

# **OIL ANALYSIS REPORT**

Sample Rating Trend

## NORMAL

# JOHN DEERE 437E 1T0437EDLMF391737

**Diesel Engine** 

## JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Flui

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### 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 INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WE0006278		
Sample Date		Client Info		26 Feb 2024		
Machine Age	hrs	Client Info		6800		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	<1.0		
Water		WC Method	>0.21	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	5		
Chromium	ppm	ASTM D5185m	>11	<1		
Nickel	ppm	ASTM D5185m	>5	<1		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>31	6		
Lead	ppm	ASTM D5185m	>26	0		
Copper	ppm	ASTM D5185m	>26	<1		
Tin	ppm	ASTM D5185m	>4	<1		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		<1		
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		407		
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m		407 3		
Barium	ppm	ASTM D5185m		3		
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		3 373		
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		3 373 <1		
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		3 373 <1 1150		  
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		3 373 <1 1150 1952		  
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		3 373 <1 1150 1952 1222	  	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 373 <1 1150 1952 1222 1534	  	   
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 373 <1 1150 1952 1222 1534 4996	   	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		3 373 <1 1150 1952 1222 1534 4996 current	    history1	     history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>22	3 373 <1 1150 1952 1222 1534 4996 current 18	    history1 	     history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>22 >31	3 373 <1 1150 1952 1222 1534 4996 current 18 3	    history1 	     history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	>22 >31 >20	3 3 373 <1 1150 1952 1222 1534 4996 current 18 3 4	    history1  	     history2  
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>22 >31 >20 limit/base	3 373 <1 1150 1952 1222 1534 4996 current 18 3 4 Current	    history1   history1	     history2   history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	>22 >31 >20 limit/base >3	3 3 373 <1 1150 1952 1222 1534 4996 <u>current</u> 18 3 4 <u>current</u> 0	    history1   history1  history1	     history2   history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>22 >31 >20 limit/base >3 >20	3 3 373 <1 1150 1952 1222 1534 4996 <u>current</u> 18 3 4 <u>current</u> 0 5.5	     history1  history1  history1	     history2  history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>22 >31 >20 limit/base >3 >20 >30	3 3 373 <1 1150 1952 1222 1534 4996 current 18 3 4 current 0 5.5 19.6	    history1  history1  history1	     history2  history2  history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	>22 >31 >20 limit/base >3 >20 >30 limit/base	3 3 373 <1 1150 1952 1222 1534 4996 current 18 3 4 current 0 5.5 19.6 current	    history1   history1  history1  history1	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li>history2</li> </ul>



14 Abnormal 13 12 Feb26/24

# **OIL ANALYSIS REPORT**

Base Number	
14.0 Base	***********************
_12.0	
B/H	
호10.0 -	
(12.0) HQ 10.0 E 8.0 Abnomal Abnomal Severe	
- 0.0	
6.0 Abnormal	
5 4.0 - Severe	
0.0	
Feb 26/24	Feb26/24
26	126
Fer	E.
Viscosity @ 100°C	
<sup>19</sup> T	
18 - Abnormal	
17-	
0	
°° <sup>16</sup> Base	
0 16 Base 3 15	
69 19	

	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NONE		
Feb 26/24	Appearance	scalar	*Visual	NORML	NORML		
<u>a</u>	Odor	scalar	*Visual	NORML	NORML		
)°C	Emulsified Water	scalar	*Visual	>0.21	NEG		
	Free Water	scalar	*Visual		NEG		
	FLUID PROPERT	TIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	15.1		
	GRAPHS						
	Ferrous Alloys						
9	10 iron 1						
C 2 5 7	8 - chromium						
3							
	E.						
	4						
	2						
	0						
	Feb 26/24			Feb 26/24			
				Fer			
	Non-ferrous Meta	ls					
	copper						
	8 - Hannahanna lead						
	u dd						
	4						
	2						
	24 0						
	Feb26/24			Feb26/24			
		_		Ψ.			
	Viscosity @ 100°C	• · · · · · · · · · · · ·		14.0	Base Number		
	18 - Abnormal			14.0	<u> </u>		
	17-						
				0.01 (00) 8.0 (00) 9.0 Base Mumper 8.0 Aumper 8.0 Aumpe			
	0-16 Base 53 15			E 8.0	1		
	-			English 6.0	Abnormal		
	14 - Abnormal				007010		
	13 - 9			2.0			
	12						-24
	Feb 26/24			Feb 26/24	Feb26/24		Feb26/24
To discuss this sample report, * - Denotes test methods that	: 10899634 : CONST ( Additional T ; contact Customer Serv are outside of the ISO 1	Rece Teste Diagr ests: TB rice at 1-8 7025 sco	ived : 27 ed : 28 nosed : 28 N) 800-237-1369 ope of accred	7 Feb 2024 8 Feb 2024 Feb 2024 - Se 9. Jitation.	an Felton	Contact: Sgood@war T:	P.O. BOX 412 RTHPORT, AL US 35476 SCOTT GOOD riortractor.com (205)339-0300
Statements of conformity to sp	pecifications are based (	on the sh	nple accepta	nce decision	TUIE (JCGIVI TUB	.2012)	F:



Contact/Location: SCOTT GOOD - WARNOR