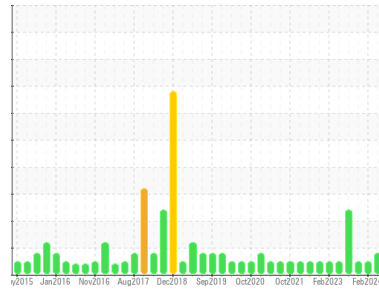


# OIL ANALYSIS REPORT

**Sample Rating Trend**

**SOOT**


Machine Id  
**HITACHI 470 HCMJAA70C00030815**  
 Component  
**Diesel Engine**  
 Fluid  
**JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)**

**DIAGNOSIS**
**▲ Recommendation**

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**

All component wear rates are normal.

**▲ Contamination**

There is an abnormal amount of solids and carbon present in the oil.

**Fluid Condition**

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>JR0211832</b>	JR0200501	JR0179623
Sample Date	Client Info			<b>20 Jun 2024</b>	26 Feb 2024	27 Nov 2023
Machine Age	hrs	Client Info		<b>17963</b>	17465	17018
Oil Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed	Client Info			<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.2	<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>37</b>	28	22
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>6</b>	6	5
Lead	ppm	ASTM D5185m	>40	<b>6</b>	3	2
Copper	ppm	ASTM D5185m	>330	<b>5</b>	2	4
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>112</b>	154	120
Barium	ppm	ASTM D5185m		<b>3</b>	0	3
Molybdenum	ppm	ASTM D5185m		<b>263</b>	271	271
Manganese	ppm	ASTM D5185m		<b>1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>811</b>	875	819
Calcium	ppm	ASTM D5185m		<b>1480</b>	1479	1404
Phosphorus	ppm	ASTM D5185m		<b>910</b>	970	877
Zinc	ppm	ASTM D5185m		<b>1178</b>	1187	1115
Sulfur	ppm	ASTM D5185m		<b>2977</b>	3233	3984

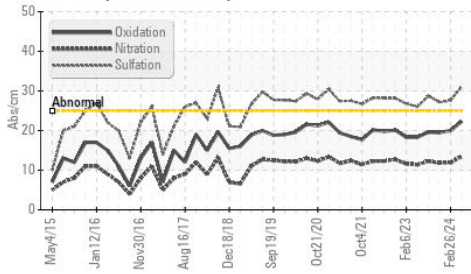
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>12</b>	10	8
Sodium	ppm	ASTM D5185m		<b>75</b>	36	39
Potassium	ppm	ASTM D5185m	>20	<b>24</b>	13	6
Fuel	%	ASTM D3524	>5	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>▲ 3.2</b>	2.5	2.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>13.4</b>	11.9	11.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>31.1</b>	27.6	27.1

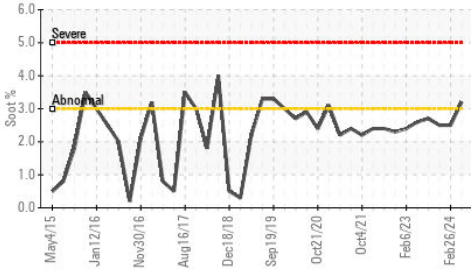
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>22.3</b>	20.0	19.5
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	<b>8.2</b>	8.8	9.1

# OIL ANALYSIS REPORT

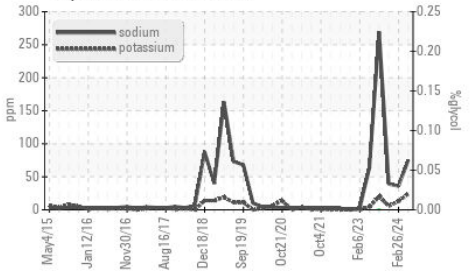
## ▲ FT-IR (Direct Trend)



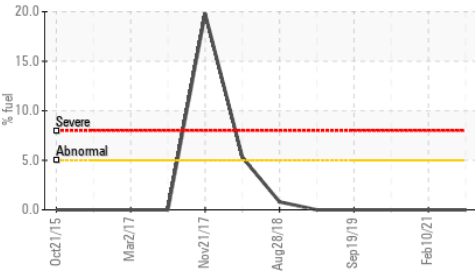
## ▲ Soot %



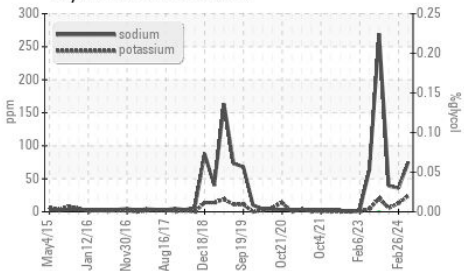
## Glycol Contamination



## Fuel Dilution



## Glycol Contamination

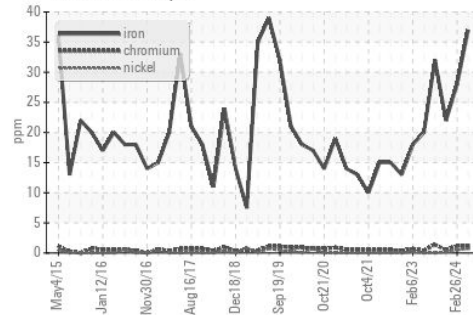


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

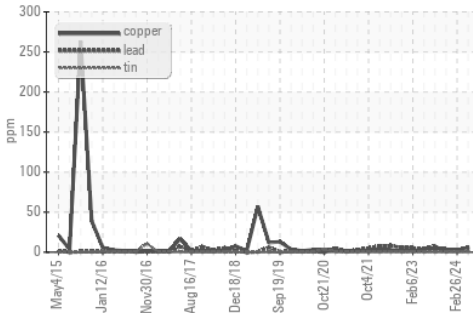
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	13.2

## GRAPHS

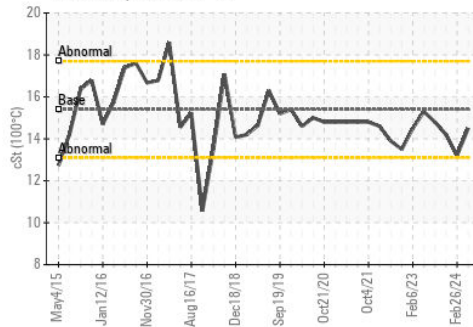
### Ferrous Alloys



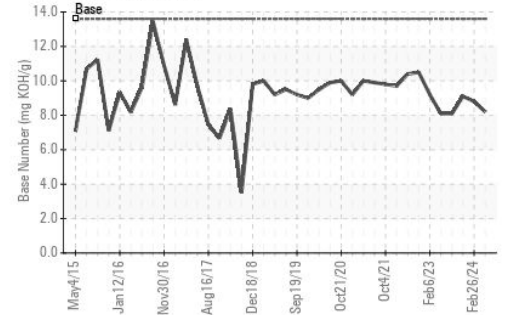
### Non-ferrous Metals



### Viscosity @ 100°C



### Base Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : JR0211832  
**Lab Number** : 06219521  
**Unique Number** : 11097718  
**Test Package** : CONST ( Additional Tests: FuelDilution, GLYCOL, TBN )

**Received** : 25 Jun 2024  
**Tested** : 26 Jun 2024  
**Diagnosed** : 26 Jun 2024 - Jonathan Hester

**JRE - ASHLAND**  
 11047 LEADBETTER RD  
 ASHLAND, VA  
 US 23005

Contact: DAVID ZIEG  
 dzieg@jamesriverequipment.com

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)

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