



# OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area  
**RIG 5**  
Machine Id  
Component  
**WHITE STAR 2450 R5-P-01G NKL**  
Gearbox  
Fluid  
**GEAR OIL ISO 460 (--- GAL)**

## 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. We were unable to perform a particle count due to a high concentration of particles present in this sample.

## WEAR

Gear wear is indicated.

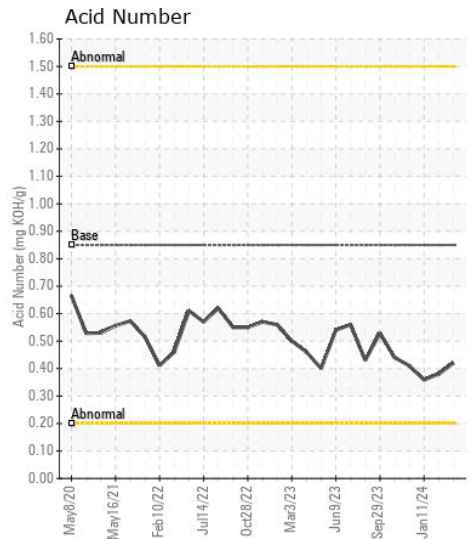
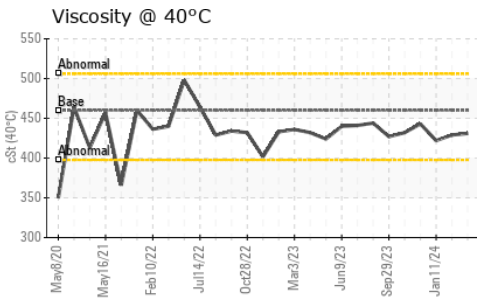
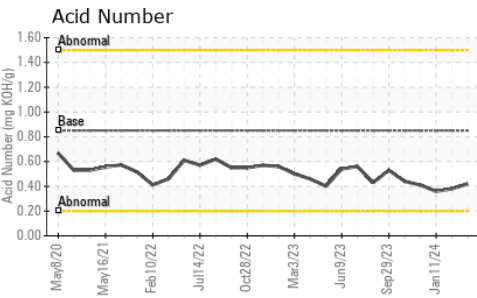
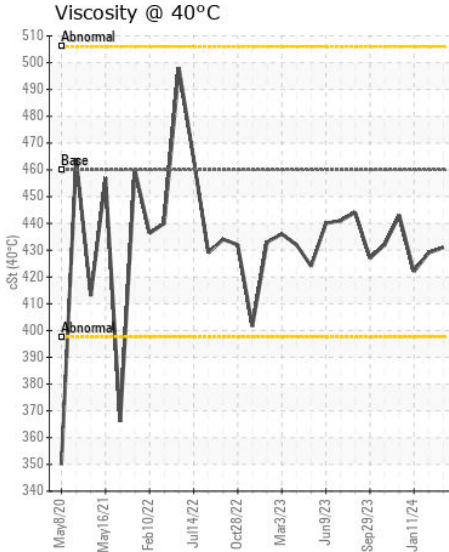
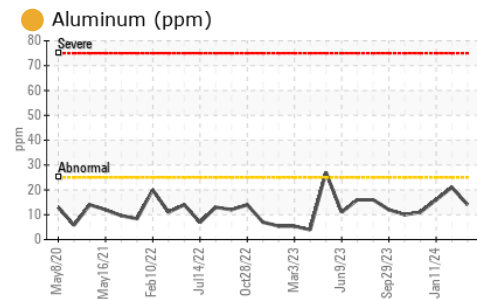
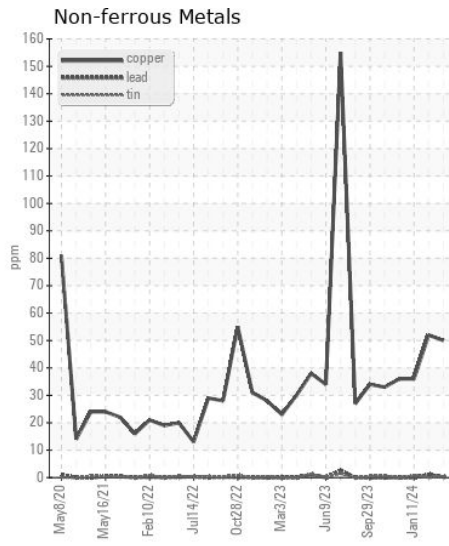
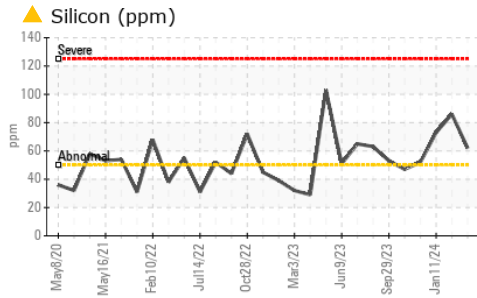
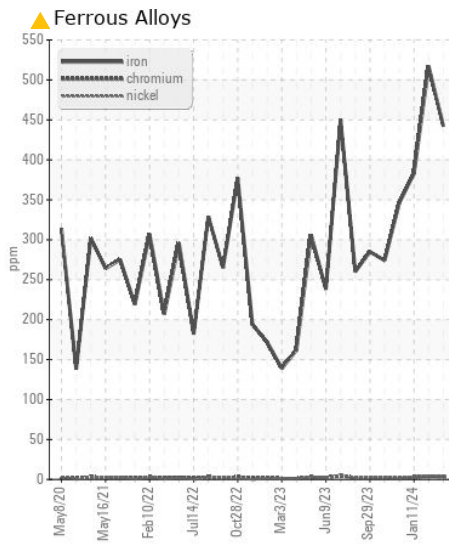
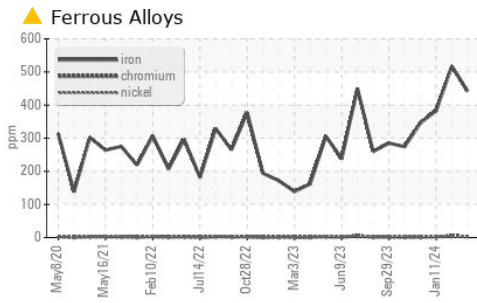
## CONTAMINATION

There is a moderate amount of visible silt present in the sample. 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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>KL0013850</b>	KL0013839	KL0013144
Sample Date		Client Info		<b>20 Mar 2024</b>	06 Feb 2024	11 Jan 2024
Machine Age	days	Client Info		<b>45326</b>	45338	45303
Oil Age	days	Client Info		<b>0</b>	0	0
Filter Age	days	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>200	<b>▲ 442</b>	▲ 517	▲ 383
Chromium	ppm	ASTM D5185m	>10	<b>3</b>	4	3
Nickel	ppm	ASTM D5185m	>10	<b>4</b>	4	3
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	1	<1
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>● 14</b>	● 21	● 16
Lead	ppm	ASTM D5185m	>50	<b>&lt;1</b>	1	0
Copper	ppm	ASTM D5185m	>200	<b>50</b>	52	36
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silicon	ppm	ASTM D5185m	>50	<b>▲ 62</b>	▲ 86	▲ 73
Potassium	ppm	ASTM D5185m	>20	<b>10</b>	9	7
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Particles >4µm		ASTM D7647		<b>---</b>	533612	275968
Particles >6µm		ASTM D7647	>5000	<b>---</b>	▲ 381360	▲ 213630
Particles >14µm		ASTM D7647	>640	<b>---</b>	▲ 8618	▲ 18026
Particles >21µm		ASTM D7647	>160	<b>---</b>	72	▲ 471
Particles >38µm		ASTM D7647	>40	<b>---</b>	0	1
Particles >71µm		ASTM D7647	>10	<b>---</b>	0	0
Oil Cleanliness		ISO 4406 (c)	>19/16	<b>---</b>	▲ 26/20	▲ 25/21
Silt	scalar	*Visual	NONE	<b>▲ MODER</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG
Sodium	ppm	ASTM D5185m		<b>111</b>	135	110
Boron	ppm	ASTM D5185m	50	<b>22</b>	20	23
Barium	ppm	ASTM D5185m	15	<b>20</b>	30	23
Molybdenum	ppm	ASTM D5185m	15	<b>17</b>	19	13
Manganese	ppm	ASTM D5185m		<b>4</b>	4	4
Magnesium	ppm	ASTM D5185m	50	<b>19</b>	20	27
Calcium	ppm	ASTM D5185m	50	<b>76</b>	92	92
Phosphorus	ppm	ASTM D5185m	350	<b>256</b>	226	176
Zinc	ppm	ASTM D5185m	100	<b>27</b>	38	26
Sulfur	ppm	ASTM D5185m	12500	<b>7264</b>	5876	6148
Acid Number (AN)	mg KOH/g	ASTM D8045	0.85	<b>0.42</b>	0.38	0.359
Visc @ 40°C	cSt	ASTM D445	460	<b>431</b>	429	422



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : KL0013850

**Lab Number** : 06145279

**Unique Number** : 10970087

**Test Package** : MOB 2 ( Additional Tests: PrtCount )

**Received** : 10 Apr 2024

**Tested** : 13 Apr 2024

**Diagnosed** : 13 Apr 2024 - Don Baldrige

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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