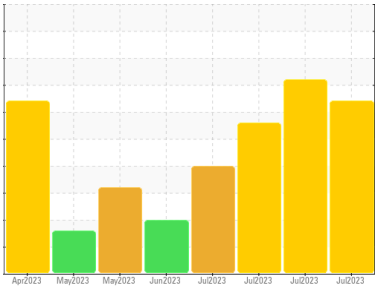
OIL ANALYSIS REPORT

Sample Rating Trend



WATER

Area
RIG 879
Machine Id
R879-P-02-NKL
Component
Pump
Fluid
GEAR OIL ISO 320 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. We advise that you check all areas where dirt can enter the system. We advise that you follow the water drain-off procedure for this component. We recommend an early resample to monitor this condition. There is too much water present in this sample to perform a particle count.

Wear

All component wear rates are normal.

Contamination

Appearance is milky. There is a high concentration of water 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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0011972**	KL0011975	KL0011986
Sample Date		Client Info		**13 Jul 2023**	11 Jul 2023	07 Jul 2023
Machine Age	days	Client Info		**45120**	45118	45114
Oil Age	days	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>500	**235**	107	83
Chromium	ppm	ASTM D5185m	>7	**2**	1	<1
Nickel	ppm	ASTM D5185m		**<1**	<1	<1
Titanium	ppm	ASTM D5185m		**2**	1	1
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	▲ **46**	▲ 40	▲ 37
Lead	ppm	ASTM D5185m	>35	**0**	<1	0
Copper	ppm	ASTM D5185m	>50	**15**	9	9
Tin	ppm	ASTM D5185m	>5	**1**	1	<1
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	**19**	13	3
Barium	ppm	ASTM D5185m	15	**24**	10	25
Molybdenum	ppm	ASTM D5185m	15	**5**	4	4
Manganese	ppm	ASTM D5185m		**2**	1	1
Magnesium	ppm	ASTM D5185m	50	**47**	36	32
Calcium	ppm	ASTM D5185m	50	**211**	168	155
Phosphorus	ppm	ASTM D5185m	350	**171**	151	160
Zinc	ppm	ASTM D5185m	100	**123**	103	102
Sulfur	ppm	ASTM D5185m	12500	**11363**	11258	11353

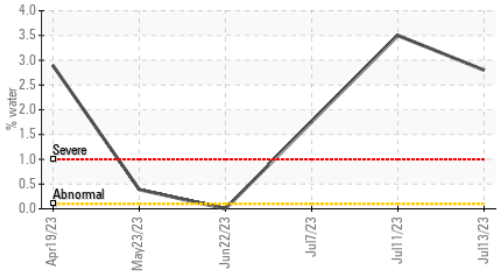
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	▲ **168**	▲ 129	▲ 137
Sodium	ppm	ASTM D5185m		**1924**	1699	1772
Potassium	ppm	ASTM D5185m	>20	**25**	22	21
Water	%	ASTM D6304		● **2.80**	● 3.50	● 1.76
ppm Water	ppm	ASTM D6304	>.1	● **28000**	● 35000	● 17600

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	**---**	---	---
Particles >6µm		ASTM D7647	>5000	**---**	---	---
Particles >14µm		ASTM D7647	>640	**---**	---	---
Particles >21µm		ASTM D7647	>160	**---**	---	---
Particles >38µm		ASTM D7647	>40	**---**	---	---
Particles >71µm		ASTM D7647	>10	**---**	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	**---**	---	---

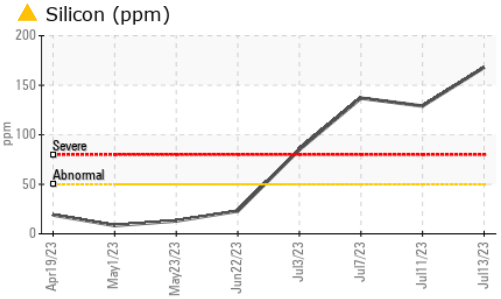
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.85	**0.43**	0.43	0.17

OIL ANALYSIS REPORT

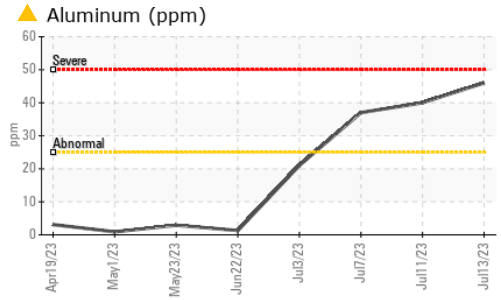
Water



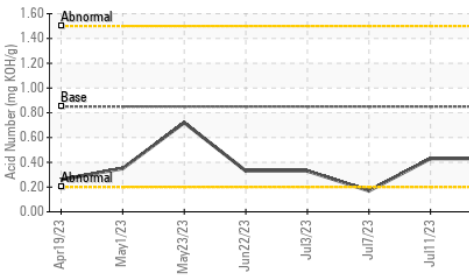
Silicon (ppm)



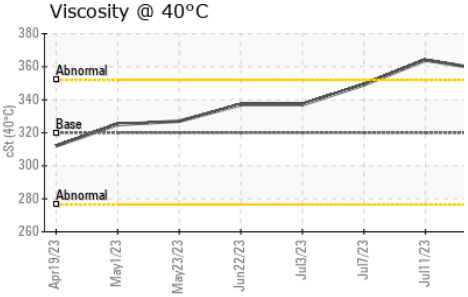
Aluminum (ppm)



Acid Number

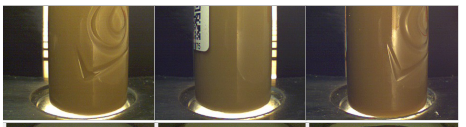


Viscosity @ 40°C



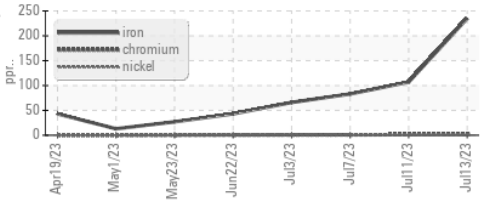
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	▲ MODER	LIGHT
Debris	scalar	*Visual	NONE	**NONE**	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	▲ **MILKY**	▲ MILKY	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual		⬢ **0.2%**	⬢ 0.2%	⬢ 0.2%
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**358**	364	349

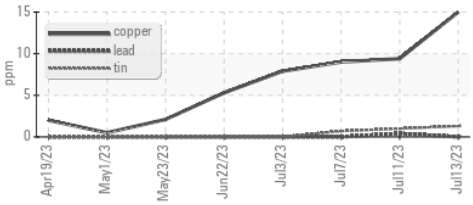
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

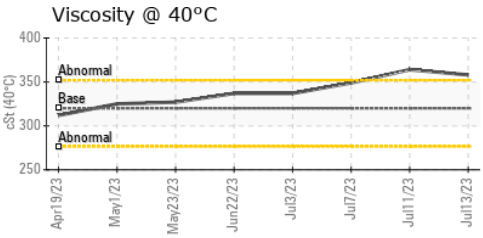
Ferrous Alloys



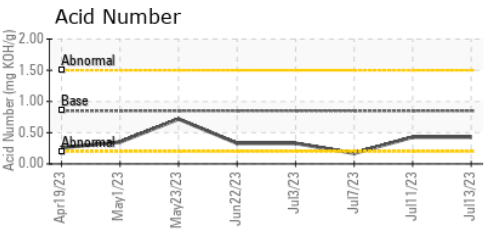
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0011972 **Received** : 21 Jul 2023
Lab Number : 05904318 **Diagnosed** : 26 Jul 2023
Unique Number : 10565674 **Diagnostician** : Don Baldridge
Test Package : MOB 2 (Additional Tests: KF, 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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