



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
THUNDER SPIRIT [200005313]
 Machine Id
20WEA84013 (S/N 72802187631)
 Component
Wind Turbine Gearbox
 Fluid
FUCHS RENOLIN UNISYN CLP 320 (--- QTS)

RECOMMENDATION

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		NX014750	NX014807	NX013563
Sample Date		Client Info		07 Mar 2024	04 Oct 2023	01 Aug 2023
Machine Age	hrs	Client Info		4950	55534	54391
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ATTENTION	ATTENTION

WEAR

All component wear rates are normal.

PQ		ASTM D8184	>50	15	14	18
Iron	ppm	ASTM D5185m	>30	23	13	10
Chromium	ppm	ASTM D5185m	>3	0	<1	0
Nickel	ppm	ASTM D5185m	>3	0	<1	0
Titanium	ppm	ASTM D5185m	>10	0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>30	<1	1	0
Lead	ppm	ASTM D5185m	>15	0	0	0
Copper	ppm	ASTM D5185m	>10	0	<1	<1
Tin	ppm	ASTM D5185m	>10	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

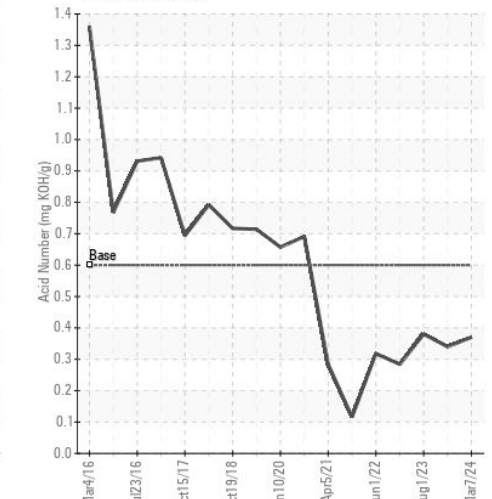
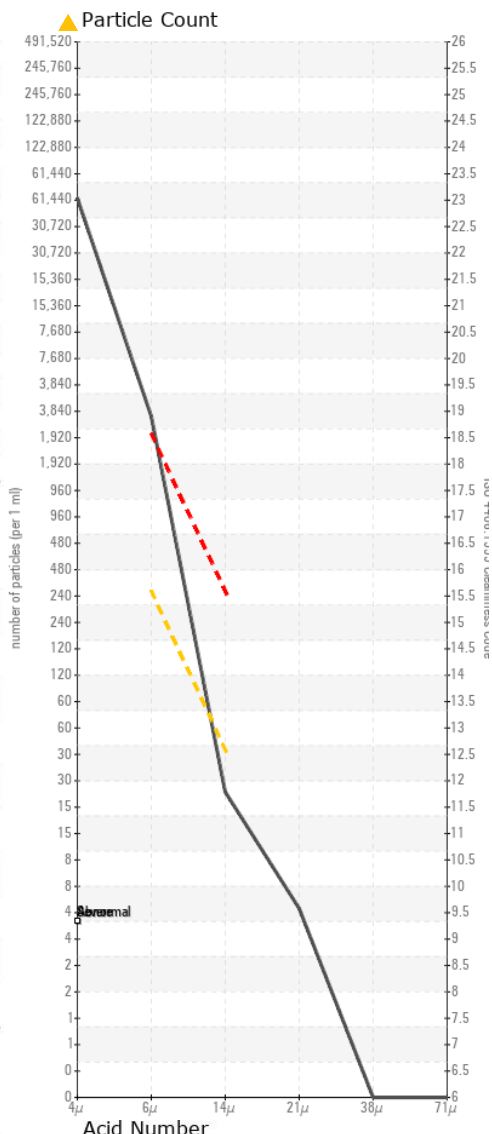
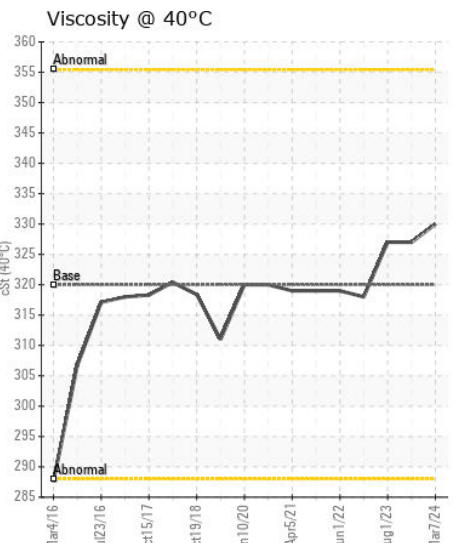
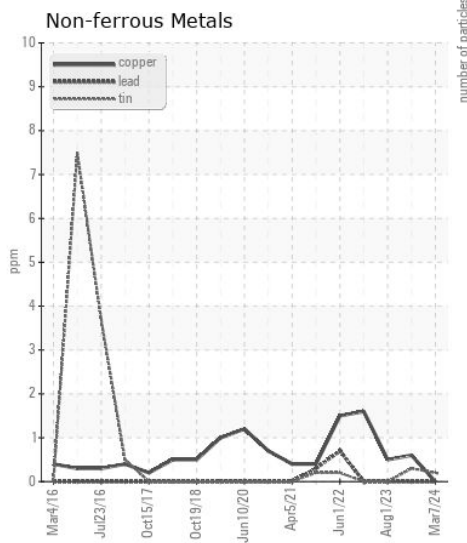
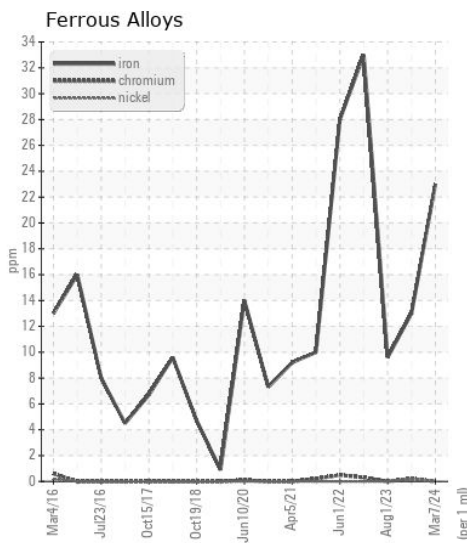
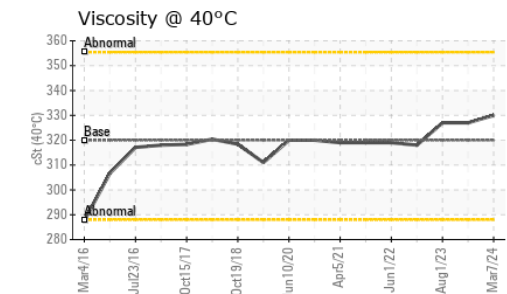
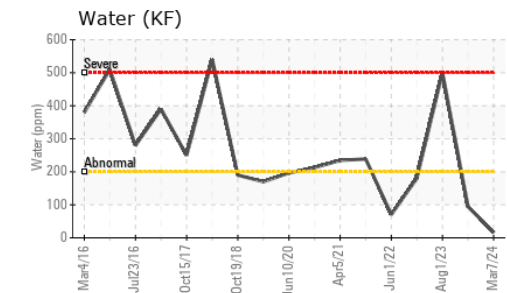
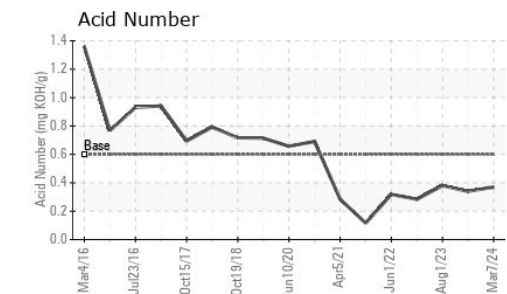
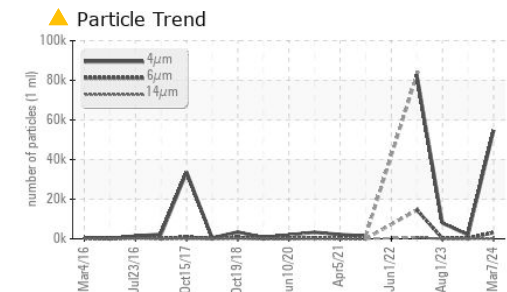
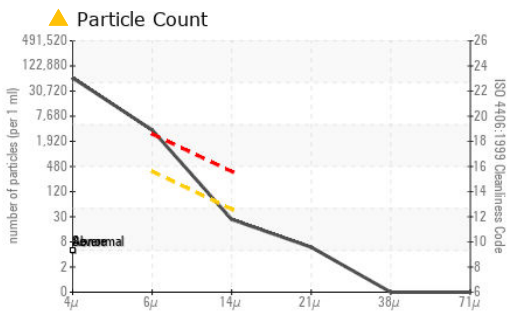
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>+15	1	1	<1
Potassium	ppm	ASTM D5185m	>20	0	3	2
Water	%	ASTM D6304	>0.02	0.002	0.009	0.050
ppm Water	ppm	ASTM D6304	>200	16	94.3	500
Particles >4µm		ASTM D7647		54724	1974	7960
Particles >6µm		ASTM D7647	>320	3136	298	274
Particles >14µm		ASTM D7647	>40	23	29	18
Particles >21µm		ASTM D7647	>10	5	8	6
Particles >38µm		ASTM D7647	>3	0	2	2
Particles >71µm		ASTM D7647	>3	0	1	0
Oil Cleanliness		ISO 4406 (c)	>-/15/12	23/19/12	18/15/12	20/15/11
Silt	scalar	*Visual	NONE	NONE	NONE	MODER
Debris	scalar	*Visual	NONE	NONE	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	>0.02	NEG	NEG	0.2%

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		0	0	0
Boron	ppm	ASTM D5185m		10	9	6
Barium	ppm	ASTM D5185m		0	<1	3
Molybdenum	ppm	ASTM D5185m		58	61	55
Manganese	ppm	ASTM D5185m		<1	0	0
Magnesium	ppm	ASTM D5185m		0	0	<1
Calcium	ppm	ASTM D5185m		109	107	97
Phosphorus	ppm	ASTM D5185m		198	208	195
Zinc	ppm	ASTM D5185m		0	0	0
Sulfur	ppm	ASTM D5185m		5379	5199	5163
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	0.37	0.34	0.38
Visc @ 40°C	cSt	ASTM D445	320	330	327	327



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX014750 **Received** : 19 Mar 2024
Lab Number : 06123097 **Tested** : 20 Mar 2024
Unique Number : 10937248 **Diagnosed** : 21 Mar 2024 - Angela Borella
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)