>0</b>	<1	<1
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>0</b>	43	<1
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1150	<b>722</b>	729	569
Manganese	ppm	ASTM D5185m		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185m		<b>5</b>	7	4
Calcium	ppm	ASTM D5185m	2000	<b>1385</b>	1511	1175
Phosphorus	ppm	ASTM D5185m	400	<b>318</b>	340	249
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	0
Sulfur	ppm	ASTM D5185m	1850	<b>1903</b>	2067	1493

## CONTAMINANTS

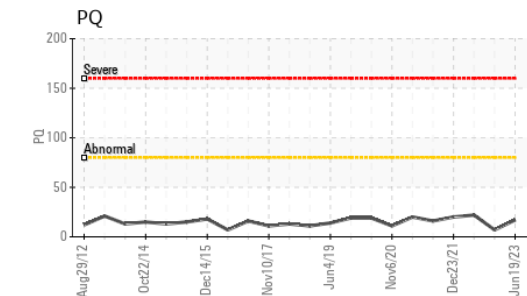
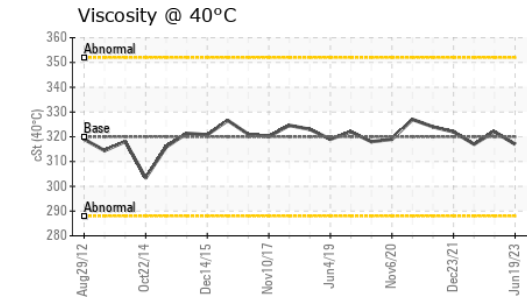
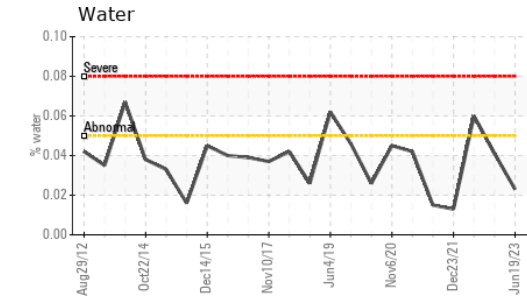
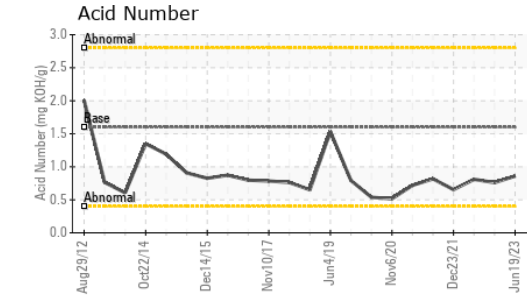
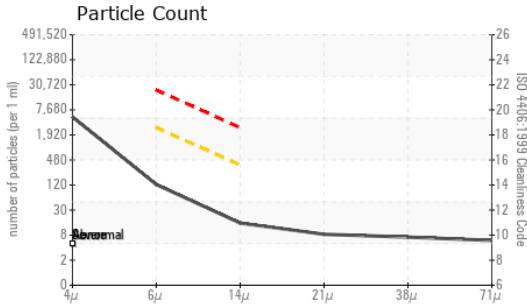
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>50	<b>8</b>	9	6
Sodium	ppm	ASTM D5185m	>20	<b>3</b>	3	2
Potassium	ppm	ASTM D5185m	>20	<b>1</b>	0	0
Water	%	ASTM D6304	>0.05	<b>0.023</b>	0.041	▲ 0.060
ppm Water	ppm	ASTM D6304	>500	<b>233.7</b>	418.1	▲ 608.9

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>4552</b>	1044	147689
Particles >6µm	ASTM D7647	>2500	<b>109</b>	123	▲ 44064
Particles >14µm	ASTM D7647	>320	<b>13</b>	10	▲ 2154
Particles >21µm	ASTM D7647	>80	<b>7</b>	3	▲ 701
Particles >38µm	ASTM D7647	>20	<b>6</b>	0	▲ 78
Particles >71µm	ASTM D7647	>4	<b>5</b>	0	▲ 5
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>19/14/11</b>	17/14/10	▲ 24/23/18



# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.86</b>	0.76	0.81

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	LIGHT
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>317</b>	322	317

SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color			
Bottom			
MPC	no image	no image	no image



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05928206 **Received** : 18 Aug 2023  
**Lab Number** : **05928206** **Diagnosed** : 21 Aug 2023  
**Unique Number** : 10608153 **Diagnostician** : Don Baldrige  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

**NORDEX USA - HIGHLAND & HIGHLAND NORTH**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: Robert Warner  
 rwarner@everpower.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: