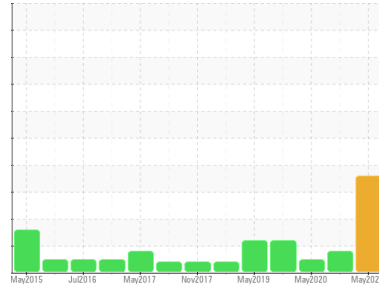




PROBLEM SUMMARY

Sample Rating Trend

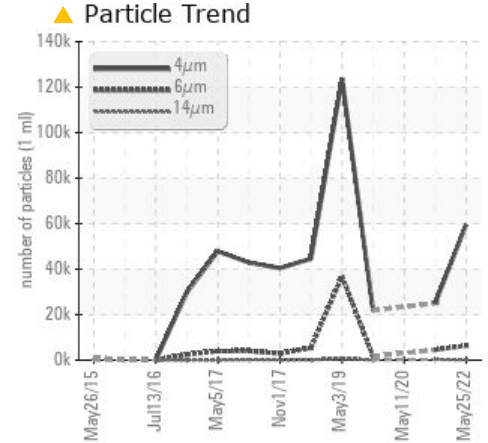
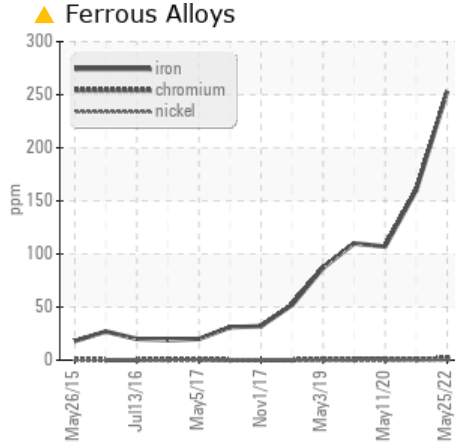
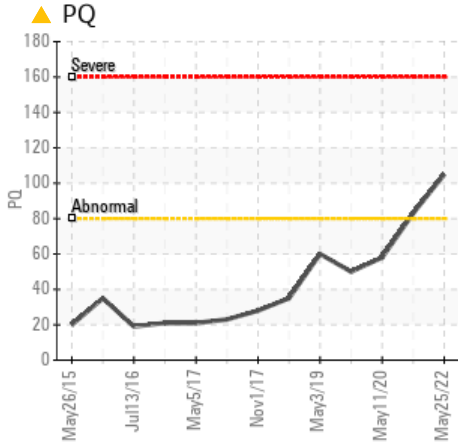


WEAR



Area
BEEBE [200005316]
 Machine Id
48WEA82680 (S/N 793000002632)
 Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ATTENTION	NORMAL
PQ		ASTM D8184	>80	▲ 105	83	58
Iron	ppm	ASTM D5185m	>150	▲ 253	160	110
Particles >6µm		ASTM D7647	>2500	▲ 6332	▲ 4520	1703
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ 23/20/13	▲ 22/19/16	22/18/14

Customer Id: NORBEE
 Sample No.: NX05568729
 Lab Number: 05568729
 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	Description
Inspect Wear Source	---	---	?	We advise that you inspect for the source(s) of wear.
Resample	---	---	?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

04 Oct 2021 Diag: Doug Bogart

ISO



No corrective action is recommended at this time. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



11 May 2020 Diag: Jonathan Hester

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



11 May 2020 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.

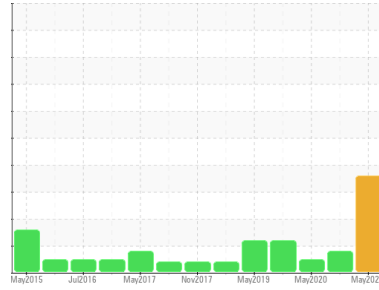
view report





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
BEEBE [200005316]
 Machine Id
48WEA82680 (S/N 793000002632)
 Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

DIAGNOSIS

Recommendation

We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Wear

Gear wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		NX05568729	NX05366366	NX005064
Sample Date	Client Info		25 May 2022	04 Oct 2021	11 May 2020
Machine Age	hrs	Client Info	54564	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ATTENTION	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	▲ 105	83	58	
Iron	ppm	ASTM D5185m	>150	▲ 253	160	110
Chromium	ppm	ASTM D5185m	>5	2	1	<1
Nickel	ppm	ASTM D5185m	>10	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		<1	0	0
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		0	0	0
Antimony	ppm	ASTM D5185m		---	0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		20	0	<1
Barium	ppm	ASTM D5185m		2	0	2
Molybdenum	ppm	ASTM D5185m	1150	814	758	781
Manganese	ppm	ASTM D5185m		2	1	1
Magnesium	ppm	ASTM D5185m		11	7	8
Calcium	ppm	ASTM D5185m	2000	1751	1656	1562
Phosphorus	ppm	ASTM D5185m	400	372	319	316
Zinc	ppm	ASTM D5185m	0	<1	0	0
Sulfur	ppm	ASTM D5185m	1850	1932	1592	1499

CONTAMINANTS

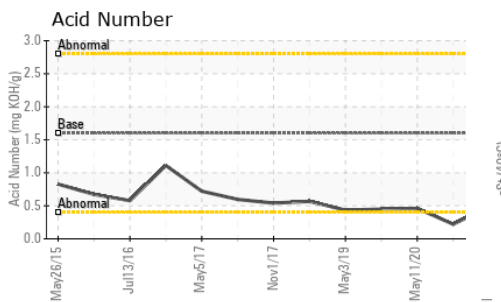
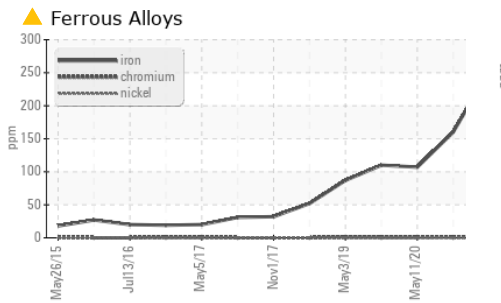
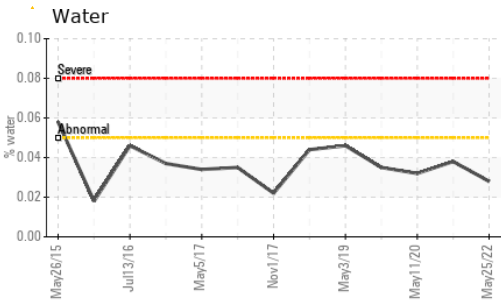
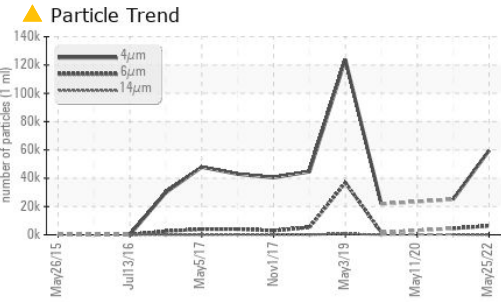
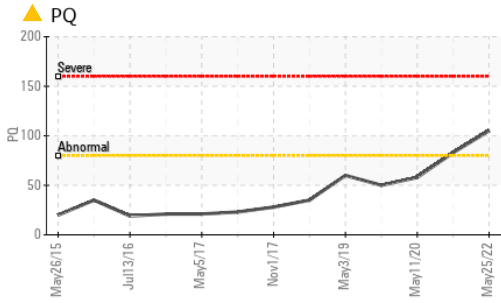
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>50	9	9	11
Sodium	ppm	ASTM D5185m	>20	8	6	4
Potassium	ppm	ASTM D5185m	>20	0	0	<1
Water	%	ASTM D6304	>0.05	0.028	0.038	0.032
ppm Water	ppm	ASTM D6304	>500	285.2	383.1	323.0

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		59576	25005	21830
Particles >6µm	ASTM D7647	>2500	▲ 6332	▲ 4520	1703
Particles >14µm	ASTM D7647	>320	79	▲ 337	103
Particles >21µm	ASTM D7647	>80	15	59	30
Particles >38µm	ASTM D7647	>20	2	4	0
Particles >71µm	ASTM D7647	>4	0	3	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	▲ 23/20/13	▲ 22/19/16	22/18/14



OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.482	0.221	0.461

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
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	311	313

SAMPLE IMAGES		method	limit/base	current	history1	history2
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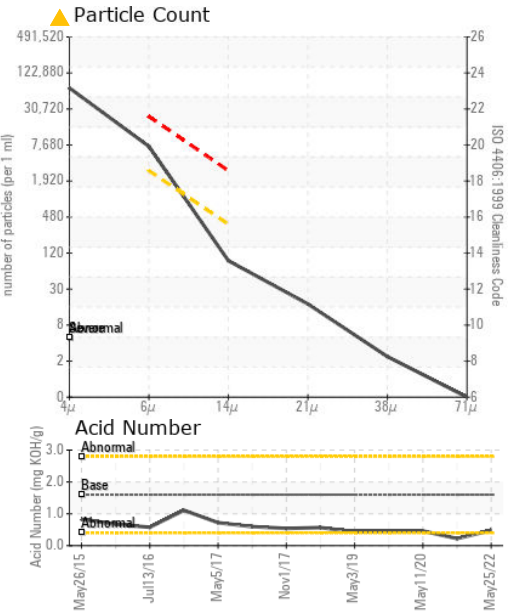
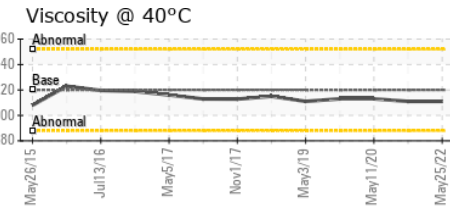
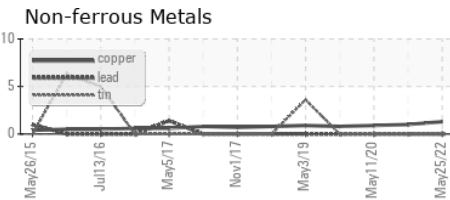
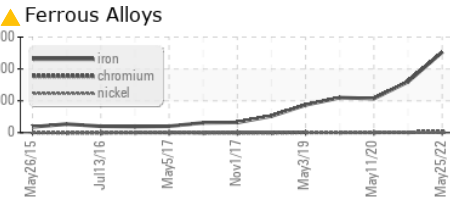
Color



Bottom



GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : NX05568729
 Lab Number : 05568729
 Unique Number : 10013129
 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)

NORDEX USA - BEEBE
 1200 S COUNTY FARM RD
 ITHACA, MI
 US 48847
 Contact: TUCKER WITT
 tucker.witt@constellation.com

T:
 F: (312)386-7102