



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL

Machine Id
27254
Component
Diesel Engine
Fluid
{not provided} (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0014023	KL0012098	KL0012057
Sample Date		Client Info		30 Jan 2024	10 Nov 2023	25 Jul 2023
Machine Age	mls	Client Info		90720	87808	82515
Oil Age	mls	Client Info		87808	0	0
Filter Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ATTENTION	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	45	25	48
Chromium	ppm	ASTM D5185m	>20	1	<1	2
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	4	3	3
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

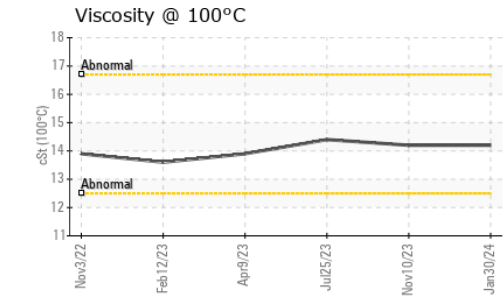
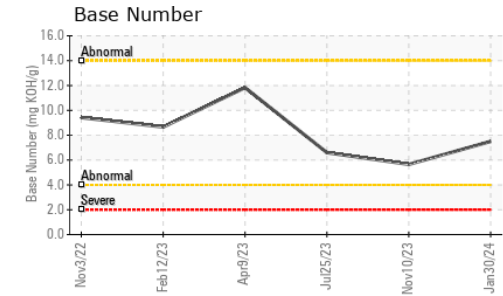
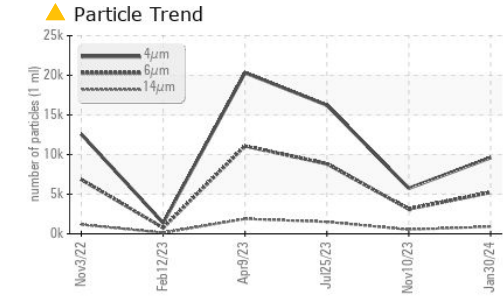
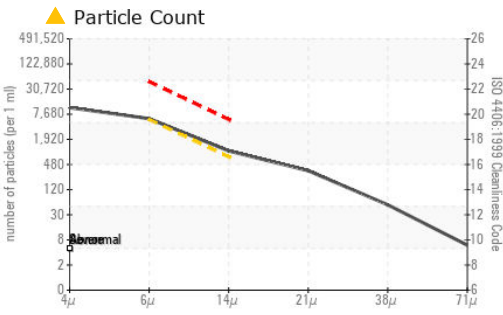
There is a moderate amount of particulates present in the oil.

Silicon	ppm	ASTM D5185m	>25	7	7	11
Potassium	ppm	ASTM D5185m	>20	6	4	5
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.7	1.1	1.7
Nitration	Abs/cm	*ASTM D7624	>20	13.9	11.4	13.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	29.5	25.0	28.4
Particles >4µm		ASTM D7647		9613	5742	16225
Particles >6µm		ASTM D7647	>5000	▲ 5237	3128	▲ 8839
Particles >14µm		ASTM D7647	>640	▲ 891	532	▲ 1504
Particles >21µm		ASTM D7647	>160	▲ 300	179	▲ 507
Particles >38µm		ASTM D7647	>40	▲ 46	28	▲ 78
Particles >71µm		ASTM D7647	>10	5	3	8
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 20/17	19/16	▲ 20/18
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

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.

Sodium	ppm	ASTM D5185m		7	6	12
Boron	ppm	ASTM D5185m		26	43	27
Barium	ppm	ASTM D5185m		11	0	0
Molybdenum	ppm	ASTM D5185m		64	63	67
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		1002	1121	1087
Calcium	ppm	ASTM D5185m		958	1076	1072
Phosphorus	ppm	ASTM D5185m		969	1154	1048
Zinc	ppm	ASTM D5185m		1193	1377	1327
Sulfur	ppm	ASTM D5185m		3267	3576	3958
Oxidation	Abs/.1mm	*ASTM D7414	>25	28.5	23.5	28.2
Base Number (BN)	mg KOH/g	ASTM D2896		7.50	5.65	6.60
Visc @ 100°C	cSt	ASTM D445		14.2	14.2	14.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014023
Lab Number : 06089642
Unique Number : 10877087
Test Package : MOB 2 (Additional Tests: PrtCount)

Received : 14 Feb 2024
Tested : 16 Feb 2024
Diagnosed : 16 Feb 2024 - Jonathan Hester

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)

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