IND II WEAR CHECK

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Area
BEEBE [200005316]
Machine Id
04WEA82343
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 LTR)

RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

WEAR

Gear wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring.

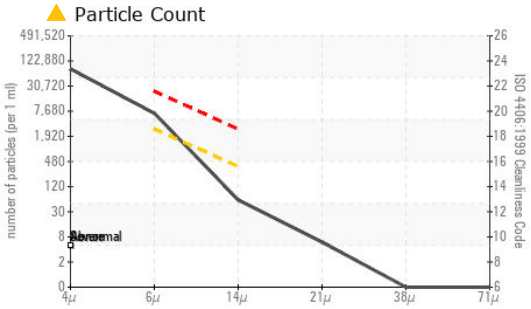
CONTAMINATION

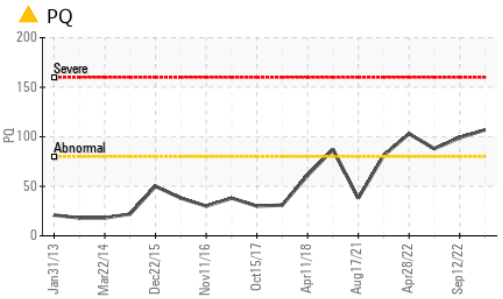
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

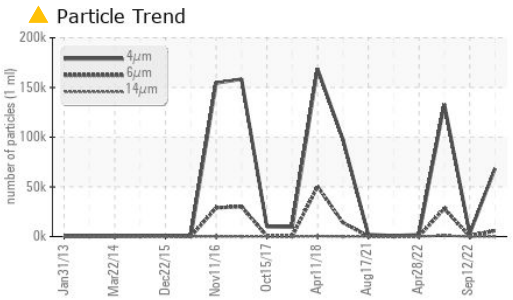
FLUID CONDITION

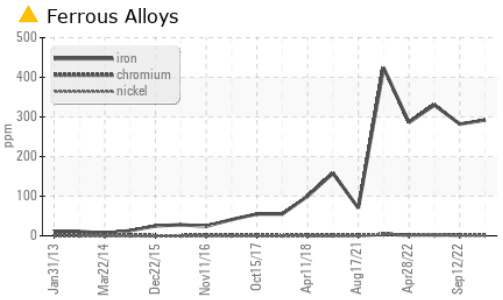
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

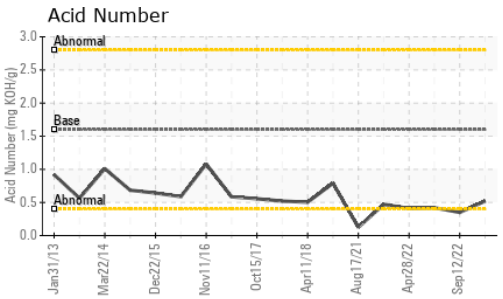
Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		NX05798676	NX05666441	NX05621781
Sample Date		Client Info		12 Jan 2023	12 Sep 2022	18 Aug 2022
Machine Age	hrs	Client Info		72217	69733	69271
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
PQ		ASTM D8184	>80	▲ 107	▲ 99	▲ 88
Iron	ppm	ASTM D5185m	>150	▲ 292	▲ 282	▲ 330
Chromium	ppm	ASTM D5185m	>5	2	2	2
Nickel	ppm	ASTM D5185m	>10	1	<1	2
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	1	1	1
Lead	ppm	ASTM D5185m	>20	0	0	0
Copper	ppm	ASTM D5185m	>50	2	2	2
Tin	ppm	ASTM D5185m	>10	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>50	12	10	12
Potassium	ppm	ASTM D5185m	>20	<1	0	2
Water	%	ASTM D6304	>0.05	0.013	0.040	0.020
ppm Water	ppm	ASTM D6304	>500	137.5	401.4	208.7
Particles >4µm		ASTM D7647		68460	2908	133103
Particles >6µm		ASTM D7647	>2500	▲ 5965	385	▲ 28051
Particles >14µm		ASTM D7647	>320	51	20	▲ 870
Particles >21µm		ASTM D7647	>80	5	6	▲ 103
Particles >38µm		ASTM D7647	>20	0	0	1
Particles >71µm		ASTM D7647	>4	0	0	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	▲ 23/20/13	19/16/11	▲ 24/22/17
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	>0.05	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>20	0	6	8
Boron	ppm	ASTM D5185m		0	28	0
Barium	ppm	ASTM D5185m		2	2	0
Molybdenum	ppm	ASTM D5185m	1150	801	792	825
Manganese	ppm	ASTM D5185m		2	2	3
Magnesium	ppm	ASTM D5185m		12	14	13
Calcium	ppm	ASTM D5185m	2000	1621	1662	1617
Phosphorus	ppm	ASTM D5185m	400	311	337	336
Zinc	ppm	ASTM D5185m	0	5	4	4
Sulfur	ppm	ASTM D5185m	1850	1776	2174	1976
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.52	0.35	0.42
Visc @ 40°C	cSt	ASTM D445	320	307	310	308

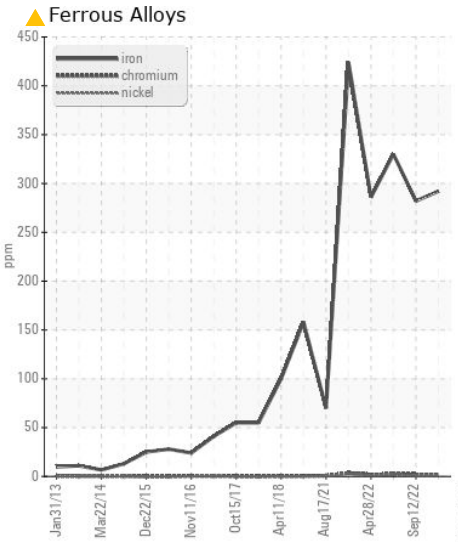


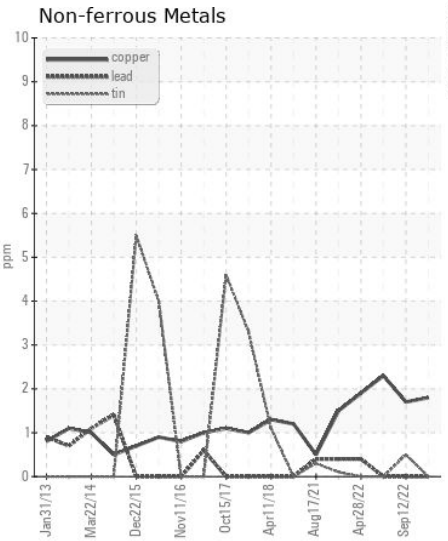


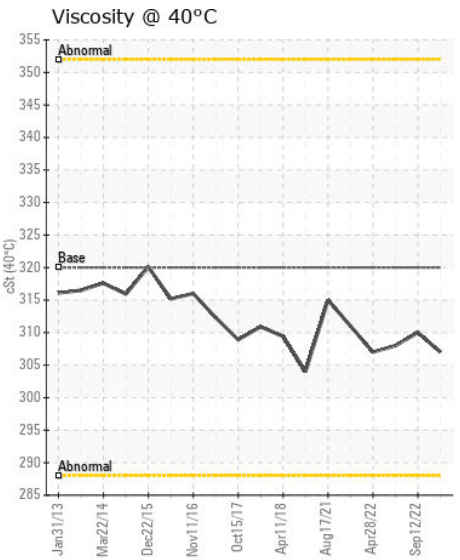


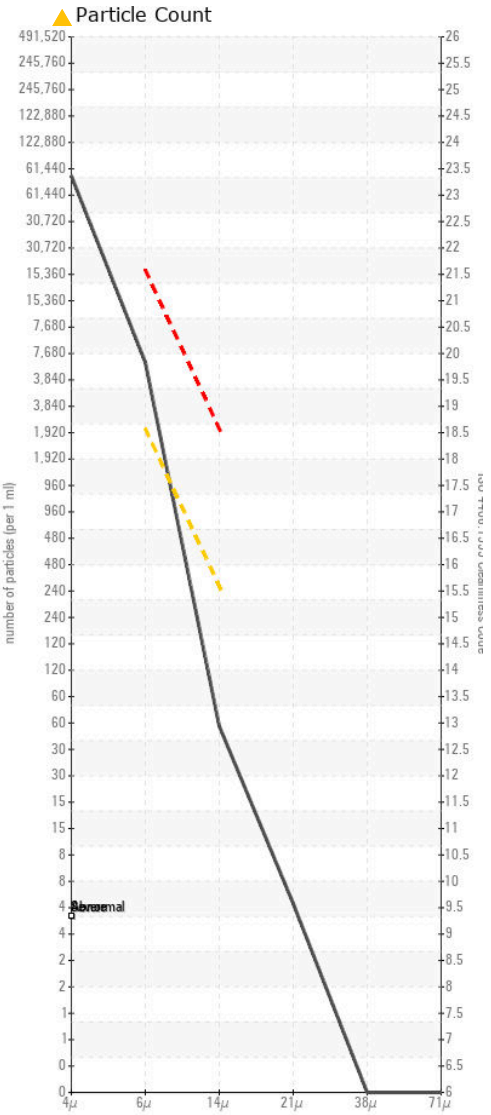


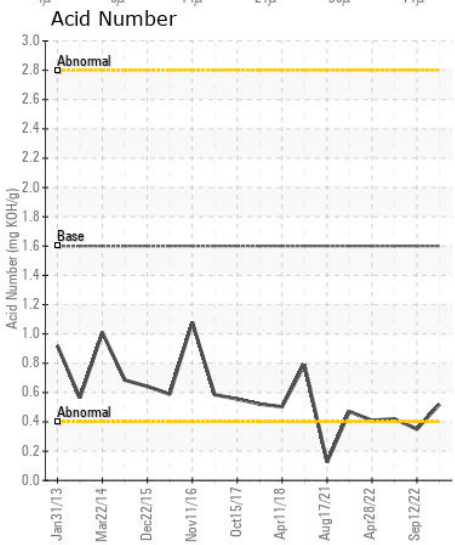












Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX05798676 **Recieved** : 22 Mar 2023
Lab Number : 05798676 **Diagnosed** : 24 Mar 2023
Unique Number : 10388360 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

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)

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