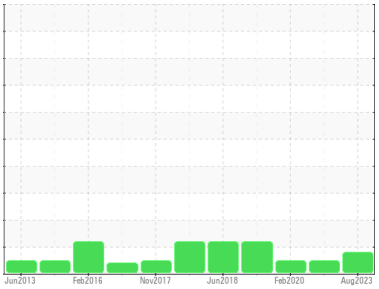
PROBLEM SUMMARY

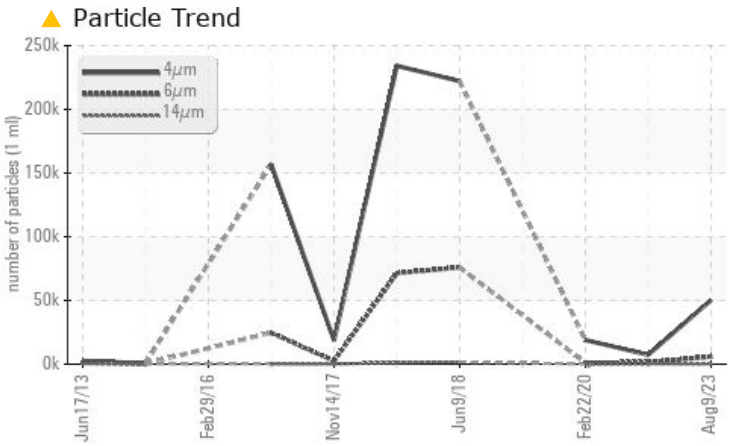
Area
BEAR CREEK [600411041]
Machine Id
BC1 - WEA80458
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

Sample Rating Trend



ISO

COMPONENT CONDITION SUMMARY



RECOMMENDATION

No corrective action is recommended at this time.
Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	NORMAL	NORMAL
Particles >6µm		ASTM D7647	>2500	▲ **5982**	1285	1077
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **23/20/13**	20/17/13	21/17/12

Customer Id: NORDEX
Sample No.: NX05928227
Lab Number: 05928227
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

08 May 2020 Diag: Doug Bogart

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

22 Feb 2020 Diag: Don Baldridge

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

15 Nov 2018 Diag: Jonathan Hester

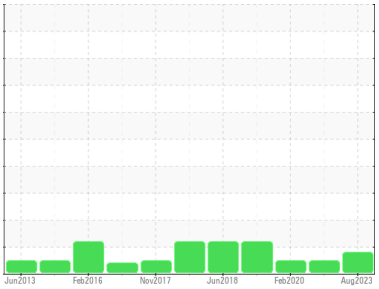
VISUAL METAL

We recommend you service the filters on this component. Resample at the next service interval to monitor. We were unable to perform a particle count due to metal particles present in this sample.Moderate concentration of visible metal present. All component wear rates are normal. 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

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
BEAR CREEK [600411041]
Machine Id
BC1 - WEA80458
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

DIAGNOSIS

Recommendation
No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is a high amount of silt (particulates < 14 microns in size) 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		**NX05928227**	NX05046376	NX007282
Sample Date		Client Info		**09 Aug 2023**	08 May 2020	22 Feb 2020
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	NORMAL	NORMAL

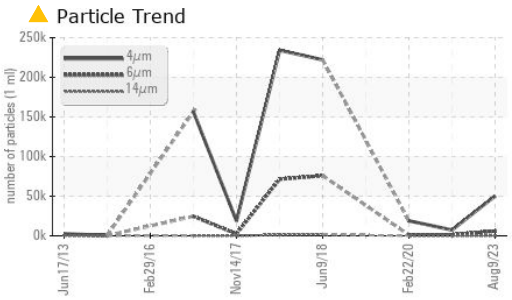
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**22**	15	16
Iron	ppm	ASTM D5185m	>150	**9**	6	6
Chromium	ppm	ASTM D5185m	>5	**0**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m	>10	**0**	0	0
Silver	ppm	ASTM D5185m		**0**	<1	<1
Aluminum	ppm	ASTM D5185m	>10	**<1**	0	0
Lead	ppm	ASTM D5185m	>20	**0**	0	0
Copper	ppm	ASTM D5185m	>50	**<1**	<1	<1
Tin	ppm	ASTM D5185m	>10	**0**	<1	0
Antimony	ppm	ASTM D5185m	>5	**---**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

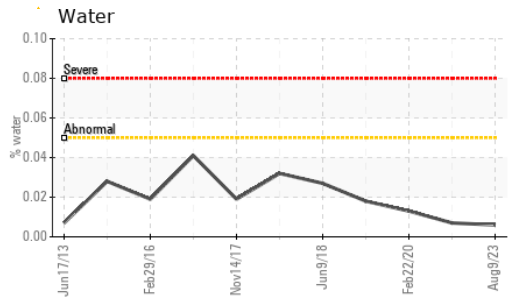
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	2	<1
Barium	ppm	ASTM D5185m		**0**	<1	2
Molybdenum	ppm	ASTM D5185m	1150	**533**	504	487
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**26**	27	32
Calcium	ppm	ASTM D5185m	2000	**1093**	1055	1021
Phosphorus	ppm	ASTM D5185m	400	**277**	282	273
Zinc	ppm	ASTM D5185m	0	**49**	66	69
Sulfur	ppm	ASTM D5185m	1850	**1923**	1448	1477

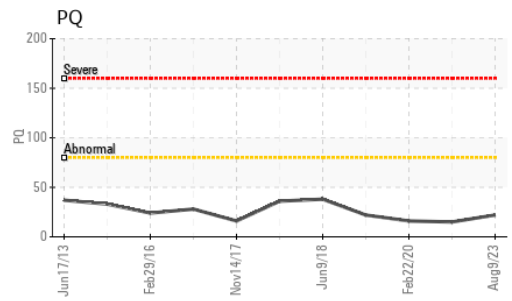
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**7**	3	7
Sodium	ppm	ASTM D5185m	>20	**4**	5	5
Potassium	ppm	ASTM D5185m	>20	**<1**	0	<1
Water	%	ASTM D6304	>0.05	**0.006**	0.007	0.013
ppm Water	ppm	ASTM D6304	>500	**61.9**	71.2	132.1

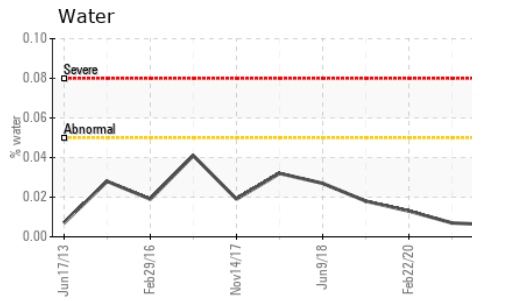
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**50283**	7338	18915
Particles >6µm		ASTM D7647	>2500	▲ **5982**	1285	1077
Particles >14µm		ASTM D7647	>320	**49**	78	26
Particles >21µm		ASTM D7647	>80	**16**	16	7
Particles >38µm		ASTM D7647	>20	**1**	0	1
Particles >71µm		ASTM D7647	>4	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ **23/20/13**	20/17/13	21/17/12

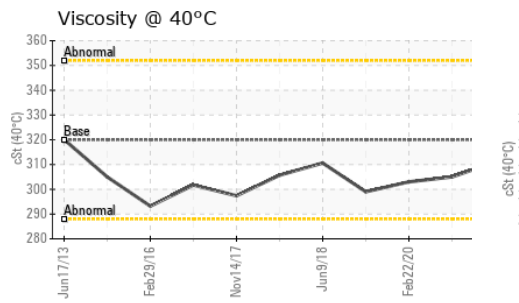
OIL ANALYSIS REPORT









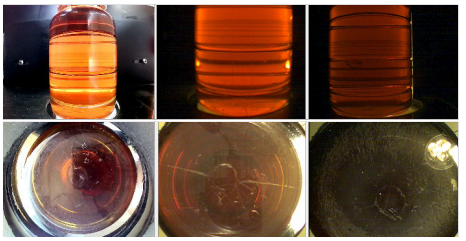


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	**0.47**	0.466	0.401

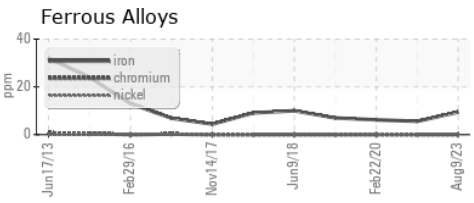
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**LIGHT**	VLITE	VLITE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

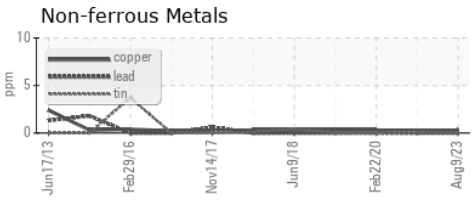
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**311**	305	303

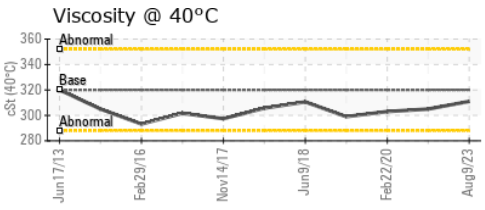
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

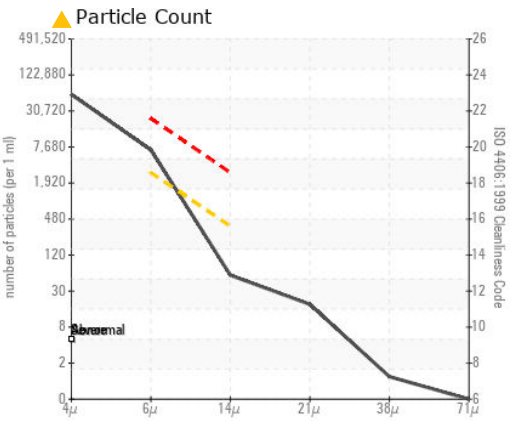


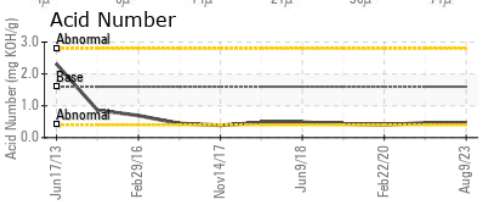
GRAPHS











Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05928227 **Received** : 18 Aug 2023
Lab Number : 05928227 **Diagnosed** : 22 Aug 2023
Unique Number : 10608174 **Diagnostician** : Jonathan Hester
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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