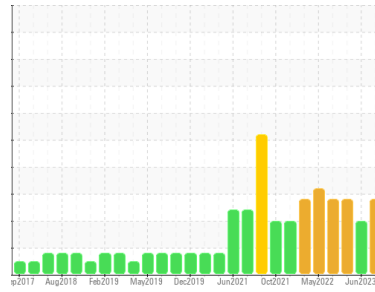




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
MANNS 1100 X6

Component
Port Main Engine

Fluid
SINCLAIR FULL SYNTHETIC SAE 5W40 (23 GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

There is a moderate amount of particulates present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		KL0013501	KLM2316481	KL0008978
Sample Date	Client Info		01 May 2024	07 Jun 2023	08 Jan 2023
Machine Age	hrs	Client Info	1708	373	13003
Oil Age	hrs	Client Info	500	373	429
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	<1.0	<1.0
Water	WC Method	>0.1	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>75	9	18	7
Chromium	ppm	ASTM D5185m	>8	1	1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m	>3	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	2	1	1
Lead	ppm	ASTM D5185m	>18	<1	<1	3
Copper	ppm	ASTM D5185m	>80	▲ 165	87	▲ 137
Tin	ppm	ASTM D5185m	>14	1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		19	20	40
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		61	53	10
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m		1039	881	843
Calcium	ppm	ASTM D5185m		856	728	1528
Phosphorus	ppm	ASTM D5185m		974	827	823
Zinc	ppm	ASTM D5185m		1198	1037	1035
Sulfur	ppm	ASTM D5185m		3613	3184	3404

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>20	4	4	3
Sodium	ppm	ASTM D5185m	>75	5	22	3
Potassium	ppm	ASTM D5185m	>20	2	4	3
Glycol	%	*ASTM D2982		NEG	NEG	NEG

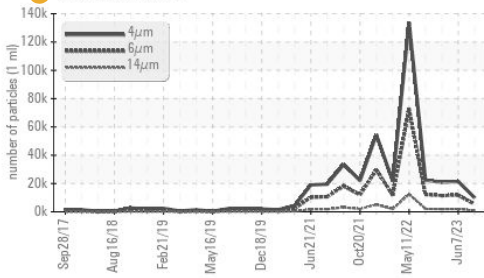
INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0.3	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	10.1	9.5	12.0
Sulfation	Abs.1mm	*ASTM D7415	>30	20.8	20.9	23.9

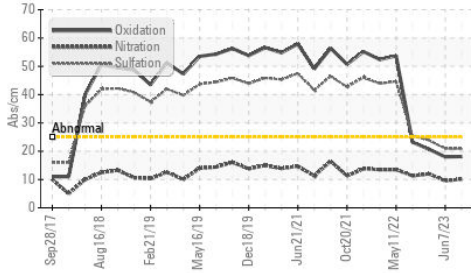


OIL ANALYSIS REPORT

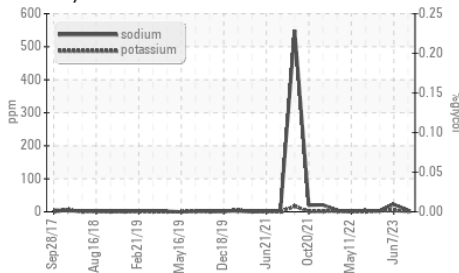
● Particle Trend



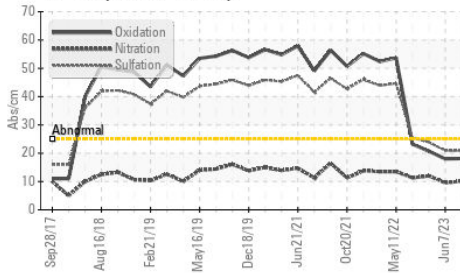
FT-IR (Direct Trend)



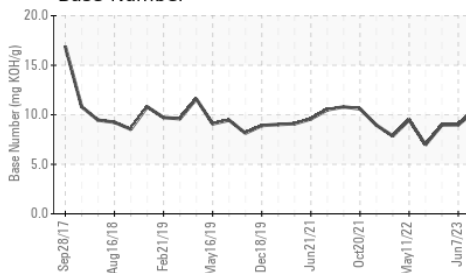
Glycol Contamination



FT-IR (Direct Trend)



Base Number



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		9944	21445	20966
Particles >6µm	ASTM D7647	>5000	● 5417	▲ 11682	▲ 11421
Particles >14µm	ASTM D7647	>640	● 922	▲ 1988	▲ 1944
Particles >21µm	ASTM D7647	>160	● 311	▲ 670	▲ 655
Particles >38µm	ASTM D7647	>40	● 48	▲ 103	▲ 101
Particles >71µm	ASTM D7647	>10	● 5	11	10
Oil Cleanliness	ISO 4406 (c)	>19/16	● 20/17	▲ 21/18	▲ 21/18

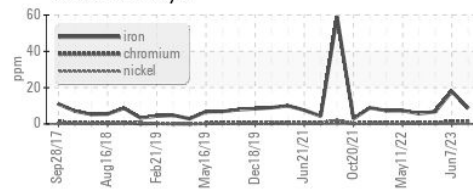
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	*ASTM D7414	>25	18.1	18.0	20.7
Base Number (BN)	mg KOH/g	ASTM D2896		10.39	8.98	8.96

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

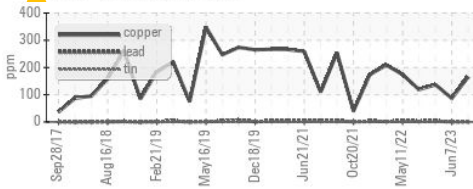
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445		13.3	13.7	15.6

GRAPHS

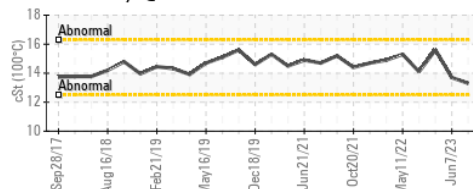
Ferrous Alloys



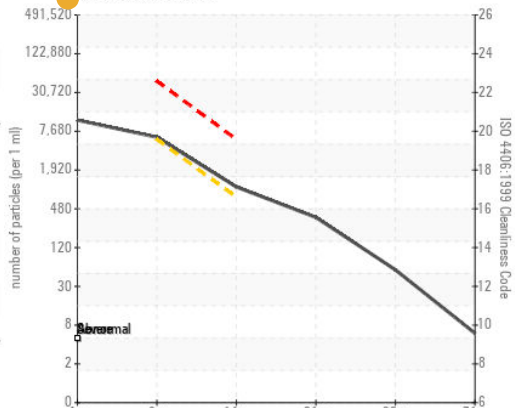
Non-ferrous Metals



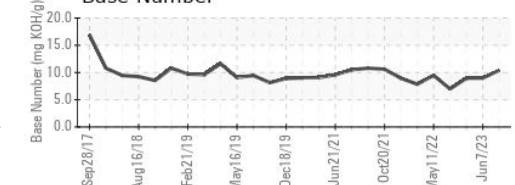
Viscosity @ 100°C



● Particle Count



Base Number



Certificate L2367

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

Sample No. : KL0013501

Lab Number : **06183445**

Unique Number : 11034771

Test Package : MOB 2 (Additional Tests: Glycol, 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)

Received : 17 May 2024

Tested : 21 May 2024

Diagnosed : 21 May 2024 - Don Baldrige

EXPEDITIONS

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