



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
HITACHI 210LC-5 E184 (S/N 1FFDCJ70KEE330524)

Component
Diesel Engine

Fluid
CAT DIESEL ENGINE OIL 15W40 (6 GAL)

RECOMMENDATION

We advise that you check for possible coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0198983	JR0156232	JR0143742
Sample Date		Client Info		10 Jan 2024	19 Apr 2023	12 Sep 2022
Machine Age	hrs	Client Info		9348	8670	8166
Oil Age	hrs	Client Info		604	504	577
Filter Age	hrs	Client Info		604	504	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ATTENTION	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	22	21	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	6	3	7
Lead	ppm	ASTM D5185m	>40	12	5	9
Copper	ppm	ASTM D5185m	>330	13	4	8
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

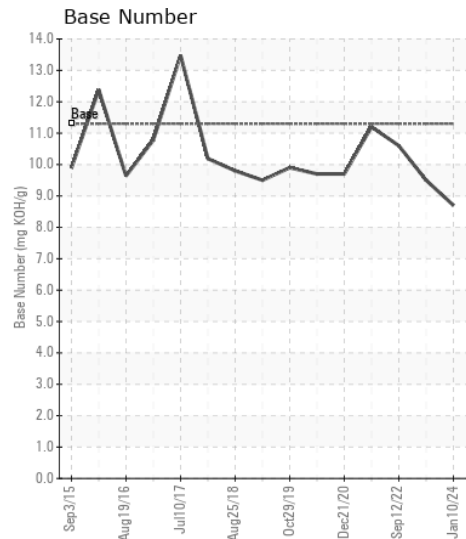
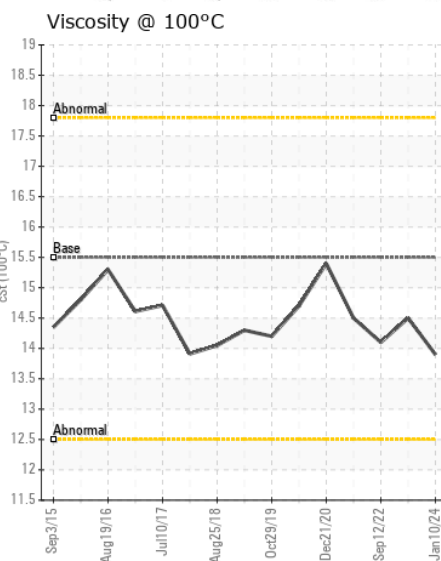
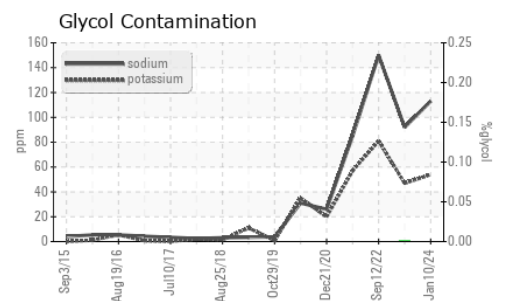
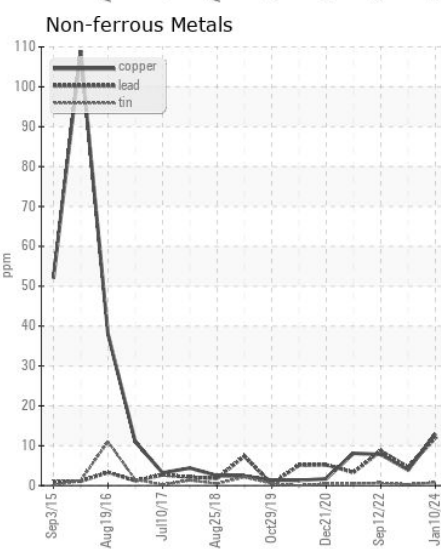
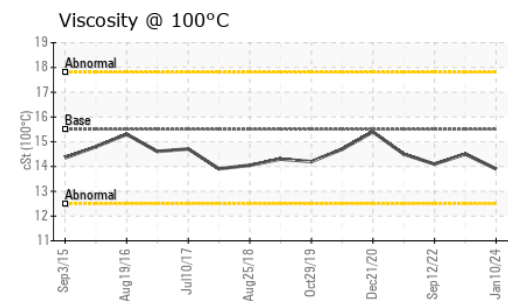
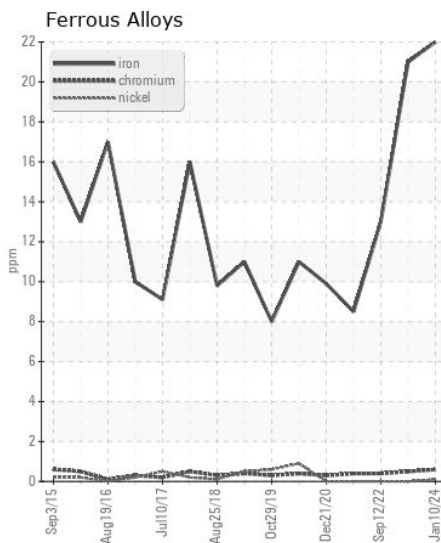
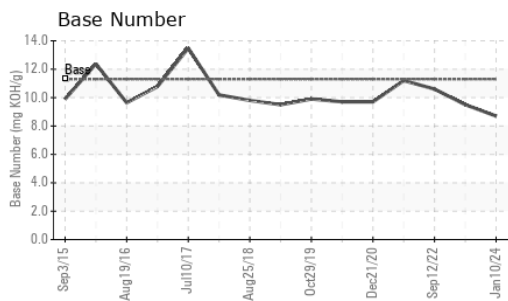
Sodium and/or potassium levels are high.

Silicon	ppm	ASTM D5185m	>25	9	11	9
Potassium	ppm	ASTM D5185m	>20	▲ 54	▲ 47	▲ 81
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	0.0	NEG
Soot %	%	*ASTM D7844	>3	1.6	1.4	1.4
Nitration	Abs/cm	*ASTM D7624	>20	10.7	10.3	11.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	24.9	23.4	25.6
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.

Sodium	ppm	ASTM D5185m		▲ 113	▲ 92	▲ 150
Boron	ppm	ASTM D5185m		60	135	118
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		228	258	280
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		767	836	777
Calcium	ppm	ASTM D5185m		1334	1513	1449
Phosphorus	ppm	ASTM D5185m		792	916	907
Zinc	ppm	ASTM D5185m	1460	1034	1130	1118
Sulfur	ppm	ASTM D5185m		2616	3045	3154
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.5	17.2	18.8
Base Number (BN)	mg KOH/g	ASTM D2896	11.3	8.7	9.5	10.6
Visc @ 100°C	cSt	ASTM D445	15.5	13.9	14.5	14.1



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0198983 **Received** : 17 Jan 2024
Lab Number : 06062498 **Diagnosed** : 19 Jan 2024
Unique Number : 10833880 **Diagnostician** : Jonathan Hester
Test Package : CONST (Additional Tests: Glycol, TBN)

MATTHEWS CONSTRUCTION
 127 GRAYSON RD
 ROCK HILL, SC
 US 29732
 Contact: Tad Clinton
 tclinton@matthewsconstructionco.com
 T: (803)207-5607
 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)