WEAR CONTAMINATION FLUID CONDITION

NORMAL NORMAL

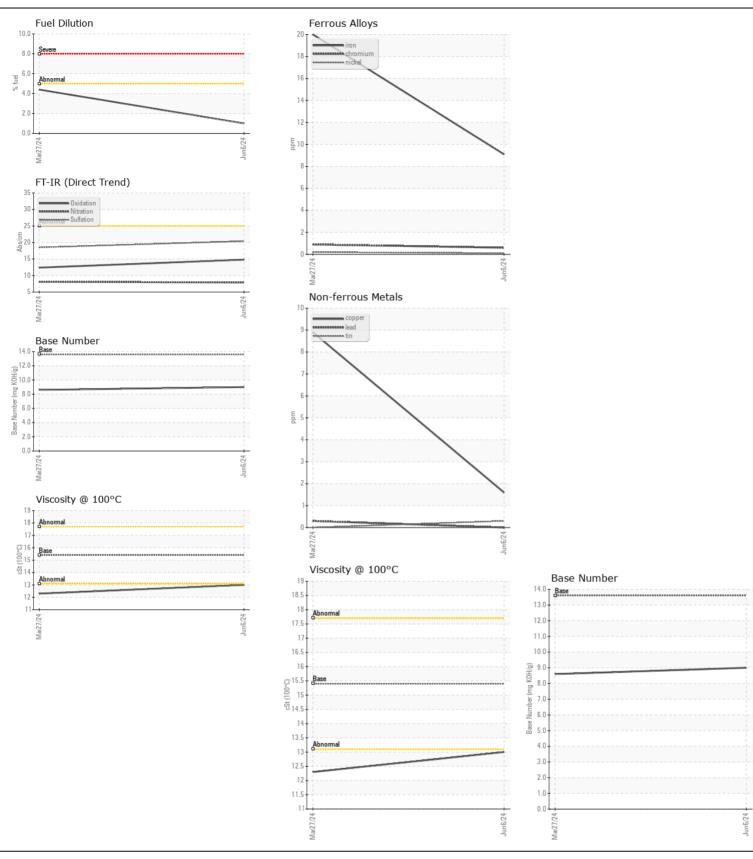


CATERPILLAR 938M C301218 (S/N CAT038MPP5K01052)

Diesel Engine

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

Nickel ppm ASTM D5185m 22 41 41	JOHN DEERE ENGINE OIL PLO		 -	GAL)				
Resample at the next service interval to monitor. Sample Number Sample Data Client Into O Machine Age Into Client Into Changed Client Into Changed Client Into Changed Changed	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age hrs Client Info 4782 4340		Sample Number		Client Info		JR0218695	JR0207892	
Oil Age	Resample at the next service interval to monitor.	Sample Date		Client Info		06 Jun 2024	27 Mar 2024	
Filter Age		Machine Age	hrs	Client Info		4752	4340	
Oil Changed Cilent Info Changed Chang		Oil Age	hrs	Client Info		412	0	
Filter Changed Client Info Changed Cha		Filter Age	hrs	Client Info		412	0	
Iron		Oil Changed		Client Info		Changed	Changed	
Iron		Filter Changed		Client Info		Changed	Changed	
All component wear rates are normal. Chromium ppm ASTM 05185m 22 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 AUMINIAM Ppm ASTM 05185m >30 2 2 9 Tin ppm ASTM 05185m >15 <1 0 AUMINIAM Ppm ASTM 05185m >10 AUMINIAM		Sample Status				NORMAL	MARGINAL	
All component wear rates are normal. Chromium ppm ASTM 05185m 22 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 Titanium ppm ASTM 05185m >2 <1 <1 AUMINIAM Ppm ASTM 05185m >30 2 2 9 Tin ppm ASTM 05185m >15 <1 0 AUMINIAM Ppm ASTM 05185m >10 AUMINIAM	WEAR	Iron	nnm	ΔSTM D5185m	\100	۵	20	
Nickel ppm ASTM 05185m 22 c1 c1 c1 c1 c2 c1 c1	All component wear rates are normal.							
Titanium ppm ASTM D5185m >2 <1 <1								
Silver ppm ASTM D5185m >2 0 0			• •					
Aluminum ppm ASTM D5185m >25 12 18								
Lead ppm ASTM D5185m 3-40 0 0 1			• •					
Copper								
Tin								
Vanadium ppm ASTM 05185m NONE NONE NONE White Metal scalar Visual NONE								
White Metal Scalar *Visual NONE N					>10			
Vellow Metal Scalar Visual NONE NO					NONE	-		
Silicon ppm ASTM D5185m >25 6 4								
Potassium ppm ASTM 05185m 20 2 2 2 3 4 4 3 4 4 4 4 4 4	<u></u>	reliow ivietal	Scalar	visuai	NONE	NONE	NONE	
Potassium ppm ASTM 05185m 20 2 2 2 3 4 4 3 4 4 4 4 4 4	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	6	4	
the oil. Water		Potassium	ppm	ASTM D5185m	>20	2	2	
Water WC Method N.E.	Fuel content negligible. There is no indication of any contamination in the oil.	Fuel		ASTM D3524	>5	1.0	4.4	
Soot %		Water		WC Method	>0.2	NEG	NEG	
Nitration		Glycol		WC Method		NEG	NEG	
Sulfation Abs/.1mm *ASTM D7415 >30 20.4 18.5		Soot %	%	*ASTM D7844	>3	0.1	0.2	
Silt scalar *Visual NONE NORML		Nitration	Abs/cm	*ASTM D7624	>20	7.9	8.1	
Debris Scalar *Visual NONE NORML		Sulfation	Abs/.1mm	*ASTM D7415	>30	20.4	18.5	
Sand/Dirt Scalar *Visual NONE NONE NONE NORML		Silt	scalar	*Visual	NONE	NONE	NONE	
Appearance		Debris	scalar	*Visual	NONE	NONE	NONE	
Codor Scalar *Visual NORML N		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Emulsified Water scalar *Visual >0.2 NEG NEG		Appearance	scalar	*Visual	NORML	NORML	NORML	
Sodium ppm ASTM D5185m Description		Odor	scalar	*Visual	NORML	NORML	NORML	
Boron ppm ASTM D5185m 242 8		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Boron ppm ASTM D5185m 242 8	ELUID CONDITION	Codium		ACTM DE10Em		•	0	
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 222 13 Molybdenum ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 1342 1392 Phosphorus ppm ASTM D5185m 1342 1392 Phosphorus ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.tmm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6	PLUID CONDITION							
Oil. The condition of the oil is suitable for further service. Molybdenum ppm ASTM D5185m 222 13 Manganese ppm ASTM D5185m 0 <1 Magnesium ppm ASTM D5185m 808 1181 Calcium ppm ASTM D5185m 1342 1392 Phosphorus ppm ASTM D5185m 806 988 Zinc ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.tnm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6	The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.							
Manganese ppm ASTM D5185m 0 <1								
Magnesium ppm ASTM D5185m 808 1181 Calcium ppm ASTM D5185m 1342 1392 Phosphorus ppm ASTM D5185m 806 988 Zinc ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6		•						
Calcium ppm ASTM D5185m 1342 1392 Phosphorus ppm ASTM D5185m 806 988 Zinc ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6								
Phosphorus ppm ASTM D5185m 806 988 Zinc ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6		9						
Zinc ppm ASTM D5185m 1067 1282 Sulfur ppm ASTM D5185m 3196 3720 Oxidation Abs/.1mm *ASTM D7414 >25 14.8 12.4 Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6								
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Base Number (BN) mg KOH/g ASTM D2896 13.6 9.0 8.6					>25			
VISC @ 100 C CSL ASTIVIDARS 13.4 13.0 12.5		(,	0 0					
		VISC W 100 C	COL	ASTIVI D443	10.4	13.0	14.3	





Laboratory Sample No. Unique Number : 11082779

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 **Lab Number** : 06209915

: JR0218695

Received : 14 Jun 2024 **Tested** Diagnosed

: 19 Jun 2024 : 19 Jun 2024 - Jonathan Hester

JRE - ASHEVILLE 101 BRUCE DRIVE ASHEVILLE, NC US 28806

Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN) 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.

Contact: Randy Warren randy.warren@jamesriverequipment.com T: (528)667-0176

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: (828)667-4865