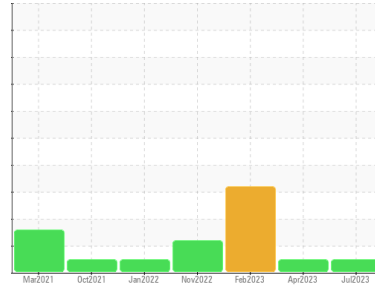




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
27280
 Component
Diesel Engine
 Fluid
NOT GIVEN (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

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			KL0011944	KLM2339431	KLM2339307
Sample Date	Client Info			27 Jul 2023	11 Apr 2023	12 Feb 2023
Machine Age	mls	Client Info		42971	42100	40471
Oil Age	mls	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<1.0	<1.0	▲ 2.9
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	20	15	59
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	6
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m	>330	3	2	7
Tin	ppm	ASTM D5185m	>15	<1	0	<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		69	101	21
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		65	63	56
Manganese	ppm	ASTM D5185m		<1	<1	2
Magnesium	ppm	ASTM D5185m		1120	1141	1042
Calcium	ppm	ASTM D5185m		1014	1012	1210
Phosphorus	ppm	ASTM D5185m		1079	1096	972
Zinc	ppm	ASTM D5185m		1312	1342	1362
Sulfur	ppm	ASTM D5185m		4048	4183	3488

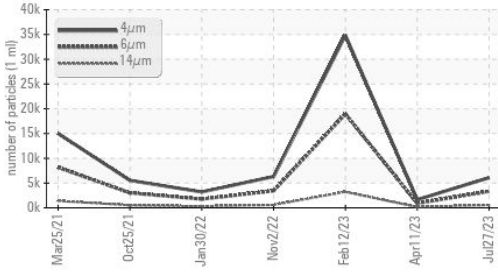
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	6	5	12
Sodium	ppm	ASTM D5185m		3	2	6
Potassium	ppm	ASTM D5185m	>20	5	5	11

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.5	0.4	1.5
Nitration	Abs/cm	*ASTM D7624	>20	8.2	7.3	13.4
Sulfation	Abs./1mm	*ASTM D7415	>30	21.7	21.2	30.0

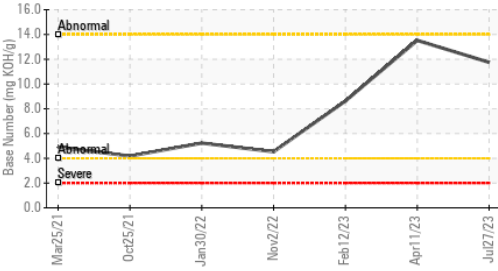


OIL ANALYSIS REPORT

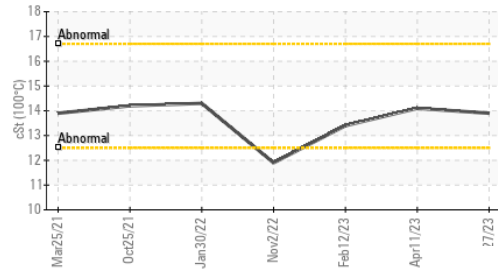
Particle Trend



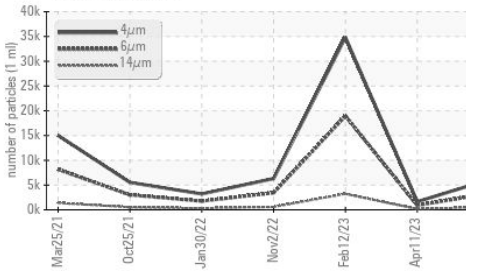
Base Number



Viscosity @ 100°C



Particle Trend



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		6090	1635	34816
Particles >6µm	ASTM D7647	>5000	3317	891	▲ 18966
Particles >14µm	ASTM D7647	>640	565	152	▲ 3228
Particles >21µm	ASTM D7647	>160	190	51	▲ 1087
Particles >38µm	ASTM D7647	>40	29	8	▲ 168
Particles >71µm	ASTM D7647	>10	3	1	▲ 17
Oil Cleanliness	ISO 4406 (c)	>19/16	19/16	17/14	▲ 21/19

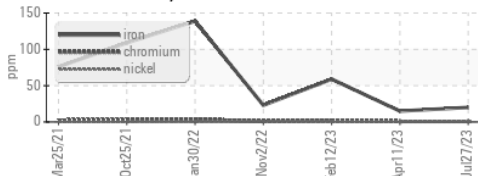
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	*ASTM D7414	>25	19.3	17.6	31.2
Base Number (BN)	mg KOH/g	ASTM D2896		11.75	13.52	8.63

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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

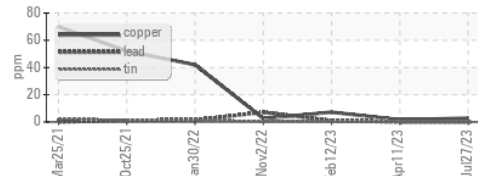
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445		13.9	14.1	13.4

GRAPHS

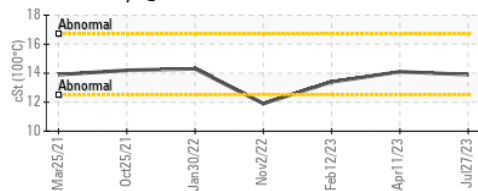
Ferrous Alloys



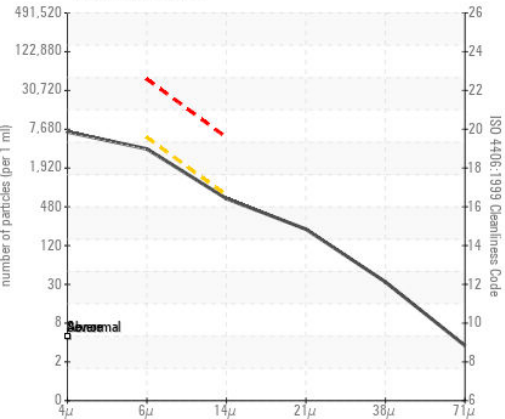
Non-ferrous Metals



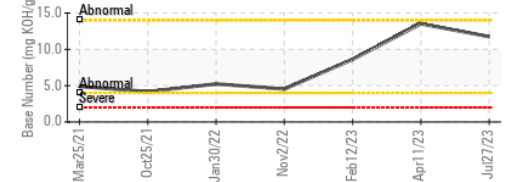
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : KL0011944 Received : 14 Aug 2023
 Lab Number : 05923583 Diagnosed : 16 Aug 2023
 Unique Number : 10603530 Diagnostician : Angela Borella
 Test Package : MOB 2 (Additional Tests: PrtCount)

CITY & COUNTY HONOLULU
 99-999 IWAENA RD
 AIEA, HI
 US 96701
 Contact: CLYDE OMIJA
 comija@honolulu.gov
 T: (575)623-9952
 F:

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)