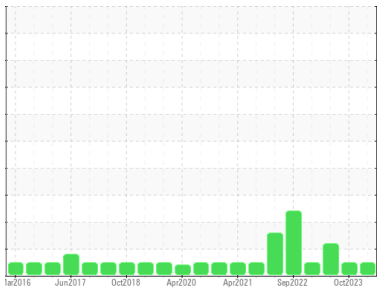
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
THUNDER SPIRIT [200009532]
Machine Id
15WEA84034 (S/N 72802187630)
Component
Wind Turbine Gearbox
Fluid
FUCHS RENOLIN UNISYN CLP 320 (--- 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		**NX015506**	NX014736	NX011620
Sample Date		Client Info		**18 Mar 2024**	25 Oct 2023	30 Mar 2023
Machine Age	hrs	Client Info		**12480**	56074	52040
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	NORMAL	ATTENTION

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>50	**11**	14	9
Iron	ppm	ASTM D5185m	>30	**21**	15	10
Chromium	ppm	ASTM D5185m	>3	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>3	**<1**	1	0
Titanium	ppm	ASTM D5185m	>10	**<1**	0	0
Silver	ppm	ASTM D5185m		**<1**	0	0
Aluminum	ppm	ASTM D5185m	>30	**2**	<1	0
Lead	ppm	ASTM D5185m	>15	**1**	<1	0
Copper	ppm	ASTM D5185m	>10	**1**	0	0
Tin	ppm	ASTM D5185m	>10	**1**	<1	0
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

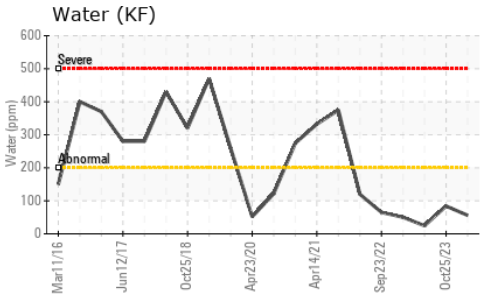
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**9**	11	15
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**32**	36	36
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m		**<1**	2	0
Calcium	ppm	ASTM D5185m		**72**	75	78
Phosphorus	ppm	ASTM D5185m		**218**	216	237
Zinc	ppm	ASTM D5185m		**0**	0	0
Sulfur	ppm	ASTM D5185m		**4932**	4845	6204

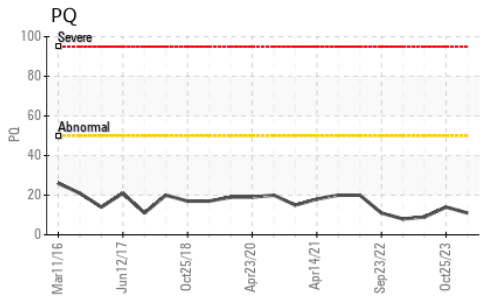
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+15	**2**	1	<1
Sodium	ppm	ASTM D5185m		**2**	<1	1
Potassium	ppm	ASTM D5185m	>20	**4**	4	2
Water	%	ASTM D6304	>0.02	**0.005**	0.008	0.002
ppm Water	ppm	ASTM D6304	>200	**56**	84	24.5

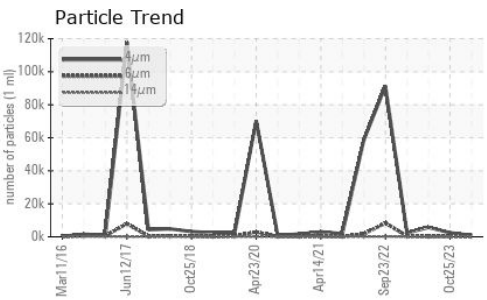
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**899**	2476	5706
Particles >6µm		ASTM D7647	>320	**141**	276	222
Particles >14µm		ASTM D7647	>40	**12**	21	15
Particles >21µm		ASTM D7647	>10	**5**	6	4
Particles >38µm		ASTM D7647	>3	**2**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>--/15/12	**17/14/11**	18/15/12	20/15/11

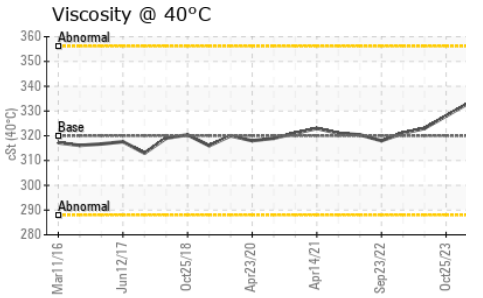
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	**0.30**	0.31	0.32

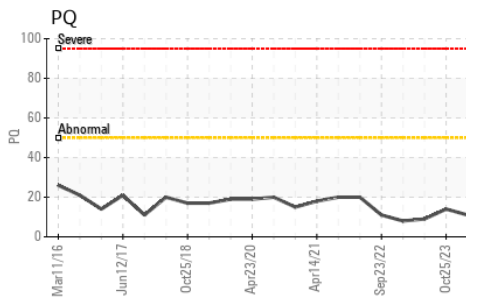
OIL ANALYSIS REPORT







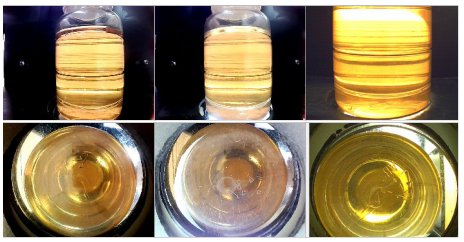




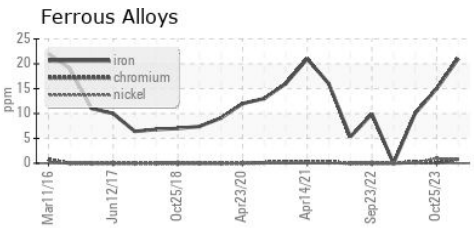
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

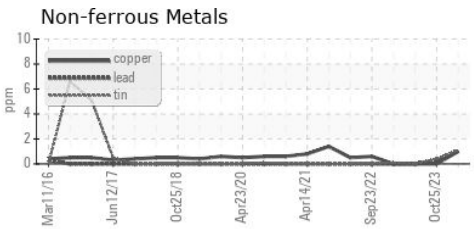
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**333**	328	323

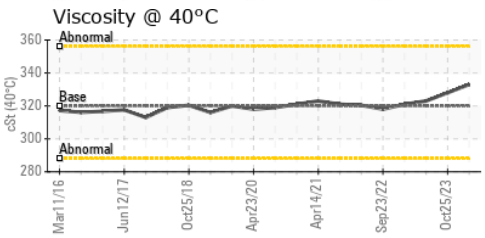
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

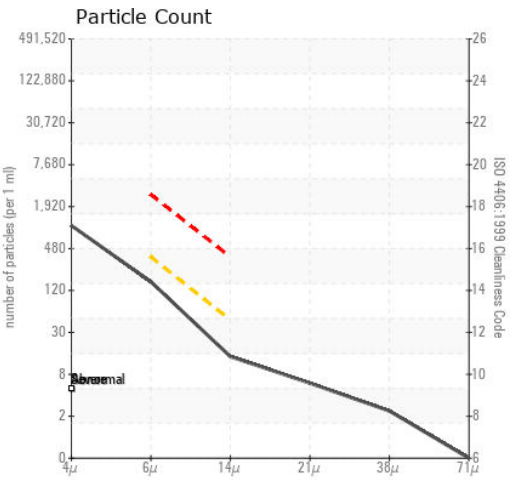


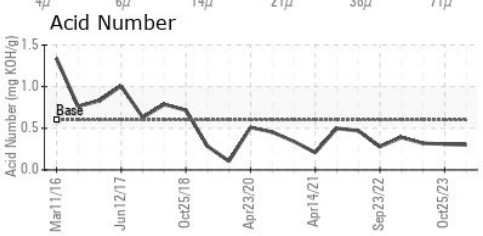
GRAPHS











Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX015506
Lab Number : 06135625
Unique Number : 10955090
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

Received : 01 Apr 2024
Tested : 03 Apr 2024
Diagnosed : 04 Apr 2024 - Don Baldridge

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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