



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL



Area
Store 9 - Marietta
Machine Id
JOHN DEERE 310E 2NP2HJ6XSJM (S/N 1DW310EXVHF683385)
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. 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		LECP189811	---	---
Sample Date		Client Info		20 Aug 2018	---	---
Machine Age	hrs	Client Info		16041	---	---
Oil Age	hrs	Client Info		16041	---	---
Filter Age	hrs	Client Info		16041	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				SEVERE	---	---

WEAR

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

Iron	ppm	ASTM D5185m	>51	▲ 58	---	---
Chromium	ppm	ASTM D5185m	>11	1	---	---
Nickel	ppm	ASTM D5185m	>5	1	---	---
Titanium	ppm	ASTM D5185m		<1	---	---
Silver	ppm	ASTM D5185m		2	---	---
Aluminum	ppm	ASTM D5185m	>31	▲ 52	---	---
Lead	ppm	ASTM D5185m	>26	0	---	---
Copper	ppm	ASTM D5185m	>26	▲ 84	---	---
Tin	ppm	ASTM D5185m	>4	0	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

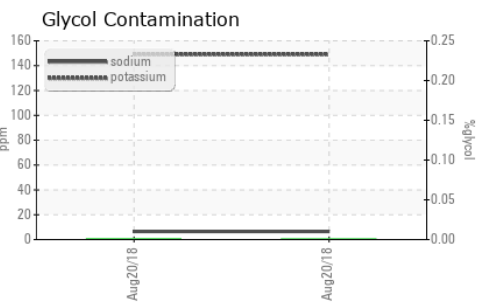
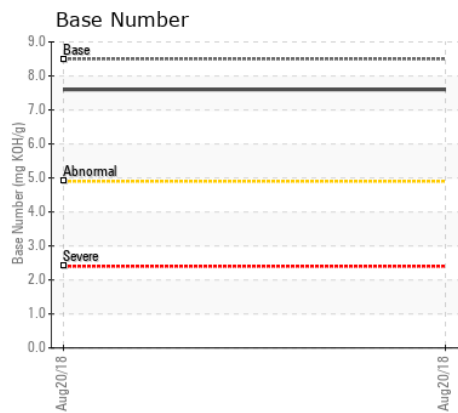
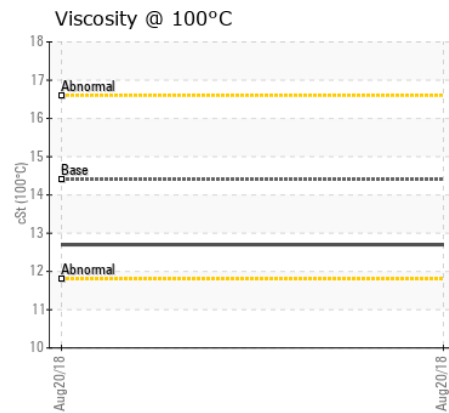
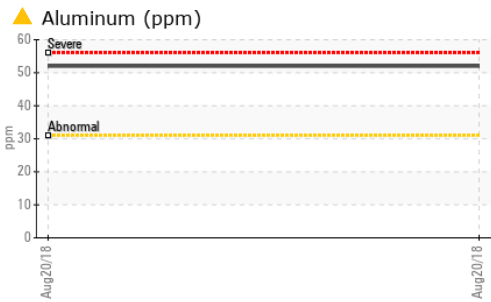
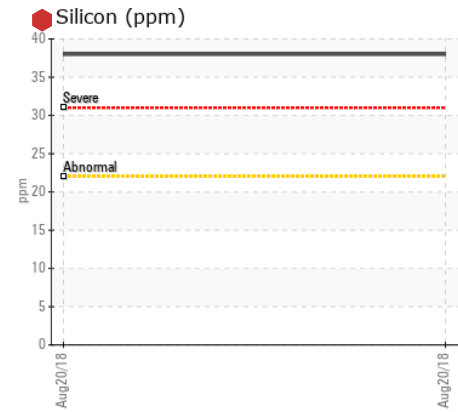
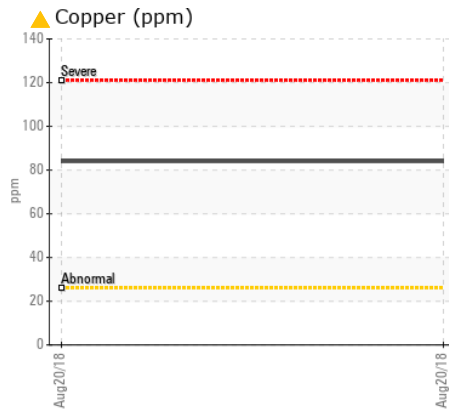
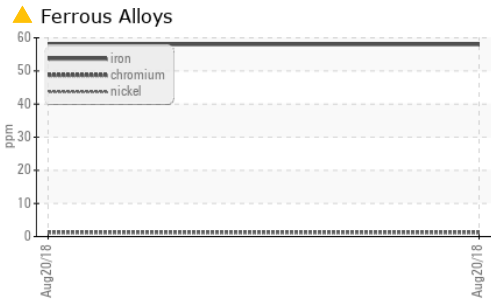
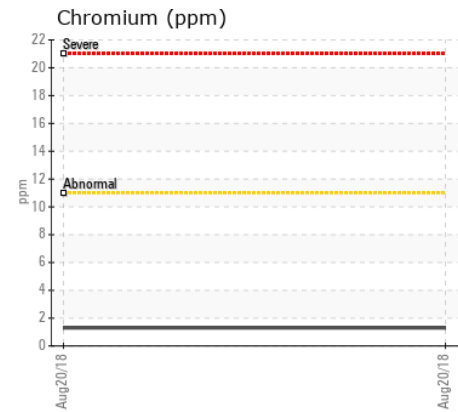
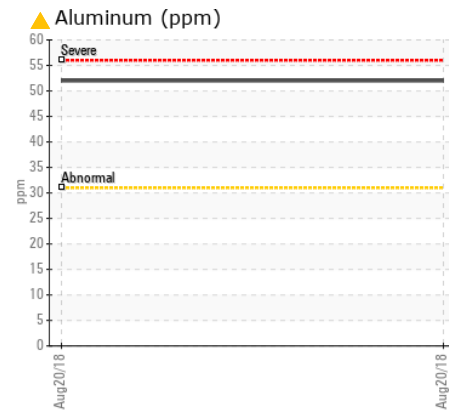
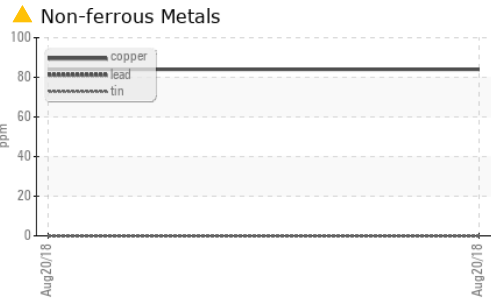
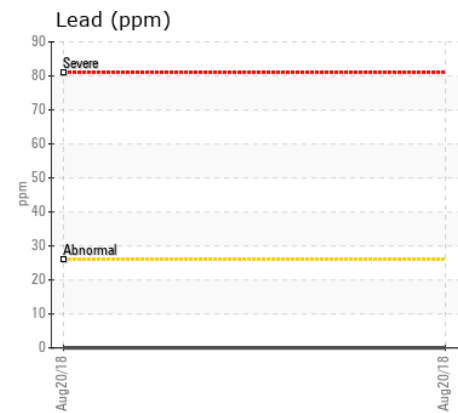
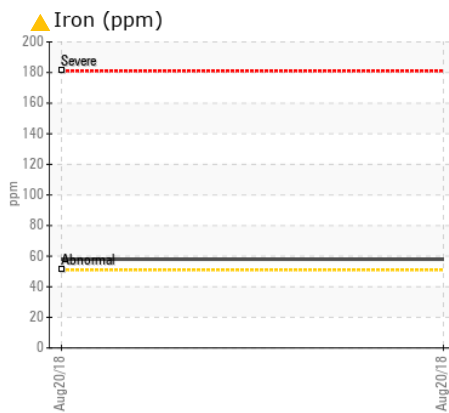
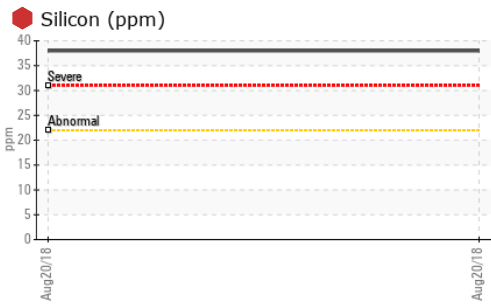
Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>22	◆ 38	---	---
Potassium	ppm	ASTM D5185m	>20	▲ 149	---	---
Fuel		WC Method	>2.1	<1.0	---	---
Water		WC Method	>0.21	NEG	---	---
Glycol	%	*ASTM D2982		0.0	---	---
Soot %	%	*ASTM D7844	>3	0.4	---	---
Nitration	Abs/cm	*ASTM D7624	>25	9.1	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>35	22.2	---	---
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	>0.21	NEG	---	---

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil.

Sodium	ppm	ASTM D5185m	>158	6	---	---
Boron	ppm	ASTM D5185m	250	220	---	---
Barium	ppm	ASTM D5185m	10	7	---	---
Molybdenum	ppm	ASTM D5185m	100	70	---	---
Manganese	ppm	ASTM D5185m		3	---	---
Magnesium	ppm	ASTM D5185m	450	442	---	---
Calcium	ppm	ASTM D5185m	3000	1481	---	---
Phosphorus	ppm	ASTM D5185m	1150	896	---	---
Zinc	ppm	ASTM D5185m	1350	1087	---	---
Sulfur	ppm	ASTM D5185m	4250	2642	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.3	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	7.6	---	---
Visc @ 100°C	cSt	ASTM D445	14.4	12.7	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LECP189811 **Received** : 27 Aug 2018
Lab Number : 04539842 **Diagnosed** : 04 Sep 2018
Unique Number : 8313674 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: Glycol, PQ)

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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)