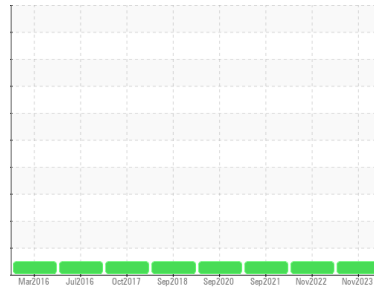




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**THUNDER SPIRIT [200005313]**  
 Machine Id  
**24WEA84004 (S/N 45541)**  
 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 component. The amount and size of particulates present in the system is 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>NX013650</b>	NX011670	NX004428
Sample Date	Client Info		<b>24 Nov 2023</b>	07 Nov 2022	09 Sep 2021
Machine Age	hrs	Client Info	<b>58200</b>	51383	0
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>	16	25
Iron	ppm	ASTM D5185m >20	<b>6</b>	6	6
Chromium	ppm	ASTM D5185m >20	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m >20	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>2</b>	1	2
Lead	ppm	ASTM D5185m >20	<b>2</b>	3	5
Copper	ppm	ASTM D5185m >20	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185m >20	<b>2</b>	2	3
Antimony	ppm	ASTM D5185m	<b>---</b>	---	0
Vanadium	ppm	ASTM D5185m	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>0</b>	0	1
Barium	ppm	ASTM D5185m	<b>5</b>	<1	0
Molybdenum	ppm	ASTM D5185m	<b>0</b>	0	0
Manganese	ppm	ASTM D5185m	<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	<b>&lt;1</b>	2	<1
Calcium	ppm	ASTM D5185m	<b>0</b>	3	<1
Phosphorus	ppm	ASTM D5185m	<b>563</b>	554	574
Zinc	ppm	ASTM D5185m	<b>121</b>	159	119
Sulfur	ppm	ASTM D5185m	<b>660</b>	631	595

## CONTAMINANTS

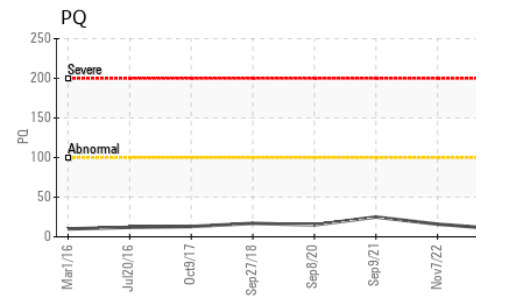
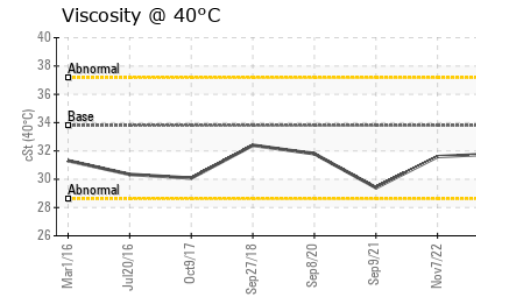
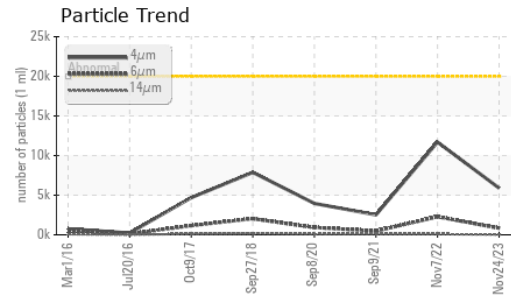
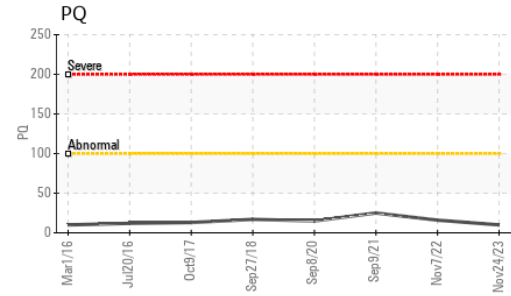
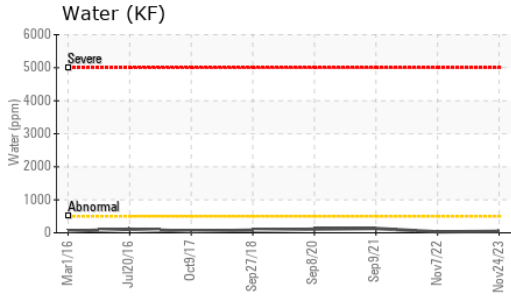
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	<b>3</b>	4	4
Sodium	ppm	ASTM D5185m	<b>0</b>	2	1
Potassium	ppm	ASTM D5185m >20	<b>2</b>	0	0
Water	%	ASTM D6304 >0.05	<b>0.004</b>	0.003	0.013
ppm Water	ppm	ASTM D6304 >500	<b>44</b>	29.0	131.8

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>20000	<b>5898</b>	11700	2524
Particles >6µm	ASTM D7647	>2500	<b>839</b>	2291	482
Particles >14µm	ASTM D7647	>320	<b>34</b>	83	80
Particles >21µm	ASTM D7647	>80	<b>4</b>	14	32
Particles >38µm	ASTM D7647	>20	<b>0</b>	1	2
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>21/18/15	<b>20/17/12</b>	21/18/14	19/16/13



# OIL ANALYSIS REPORT

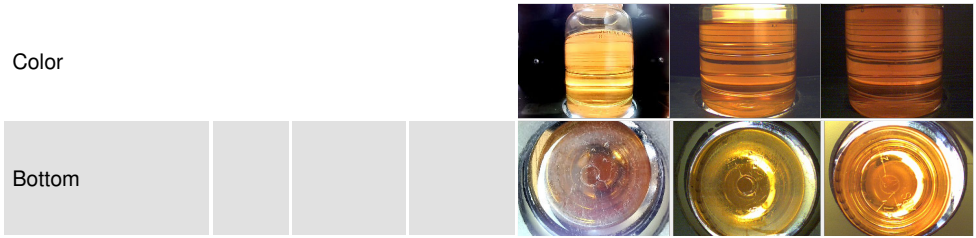


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.16</b>	0.18	0.174

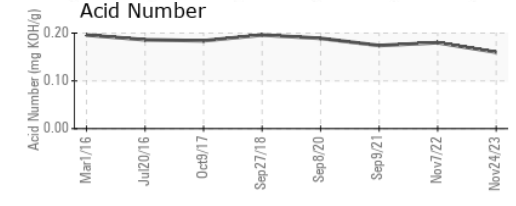
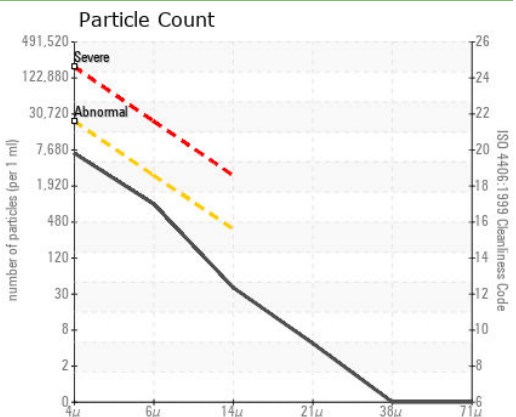
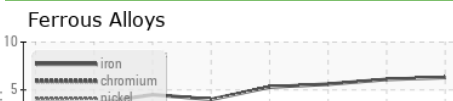
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	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>31.8</b>	31.6	29.4

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX013650 **Received** : 07 Dec 2023  
**Lab Number** : **06027715** **Diagnosed** : 08 Dec 2023  
**Unique Number** : 10777506 **Diagnostician** : Doug Bogart  
**Test Package** : IND 2 ( Additional Tests: KF, PQ )

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: BRIAN DOBBINS  
 bdobbins@nordex-online.com  
 T: (312)386-4100  
 F: (312)386-7102

Certificate L2367  
 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)