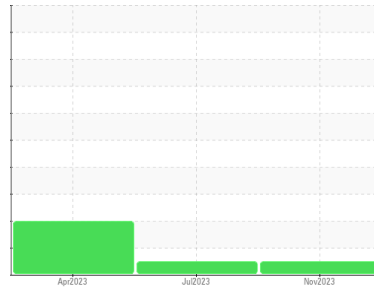




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
27318
 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		KL0012102	KL0012009	KLM2339299
Sample Date	Client Info		10 Nov 2023	25 Jul 2023	11 Apr 2023
Machine Age	mls	Client Info	46328	41081	59328
Oil Age	mls	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	NORMAL	ATTENTION

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	33	145	94
Chromium	ppm	ASTM D5185m >20	1	5	3
Nickel	ppm	ASTM D5185m >4	0	<1	<1
Titanium	ppm	ASTM D5185m	<1	<1	<1
Silver	ppm	ASTM D5185m >3	0	<1	<1
Aluminum	ppm	ASTM D5185m >20	5	27	22
Lead	ppm	ASTM D5185m >40	<1	0	<1
Copper	ppm	ASTM D5185m >330	3	11	8
Tin	ppm	ASTM D5185m >15	<1	1	1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	30	12	15
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	62	62	60
Manganese	ppm	ASTM D5185m	<1	2	1
Magnesium	ppm	ASTM D5185m	1126	1103	1102
Calcium	ppm	ASTM D5185m	1054	1170	1119
Phosphorus	ppm	ASTM D5185m	1115	1056	1052
Zinc	ppm	ASTM D5185m	1373	1344	1343
Sulfur	ppm	ASTM D5185m	3442	3587	3671

CONTAMINANTS

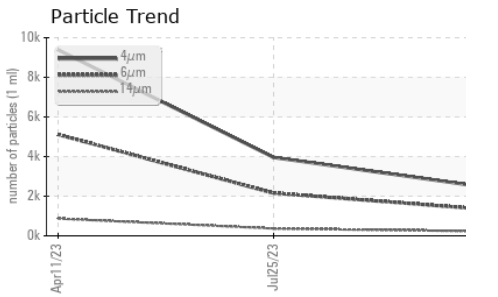
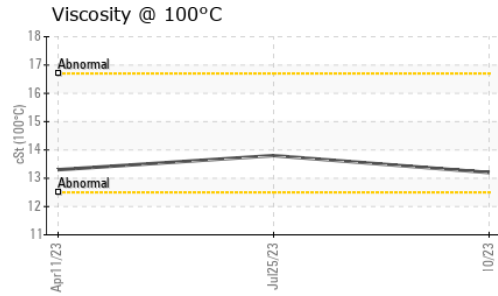
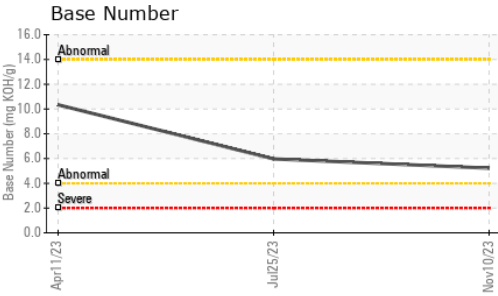
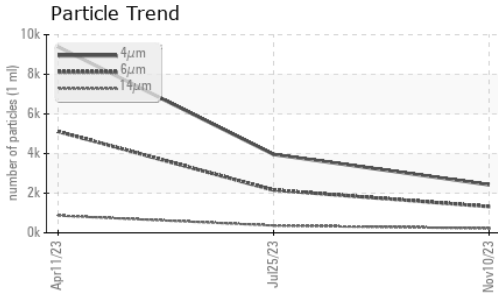
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	7	16	14
Sodium	ppm	ASTM D5185m	5	19	6
Potassium	ppm	ASTM D5185m >20	12	76	65

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.8	1.9	1.6
Nitration	Abs/cm	*ASTM D7624 >20	11.6	17.5	15.5
Sulfation	Abs/.1mm	*ASTM D7415 >30	26.5	40.3	35.7



OIL ANALYSIS REPORT



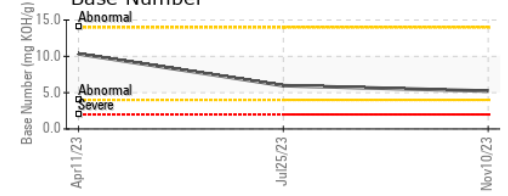
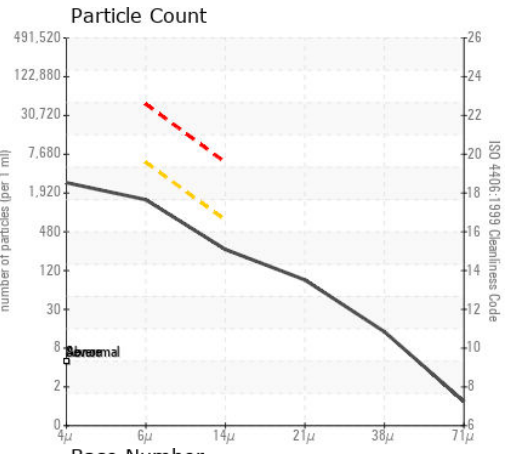
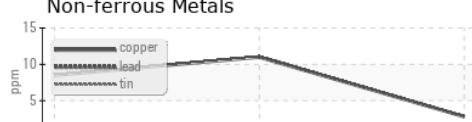
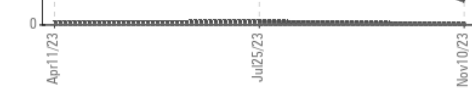
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		2427	3958	9387
Particles >6µm	ASTM D7647	>5000	1322	2156	▲ 5114
Particles >14µm	ASTM D7647	>640	225	367	▲ 870
Particles >21µm	ASTM D7647	>160	76	124	▲ 293
Particles >38µm	ASTM D7647	>40	12	19	▲ 45
Particles >71µm	ASTM D7647	>10	1	2	5
Oil Cleanliness	ISO 4406 (c)	>19/16	18/15	18/16	▲ 20/17

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm *ASTM D7414	>25	28.6	50.2	40.7
Base Number (BN)	mg KOH/g ASTM D2896		5.22	5.97	10.34

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		13.2	13.8	13.3

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0012102 **Received** : 20 Nov 2023
Lab Number : 06013434 **Diagnosed** : 23 Nov 2023
Unique Number : 10752578 **Diagnostician** : Don Baldrige
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)