



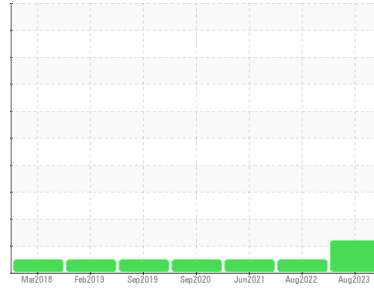
PROBLEM SUMMARY

Sample Rating Trend

ISO

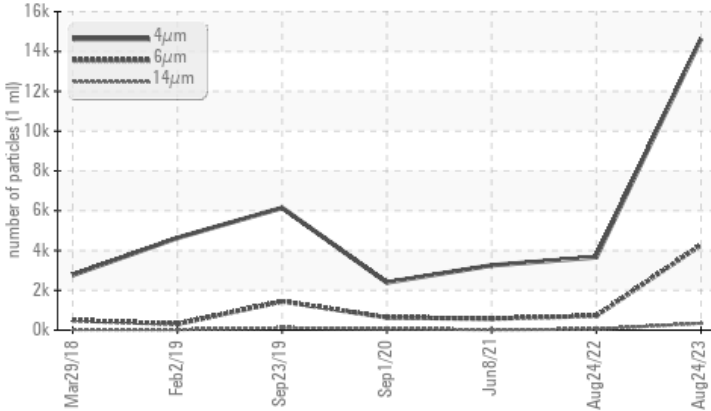


Area
THUNDER SPIRIT [200005313]
 Machine Id
46WEA85484 (S/N EWP 02188)
 Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- GAL)



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

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

PROBLEMATIC TEST RESULTS

Sample Status			ATTENTION	NORMAL	NORMAL
Particles >6µm	ASTM D7647	>2500	▲ 4277	720	577
Particles >14µm	ASTM D7647	>320	▲ 345	49	21
Oil Cleanliness	ISO 4406 (c)	>--/18/15	▲ 21/19/16	19/17/13	19/16/12

Customer Id: NORDEX
 Sample No.: NX013617
 Lab Number: 05968987
 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

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

24 Aug 2022 Diag: Don Baldrige

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



08 Jun 2021 Diag: Don Baldrige

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



01 Sep 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.

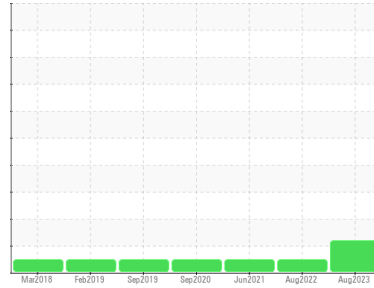
view report





OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
THUNDER SPIRIT [200005313]
 Machine Id
46WEA85484 (S/N EWP 02188)
 Component
Wind Turbine Gearbox
 Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- GAL)

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 moderate 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	NX013617	NX009489	NX004851	
Sample Date	Client Info	24 Aug 2023	24 Aug 2022	08 Jun 2021	
Machine Age	hrs	Client Info	35768	29230	19134
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A	
Sample Status		ATTENTION	NORMAL	NORMAL	

WEAR METALS

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

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		0	6	<1
Barium	ppm	ASTM D5185m		0	3	3
Molybdenum	ppm	ASTM D5185m	1150	760	776	721
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		6	6	4
Calcium	ppm	ASTM D5185m	2000	1544	1606	1420
Phosphorus	ppm	ASTM D5185m	400	364	363	327
Zinc	ppm	ASTM D5185m	0	0	<1	0
Sulfur	ppm	ASTM D5185m	1850	1925	2263	1537

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>50	8	13	9
Sodium	ppm	ASTM D5185m	>20	6	4	4
Potassium	ppm	ASTM D5185m	>20	1	0	0
Water	%	ASTM D6304	>0.05	0.031	0.028	0.032
ppm Water	ppm	ASTM D6304	>500	317.7	288.2	322.2

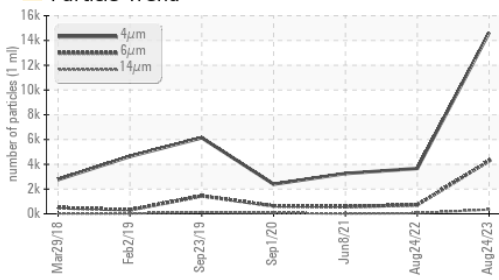
FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		14635	3664	3254
Particles >6µm	ASTM D7647	>2500	▲ 4277	720	577
Particles >14µm	ASTM D7647	>320	▲ 345	49	21
Particles >21µm	ASTM D7647	>80	65	8	3
Particles >38µm	ASTM D7647	>20	2	1	0
Particles >71µm	ASTM D7647	>4	0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	▲ 21/19/16	19/17/13	19/16/12

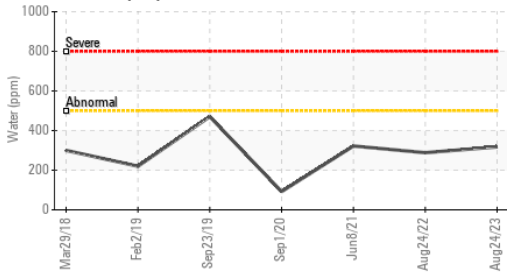


OIL ANALYSIS REPORT

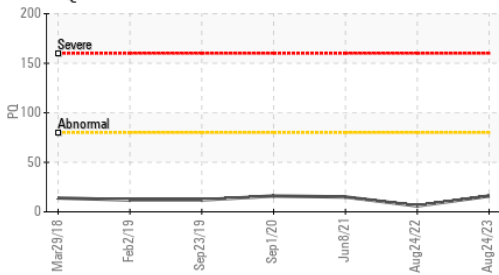
Particle Trend



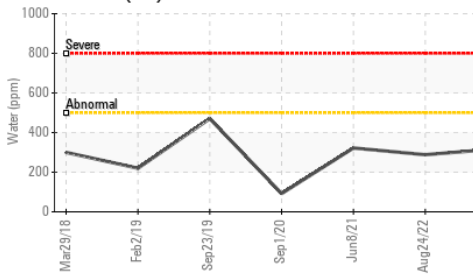
Water (KF)



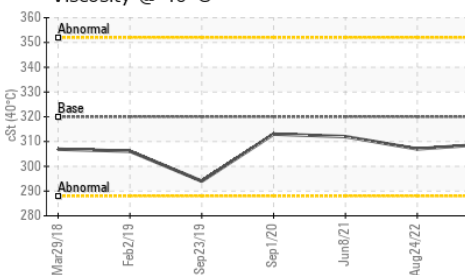
PQ



Water (KF)



Viscosity @ 40°C



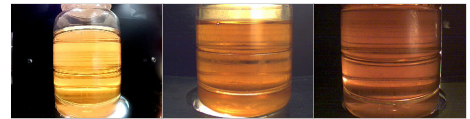
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.69	0.67	0.801

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	LIGHT	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	309	307	312

SAMPLE IMAGES

Color

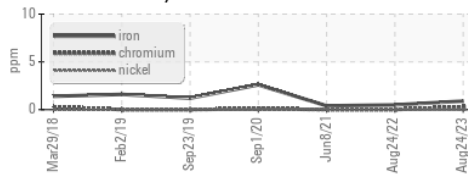


Bottom

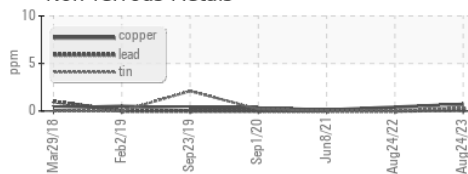


GRAPHS

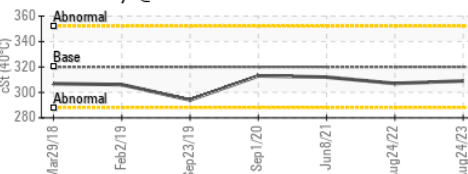
Ferrous Alloys



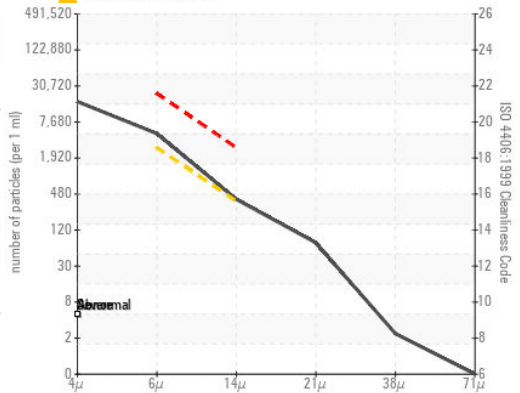
Non-ferrous Metals



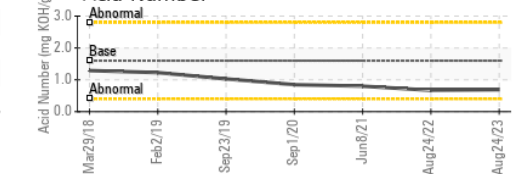
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX013617 **Received** : 04 Oct 2023
Lab Number : **05968987** **Diagnosed** : 06 Oct 2023
Unique Number : 10675538 **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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