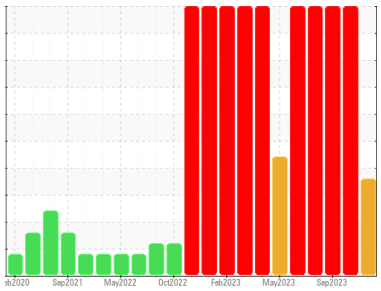
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
RIG 4
Machine Id
WHITE STAR 2450 R4-P-01G NKL
Component
Gearbox
Fluid
GEAR OIL ISO 320 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check all areas where dirt can enter the system. We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
There is a high amount of particulates present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0013130**	KL0012938	KL0012979
Sample Date		Client Info		**03 Nov 2023**	17 Oct 2023	13 Sep 2023
Machine Age	days	Client Info		**45233**	45211	45180
Oil Age	days	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	**209**	⬢ 418	⬢ 656
Chromium	ppm	ASTM D5185m	>10	**2**	3	6
Nickel	ppm	ASTM D5185m	>10	**2**	2	6
Titanium	ppm	ASTM D5185m		**<1**	<1	2
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	▲ **14**	▲ 24	▲ 41
Lead	ppm	ASTM D5185m	>50	**0**	2	<1
Copper	ppm	ASTM D5185m	>200	**18**	78	35
Tin	ppm	ASTM D5185m	>10	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	**27**	24	18
Barium	ppm	ASTM D5185m	15	**29**	73	78
Molybdenum	ppm	ASTM D5185m	15	**15**	394	59
Manganese	ppm	ASTM D5185m		**2**	3	6
Magnesium	ppm	ASTM D5185m	50	**22**	25	47
Calcium	ppm	ASTM D5185m	50	**81**	270	▲ 182
Phosphorus	ppm	ASTM D5185m	350	**284**	241	213
Zinc	ppm	ASTM D5185m	100	**15**	55	20
Sulfur	ppm	ASTM D5185m	12500	**7665**	8876	6491

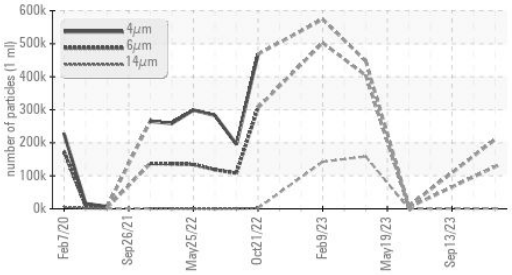
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	▲ **59**	⬢ 126	⬢ 171
Sodium	ppm	ASTM D5185m		**138**	315	244
Potassium	ppm	ASTM D5185m	>20	**8**	23	24

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**210206**	---	---
Particles >6µm		ASTM D7647	>5000	▲ **127596**	---	---
Particles >14µm		ASTM D7647	>640	▲ **1113**	---	---
Particles >21µm		ASTM D7647	>160	**119**	---	---
Particles >38µm		ASTM D7647	>40	**5**	---	---
Particles >71µm		ASTM D7647	>10	**1**	---	---
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ **24/17**	---	---

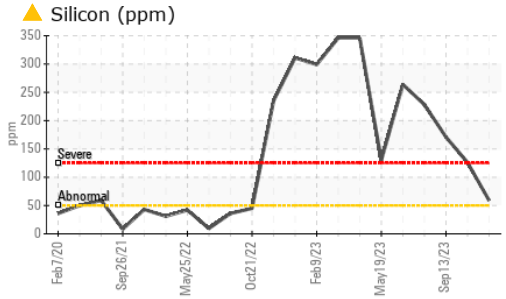
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.85	**0.45**	0.71	0.19

OIL ANALYSIS REPORT

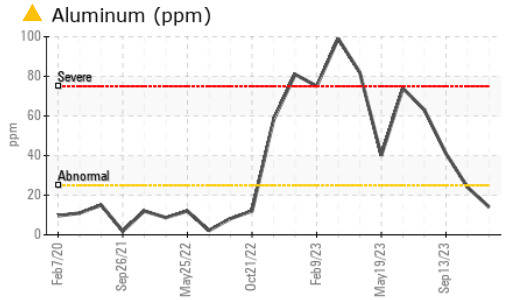
Particle Trend



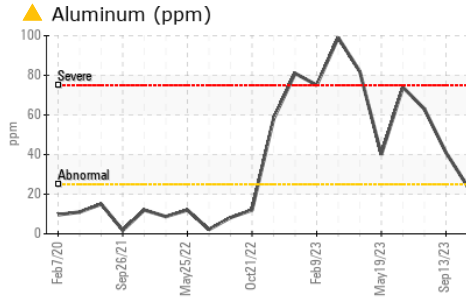
Silicon (ppm)



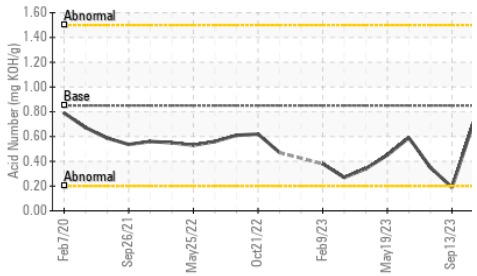
Aluminum (ppm)



Aluminum (ppm)



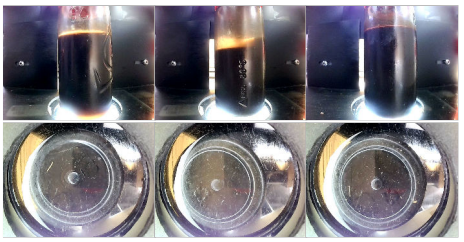
Acid Number



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	▲ MODER	▲ MODER
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	**LIGHT**	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	>0.2	**NEG**	NEG	0.2%
Free Water	scalar	*Visual		**NEG**	NEG	NEG

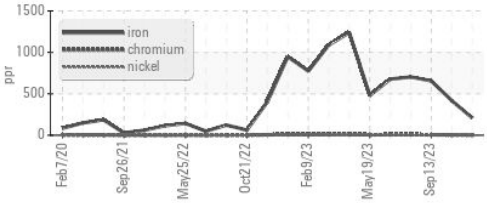
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**404**	420	394

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

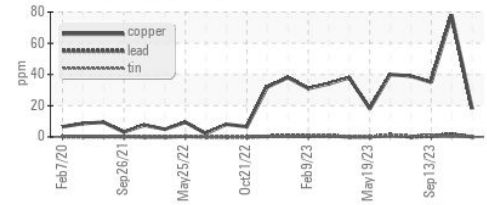


GRAPHS

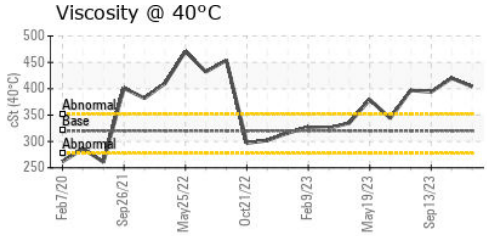
Ferrous Alloys



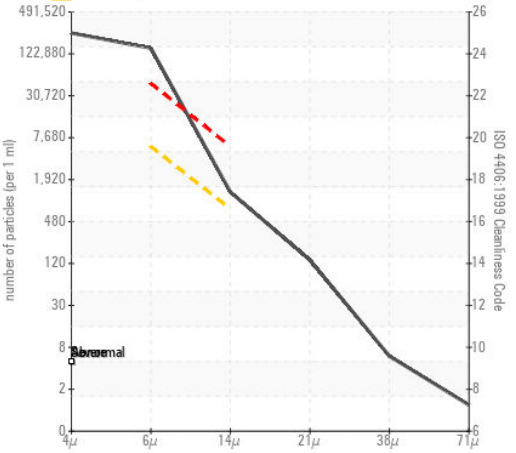
Non-ferrous Metals



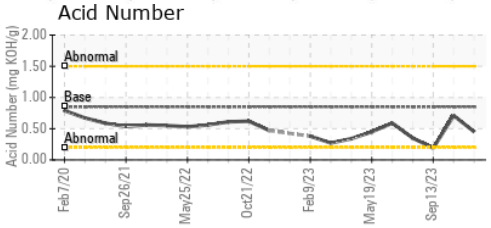
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013130 **Received** : 16 Nov 2023
Lab Number : 06010192 **Diagnosed** : 20 Nov 2023
Unique Number : 10749336 **Diagnostician** : Don Baldridge
Test Package : MOB 2 (Additional Tests: PrtCount)

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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