

## CONTAMINATION NORMAL

WEAR

NORMAL

## [363] Machine to JOHN DEERE 814432

## **Diesel Engine**

Area

SHELL ROTELLA T 15W40 (--- GAL)

Resample at the next service interval to monitor.         Test         UOM         Method         Limit/Mo         Current         History1         History1           Sample Number         Client Info         IDMay 2020         VCP31086
Sample at the next service interval to monitor.         Sample Date         Client Info         10 May 202         65 Apr 2021            Machine Age         hrs         Client Info         500         500            Oil Qage         hrs         Client Info         500         500            Oil Changed         Client Info         Changed         Client Info         Changed         -
Vertication         Statupic Date         Other Info         Now 222         Norm 223         Norm 233         Norm 233         Norm 233         Norm 233         Norm 233
Oil Age         hrs         Client Info         500         500            Filter Age         hrs         Client Info         0         0            Oil Changed         Client Info         Changed         Changed         Changed         Changed         Changed         Changed            WEAR         NORMAL         NORMAL         NORMAL         NORMAL         NORMAL            All component wear rates are normal.         Iron         pm         ASTM DS18m         >11         <11         2            Nickel         ppm         ASTM DS18m         >11         <11         2            Silver         ppm         ASTM DS18m         >11         <11         2            Gopper         ppm         ASTM DS18m         >3         0         <1            Auminum         ppm         ASTM DS18m         >3         0         <1            Qopper         ppm         ASTM DS18m         >2         4             White Metal         scalar         Visual         NONE         NONE         NONE         NONE
Filter Age         hrs         Client Into         O         O         Image           Oi Changed         Client Into         Changed         Changed<
Oil Changed         Client Info         Changed         Chande <t< th=""></t<>
Filter Changed Sample Status         Client Info         Changed NORMAL
Sample Status         NORMAL         NORMAL         NORMAL         NORMAL           WEAR         Iron         ppm         ASIX DS185         >51         31         20         1           All component wear rates are normal.         Iron         ppm         ASIX DS185         >5         2         16         1           Silver         ppm         ASIX D5185         >5         2         16         1           Silver         ppm         ASIX D5185         >5         0         <1         2         1           Aluminum         ppm         ASIX D5185         >5         0         <1         2         1           Silver         ppm         ASIX D5185         >3         0         <1         2         1           Auminum         ppm         ASIX D5185         >3         0         <1         2         1           Lead         ppm         ASIX D5185         >2         4         1         2         1           Vanadium         ppm         ASIX D5185         >2         4         1         2         1           Vanadium         pm         ASIX D5185         >2         4         1         2         1
Iron         ppm         ASTM D5185m         >51         31         59
All component wear rates are normal.         Chromium         ppm         ASTM D5185m         >1         <1
All component wear rates are normal.         Chromium         ppm         ASTM D5185m         >1         <1
Nickel       ppm       ASTM D5185m       >5       2       18
TitaniumppmASTM D5185m $<$ $<$ $<$ $<$ $<$ $<$ SilverppmASTM D5185m>30 $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$
SilverppmASTM D5185m>30<1
AluminumppmASTM D5185m>31233LeadppmASTM D5185m>2602CopperppmASTM D5185m>26454TinppmASTM D5185m>4<12VanadiumppmASTM D5185m>4<12White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONE208Yellow Metalscalar*VisualNONE208Yellow Metalscalar*VisualNONE208Yellow Metalscalar*VisualNONEYellow Metalscalar*VisualNONEYellowYellowscalar*VisualNONE
LeadppmASTM D5185>2602CopperppmASTM D5185>264545TinppmASTM D5185>4<12VanadiumppmASTM D5185<4<12White Metalscalar*VisualNONENONENONE<Velow Metalscalar*VisualNONENONENONE<PotassiumppmASTM D5185>22208PotassiumppmASTM D5185>22208FuelppmASTM D5185>22208QuereeppmASTM D5185>22208GlycolppmASTM D5185>22208NereeppmASTM D5185>22208MaterppmASTM D5185>22208GlycolppmASTM D5185>2078NereeppmASTM D5185>2078Sold%%%%MEGNONESultationAbs/%%%MEG10.5SultationAbs/%%%MEG10.5SultationAbs/%%%MONENONESultationAbs/%%NONENONENONE
CopperpmASTM D5185m>2645454TinppmASTM D5185m>4<12VanadiumppmASTM D5185m<0<1White Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONENONENONENONEYellow Metalscalar*VisualNONE208PotassiumppmASTM D5185m>2078FuelWC Method>.21WaterWC Method>.21GlycolWC Method>.21NEGNEGSoot %%*ASTM D7844>30.40.6SulfationAbs/tm*ASTM D7844>30.410.5SulfationAbs/tm*ASTM D7844>30.410.5SulfationAbs/tm*ASTM D7844>30.04NONENONEDebrisscalar*VisualNO
Tin     ppm     ASTM D5185m     >4     <1     2        Vanadium     ppm     ASTM D5185m     I     0     <1     I       White Metal     scalar     *Visual     NONE     NONE     NONE     NONE     NONE     I       Yellow Metal     scalar     *Visual     NONE     NONE     NONE     NONE     NONE     I       Yellow Metal     scalar     *Visual     NONE     NONE     NONE     NONE     I     I       Yellow Metal     scalar     Ppm     ASTM D5185m     >22     20     8     I     I       Potassium     ppm     ASTM D5185m     >20     7     8     I     I       Fuel     VC     WC Method     >2.1     <1.0     <1.0     I       Water     Image: MC Method     >2.1     NEG     NEG     I       Glycol     WC Method     >2.1     NEG     NEG     I       Soot %     %     MStM D5185m     >20     8.4     I     I       Sulfation     Abs/rm     %StM D5185m     >20     8.4     I     I       Sulfation     Abs/rm     %StM D5185m     >30     20.3     25.9     I       Sulfation <t< th=""></t<>
VanadiumppmASTM D5185mImage: Constant in the oil.One image: Constant in the oil.VanadiumppmASTM D5185mVisualNONENONENONEImage: Constant in the oil.CONTAMINATIONNone indication of any contamination in the oil.SiliconppmASTM D5185m>2078PotassiumppmASTM D5185m>2078FuelWC Method>2.1<1.0<1.0WaterImage: Constant in the oil.WC Method>0.21NEGNEGGlycolWC Method>0.21NEGNEGSoot %%*ASTM D7844>30.40.66NitrationAbs/Imm*ASTM D7624>208.410.5SulfationAbs/Imm*ASTM D7445>3020.325.9Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONE
Yellow Metalscalar*VisualNONENONECONTAMINATIONppmASTM D5185m>22208PotassiumppmASTM D5185m>2078PotassiumppmASTM D5185m>2078FuelWC Method>2.1<1.0<1.0<WaterWC Method>0.21NEGNEG<GlycolWC Method>0.21NEGNEG<NitrationAbs/cm'ASTM D784t>30.40.66NitrationAbs/cm'ASTM D762t>208.410.5SulfationAbs/1m'ASTM D764t>3020.325.9Siltscalar'VisualNONENONENONEDebrisscalar'VisualNONENONESand/Dirtscalar'VisualNONENONE
Silicon       ppm       ASTM D5185m       >22       20       8          Potassium       ppm       ASTM D5185m       >20       7       8          There is no indication of any contamination in the oil.       Fuel       WC Method       >2.1       <1.0       <1.0          Water       Image: WC Method       >0.21       NEG       NEG       NEG          Glycol       WC Method       >0.21       NEG       NEG          Soot %       %       *ASTM D7844       >3       0.4       0.6          Nitration       Abs/lmm       *ASTM D7624       >20       8.4       10.5          Sulfation       Abs/lmm       *ASTM D7155       >30       20.3       25.9          Silt       scalar       *Visual       NONE       NONE       NONE          Debris       scalar       *Visual       NONE       NONE       NONE
Potassium       ppm       ASTM D5185m       >20       7       88          Fuel       WC Method       >2.1       <1.0       <1.0       <         Water       WC Method       >0.21       NEG       NEG       <         Glycol       WC Method       >0.21       NEG       NEG       <         Soot %       %       *ASTM D7844       >3       0.4       0.6       <         Nitration       Abs/cm       *ASTM D7844       >30       0.4       0.6       <         Sulfation       Abs/cm       *ASTM D7844       >30       20.3       25.9       <         Silt       scalar       *Visual       NONE       NONE       NONE       <         Debris       scalar       *Visual       NONE       NONE       <         Sand/Dirt       scalar       *Visual       NONE       NONE       <
Potassium       ppm       ASTM D5185m       >20       7       88          Fuel       WC Method       >2.1       <1.0       <1.0       <         Water       WC Method       >0.21       NEG       NEG       <         Glycol       WC Method       >0.21       NEG       NEG       <         Soot %       %       *ASTM D7844       >3       0.4       0.6       <         Nitration       Abs/cm       *ASTM D7844       >30       0.4       0.6       <         Sulfation       Abs/cm       *ASTM D7844       >30       20.3       25.9       <         Silt       scalar       *Visual       NONE       NONE       NONE       <         Debris       scalar       *Visual       NONE       NONE       <         Sand/Dirt       scalar       *Visual       NONE       NONE       <
Fuel       WC Method       >2.1       <1.0
WaterWC Method>0.21NEGNEGGlycolWC MethodWC MethodNEGNEGSoot %%*ASTM D7844>30.40.6NitrationAbs/cm*ASTM D7624>208.410.5SulfationAbs/tm*ASTM D7455>3020.325.9Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONE
GlycolWC MethodNEGNEGSoot %%*ASTM D7844>30.40.6NitrationAbs/cm*ASTM D7624>208.410.5SulfationAbs/tm*ASTM D7615>3020.325.9Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONE
Soot %%*ASTM D7844>30.40.6NitrationAbs/cm*ASTM D7624>208.410.5SulfationAbs/1mm*ASTM D7415>3020.325.9Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONE
SulfationAbs/.1mm*ASTM D7415>3020.325.9Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONE
Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONE
Debrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONE
Sand/Dirt scalar *Visual NONE NONE
Appearance scalar *Visual NORML NORML NORML
Odor scalar *Visual NORML NORML NORML
Emulsified Water scalar *Visual >0.21 NEG NEG
FLUID CONDITION Sodium ppm ASTM D5185m >31 10 5
Boron ppm ASTM D5185m 316 65 45
The BN result indicates that there is suitable alkalinity remaining in the Barium ppm ASTM D5185m 0.0 0
oil. The condition of the oil is suitable for further service. Molybdenum ppm ASTM D5185m 1.2 33 67
Manganese ppm ASTM D5185m <1 2
Magnesium ppm ASTM D5185m 24 173 232
Calcium ppm ASTM D5185m 2292 1998 2193
Phosphorus ppm ASTM D5185m 1064 926 880

Base Number (BN) mg KOH/g ASTM D2896 10.1

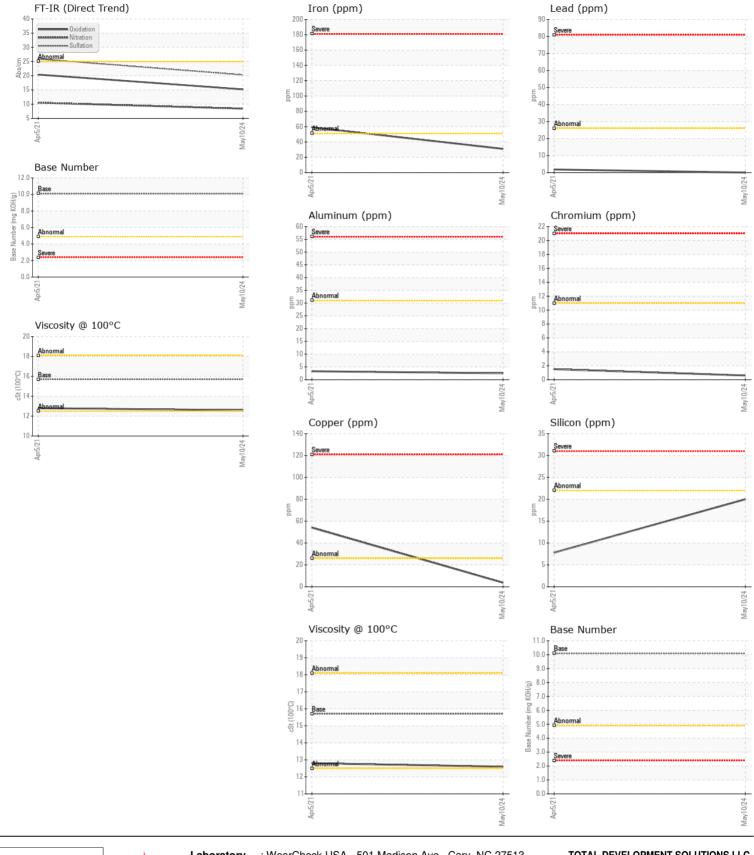
ASTM D445 15.7

Visc @ 100°C cSt

12.8

6.3

12.6



TOTAL DEVELOPMENT SOLUTIONS LLC Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : VCP397836 Received 7805 PROGRESS CT : 31 May 2024 Lab Number : 06196512 Tested GAINESVILLE, VA : 03 Jun 2024 Unique Number : 11058635 : 03 Jun 2024 - Don Baldridge Diagnosed US 20155 Test Package : MOB 1 (Additional Tests: TBN) Contact: JOE SEALE Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jseale@totaldevelopmentsolutions.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (703)222-0497 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (703)753-4586