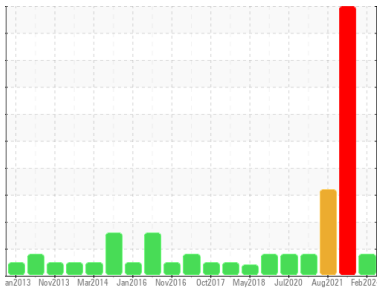
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
BEEBE [2000060080]
Machine Id
05WEA82341
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 LTR)

DIAGNOSIS

Recommendation
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		**NX06146578**	NX05798675	NX005621
Sample Date		Client Info		**29 Feb 2024**	02 Feb 2023	05 Aug 2021
Machine Age	hrs	Client Info		**96940**	72393	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ATTENTION**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**27**	▲ 169	▲ 161
Iron	ppm	ASTM D5185m	>150	**63**	▲ 596	▲ 437
Chromium	ppm	ASTM D5185m	>5	**1**	▲ 6	5
Nickel	ppm	ASTM D5185m	>10	**1**	3	2
Titanium	ppm	ASTM D5185m	>10	**<1**	0	0
Silver	ppm	ASTM D5185m		**0**	0	<1
Aluminum	ppm	ASTM D5185m	>10	**7**	2	0
Lead	ppm	ASTM D5185m	>20	**<1**	0	<1
Copper	ppm	ASTM D5185m	>50	**1**	2	1
Tin	ppm	ASTM D5185m	>10	**<1**	0	<1
Antimony	ppm	ASTM D5185m	>5	**---**	---	0
Vanadium	ppm	ASTM D5185m		**<1**	0	<1
Cadmium	ppm	ASTM D5185m		**1**	0	<1

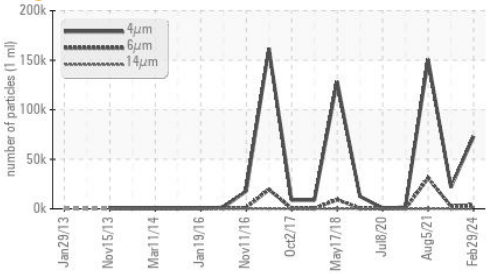
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	<1
Barium	ppm	ASTM D5185m		**4**	2	0
Molybdenum	ppm	ASTM D5185m	1150	**929**	833	765
Manganese	ppm	ASTM D5185m		**1**	5	3
Magnesium	ppm	ASTM D5185m		**7**	16	19
Calcium	ppm	ASTM D5185m	2000	**1713**	1650	1587
Phosphorus	ppm	ASTM D5185m	400	**340**	325	333
Zinc	ppm	ASTM D5185m	0	**<1**	6	4
Sulfur	ppm	ASTM D5185m	1850	**1967**	1678	1674

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**14**	14	8
Sodium	ppm	ASTM D5185m	>20	**0**	0	5
Potassium	ppm	ASTM D5185m	>20	**1**	<1	<1
Water	%	ASTM D6304	>0.05	**0.004**	0.011	0.043
ppm Water	ppm	ASTM D6304	>500	**46**	115.7	438.8

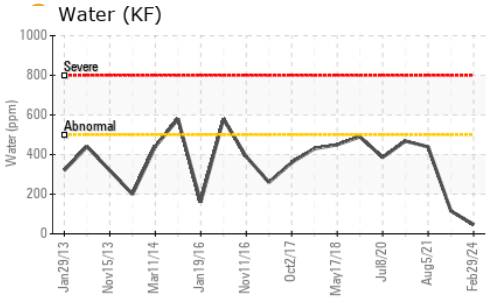
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**73120**	21672	150697
Particles >6µm		ASTM D7647	>2500	● **3807**	● 2545	▲ 31026
Particles >14µm		ASTM D7647	>320	**19**	33	14
Particles >21µm		ASTM D7647	>80	**2**	6	2
Particles >38µm		ASTM D7647	>20	**0**	1	0
Particles >71µm		ASTM D7647	>4	**0**	1	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	● **23/19/11**	● 22/19/12	▲ 24/22/11

OIL ANALYSIS REPORT

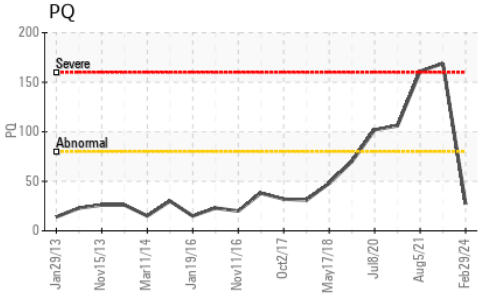
Particle Trend



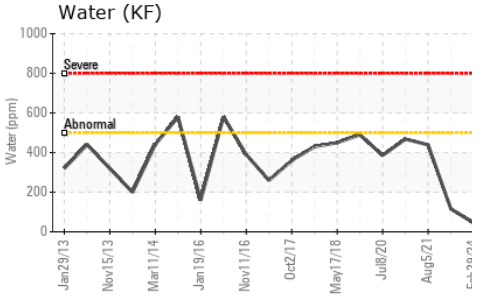
Water (KF)



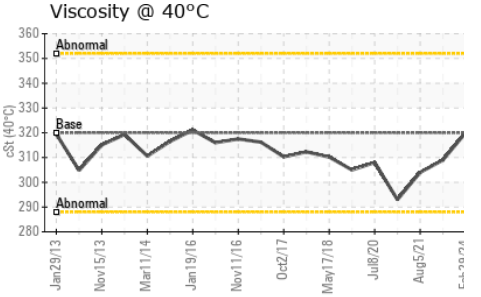
PQ



Water (KF)



Viscosity @ 40°C

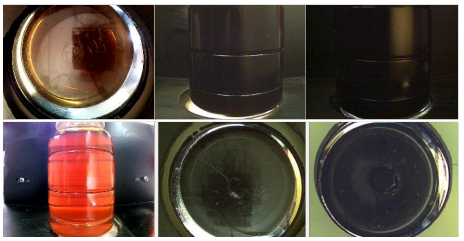


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	**1.06**	0.41	0.344

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	LIGHT
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

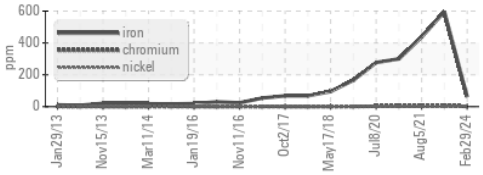
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**320**	309	304

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

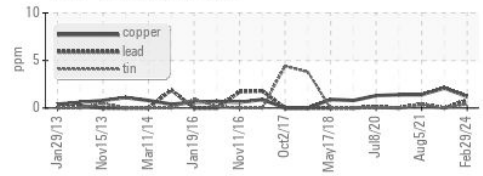


GRAPHS

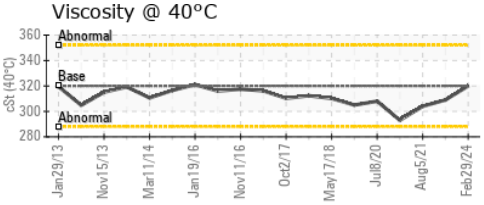
Ferrous Alloys



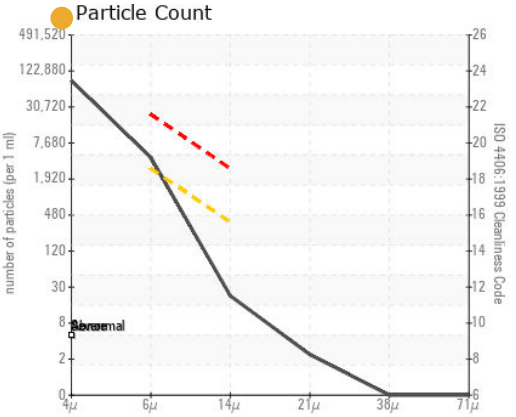
Non-ferrous Metals



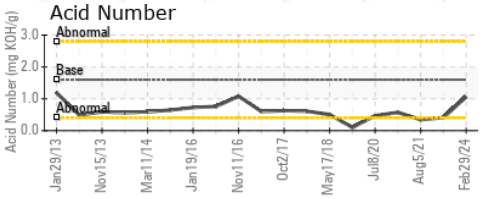
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX06146578
Lab Number : 06146578
Unique Number : 10976656
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

Received : 11 Apr 2024
Tested : 12 Apr 2024
Diagnosed : 15 Apr 2024 - Angela Borella

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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US 48847
Contact: TUCKER WITT
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Report Id: NORBEE [WUSCAR] 06146578 (Generated: 04/15/2024 18:02:36) Rev: 1

Contact/Location: TUCKER WITT - NORBEE