



PROBLEM SUMMARY

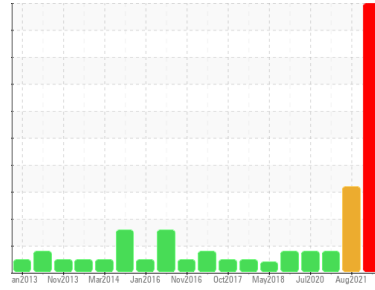
Sample Rating Trend

WEAR

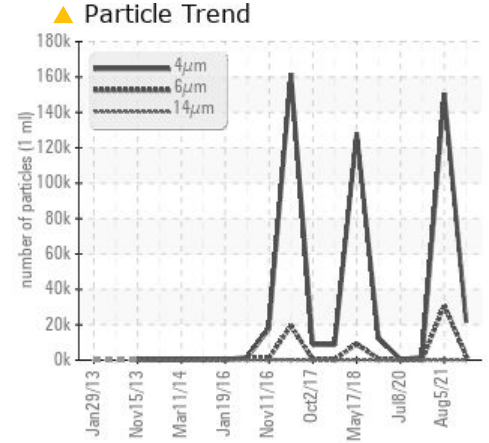
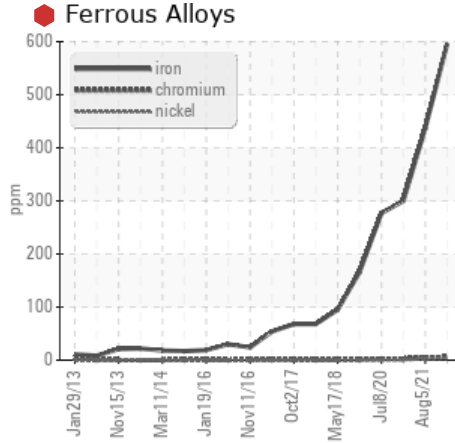
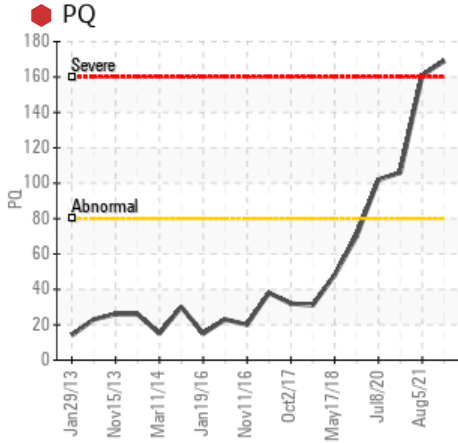


Area
BEEBE [200005316]
Machine Id
05WEA82341

Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 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				SEVERE	ABNORMAL	ABNORMAL
PQ		ASTM D8184	>80	169	161	106
Iron	ppm	ASTM D5185m	>150	596	437	300
Chromium	ppm	ASTM D5185m	>5	6	5	3
Particles >6µm		ASTM D7647	>2500	2545	31026	227
Oil Cleanliness		ISO 4406 (c)	>--/18/15	22/19/12	24/22/11	18/15/10

Customer Id: NORBEE
Sample No.: NX05798675
Lab Number: 05798675
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
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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

05 Aug 2021 Diag: Jonathan Hester

WEAR



We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Gear wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring. There is a high amount of silt (particulates < 14 microns in size) present in the oil. The AN level is acceptable for this fluid.

[view report](#)



09 Jul 2020 Diag: Jonathan Hester

WEAR



No corrective action is recommended at this time. We recommend an early resample to monitor this condition. Gear wear is indicated. 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](#)



08 Jul 2020 Diag: Jonathan Hester

WEAR



No corrective action is recommended at this time. We recommend an early resample to monitor this condition. Gear wear is indicated. 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.

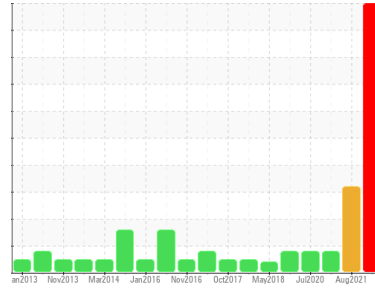
[view report](#)





OIL ANALYSIS REPORT

Sample Rating Trend



Area
BEEBE [200005316]
 Machine Id
05WEA82341

Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 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 very high ferrous density (PQ) index indicates that severe wear is occurring.

Contamination
 There is a moderate 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		NX05798675	NX005621	NX005005
Sample Date	Client Info		02 Feb 2023	05 Aug 2021	09 Jul 2020
Machine Age	hrs	Client Info	72393	0	0
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			SEVERE	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>80	169	161	106
Iron	ppm	ASTM D5185m	>150	596	437
Chromium	ppm	ASTM D5185m	>5	6	5
Nickel	ppm	ASTM D5185m	>10	3	2
Titanium	ppm	ASTM D5185m	>10	0	0
Silver	ppm	ASTM D5185m		0	<1
Aluminum	ppm	ASTM D5185m	>10	2	0
Lead	ppm	ASTM D5185m	>20	0	<1
Copper	ppm	ASTM D5185m	>50	2	1
Tin	ppm	ASTM D5185m	>10	0	<1
Antimony	ppm	ASTM D5185m	>5	---	0
Vanadium	ppm	ASTM D5185m		0	<1
Cadmium	ppm	ASTM D5185m		0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	<1
Barium	ppm	ASTM D5185m		2	0
Molybdenum	ppm	ASTM D5185m	1150	833	765
Manganese	ppm	ASTM D5185m		5	3
Magnesium	ppm	ASTM D5185m		16	19
Calcium	ppm	ASTM D5185m	2000	1650	1587
Phosphorus	ppm	ASTM D5185m	400	325	333
Zinc	ppm	ASTM D5185m	0	6	4
Sulfur	ppm	ASTM D5185m	1850	1678	1674

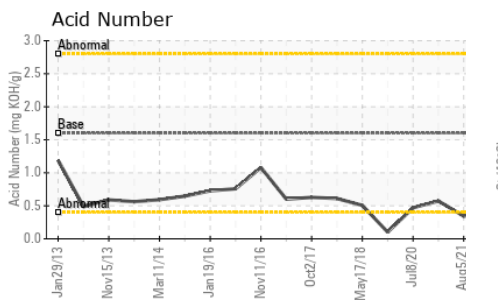
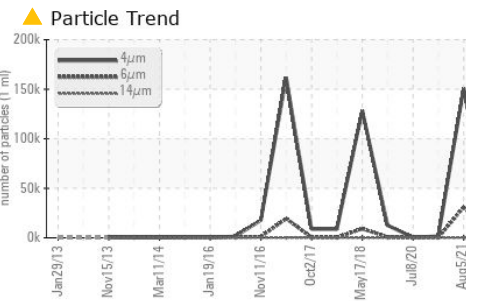
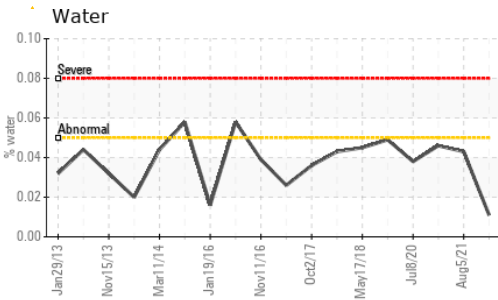
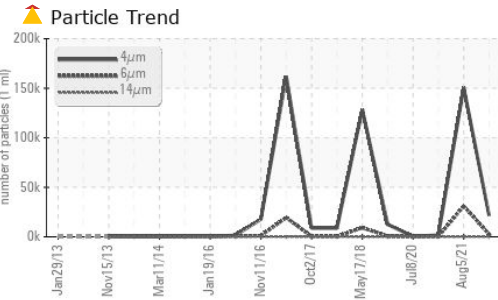
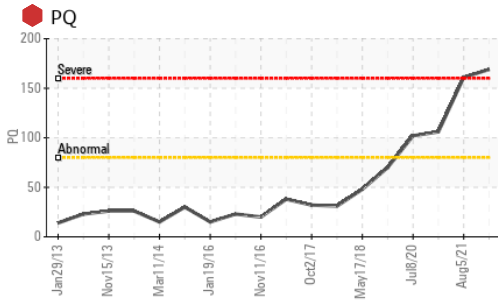
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	14	8
Sodium	ppm	ASTM D5185m	>20	0	5
Potassium	ppm	ASTM D5185m	>20	<1	<1
Water	%	ASTM D6304	>0.05	0.011	0.043
ppm Water	ppm	ASTM D6304	>500	115.7	438.8

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647			21672	150697
Particles >6µm	ASTM D7647	>2500	2545	31026	227
Particles >14µm	ASTM D7647	>320	33	14	8
Particles >21µm	ASTM D7647	>80	6	2	3
Particles >38µm	ASTM D7647	>20	1	0	0
Particles >71µm	ASTM D7647	>4	1	0	0
Oil Cleanliness	ISO 4406 (c)	--/18/15	22/19/12	24/22/11	18/15/10

OIL ANALYSIS REPORT

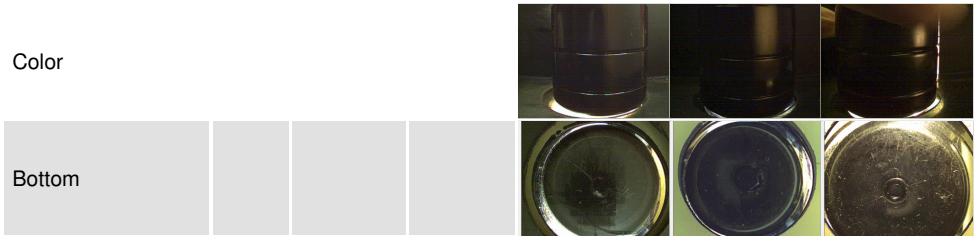


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.41	0.344	0.573

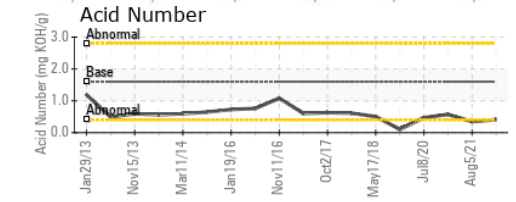
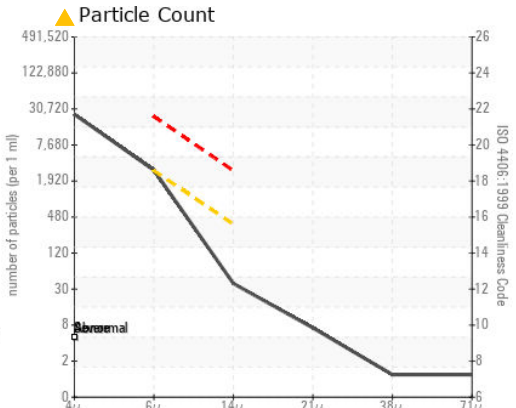
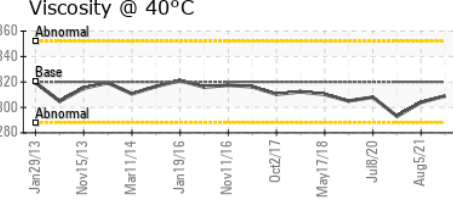
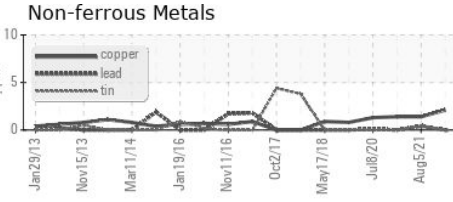
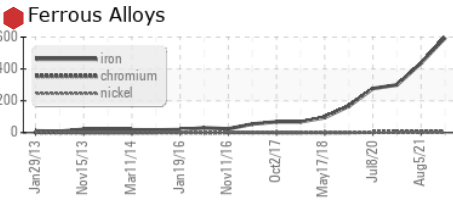
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	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	309	304	293

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05798675 **Received** : 22 Mar 2023
Lab Number : **05798675** **Diagnosed** : 24 Mar 2023
Unique Number : 10388359 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

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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)