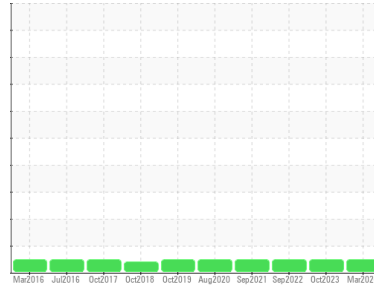




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**THUNDER SPIRIT [200005313]**  
 Machine Id  
**20WEA84013 (S/N 51272)**  
 Component  
**Hydraulic System**  
 Fluid  
**SHELL TELLUS S4 VX 32 (--- QTS)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

### 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		<b>NX014741</b>	NX014805	NX010533
Sample Date	Client Info		<b>07 Mar 2024</b>	04 Oct 2023	21 Sep 2022
Machine Age	hrs	Client Info	<b>4950</b>	0	49996
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184		<b>10</b>	9	8
Iron	ppm	ASTM D5185m >20	<b>4</b>	8	6
Chromium	ppm	ASTM D5185m >20	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185m >20	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>&lt;1</b>	1	0
Lead	ppm	ASTM D5185m >20	<b>5</b>	5	3
Copper	ppm	ASTM D5185m >20	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m >20	<b>2</b>	2	2
Antimony	ppm	ASTM D5185m	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>0</b>	0	0
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>0</b>	<1	1
Manganese	ppm	ASTM D5185m	<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m	<b>0</b>	0	<1
Calcium	ppm	ASTM D5185m	<b>0</b>	25	6
Phosphorus	ppm	ASTM D5185m	<b>530</b>	533	520
Zinc	ppm	ASTM D5185m	<b>71</b>	77	82
Sulfur	ppm	ASTM D5185m	<b>1117</b>	1164	1378

## CONTAMINANTS

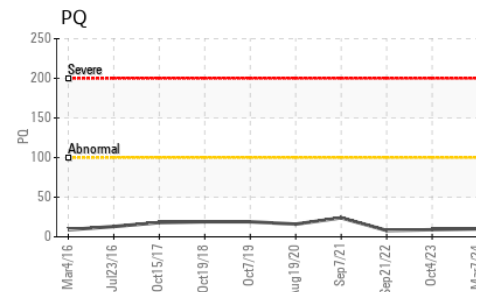
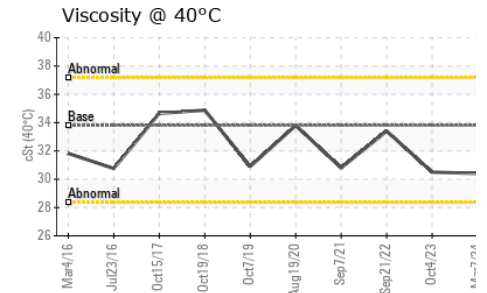
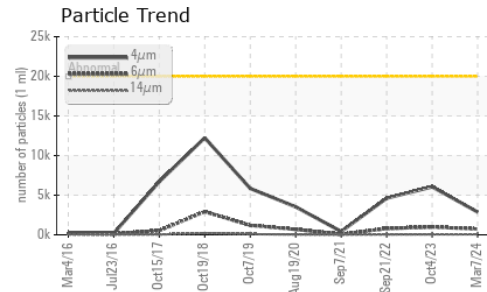
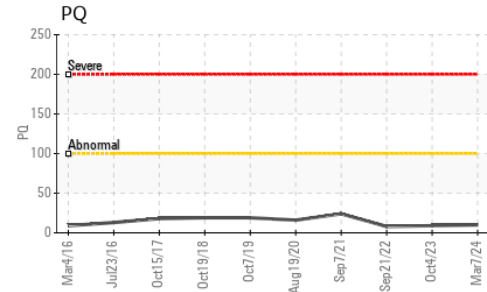
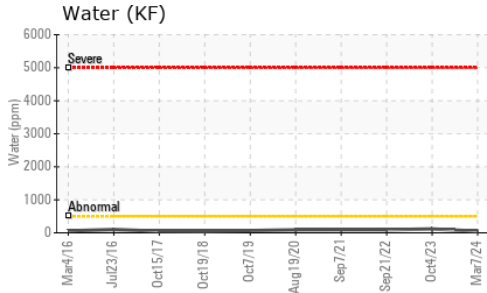
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	<b>3</b>	4	3
Sodium	ppm	ASTM D5185m	<b>0</b>	0	0
Potassium	ppm	ASTM D5185m >20	<b>0</b>	2	0
Water	%	ASTM D6304 >0.05	<b>0.004</b>	0.011	0.009
ppm Water	ppm	ASTM D6304 >500	<b>49</b>	118.2	92.5

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	<b>2871</b>	6056	4618
Particles >6µm	ASTM D7647	>2500	<b>729</b>	983	797
Particles >14µm	ASTM D7647	>320	<b>60</b>	54	44
Particles >21µm	ASTM D7647	>80	<b>16</b>	14	10
Particles >38µm	ASTM D7647	>20	<b>1</b>	0	1
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>21/18/15	<b>19/17/13</b>	20/17/13	19/17/13



# OIL ANALYSIS REPORT

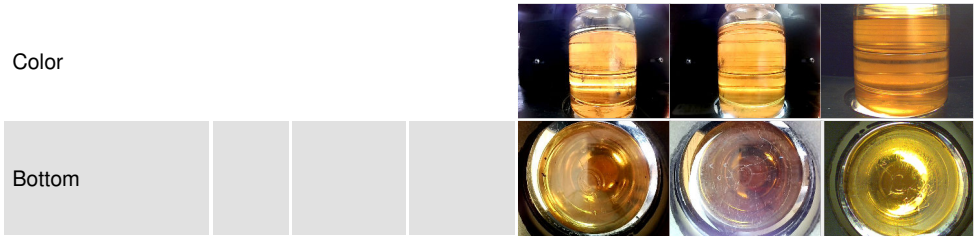


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.16</b>	0.15	0.16

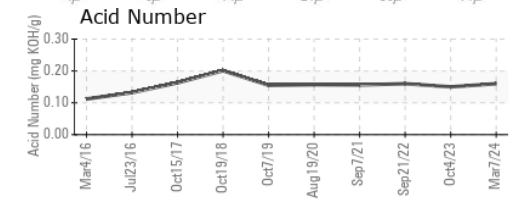
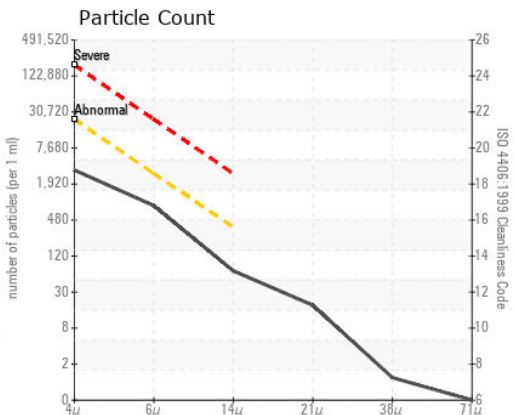
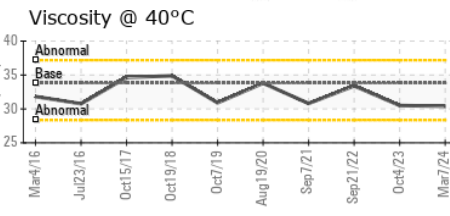
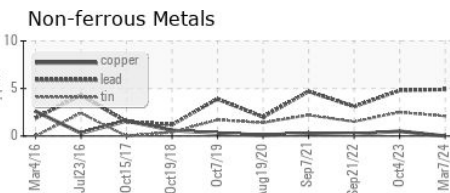
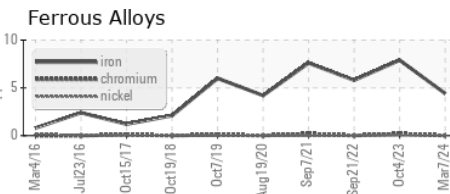
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	33.8	<b>30.4</b>	30.5	33.4

SAMPLE IMAGES		method	limit/base	current	history1	history2
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## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : NX014741  
 Lab Number : **06123108**  
 Unique Number : 10937259  
 Test Package : IND 2 ( Additional Tests: KF, PQ )

Received : 19 Mar 2024  
 Tested : 20 Mar 2024  
 Diagnosed : 21 Mar 2024 - Angela Borella

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606

Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.com

T: (312)386-4124  
 F: (312)386-7102

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)