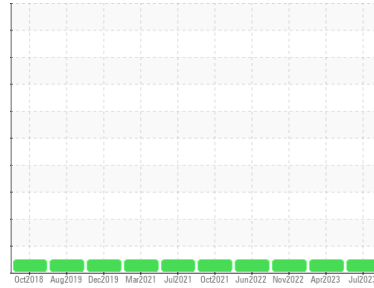




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
FREIGHTLINER 35143
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 40 (--- QTS)

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		KL0012042	KLM2339383	KL0010006
Sample Date	Client Info		28 Jul 2023	08 Apr 2023	04 Nov 2022
Machine Age	mls	Client Info	167392	166608	150309
Oil Age	mls	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>65	6	21	8
Chromium	ppm	ASTM D5185m	>5	<1	2	1
Nickel	ppm	ASTM D5185m	>3	0	<1	<1
Titanium	ppm	ASTM D5185m	>5	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>35	1	5	3
Lead	ppm	ASTM D5185m	>10	0	0	1
Copper	ppm	ASTM D5185m	>180	2	6	4
Tin	ppm	ASTM D5185m	>8	0	<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	250	119	20	67
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	60	53	49
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	943	968	896
Calcium	ppm	ASTM D5185m	3000	1258	1288	1422
Phosphorus	ppm	ASTM D5185m	1150	1083	1020	1026
Zinc	ppm	ASTM D5185m	1350	1307	1326	1297
Sulfur	ppm	ASTM D5185m	4250	4230	3794	4034

CONTAMINANTS

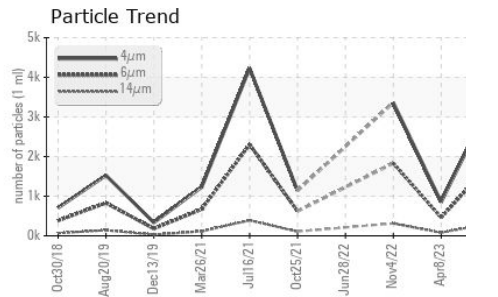
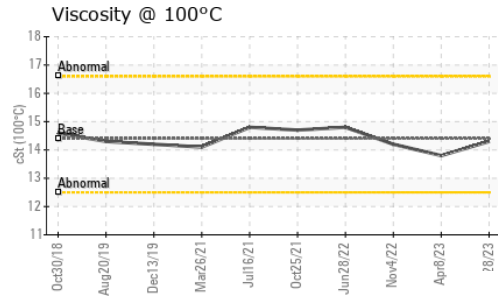
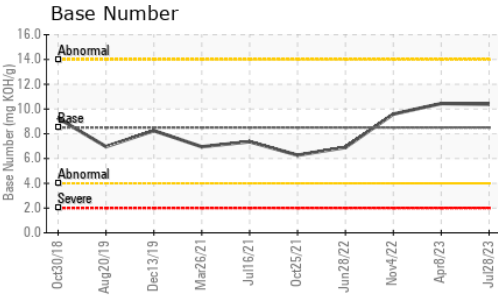
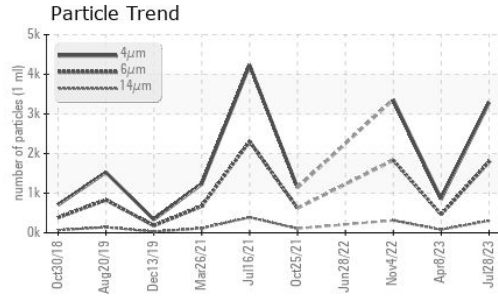
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>15	8	9	5
Sodium	ppm	ASTM D5185m	>216	3	6	2
Potassium	ppm	ASTM D5185m	>20	2	10	4

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	0.2	0.9	0.4
Nitration	Abs/cm	*ASTM D7624	>20	6.2	10.7	7.6
Sulfation	Abs./1mm	*ASTM D7415	>30	18.8	23.8	21.8



OIL ANALYSIS REPORT



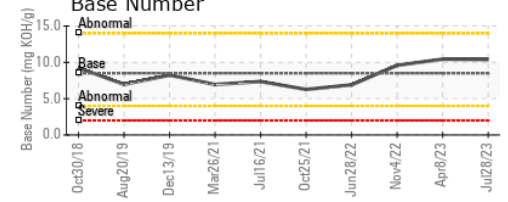
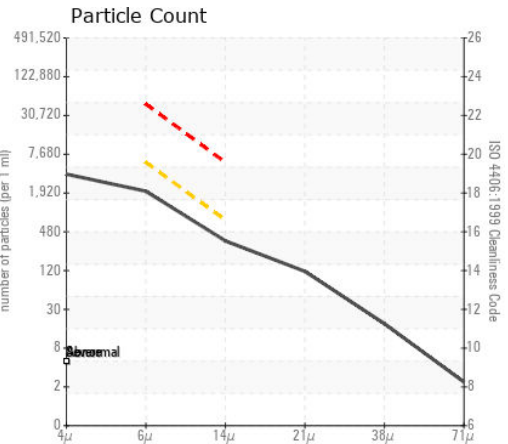
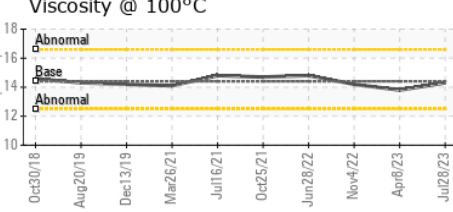
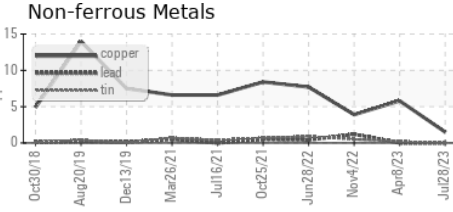
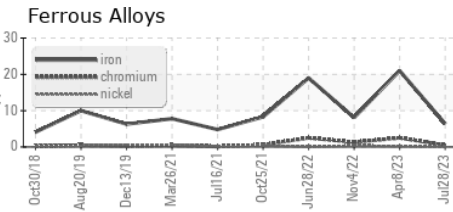
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		3288	853	3362
Particles >6µm	ASTM D7647	>5000	1791	464	1832
Particles >14µm	ASTM D7647	>640	305	79	312
Particles >21µm	ASTM D7647	>160	103	27	105
Particles >38µm	ASTM D7647	>40	16	4	16
Particles >71µm	ASTM D7647	>10	2	0	2
Oil Cleanliness	ISO 4406 (c)	>19/16	18/15	16/13	18/15

FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	*ASTM D7414	>25	14.0	19.4	15.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	10.39	10.44	9.59

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	14.4	14.3	13.8	14.2

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0012042 **Received** : 14 Aug 2023
Lab Number : 05923606 **Diagnosed** : 18 Aug 2023
Unique Number : 10603553 **Diagnostician** : Jonathan Hester
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:

Certificate L2367
 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)