

## Machine Id 3009154 (S/N 530611) Component Main Engine JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (26 QTS) RECOMMENDATION

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

Sample Number       Client Info       JR0201224           Sample Date       Client Info       26 Feb 2024           Sample Date       Client Info       597           Oil Age       hrs       Client Info       597           Oil Changed       Client Info       597            Oil Changed       Client Info       Changed            Oil Changed       Client Info       ASTM D5185m       >75       46          WEAR       Iron       ppm       ASTM D5185m       >75       46          Nickel ppm       ASTM D5185m       >8       2	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
at the next service interval to monitor.         Machine Age         First Clean Into         SPT 2020             Machine Age         first Clean Into         SPT 2020              Filter Age         first Clean Into         SPT              OI Changed         Clean Into         SPT 2000         Changed              Filter Changed         Clean Into         SPT 2000         Changed <t< th=""><th rowspan="3">Oil and filter change at the time of sampling has been noted. Resample</th><th>Sample Number</th><th></th><th>Client Info</th><th></th><th></th><th></th><th></th></t<>	Oil and filter change at the time of sampling has been noted. Resample	Sample Number		Client Info				
Machine Age         Ins         Client Info         597             Oil Age         Ins         Client Info         597             Filter Age         Ins         Client Info         597             Oil Changed         Client Info         Changed              WEAR         The incised level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other thraw and ( <i>a</i> . coling core), All other metal levels are typical for a new component breaking in.		Sample Date		Client Info		26 Feb 2024		
Filter Age         Ins         Client Info         Storppot         Ins         Client Info         Charged         Client Info         C		Machine Age	hrs	Client Info		597		
OI Changed Filter Changed Sample Status         Client Info         Changed Changed Sample Status         Client Info         Changed Sample Status         Client Info         Client Info <thclient info<="" th="">         Client Info</thclient>		Oil Age	hrs	Client Info		597		
Filter Changed         Client Into         Phase         Phase         Phase           Sample Status         Sample Status<		Filter Age	hrs	Client Info		597		
Sample Status         ABNOMA         n         n           WEAR         tron         pm         K110 (51%)         x75         4.6             The nickel level is abnormal. The copper level is abnormal. The copper level is abnormed is the species of the than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than provided than provided than wear (i.e. cooling core). All other metal levels are provided than wear (i.e. cooling core). All other metal levels are provided than provided		Oil Changed		Client Info		Changed		
WEAR         Iron         ppm         ASIM USISM         >75         46             The nickel level is abnormal. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (it.e. config core). All other metal levels are typical for a new component breaking in.         ASIM USISM         >2         4         19             Sloves         ppm         ASIM USISM         >2         4         19             Slove         ppm         ASIM USISM         >2         4         1             Slove         ppm         ASIM USISM         >8         4         1             Slove         ppm         ASIM USISM         >80         4         1             Lead         ppm         ASIM USISM         >80         4         1             Vanadium         ppm         ASIM USISM         NONE         <             Vanadium         ppm         ASIM USISM         NONE              Vanadium         ppm         ASIM USISM         NONE         NONE		Filter Changed		Client Info		Changed		
The nickel level is abnormal. In the absence of other significant ware metals, suspect copper due to sources other than ware (i.e. configuence). All other metal levels are typical for a new component breaking in.         Chromium         ppm         ASTM 05186m         2.3         1.0            Survees other than ware (i.e. configuence). All other metal levels are typical for a new component breaking in.         All other metal levels are typical for a new component breaking in.         All other metal levels are typical for a new component breaking in.		Sample Status				ABNORMAL		
The nickel level is abnormal. In the absence of other significant ware metals, suspect copper due to sources other than ware (i.e. configuence). All other metal levels are typical for a new component breaking in.         Chromium         ppm         ASTM 05186m         2.3         1.0            Survees other than ware (i.e. configuence). All other metal levels are typical for a new component breaking in.         All other metal levels are typical for a new component breaking in.         All other metal levels are typical for a new component breaking in.						40		
The inckel level is abnormal. The cooper level is abnormal. In the absence of other significant ware metals. suspect cooper due to sources other than wear (i.e. cooling core). All other metal levels are by joical for a new component breaking in.       Nickel       ppm       ASTM D5185m       -2       ▲ 19           Silver       ppm       ASTM D5185m       -2       <1            Aluminum       ppm       ASTM D5185m       -2       <1            Aluminum       ppm       ASTM D5185m       -2       <1            Aluminum       ppm       ASTM D5185m       -2       <1	WEAK							
absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other metal levels are typical for a new component breaking in.         Note:	absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other metal levels are							
Sources uner rule womponent breaking in.         Silver         ppm         ASTM 05165m         >2         -1            Aluminum         ppm         ASTM 05165m         >15         5             Issue of ppm         ASTM 05165m         >16         1              Issue of ppm         ASTM 05165m         >16         1              Copper         ppm         ASTM 05165m         >14         2             Vanadium         ppm         ASTM 05165m         <1              Vanadium         ppm         ASTM 05165m         <1              Vanadium         ppm         ASTM 05165m         <1              Vanadium         ppm         ASTM 05165m         >14         2             Vanadium         ppm         ASTM 05165m         >14         2             CONTAMINATION         Salar         Visual         NONE         NONE             Fuel content negligible. T								
Aluminum         ppm         ASTM 5685         >15         5             Lead         ppm         ASTM 5685         >16              Lead         ppm         ASTM 5685         >80         562             Vanadium         ppm         ASTM 5685         >10              Vanadium         ppm         ASTM 5685         >10              White Metal         scalar         Visual         NONE              Vanadium         ppm         ASTM 5685         >20         4             Evel content negligible. There is no indication of any contamination in the oil.         Silicon         ppm         ASTM 5685         >20         4             Water         Wolker         WO Method         0.5               Solit         scalar         Visual         NONE         0.5             Solit         scalar         Visual         NONE								
Lead         ppm         ASTM D5185m         >18         <1             Copper         ppm         ASTM D5185m         >14         2             Tin         ppm         ASTM D5185m         14         2             Vanadium         ppm         ASTM D5185m         14              Vanadium         ppm         ASTM D5185m         14              Vanadium         ppm         ASTM D5185m         20         12             Veltow Metal         Sclaar         'Visual         NONE         NONE             Veltow Metal         Sclaar         'Visual         NONE         NONE             Water         Water         Water         Water         NSTM D5185m         -20         12             Suifation         Asc imm         NSTM D5185m         -20         12             Suifation         Asc imm         NSTM D5185m         -20         12             Suifation <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Copper         ppm         ASTM D5185m         >80         A 562             Tin         ppm         ASTM D5185m         2             White Metal         scalar         Visual         NONE         NONE         NONE            CONTAMINATION         Silicon         ppm         ASTM D5185m         -20         12             Fuel content negligible. There is no indication of any contamination in the oil.         Silicon         ppm         ASTM D5185m         -20         4             Glycol         ppm         ASTM D5185m         -20         4              Soliton         ppm         ASTM D5185m         -20         4             Fuel         %         ASTM D5185m         -20         4             Glycol         WCMethod         NEG               Solt %         %         YASTM D7145         -20         9.3             Solt %         %         YASTM D7145         -20         9.3								
Tin         ppm         ASTM D5185n         >14         2             Vanadium         ppm         ASTM D5185n               White Metal         scalar         'Visual         NONE         NONE             CONTAMINATION         Silicon         ppm         ASTM D5185n         >20         12             Fuel content negligible. There is no indication of any contamination in the oil.         Silicon         ppm         ASTM D5185n         >20         12             Water         vW C Method         >0.0         NEG               Water         wW C Method         >0.0         NEG								
Vanadium         ppm         ASTM D5185m         C         1             White Metal         scalar         'Visual         NONE         NONE             CONTAMINATION         Silicon         ppm         ASTM D5185m         >20         12             Fuel content negligible. There is no indication of any contamination in the oil.         Silicon         ppm         ASTM D5185m         >20         4             Water         WC Method         >0.1         NEG              Water         WC Method         >0.1         NEG              Soid %         %         'ASTM D784         0.5              Soid %         %         'ASTM D784         0.5              Sulfation         Abs/tm<'/TASTM D784         20         9.3              Debris         scalar         'Visual         NONE         NONE             Debris         scalar         'Visual         NORH         NORH         -								
White Metal         scalar         Visual         NONE         NONE            Vellow Metal         scalar         Visual         NONE         NONE             CONTAMINATION         Silicon         ppm         ASTM D5185m         >-20         12             Fuel content negligible. There is no indication of any contamination in the oil.         %         ASTM D5185m         >-20         4             Water         %         ASTM D5185m         >-20         4             Glycol         %         ASTM D5185m         >-20         9.3             Water         %         ASTM D7644         >0.5              Sold %         %         MSTM D7764         >0.0         9.3             Sold Water         %         Scalar         Visual         NONE         NONE					217			
Yellow Metal         scalar         VVisual         NONE             CONTAMINATION         Silicon         ppm         ASTM D5185m         >-20         12             Fuel content negligible. There is no indication of any contamination in the oil.         potassium         ppm         ASTM D5185m         >20         4             Water         W         COMEthod         0.1         NEG             Glycol         WC Method         0.1         NEG              Soti %         %         Yellow MRM         0.1         NEG             Glycol         WC Method         0.1         NEG              Soti %         %         Yellow MRM         Yellow         NONE         NONE             Soti %         %         Yellow         NONE         NONE					NONE			
CONTAMINATION         Silicon         ppm         ASTM D518m         >20         12            Fuel content negligible. There is no indication of any contamination in the oil.         Potassium         ppm         ASTM D518m         >20         4             Water         Workehod         >0.1         NEG              Water         WC Method         >0.1         NEG              Silicon         %         ASTM D518m         >20         9.3             Water         WC Method         >0.5								
Polassium         ppm         ASTM D518m         >20         4            Fuel         %         ASTM D518m         >20         4             Fuel         %         ASTM D518m         >20         4.5             Water         WC Method          NEG              Glycol         WC Method          NEG              Soft %         %         'ASTM D7844          0.5             Soft %         %         'ASTM D7824          0.5             Soft %         %         'ASTM D7824          0.5             Soft %         %         'ASTM D7824          0.5             Soft %         %         'ASTM D7824         >0.5         0.5				100001	NONE			
Fuel         %         ASTM D3524         >4.0         0.5            Water         I         WC Method         >0.1         NEG            Glycol         WC Method         >0.1         NEG             Glycol         WC Method         >0.1         NEG             Solo %         %STM D7844         0.5              Nitration         Abs/Im         'ASTM D7845         >0         9.3             Sulfation         Abs/Im         'NSTM 07844         >0         NONE             Sulfation         Abs/Im         'NSTM 07415         >30         23.0             Sulfation         Abs/Im         'NSTM 07415         >30         NONE         NONE            Sand/Dirt         scalar         'Visual         NONE         NONE             Sand/Dirt         scalar         'Visual         NORM         NORM             The bibris         scalar         'Visual         NOR         NOR	CONTAMINATION	Silicon	ppm	ASTM D5185m	>20	12		
the oil.       Ya       Ya<		Potassium	ppm	ASTM D5185m	>20	4		
Water         Work         WC Method         NEG		Fuel	%	ASTM D3524	>4.0	0.5		
Soot %         %         *ASTM D7844         0         0.5            Nitration         Abs/cm         *ASTM D7624         >20         9.3            Sulfation         Abs/tm         *ASTM D7624         >30         23.0            Sulfation         Abs/tm         *ASTM D7645         >30         23.0            Sulfation         Abs/cm         *Visual         NONE         NONE            Sand/Dirt         scalar         *Visual         NONE         NONE            Appearance         scalar         *Visual         NOR         NONE            Cdor         scalar         *Visual         NOR         NOR            The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.         Sodium         ppm         ASTM D5185         6            Molybdenum         ppm         ASTM D5185         -         6            Magnesium         pm         ASTM D5185         -         6            Magnesium         pm         ASTM D5185         -         6	the oil.	Water		WC Method	>0.1	NEG		
Nitration         Abs/cm         'ASTM D7624         >20         9.3             Sulfation         Abs/tm         'ASTM D7155         >30         23.0             Silt         scalar         'Visual         NONE         NONE             Debris         scalar         'Visual         NONE         NONE             Appearance         scalar         'Visual         NORE         NORE             Appearance         scalar         'Visual         NORE         NORE             Codor         scalar         'Visual         NORE         NORE             Codor         scalar         'Visual         NORE         NORE             FLUID CONDITION         Sodium         ppm         ASTM D5185m         >0.1         NEG            Boron         ppm         ASTM D5185m          6             Molybdenum         ppm         ASTM D5185m          6             Calcium         ppm		Glycol		WC Method		NEG		
Sulfation       Abs/.tmm       *ASTM D7415       >-30       23.0           Silt       scalar       *Visual       NONE       NONE           Debris       scalar       *Visual       NONE       NONE           Sand/Dirt       scalar       *Visual       NONE       NONE           Sand/Dirt       scalar       *Visual       NORM       NONE           Appearance       scalar       *Visual       NORM       NORM           Odor       scalar       *Visual       NORM       NORM           FLUID CONDITION       Normal              Sodium       ppm       ASTM D5185       -57       6           Boron       ppm       ASTM D5185       -4           Molybdenum       ppm       ASTM D5185       4           Molybdenum       ppm       ASTM D5185       6           Magnesium       ppm       ASTM D5185       1335 <t< th=""><th>Soot %</th><th>%</th><th>*ASTM D7844</th><th></th><th>0.5</th><th></th><th></th></t<>		Soot %	%	*ASTM D7844		0.5		
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREEmulsified Waterscalar*VisualNORESodiumppmASTM D5185>756BoronppmASTM D5185-6MolybdenumppmASTM D51854MagnesiumppmASTM D51856MagnesiumppmASTM D51856MagnesiumppmASTM D51851335MagnesiumppmASTM D51851335PhosphorusppmASTM D51851335SulfurppmASTM D518513491024NoreMubre/BNmgKWgASTM D51851849Base Number(BNmgKWgASTM D5185136844Astm D518513613614		Nitration	Abs/cm			9.3		
Debrisscalar'VisualNONESand/Dirtscalar'VisualNONENONEAppearancescalar'VisualNORMNORMLOdorscalar'VisualNORMNORMLDebrisscalar'VisualNORMNORMLOdorscalar'VisualNORMNORMLThe oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.SodiumppmASTM D5185m5756MolybdenumppmASTM D5185m4MaganeseppmASTM D5185m6PhosphorusppmASTM D5185m6MaganeseppmASTM D5185m6PhosphorusppmASTM D5185m6NaganesiumppmASTM D5185m1024PhosphorusppmASTM D5185m1024QuiduinppmASTM D5185m1024Asinar PhosphorusppmASTM D5185m1024Asinar Phosphorusppm <th>Sulfation</th> <th>Abs/.1mm</th> <th>*ASTM D7415</th> <th>&gt;30</th> <th>23.0</th> <th></th> <th></th>		Sulfation	Abs/.1mm	*ASTM D7415	>30	23.0		
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Watescalar*VisualNORMLNORMLNormascalar*Visualscalar*VisualNORMLNORMLFLUID CONDITIONScalar*Visualscalar*VisualscalarNORMLBoronppmASTM D5185m>756BoronppmASTM D5185m152MolydeenumppmASTM D5185m6MagnesseppmASTM D5185m6MagnesiumppmASTM D5185mIn1024CalciumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024MagnesiumppmASTM D5185mIn1024In<		Silt	scalar	*Visual		-		
Appearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGFLUID CONDITIONSodiumppmASTM D5185m>756BoronppmASTM D5185m<152BariumppmASTM D5185m4MolybdenumppmASTM D5185m211MaganeseppmASTM D5185m6MagnesiumppmASTM D5185m1335PhosphorusppmASTM D5185m1334PhosphorusppmASTM D5185m1024SulfurppmASTM D5185m1024SulfurppmASTM D5185m1024OxidationAbr.ImYASTM D5185m18.9Mage Number (BN)mgKHgASTM D5185m18.9SulfurppmASTM D5185m18.9Mage Number (BN)mgKHgASTM D5185m168.4AsterppmASTM D5185m13.68.4AsterppmASTM D5185m168.		Debris	scalar					
Odorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.1NEGFLUID CONDITIONThe oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.SodiumppmASTM D5185m>756BariumppmASTM D5185mID4MalganeseeppmASTM D5185mID6MagnesiumppmASTM D5185mID6MagnesiumppmASTM D5185mID6MagnesiumppmASTM D5185mID6MagnesiumppmASTM D5185mID6MagnesiumppmASTM D5185mID8400PhosphorusppmASTM D5185mID8400SulfurppmASTM D5185mID1D24OxidationAbs/Imm'ASTM D7141>2518.9Base Number (BN)mg KOHgASTM D288613.68.4Base Number (BN)mg KOHgASTM D288613.68.4			scalar					
Emulsified Water       scalar       *Visual       >0.1       NEG          FLUID CONDITION         The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.       Sodium       ppm       ASTM D5185m       >75       6           Barium       ppm       ASTM D5185m       I       4           Molybdenum       ppm       ASTM D5185m       4           Maganese       ppm       ASTM D5185m       6           Magnesium       ppm       ASTM D5185m       6           Magnesium       ppm       ASTM D5185m       6           Phosphorus       ppm       ASTM D5185m       6           Zinc       ppm       ASTM D5185m       1335           Sulfur       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       1024           Sulfur       ppm								
Sodium       ppm       ASTM D5185m       >75       6          Boron       ppm       ASTM D5185m       >75       6          Barium       ppm       ASTM D5185m       152           Molybdenum       ppm       ASTM D5185m       4           Manganese       ppm       ASTM D5185m       6           Magnesium       ppm       ASTM D5185m       6           Manganese       ppm       ASTM D5185m       6           Manganese       ppm       ASTM D5185m       794           Vangesium       ppm       ASTM D5185m       1335           Phosphorus       ppm       ASTM D5185m       1335           Vinct       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       18.9								
Boron       ppm       ASTM D5185m       0       152          Barium       ppm       ASTM D5185m       0       4          Molybdenum       ppm       ASTM D5185m       0       211          Manganese       ppm       ASTM D5185m       0       6          Magnesium       ppm       ASTM D5185m       0       794          Magnesium       ppm       ASTM D5185m       13355           Phosphorus       ppm       ASTM D5185m       1304           Sulfur       ppm       ASTM D5185m       1305       1305           Sulfur       ppm       ASTM D5185m       1305       1305        Sulfur       ppm       ASTM D5185m		Emulsified Water	scalar	*Visual	>0.1	NEG		
Boron       ppm       ASTM D5185m       Image: State Sta		Sodium	nnm	ASTM D5185m	>75	6		
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.       Barium       ppm       ASTM D5185m       4          Molybdenum       ppm       ASTM D5185m       0       211           Manganese       ppm       ASTM D5185m       0       6           Magnesium       ppm       ASTM D5185m       0       794           Calcium       ppm       ASTM D5185m       1335           Phosphorus       ppm       ASTM D5185m       1335           Zinc       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       1024           Oxidation       Abs/1m       *ASTM D5185m       18.9           Base Number (BN)       mg KOHg       ASTM D5185m       13.6       8.4	The oil viscosity is lower than normal. The BN result indicates that				215			
MolybdenumppmASTM D5185m211ManganeseppmASTM D5185m6MagnesiumppmASTM D5185m6MagnesiumppmASTM D5185m1335CalciumppmASTM D5185m1335PhosphorusppmASTM D5185m08400ZincppmASTM D5185m1024SulfurppmASTM D5185m1024OxidationAbs/.1mm*ASTM D5185m18.9Base Number (BN)mg KOHgASTM D28613.68.4						-		
ManganeseppmASTM D5185m6MagnesiumppmASTM D5185mI794IICalciumppmASTM D5185mI1335IIPhosphorusppmASTM D5185mI8400IIZincppmASTM D5185mI1024IISulfurppmASTM D5185mI2939IIOxidationAbs/1mm*ASTM D7141>2518.9IIBase Number (BN)mg KOHgASTM D289613.68.4II								
Magnesium       ppm       ASTM D5185m       794          Calcium       ppm       ASTM D5185m       1335          Phosphorus       ppm       ASTM D5185m       640          Zinc       ppm       ASTM D5185m       1024          Sulfur       ppm       ASTM D5185m       2939          Oxidation       Abs/.1mm       *ASTM D5185m       18.9          Base Number (BN)       mg KOHg       ASTM D2896       13.6       8.4		•						
Calcium       ppm       ASTM D5185m       1335           Phosphorus       ppm       ASTM D5185m $\begin{tabular}{lllllllllllllllllllllllllllllllllll$		-						
Phosphorus       ppm       ASTM D5185m       end       840          Zinc       ppm       ASTM D5185m       1024          Sulfur       ppm       ASTM D5185m       2939          Oxidation       Abs/.1mm       *ASTM D7141       >25       18.9          Base Number (BN)       mg KOHg       ASTM D2886       13.6       8.4		-						
Zinc       ppm       ASTM D5185m       1024           Sulfur       ppm       ASTM D5185m       2939           Oxidation       Abs/.1mm       *ASTM D7414       >25       18.9           Base Number (BN)       mg KOH/g       ASTM D2896       13.6       8.4								
Sulfur         ppm         ASTM D5185m         2939             Oxidation         Abs/.1mm         *ASTM D7414         >25         18.9             Base Number (BN)         mg KOH/g         ASTM D2896         13.6         8.4		-						
Oxidation         Abs/.1mm         *ASTM D7414         >25         18.9             Base Number (BN)         mg KOH/g         ASTM D2896         13.6         8.4								
Base Number (BN)         mg KOH/g         ASTM D2896         13.6         8.4					>25			
						-		



