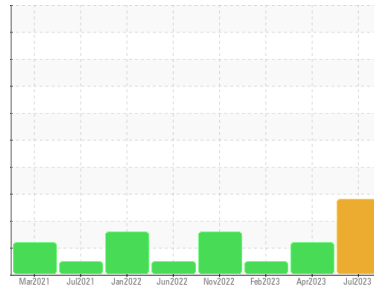




OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id
27303
 Component
Diesel Engine
 Fluid
NOT GIVEN (--- GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil. Light fuel dilution occurring.

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		KL0011945	KLM2339415	KLM2339465
Sample Date	Client Info		27 Jul 2023	08 Apr 2023	13 Feb 2023
Machine Age	mls	Client Info	34869	33034	29983
Oil Age	mls	Client Info	0	0	29983
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	22	13	4
Chromium	ppm	ASTM D5185m >20	<1	<1	<1
Nickel	ppm	ASTM D5185m >4	0	0	0
Titanium	ppm	ASTM D5185m	<1	<1	<1
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >20	9	6	1
Lead	ppm	ASTM D5185m >40	0	0	<1
Copper	ppm	ASTM D5185m >330	2	2	<1
Tin	ppm	ASTM D5185m >15	<1	0	0
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	41	71	133
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	68	63	60
Manganese	ppm	ASTM D5185m	<1	<1	1
Magnesium	ppm	ASTM D5185m	1052	1030	1037
Calcium	ppm	ASTM D5185m	1106	1041	1076
Phosphorus	ppm	ASTM D5185m	1058	1034	972
Zinc	ppm	ASTM D5185m	1319	1271	1277
Sulfur	ppm	ASTM D5185m	4144	4052	3895

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	5	5	4
Sodium	ppm	ASTM D5185m	3	2	1
Potassium	ppm	ASTM D5185m >20	13	10	3
Fuel	%	ASTM D3524 >5	▲ 3.5	▲ 2.2	<1.0

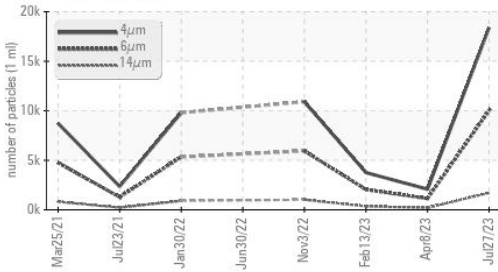
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.6	0.4	0.1
Nitration	Abs/cm	*ASTM D7624 >20	9.5	8.6	5.7
Sulfation	Abs./1mm	*ASTM D7415 >30	23.1	22.1	18.7

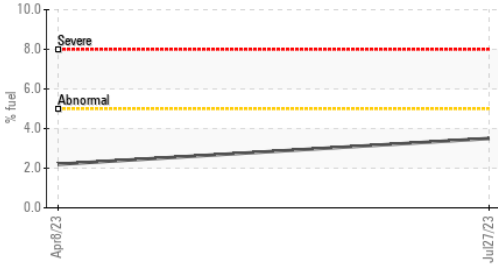


OIL ANALYSIS REPORT

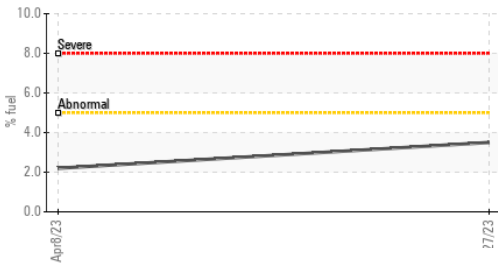
Particle Trend



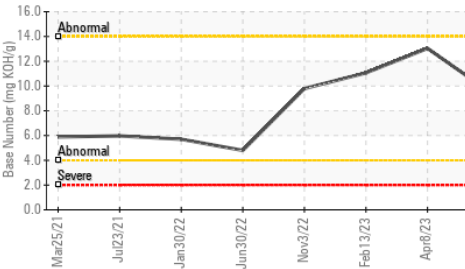
Fuel Dilution



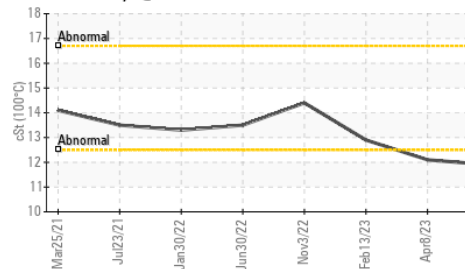
Fuel Dilution



Base Number



Viscosity @ 100°C



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		18390	2079	3758
Particles >6µm	ASTM D7647	>5000	▲ 10018	1133	2047
Particles >14µm	ASTM D7647	>640	▲ 1705	193	348
Particles >21µm	ASTM D7647	>160	▲ 574	65	117
Particles >38µm	ASTM D7647	>40	▲ 89	10	18
Particles >71µm	ASTM D7647	>10	9	1	2
Oil Cleanliness	ISO 4406 (c)	>19/16	▲ 21/18	17/15	18/16

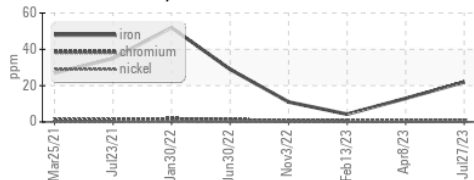
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414	>25	23.6	20.4	14.4
Base Number (BN)	mg KOH/g ASTM D2896		9.55	13.04	11.06

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

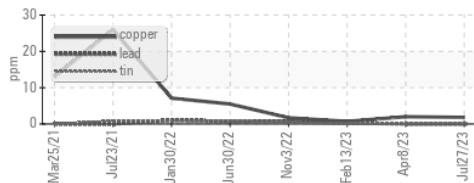
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445		11.9	▲ 12.1	12.9

GRAPHS

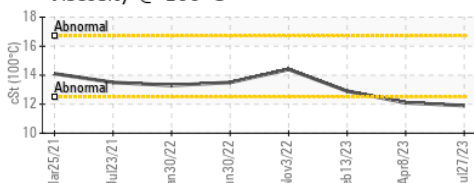
Ferrous Alloys



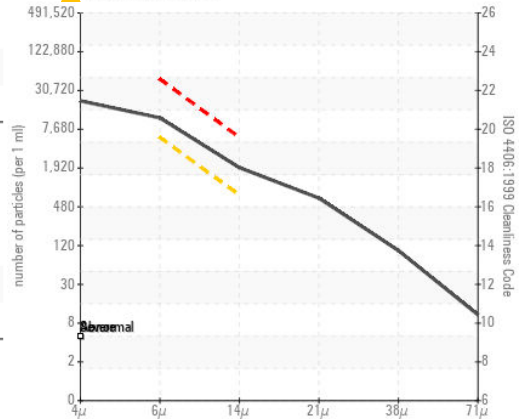
Non-ferrous Metals



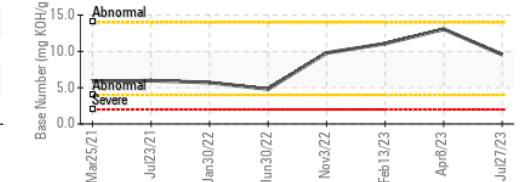
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0011945 **Received** : 14 Aug 2023
Lab Number : 05923581 **Diagnosed** : 16 Aug 2023
Unique Number : 10603528 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, PrtCount)

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 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)