



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
SHUTTLELIFT 3330FL CD4508

Component
Diesel Engine

Fluid
DIESEL ENGINE OIL SAE 10W30 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HPL0003791	---	---
Sample Date		Client Info		05 Jan 2024	---	---
Machine Age	hrs	Client Info		3240	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				ABNORMAL	---	---

WEAR

Piston and cylinder wear is indicated. Bearing and/or bushing wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 240	---	---
Chromium	ppm	ASTM D5185m	>20	7	---	---
Nickel	ppm	ASTM D5185m	>4	<1	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>3	0	---	---
Aluminum	ppm	ASTM D5185m	>20	▲ 22	---	---
Lead	ppm	ASTM D5185m	>40	▲ 41	---	---
Copper	ppm	ASTM D5185m	>330	22	---	---
Tin	ppm	ASTM D5185m	>15	7	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

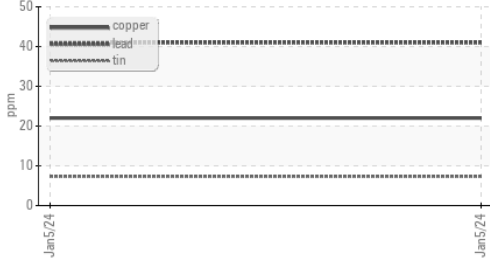
Silicon	ppm	ASTM D5185m	>25	▲ 26	---	---
Potassium	ppm	ASTM D5185m	>20	2	---	---
Fuel		WC Method	>5	<1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844	>3	0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	15.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	51.4	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---

FLUID CONDITION

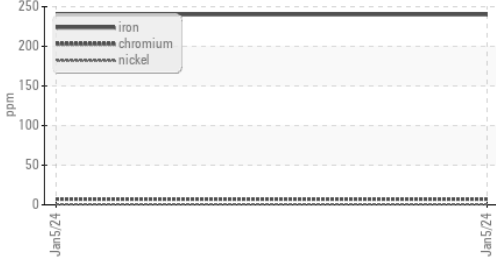
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		13	---	---
Boron	ppm	ASTM D5185m	250	26	---	---
Barium	ppm	ASTM D5185m	10	<1	---	---
Molybdenum	ppm	ASTM D5185m	100	567	---	---
Manganese	ppm	ASTM D5185m		3	---	---
Magnesium	ppm	ASTM D5185m	450	441	---	---
Calcium	ppm	ASTM D5185m	3000	3153	---	---
Phosphorus	ppm	ASTM D5185m	1150	719	---	---
Zinc	ppm	ASTM D5185m	1350	905	---	---
Sulfur	ppm	ASTM D5185m	4250	12811	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	35.2	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.53	---	---
Visc @ 100°C	cSt	ASTM D445	10.9	11.2	---	---

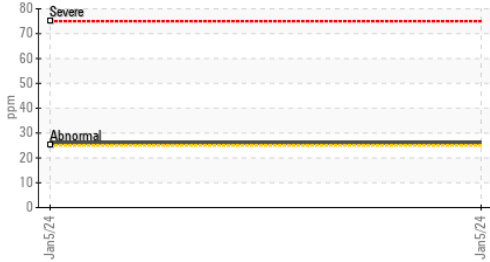
▲ Non-ferrous Metals



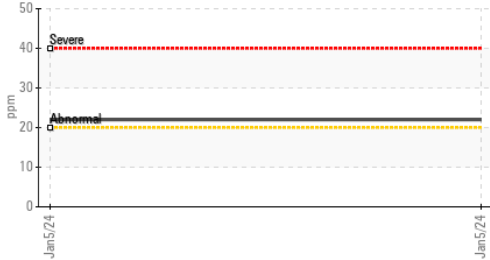
▲ Ferrous Alloys



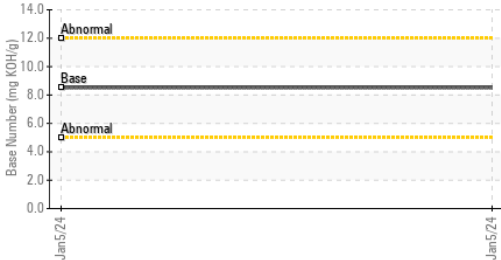
▲ Silicon (ppm)



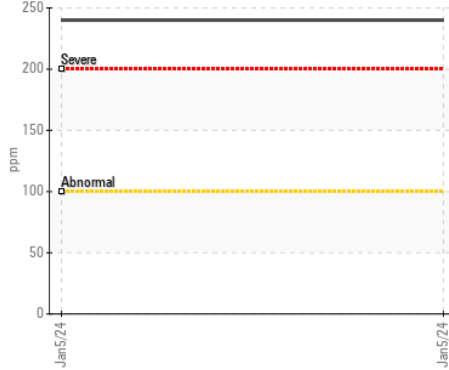
▲ Aluminum (ppm)



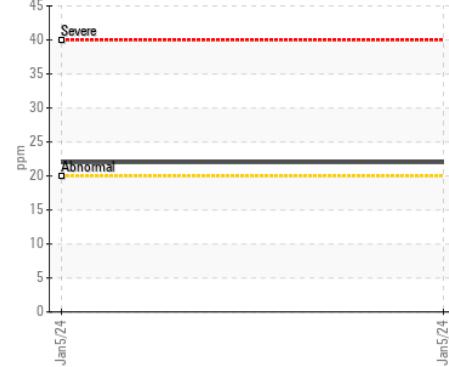
Base Number



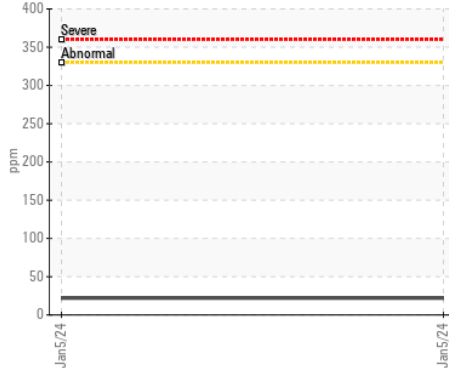
▲ Iron (ppm)



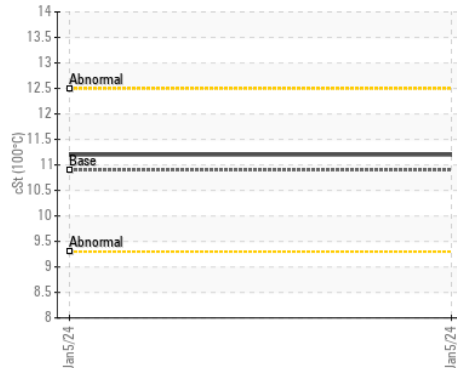
▲ Aluminum (ppm)



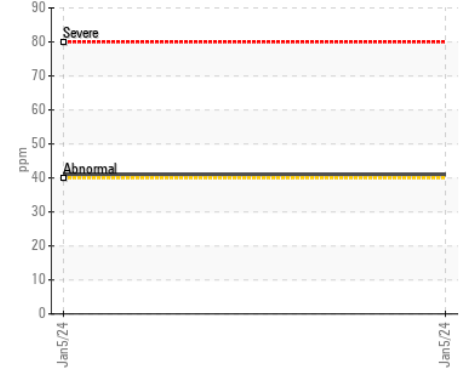
Copper (ppm)



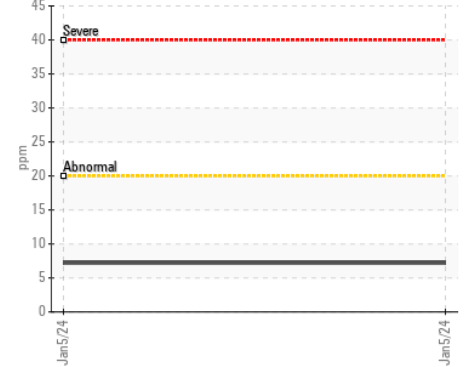
Viscosity @ 100°C



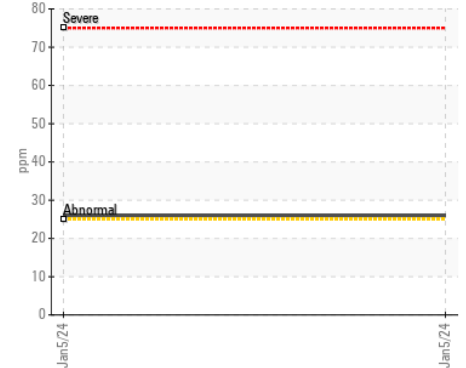
▲ Lead (ppm)



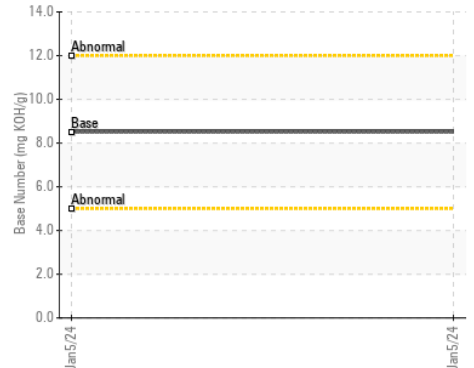
Chromium (ppm)



▲ Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HPL0003791 **Received** : 08 Jan 2024
Lab Number : 06054149 **Diagnosed** : 10 Jan 2024
Unique Number : 10820098 **Diagnostician** : Jonathan Hester
Test Package : MOB 2

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 410 STEVENSON DR
 BOLINGBROOK, IL
 US 60440

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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)