

## JOHN DEERE 000478

## Component Diesel Engine

## JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (29 QTS)

Sample Number Client Info JR0211127 JR0190373   Resample at the next service interval to monitor. Sample Date Client Info 11 Apr 2024 05 Oct 2027   Machine Age hrs Client Info 1970 1434 939   Oil Age hrs Client Info 536 495 467   Filter Age hrs Client Info 536 495 467   Oil Changed Client Info Changed Chan								
Resample at the next service interval to monitor.   Sample Dat Machine Age Nachine Age   Client Info   11 Apr 2024 (100 monitor)   11 Apr 204 (100 monitor)   <	RECOMMENDATION		UOM	Method	Limit/Abn	Current	History1	History2
Component wear rates are normal.   Normal Sector   Status of the sector   Stat	Resample at the next service interval to monitor.							
Oil Age   hrs   Client Info   S36   495   467     Filter Changed   Client Info   Changed   Chang			bro					
Filter Age   nrs   Client Info   S86   495   447     OIL Changed   Client Info   Changed   Chang		0						
Oil Changed Filter Changed Sample Status   Clent Info   Changed Normad   Changed Changed Normad   Changed Changed Normad   Changed Normad   Changed Normad <thchanged Normad   Changed Normad   Ch</thchanged 		-						
Filter Changed Sample Status   Client Info Sample Status   Changed NORMA   Changed ATTENTION   Changed NORMA   Changed ATTENTION   Changed NORMA     All component wear rates are normal.   Irin Nickel   ppm   43TH B586   >51   39   32   34     All component wear rates are normal.   On		•	1115					
NormalNormalNormalNormalNormalNormalNormalIronpmANU DISM>11393234All component wear rates are normal.NokelpmKNU DISM>11236TitaniumpmKNU DISM2361111DicepmKNU DISM31533111AluminumpmKNU DISM345332311CopperpmKNU DISM34111 <td< th=""><th>-</th><th></th><th></th><th></th><th>-</th><th>-</th><th></th></td<>		-				-	-	
All component wear rates are normal.   Chromium Nickel   ppm   ASTM 05156n   -11   <1		-						÷
All component wear rates are normal. Nickel ppm ASTM 0515m -5 2 3 6   Titanium ppm ASTM 0515m -3 0 -1 -1   All uminum ppm ASTM 0515m -31 0 -1 -1   Aluminum ppm ASTM 0515m -31 5 4 4   Lead ppm ASTM 0515m -31 5 4 2   Copper ppm ASTM 0515m -26 2 3 2   Tin ppm ASTM 0515m -26 1 1 1   Vanadium ppm ASTM 0515m -2 0 0 -1   White Metal scalar "Visual NONE	WEAR	Iron	ppm	ASTM D5185m	>51	39	32	34
Nucket   ppm   As Middletal   >>   2   3   0      Silver   ppm   As Middletal   >>1   0   <1	All component wear rates are normal.	Chromium	ppm	ASTM D5185m	>11	<1	<1	<1
Silver   ppm   ASTM D5185n   >31   0   <1   <1     Aluminum   ppm   ASTM D5185n   >31   5   4   4     Lead   ppm   ASTM D5185n   >31   5   4   4     Copper   ppm   ASTM D5185n   >26   13   29   42     Tin   ppm   ASTM D5185n   >4   1		Nickel	ppm	ASTM D5185m	>5	2	3	6
Aluminum   ppm   ASTM D515m   >31   5   4   4     Lead   ppm   ASTM D515m   >26   2   3   2     Copper   ppm   ASTM D515m   >26   2   3   2     Tin   ppm   ASTM D515m   >4   1   1   1     Vaaduum   ppm   ASTM D515m   >4   1   1   1     Value   NONE		Titanium	ppm	ASTM D5185m		0	0	<1
Lead   ppm   ASTM D5185m   >26   2   3   2     Copper   ppm   ASTM D5185m   >26   13   29   42     Tin   ppm   ASTM D5185m    1   1   1     Vanadium   ppm   ASTM D5185m    0   0   <1     Vanadium   ppm   ASTM D5185m    0   0   <1   NONE		Silver	ppm	ASTM D5185m	>3	0	<1	<1
Copper   ppm   ASTM D5185m   >26   13   29   42     Tin   ppm   ASTM D5185m   >4   1   1   1   1     Vanadium   ppm   ASTM D5185m   >4   1   1   1   1     Vanadium   ppm   ASTM D5185m   >20   0   3   1		Aluminum	ppm			5		4
Tin   ppm   ASTM D5185m   >4   1   1   1     Vanadium   ppm   ASTM D5185m   0   0   0   <1     White Metal   scalar   'Visual   NONE   NONE   NONE   NONE   NONE     CONTAMINATION   Silicon   ppm   ASTM D5185m   >22   9   8   10     There is no indication of any contamination in the oil.   Silicon   ppm   ASTM D5185m   >22   9   8   10     Water   Wo Method   >2.1   <1.0   0.1   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0   <1.0		Lead	ppm					
Vanadium   ppm   ASTM D5185m   0   0   <1			ppm			13		42
White Metal Yellow Metal   scalar   "Visual   NONE			ppm		>4			
Yellow Metal   scalar   Visual   NONE   NONE   NONE     CONTAMINATION   Silicon   ppm   ASTM 05185m   >22   9   8   10     Potassium   ppm   ASTM 05185m   >20   0   3   2     Fuel   WC Method   >2.1   <1.0   0.1   <1.0     Water   WC Method   >0.21   NEG   NEG   NEG     Soot %   %   4STM 0784d   >3   0.5   0.4   0.4     Nitration   Abs/cm   'ASTM 0784d   >3   0.5   0.4   0.4     Silitaion   %   'ASTM 0784d   >3   0.5   0.4   0.4     Silitaion   Abs/cm   'ASTM 0784d   >3   0.5   0.4   0.4     Silitaion   scalar   'Visual   NONE   NONE   NONE   NONE     Solit   scalar   'Visual   NORE   NORE   NORE   NORE     Appearance   scalar   'Visual   NORH   <						-		
Silicon   ppm   ASTM 55185m   >22   9   8   10     There is no indication of any contamination in the oil.   Potassium   ppm   ASTM 05185m   >20   0   3   2     Fuel   WC Method   >2.1   <1.0			scalar					
Potassium   ppm   ASTM D5185m   >20   0   3   2     Fuel   WC Method   >2.1   <1.0   0.1   <1.0     Water   WC Method   >0.21   NEG   NEG   NEG     Glycol   WC Method   >0.21   NEG   NEG   NEG   NEG     Soot %   %   'ASTM D7844   >3   0.5   0.4   0.4   0.4     Nitration   Abs/cm   'ASTM D7844   >3   0.5   0.4   0.4     Silt   scalar   'Visual   NONE   NORM		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium   ppm   ASTM D5185m   >20   0   3   2     Fuel   WC Method   >2.1   <1.0   0.1   <1.0     Water   WC Method   >0.21   NEG   NEG   NEG     Glycol   WC Method   >0.21   NEG   NEG   NEG   NEG     Soot %   %   'ASTM D7844   >3   0.5   0.4   0.4   0.4     Nitration   Abs/cm   'ASTM D7844   >3   0.5   0.4   0.4     Silt   scalar   'Visual   NONE   NORM	CONTAMINATION	Silicon	ppm	ASTM D5185m	>22	9	8	10
FLUID   VOID   VOID <t< th=""><th></th><th>Potassium</th><th>ppm</th><th>ASTM D5185m</th><th>&gt;20</th><th>0</th><th>3</th><th>2</th></t<>		Potassium	ppm	ASTM D5185m	>20	0	3	2
Glycol   WC Method   NEG   NEG   NEG   NEG   NEG     Soot %   %   *ASTM D784   >3   0.5   0.4   0.4     Nitration   Abs/cm   *ASTM D784   >30   9.1   8.0   8.7     Sulfation   Abs/cm   *ASTM D784   >30   2.3.8   24.0   2.3.0     Silt   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Debris   scalar   *Visual   NONE   NONE   NONE   NONE   NONE     Sand/Dirt   scalar   *Visual   NOR   NORM	There is no indication of any contamination in the oil.	Fuel		WC Method	>2.1	<1.0	0.1	<1.0
Soot %   %   *ASTM D7844   >3   0.5   0.4   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.1   8.0   8.7     Sulfation   Abs/tm   *ASTM D7624   >20   9.1   8.0   8.7     Sulfation   Abs/tm   *ASTM D7624   >20   9.0   23.8   24.0   23.0     Silt   scalar   *Visual   NONE   NORM		Water		WC Method	>0.21	NEG	NEG	NEG
Nitration   Abs/cm   'ASTM D7624   >20   9.1   8.0   8.7     Sulfation   Abs/tm   'ASTM D7415   >30   23.8   24.0   23.0     Silt   scalar   'Visual   NONE   NORE   NORE <t< th=""><th>Glycol</th><th></th><th>WC Method</th><th></th><th>NEG</th><th>NEG</th><th>NEG</th></t<>		Glycol		WC Method		NEG	NEG	NEG
Sulfation   Abs/.tm   *ASTM D7415   >30   23.8   24.0   23.0     Silt   scalar   *Visual   NONE   NORM   NORM<			%					
Silt scalar *Visual NONE NONE NONE NONE   Debris scalar *Visual NONE NONE NONE NONE   Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE   Appearance scalar *Visual NORE NORE NORE NORE NORE   Appearance scalar *Visual NORE NORE NORE NORE NORE   Odor scalar *Visual NORE NORE NORE NORE NORE   Emulsified Water scalar *Visual NORE NORE NORE NORE NORE   FLUID CONDITION Sodium pp ASTM D5185 >31 2 3 2   Boron pp ASTM D5185 I 150 98 189   Barium pm ASTM D5185 I 149 280   Maganesium pm ASTM D5185 I 149 280   Calcium pm ASTM D5185 I 14 1								
Debrisscalar*VisualNONENONENONENONENONESand/Dirtscalar*VisualNONENONENONENONENONENONEAppearancescalar*VisualNORMLNO			Abs/.1mm	*ASTM D7415	>30			
Sand/Dirtscalar*VisualNONENONENONENONENONEAppearancescalar*VisualNORMNORML								
Appearance Odorscalar*VisualNORML<								
Odorscalar*VisualNORML <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>								
Emulsified Waterscalar*Visual>0.21NEGNEGNEGFLUID CONDITIONSodiumppmASTM D5185m>31232BoronppmASTM D5185m531232BariumppmASTM D5185m0000MolybdenumppmASTM D5185m000280ManganeseppmASTM D5185m0<149280MagnesiumppmASTM D5185m<<1<11MagnesiumppmASTM D5185m<85775344810CalciumppmASTM D5185m<9669944861ZincppmASTM D5185m116511871089SulfurppmASTM D5185m3365302923222OxidationAbs/.1mm*ASTM D7141>2519.616.918.6						-		
Sodium ppm ASTM D5185m >31 2 3 2   Boron ppm ASTM D5185m 150 98 189   Barium ppm ASTM D5185m 0 0 0   Molybdenum ppm ASTM D5185m 2 149 280   Manganese ppm ASTM D5185m 2 149 280   Manganese ppm ASTM D5185m 6 1 1   Magnesium ppm ASTM D5185m 857 534 810   Calcium ppm ASTM D5185m 1722 2310 1445   Phosphorus ppm ASTM D5185m 966 994 861   Zinc ppm ASTM D5185m 1165 1187 1089   Sulfur ppm ASTM D5185m 3365 3029 3222   Oxidation Abs/im<*ASTM D7414<>25 19.6 16.9 18.6								
BoronppmASTM D5185m15098189The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.pm $ASTM D5185m$ 000Molybdenumppm $ASTM D5185m$ 1220149280Manganeseppm $ASTM D5185m$ <<11Magnesiumppm $ASTM D5185m$ <<534810Calciumppm $ASTM D5185m$ <534810Phosphorusppm $ASTM D5185m$ 966994861Zincppm $ASTM D5185m$ 116511871089Sulfurppm $ASTM D5185m$ 336530293222Oxidation $Abs/.1mm$ "ASTM D7141>2519.616.918.6		Emulsified Water	scalar	*Visual	>0.21	NEG	NEG	NEG
BoronppmASTM D5185m15098189The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.pm $ASTM D5185m$ 000Molybdenumppm $ASTM D5185m$ 1220149280Manganeseppm $ASTM D5185m$ <<11Magnesiumppm $ASTM D5185m$ <<534810Calciumppm $ASTM D5185m$ <534810Phosphorusppm $ASTM D5185m$ 966994861Zincppm $ASTM D5185m$ 116511871089Sulfurppm $ASTM D5185m$ 336530293222Oxidation $Abs/.1mm$ "ASTM D7141>2519.616.918.6	FLUID CONDITION	Sodium	ppm	ASTM D5185m	>31	2	3	2
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service. Barium ppm ASTM D5185m 0 0 0   Molybdenum ppm ASTM D5185m 220 149 280   Manganese ppm ASTM D5185m <1 <1 1   Magnesium ppm ASTM D5185m <857 534 810   Calcium ppm ASTM D5185m <1722 2310 1445   Phosphorus ppm ASTM D5185m <966 994 861   Zinc ppm ASTM D5185m 1165 1187 1089   Sulfur ppm ASTM D5185m 3365 3029 3222   Oxidation Abs/.1mm *ASTM D7141 >25 19.6 16.9 18.6		Boron		ASTM D5185m		150	98	189
Molybdenum ppm ASTM D5185m 220 149 280   Manganese ppm ASTM D5185m <1	, ,							
Manganese ppm ASTM D5185m <1 <1   Magnesium ppm ASTM D5185m 857 534 810   Calcium ppm ASTM D5185m 1722 2310 1445   Phosphorus ppm ASTM D5185m 966 994 861   Zinc ppm ASTM D5185m 1165 1187 1089   Sulfur ppm ASTM D5185m 3365 3029 3222   Oxidation Abs/.1mm *ASTM D7414 >25 19.6 16.9 18.6								
Magnesium ppm ASTM D5185m 857 534 810   Calcium ppm ASTM D5185m 1722 2310 1445   Phosphorus ppm ASTM D5185m 966 994 861   Zinc ppm ASTM D5185m 1165 1187 1089   Sulfur ppm ASTM D5185m 1365 3029 3222   Oxidation Abs/.1mm *ASTM D7414 >25 19.6 16.9 18.6		Manganese						
Phosphorus   ppm   ASTM D5185m   966   994   861     Zinc   ppm   ASTM D5185m   1165   1187   1089     Sulfur   ppm   ASTM D5185m   3365   3029   3222     Oxidation   Abs/.1mm   *ASTM D7414   >25   19.6   16.9   18.6		Magnesium	ppm	ASTM D5185m		857	534	810
Phosphorus   ppm   ASTM D5185m   966   994   861     Zinc   ppm   ASTM D5185m   1165   1187   1089     Sulfur   ppm   ASTM D5185m   3365   3029   3222     Oxidation   Abs/.1mm   *ASTM D7414   >25   19.6   16.9   18.6		-				1722	2310	
Zinc   ppm   ASTM D5185m   1165   1187   1089     Sulfur   ppm   ASTM D5185m   3365   3029   3222     Oxidation   Abs/.1mm   *ASTM D7414   >25   19.6   16.9   18.6		Phosphorus		ASTM D5185m		966		861
Sulfur   ppm   ASTM D5185m   3365   3029   3222     Oxidation   Abs/.1mm   *ASTM D7414   >25   19.6   16.9   18.6		Zinc	ppm	ASTM D5185m			1187	1089
		Sulfur		ASTM D5185m		3365	3029	3222
Base Number (BN) mg KOH/g ASTM D2896 13.6 7.9 8.1 7.5		Oxidation	Abs/.1mm	*ASTM D7414	>25	19.6	16.9	18.6
		Base Number (BN)	mg KOH/g	ASTM D2896	13.6	7.9	8.1	7.5

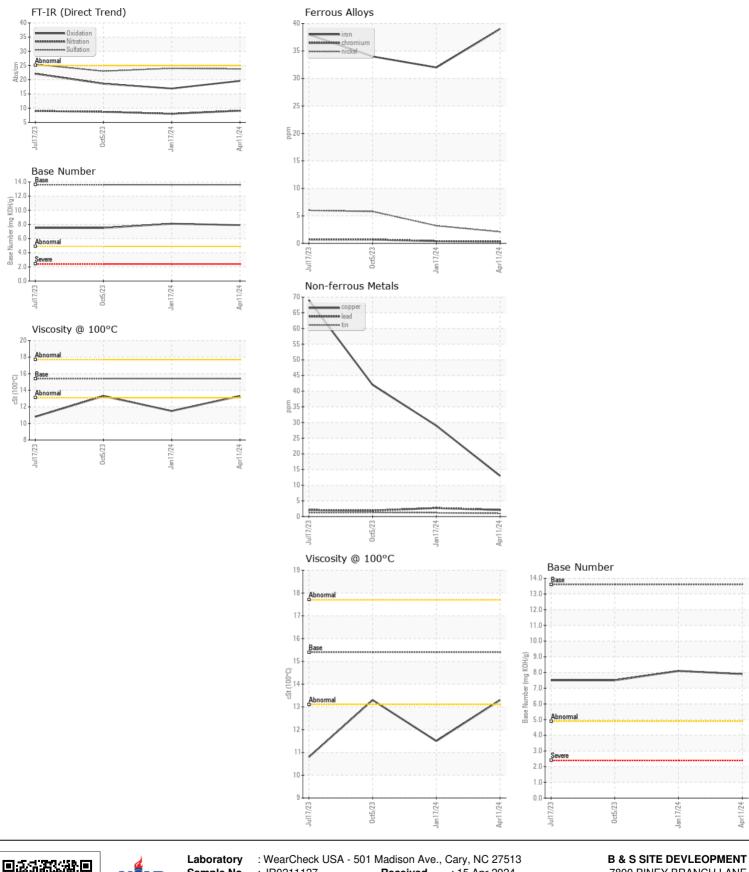
Visc @ 100°C cSt

ASTM D445 15.4

11.5

13.3

13.3



**B & S SITE DEVLEOPMENT** Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : JR0211127 Received 7800 PINEY BRANCH LANE : 15 Apr 2024 Lab Number : 06149270 Tested BRISTOW, VA : 16 Apr 2024 Unique Number : 10979348 Diagnosed : 16 Apr 2024 - Wes Davis US 20136 Test Package : CONST (Additional Tests: TBN) Contact: DANNY HUFF Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dhuff@bandssite.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (540)270-3203 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (703)753-0605

Submitted By: TECHNICIAN ACCOUNT Page 2 of 2