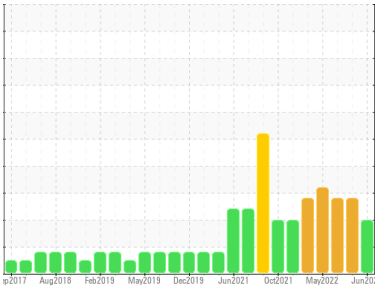
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
MANNS 1100 X6
Component
Port Main Engine
Fluid
SINCLAIR FULL SYNTHETIC SAE 5W40 (23 GAL)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of particulates (2 to 100 microns in size) present in the oil. The system cleanliness is above the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KLM2316481**	KL0008978	KL0008920
Sample Date		Client Info		**07 Jun 2023**	08 Jan 2023	04 Nov 2022
Machine Age	hrs	Client Info		**373**	13003	12574
Oil Age	hrs	Client Info		**373**	429	520
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
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	**18**	7	6
Chromium	ppm	ASTM D5185m	>8	**1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**<1**	<1	<1
Titanium	ppm	ASTM D5185m	>3	**0**	<1	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>15	**1**	1	<1
Lead	ppm	ASTM D5185m	>18	**<1**	3	2
Copper	ppm	ASTM D5185m	>80	**87**	▲ 137	▲ 119
Tin	ppm	ASTM D5185m	>14	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

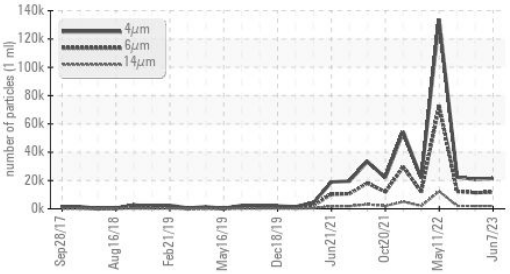
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**20**	40	30
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**53**	10	55
Manganese	ppm	ASTM D5185m		**1**	<1	<1
Magnesium	ppm	ASTM D5185m		**881**	843	1086
Calcium	ppm	ASTM D5185m		**728**	1528	946
Phosphorus	ppm	ASTM D5185m		**827**	823	960
Zinc	ppm	ASTM D5185m		**1037**	1035	1282
Sulfur	ppm	ASTM D5185m		**3184**	3404	3371

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**4**	3	3
Sodium	ppm	ASTM D5185m	>75	**22**	3	4
Potassium	ppm	ASTM D5185m	>20	**4**	3	0

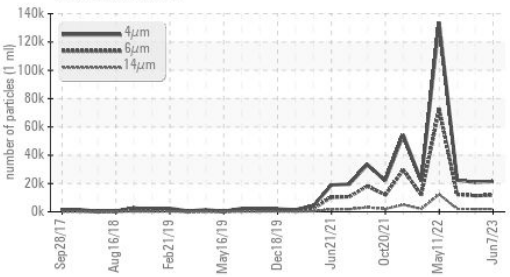
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.3**	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	**9.5**	12.0	11.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	**20.9**	23.9	25.4

OIL ANALYSIS REPORT

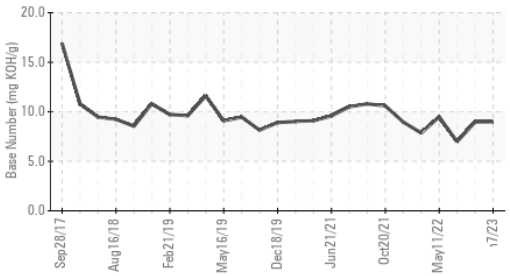
Particle Trend



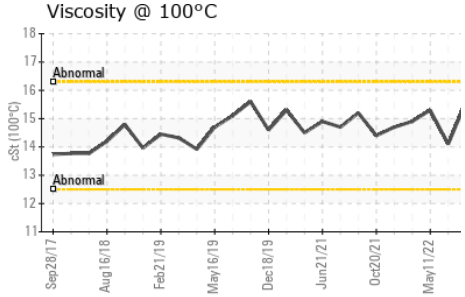
Particle Trend



Base Number



Viscosity @ 100°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**21445**	20966	22349
Particles >6µm		ASTM D7647	>5000	▲ **11682**	▲ 11421	▲ 12175
Particles >14µm		ASTM D7647	>640	▲ **1988**	▲ 1944	▲ 2072
Particles >21µm		ASTM D7647	>160	▲ **670**	▲ 655	▲ 698
Particles >38µm		ASTM D7647	>40	▲ **103**	▲ 101	▲ 108
Particles >71µm		ASTM D7647	>10	**11**	10	11
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ **21/18**	▲ 21/18	▲ 21/18

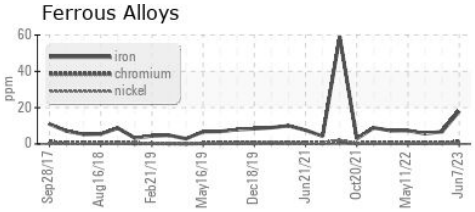
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.0**	20.7	23.2
Base Number (BN)	mg KOH/g	ASTM D2896		**8.98**	8.96	6.98

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

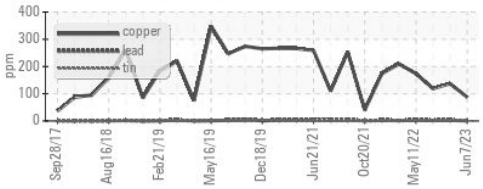
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		**13.7**	15.6	14.1

GRAPHS

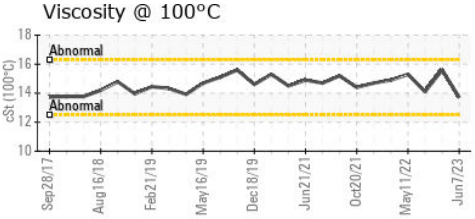
Ferrous Alloys



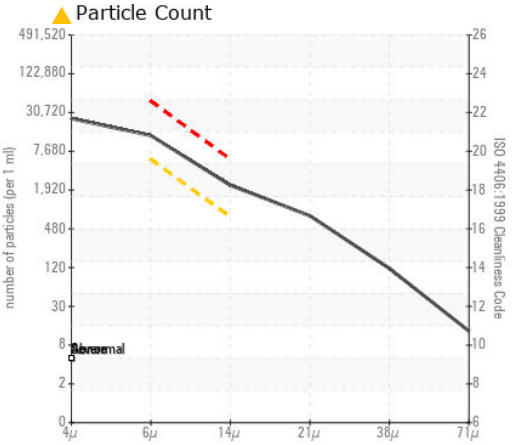
Non-ferrous Metals



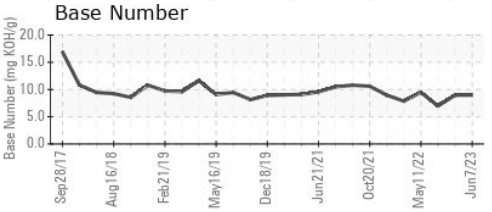
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KLM2316481 **Received** : 17 Jul 2023
Lab Number : 05900777 **Diagnosed** : 19 Jul 2023
Unique Number : 10562133 **Diagnostician** : Wes Davis
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)

EXPEDITIONS
658 FRONT ST, SUITE 127
LAHAINA, HI
US 96761
Contact: BILL CALDWELL
bill@go-lanai.com
T: (800)695-2624
F: (808)661-0544