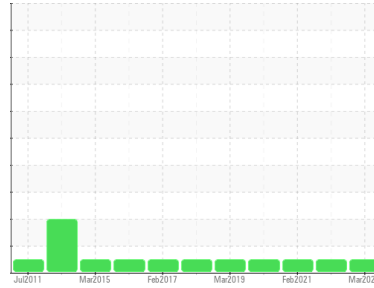


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
E309 (S/N 6410-02)

Component
Wind Turbine Gearbox

Fluid
MOBIL MOBILGEAR SHC XMP 320 (74 GAL)

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	MHI018501	MHI017470	MHI017429
Sample Date	Client Info	15 Mar 2023	24 Mar 2022	09 Feb 2021
Machine Age	hrs	0	0	0
Oil Age	hrs	87033	81450	74706
Oil Changed	Client Info	Not Changed	Not Changed	Not Changed
Sample Status		NORMAL	NORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>200	2	17	13	
Iron	ppm	ASTM D5185m	>200	8	8	9
Chromium	ppm	ASTM D5185m	>3	0	0	<1
Nickel	ppm	ASTM D5185m	>3	<1	<1	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	<1	<1
Aluminum	ppm	ASTM D5185m	>30	<1	0	<1
Lead	ppm	ASTM D5185m	>15	0	0	0
Copper	ppm	ASTM D5185m	>75	15	4	2
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Antimony	ppm	ASTM D5185m	>5	---	---	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m	0	0	0	3
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	<1	0
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		<1	2	<1
Calcium	ppm	ASTM D5185m	0	0	13	0
Phosphorus	ppm	ASTM D5185m	485	427	470	444
Zinc	ppm	ASTM D5185m	0	30	18	5
Sulfur	ppm	ASTM D5185m		5277	4004	3816

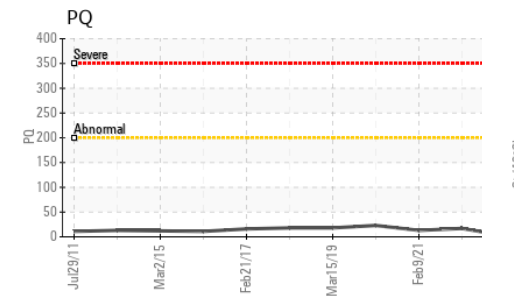
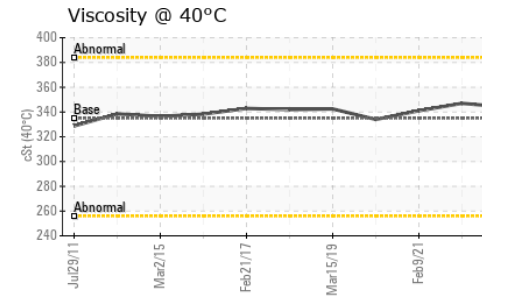
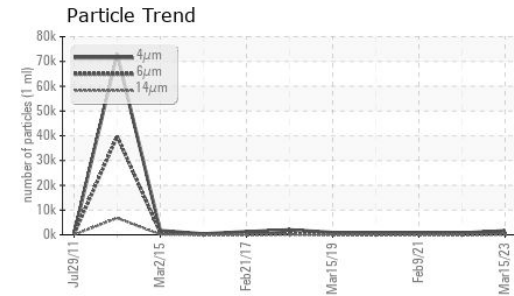
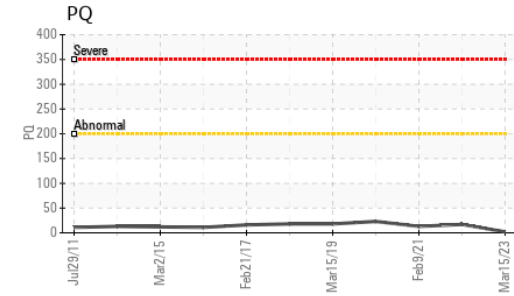
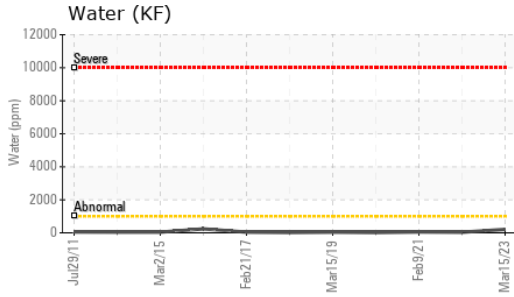
CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>+30	0	<1	<1
Sodium	ppm	ASTM D5185m	>15	<1	0	<1
Potassium	ppm	ASTM D5185m	>20	<1	0	0
Water	%	ASTM D6304	>0.1	0.020	0.003	0.005
ppm Water	ppm	ASTM D6304	>1000	208.3	34.2	50.9

FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		1642	744	680
Particles >6µm	ASTM D7647	>5000	517	170	253
Particles >14µm	ASTM D7647	>640	31	20	56
Particles >21µm	ASTM D7647	>160	6	8	16
Particles >38µm	ASTM D7647	>40	0	1	0
Particles >71µm	ASTM D7647	>10	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/19/16	18/16/12	17/15/11	17/15/13

OIL ANALYSIS REPORT

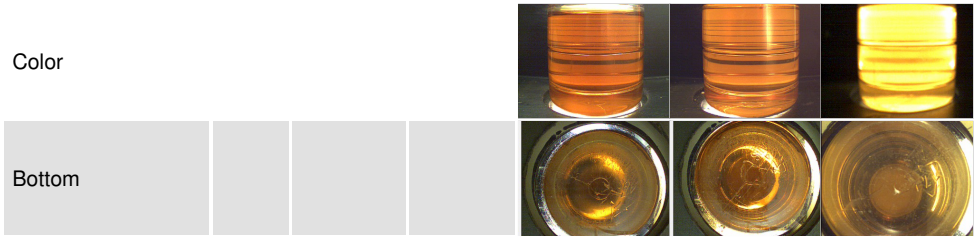


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.85	1.37	1.35	1.202

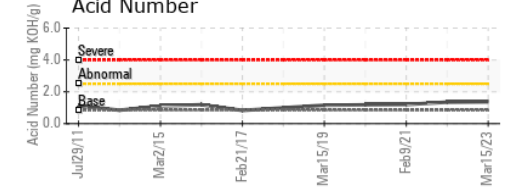
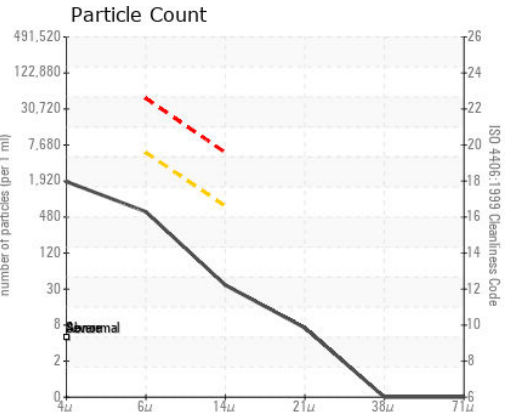
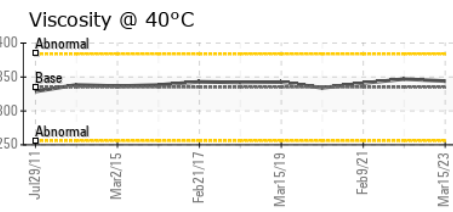
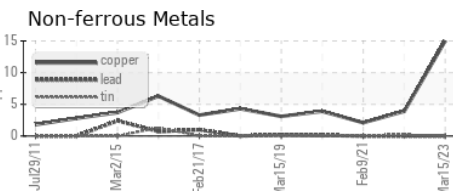
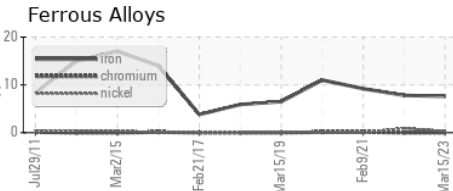
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	335	344	347	341

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MH1018501 **Received** : 27 Mar 2023
Lab Number : 05803352 **Diagnosed** : 29 Mar 2023
Unique Number : 10400881 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

DIAMOND WTG - DILLON
P.O. BOX 880
DESERT HOT SPRINGS, CA
US 92240
Contact: DANIEL BOYD
daniel.boyd@diamondwtg.com
T: (760)329-7171
F: (760)329-7122

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)