

550K and 650K Crawler Dozer

(PIN: 1T0550KX_ _E217276—275527)

(PIN: 1T0650KX_ _E216396—275533)



JOHN DEERE



OPERATOR'S MANUAL

550K and 650K Crawler Dozer

OMT288826 ISSUE L3 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

**Worldwide Construction,
And Forestry Division**

PRINTED IN U.S.A.

Introduction

Foreword

READ THIS MANUAL carefully to learn how to operate and service machine correctly. Personal injury or equipment damage can result if manual is not read. This manual and safety signs on the machine may also be available in other languages; see an authorized John Deere dealer to order.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of the machine and should remain with machine when machine is sold.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing in the direction of forward travel.

WRITE PRODUCT IDENTIFICATION NUMBERS (P.I.N.) in the Machine Numbers section. Accurately record all the numbers to help in tracing the machine if machine is ever stolen. A dealer also needs these numbers when parts are ordered. File the identification numbers in a secure place off machine.

WARRANTY is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate or statement which should have been received from the dealer.

This warranty provides the assurance that John Deere backs the products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines results in such action.

If current owner is not the original owner of this machine, contact an authorized John Deere dealer to inform them of this unit's serial number. This will help John Deere notify current owner of any issues or product improvements.

TX,FOREWORD-19-01MAR23-1/1

IMPORTANT

Warranty will not apply to engine and drivetrain failures resulting from unauthorized adjustments to this engine.

Unauthorized adjustments are in violation of the emissions regulations applicable to this engine and may result in substantial fines and penalties.

VD76477,000104D-19-27JUN12-1/1

License Agreement for John Deere Software

LICENSE AGREEMENT FOR JOHN DEERE SOFTWARE

IMPORTANT -- READ CAREFULLY: THIS LICENSE AGREEMENT IS A LEGAL CONTRACT BETWEEN YOU AND JOHN DEERE SHARED SERVICES, INC., A CORPORATION HAVING A PRINCIPAL ADDRESS OF ONE JOHN DEERE PLACE, MOLINE, IL 61265 (THE "LICENSOR"). THIS LICENSE AGREEMENT GOVERNS YOUR USE OF ANY SOFTWARE ("SOFTWARE") AND OTHER MATERIALS (INDIVIDUALLY OR COLLECTIVELY "LICENSED MATERIALS" OR "LM") ASSOCIATED WITH ANY DISPLAY, ENGINE CONTROL UNIT, INVERTER, CONTROLLER, ELECTRONICS MODULE, SENSOR, ACTUATOR, OR COMPUTING UNIT (INDIVIDUALLY OR COLLECTIVELY "LICENSED PRODUCTS" OR "LP") OF THE JOHN DEERE EQUIPMENT THAT IS NOT OTHERWISE LICENSED BY A SEPARATE WRITTEN AGREEMENT BETWEEN YOU AND LICENSOR, OR ITS AFFILIATES.

BY ACTIVATING OR OTHERWISE USING THE LP, YOU ARE ACCEPTING AND AGREEING TO THE TERMS OF THIS LICENSE AGREEMENT WITH RESPECT TO THE LM THAT HAVE BEEN PRE-INSTALLED ON YOUR LP. YOU AGREE THAT THIS LICENSE AGREEMENT, INCLUDING THE WARRANTY DISCLAIMERS, LIMITATIONS OF LIABILITY, TERMINATION, AND ARBITRATION PROVISIONS BELOW, IS BINDING UPON YOU, AND UPON ANY COMPANY ON WHOSE BEHALF YOU USE THE LM AND LP AS WELL AS THE EMPLOYEES OF ANY SUCH COMPANY (COLLECTIVELY REFERRED TO AS "YOU" IN THIS LICENSE AGREEMENT). IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE AGREEMENT, OR IF YOU ARE NOT AUTHORIZED TO ACCEPT THESE TERMS ON BEHALF OF YOUR COMPANY OR ITS EMPLOYEES, DECLINE THESE TERMS AND CONDITIONS AND DO NOT USE THE LP OR THE JOHN DEERE EQUIPMENT. THIS LICENSE AGREEMENT REPRESENTS THE ENTIRE AGREEMENT CONCERNING THE LM BETWEEN YOU AND THE LICENSOR AND IT REPLACES ANY PRIOR PROPOSAL, REPRESENTATION, OR UNDERSTANDING BETWEEN YOU AND THE LICENSOR.

1. **Description of Software.** Your Licensed Product ("LP") comes with all Software pre-installed for operation of your John Deere Equipment. Licensed Materials ("LM") shall mean any Software, data files, documentation, engine calibration tables, proprietary data messages, and controller area network (CAN) data messages that are in or communicated to or from any LP (e.g., to monitor, diagnose, or operate the John Deere Equipment). Data files shall include but not be limited to any data structure that adjusts engine control parameters, such as fuel metering, fuel injection rate, fuel injection timing, fuel pressure, engine speed versus torque relationship, intake boost pressure, fuel-to-air ratio or engine timing.

2. **License.** Licensor hereby grants to you, and you accept, a nonexclusive license to use the LM in machine-readable, object code form, only as authorized in this License Agreement and the applicable provisions of the Operators' Manuals, which you agree to review carefully prior to using the LM. The LM may be used only on the LP in which it was initially installed and solely in conjunction with the John Deere Equipment in which it was initially installed; or, in the event of the inoperability of that LP, on a replacement LP provided to you by an authorized dealer pursuant to the Limited Warranty of Section 5. You agree that you will not assign, sublicense, transfer, pledge, lease, rent, or share your rights under this License Agreement, except that you may permanently transfer all of your rights under this License Agreement in connection with the sale of the LP or John Deere Equipment on which the LM covered by this Agreement are installed. If you sell or otherwise transfer the ownership of the LP or John Deere Equipment, you agree that you will require such transferee to accept terms no less restrictive than those in this License Agreement. This License Agreement also covers any and all hardware and additional software that may interact with the LM and/or the LP.

3. **Licensor's Rights.** You acknowledge and agree that the LM are proprietary to Licensor, or its affiliates or licensors, and is protected under copyright law, trade secret law, and laws governing confidential information. You shall maintain the confidentiality of the LM, any nonpublic information in the LM and the source code of the Software, regardless of whether the LM is labeled or marked with any proprietary legend or notice that

indicates its confidential nature. You further acknowledge and agree that all right, title, and interest in and to the Software and the LM, including associated intellectual property rights, are and shall remain with Licensor, its affiliates, and their licensors. This License Agreement does not convey to you any title or interest in or to the LM, but only a limited right of use revocable in accordance with the terms of this License Agreement.

4. **License Restrictions, Reverse Engineering.** You may not reproduce, prepare derivative works based on, disclose, publish, distribute, rent, lease, modify, loan, display, or perform the LM or any part thereof. You may not reverse engineer, decompile, translate, adapt, or disassemble the LM, nor shall you attempt to create the source code from the object code for the Software. You may not transmit the LM over any network or via a hacking device, although you may use the LM to make transmissions of diagnostic data messages that are authorized by Licensor and you may receive Software updates authorized by Licensor over any Licensor-authorized communications channel. You also agree not to permit any third party acting under your control to do any of the foregoing activities related to reverse engineering of the Licensed Materials. You agree not to remove or obliterate any copyright, trademark or other proprietary rights notices from the LM, except as expressly permitted in writing by Licensor or its licensors or expressly permitted under applicable law notwithstanding these restrictions.

5. **License Restrictions, Circumvention.** Security measures ("SM") means any of the following: technological measures under the Digital Millennium Copyright Act, copyright protection measures, application enabling mechanisms, passwords, key codes, encryption or other security devices. You agree that you will not: (a) attempt to defeat a SM or defeat a SM that protects the LM and that would constitute a violation under applicable U.S., U.K. or German law related circumvention of technological measures that protect software, copyrighted works, or other intellectual property rights, (b) purchase, manufacture, design, import, sell or distribute any circumvention or hacking device that is designed to circumvent or hack the LM or LP and that are unlawful to distribute under applicable U.S., U.K. or German law, (c) circumvent a SM that protects the LM if the circumvention can be used to access trade secrets or confidential information that is protected under applicable law; (d) apply circumvention devices or hacking devices to the LM, LP or John Deere Equipment (e.g., to bypass, temporarily or otherwise, one or more LPs) in a manner that violates any environmental

regulations, laws, safety laws, or voluntary safety standards (e.g., ISO standards) that are supported by LPs, LMs, or (e) apply any circumvention devices or hacking devices from any third parties in an attempt to reverse engineer the LM or that could be used to access trade secrets or other confidential information in the LM that is protected under applicable law. You also agree not to permit any third party acting under your control to do any of the foregoing activities related to circumvention of SM.

6. **Consideration, License Fees.** The license fees or other good and valuable consideration paid by you are paid in consideration of the licenses granted under this License Agreement.

7. **Limited Warranty.** Licensor warrants, for your benefit alone and not for the benefit of any other party, that during the "Warranty Period" defined below, the Software will operate substantially in accordance with the applicable functional specifications ("Specifications") set forth in the Operators' Manuals. If, prior to expiration of the Warranty Period, the Software fails to perform substantially in accordance with the Specifications, you may return the LP to the place of purchase for repair or replacement of the non-performing Software. As used in this License Agreement, the "Warranty Period" is one (1) year from the date you take delivery of the LP.

8. **DISCLAIMER OF WARRANTIES.** YOU HEREBY AGREE THAT THE LIMITED WARRANTY PROVIDED ABOVE (THE "LIMITED WARRANTY") CONSTITUTES YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY PROBLEM WHATSOEVER WITH THE LM. EXCEPT AS PROVIDED IN THE LIMITED WARRANTY, THE LM IS LICENSED "AS IS," AND LICENSOR, ITS AFFILIATES AND THIRD PARTY SUPPLIERS EXPRESSLY DISCLAIM AND YOU EXPRESSLY WAIVE, RELEASE AND RENOUNCE ALL WARRANTIES ARISING BY LAW OR OTHERWISE WITH RESPECT TO THE LM, INCLUDING, BUT NOT LIMITED TO: ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; ANY IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE; ANY WARRANTY OF TITLE OR NON-INFRINGEMENT; AND, ANY OTHER WARRANTY ARISING UNDER ANY THEORY OF LAW, INCLUDING TORT, NEGLIGENCE, STRICT LIABILITY, CONTRACT OR OTHER LEGAL OR EQUITABLE THEORY. NO REPRESENTATION OR OTHER AFFIRMATION OF FACT INCLUDING, BUT NOT LIMITED TO, STATEMENTS REGARDING SUITABILITY FOR USE, SHALL BE DEEMED TO BE A WARRANTY BY LICENSOR OR ANY OF ITS AFFILIATES OR THIRD PARTY SUPPLIERS. LICENSOR DOES NOT WARRANT THAT THE LM AND/OR LP IS ERROR-FREE OR WILL OPERATE WITHOUT INTERRUPTION.

9. **LIMITATION OF LIABILITY.** EXCEPT AS SET FORTH IN THE LIMITED WARRANTY, UNDER NO CIRCUMSTANCES SHALL LICENSOR, ITS AFFILIATES OR ITS THIRD PARTY SUPPLIERS BE LIABLE TO YOU OR TO ANY THIRD PARTIES FOR DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ANY LOSS OR DAMAGE CAUSED BY THE LM; ANY PARTIAL OR TOTAL FAILURE OF THE LM; PERFORMANCE, NONPERFORMANCE OR DELAYS IN CONNECTION WITH

ANY INSTALLATION, MAINTENANCE, WARRANTY OR REPAIRS OF THE LM, DAMAGES FOR CROP LOSS, DAMAGE TO LAND, DAMAGE TO MACHINES, LOST PROFITS, LOSS OF BUSINESS OR LOSS OF GOODWILL, LOSS OF USE OF EQUIPMENT OR SERVICES OR DAMAGES TO BUSINESS OR REPUTATION ARISING FROM THE PERFORMANCE OR NON-PERFORMANCE OF ANY ASPECT OF THE SOFTWARE, LM OR LP, WHETHER IN CONTRACT, TORT OR OTHERWISE, AND WHETHER OR NOT LICENSOR, ITS AFFILIATES OR ITS THIRD PARTY SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL LICENSOR'S CUMULATIVE LIABILITY TO YOU OR TO ANY OTHER PARTY FOR ANY LOSSES OR DAMAGES RESULTING FROM ANY CLAIMS, LAWSUITS, DEMANDS, OR ACTIONS ARISING FROM OR RELATING TO USE OF THE LM EXCEED YOUR TOTAL PAYMENT FOR THE LP AND FOR THE LICENSE OF THE LM.

10. **Software Maintenance.** Licensor may, at its sole option, offer you maintenance of the Software, even though the Warranty Period has expired. Such maintenance may include providing modifications, corrections or enhancements ("Upgrades") to the Software and/or the applicable Operators' Manuals. Licensor reserves the right, in its sole discretion, to charge you for maintenance (except in cases where corrections are provided under the Limited Warranty). Your acceptance of this License Agreement constitutes your agreement that any Upgrades will be deemed included in the Software as defined in this License Agreement and that they shall be governed by the terms and conditions applicable to the LM under this License Agreement.

11. **Termination of License.** Licensor may terminate the license granted under this License Agreement upon written notice of termination provided to you if you violate any material term of this License Agreement pertaining to your use of the LM or Licensor's rights, including, without limitation, the provisions of Sections 2 and 3 above.

12. **Compliance with Law.** You agree that you will use the LM in accordance with United States law and the laws of the country in which you are located, as applicable, including foreign trade control laws and regulations. The LM may be subject to export and other foreign trade controls restricting re-sales and/or transfers to other countries and parties. By accepting the terms of this License Agreement, you acknowledge that you understand that the LM may be so controlled, including, but not limited to, by the Export Administration Regulations and/or the foreign trade control regulations of the Treasury Department of the United States. The LM remains subject to applicable U.S. laws.

11. **Indemnification.** You agree to defend, indemnify and hold Licensor, its affiliates and third party supplier, and their, officers, directors, employees, agents and representatives (each an "Indemnified Party"), harmless from and against all claims, demands proceedings, injuries, liabilities, losses, or costs and expenses (including reasonable legal fees) brought by any third party against any such persons arising from or in connection with your use of the LM, regardless of whether such losses are caused, wholly or partially, by any negligence, breach of contract or other fault of an Indemnified Party.

12. **Trademark.** Licensor does not grant you any right, license, or interest to any Licensor trademarks, symbols, marks or names (collectively "Marks") or any trademarks that confusingly similar to the Marks and you agree that no such right, license, or interest shall be asserted by you with respect to such Marks.

13. **Costs of Litigation.** If any claim or action is brought by either party to this License Agreement against the other party regarding the subject matter hereof, the prevailing party shall be entitled to recover, in

addition to any other relief granted, reasonable attorney, arbitrators, and dispute resolution center administrative fees and expenses of litigation.

14. Severability and Waiver. Should any term or provision of this License Agreement be declared void or unenforceable by any court of competent jurisdiction, such declaration shall have no effect on the remaining terms and remaining provisions hereof. The failure of either party to enforce any rights granted hereunder or to take action against the other party in the event of any breach hereunder shall not be deemed a waiver by that party as to subsequent enforcement of rights of subsequent actions in the event of future breaches.

15. Language Clause. Unless the laws of the location in which you reside require otherwise, the parties hereby acknowledge that they have required this License Agreement, and all other documents relating hereto, be drawn up in the English language only. There may be a translated version of this License Agreement. If there is an inconsistency or contradiction between the translated version and the English version of this License Agreement, the English version of this License Agreement shall control unless the laws of the location in which you reside require that a different version control. The parties acknowledge and agree that they have required that this agreement be prepared in the English language. Les parties reconnaissent avoir exigé que les présentes soient rédigées en langue anglaise.

16. Assignment by Licensor. Licensor may assign this License Agreement without your prior consent to any company or entity affiliated with Licensor, or by an assignment associated with a corporate restructuring, merger or acquisition.

17. Governing Law and Forum. This License Agreement will be governed by and construed in accordance with the substantive laws in force in the State of Illinois, U.S.A. The respective courts of Rock Island County, Illinois have exclusive jurisdiction over all disputes relating to this License Agreement. This License Agreement will not be governed by the conflict of law rules of any jurisdiction or the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

18. Arbitration. IF YOU RESIDE IN A JURISDICTION WHEREIN THE ENFORCEABILITY OF THE TERMS OF SECTION 17 IS DEPENDENT UPON THE PARTIES AGREEING TO SUBMIT TO ARBITRATION, THEN ANY CONTROVERSY OR CLAIM ARISING OUT OF OR RELATING TO THIS LICENSE AGREEMENT SHALL BE DETERMINED BY ARBITRATION IN ACCORDANCE WITH THE INTERNATIONAL ARBITRATION RULES OF THE INTERNATIONAL CENTRE FOR DISPUTE RESOLUTION ("ICDR") IN EFFECT AT THE TIME OF ITS INITIATION. THE ARBITRATION SHALL BE HELD BEFORE ONLY ONE ARBITRATOR APPOINTED BY THE ICDR. THE PLACE OF ARBITRATION SHALL BE CHICAGO, ILLINOIS, USA AND THE LANGUAGE OF THE ARBITRATION SHALL BE ENGLISH.

19. Representations of Licensee. BY ACCEPTING THIS AGREEMENT, YOU: (A) ACKNOWLEDGE THAT YOU HAVE READ AND UNDERSTAND THIS AGREEMENT; (B)

REPRESENT THAT YOU HAVE THE AUTHORITY TO ENTER INTO THIS AGREEMENT; (C) AGREE THAT THIS AGREEMENT IS ENFORCEABLE AGAINST YOU AND ANY LEGAL ENTITY THAT OBTAINED THE LM AND ON WHOSE BEHALF IT IS USED; AND, (D) AGREE TO PERFORM THE OBLIGATIONS OF THIS AGREEMENT.

20. Notices. All notices to Licensor shall be sent by certified or registered mail to John Deere Shared Services, Inc., One John Deere Place, Moline, IL 61265 U.S.A. All notices to Licensor shall be effective upon receipt. All notices required to be given to you shall, in Licensor's sole discretion, either be sent via certified or registered mail to the address given to Licensor, a John Deere dealer, or another distribution partner of Licensor in connection with your purchase of the LP and/or John Deere Equipment. Either method of notification used by Licensor shall be effective upon dispatch. You agree to notify Licensor of any change in your address in the manner set forth above.

21. Third Party Software Notifications and Licenses. The copyrights for certain portions of the Software may be owned or licensed by other third parties ("Third Party Software") and used and distributed under license. The Third Party Notices includes the acknowledgements, notices and licenses for the Third Party Software. The Third Party Notices are included with the distribution of this License Agreement on the display. If you are unable to locate these Third Party Notices, please write to us at the address below. The Third Party Software is licensed according to the applicable Third Party Software license notwithstanding anything to the contrary in this Agreement. If the Third Party Software contains copyrighted software that is licensed under the GPL/LGPL or other copyleft licenses, copies of those licenses are included in the Third Party Notices. You may obtain the complete corresponding source code for such Third Party Software from us for a period of three years after our last shipment of the Software by sending a request letter to:

Deere Open Source Compliance Team
P.O. Box 1202
Moline, IL 61266-1202
USA

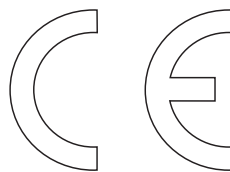
Please include name of the product and the version number of the software in the request letter. This offer is valid to anyone in receipt of this information.

Conformity Marking for European Union (EU) and Eurasian Economic Union (EAEU)

NOTE: Some or all machine models listed on the front cover of this manual are available in optional factory configurations that meet or exceed European Union (EU) or Eurasian Economic Union (EAEU) conformity requirements.

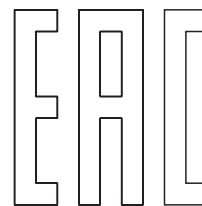
To validate conformance of a particular machine for sale into the EU or EAEU markets, check for the applicable marking on the machine, or see an authorized John Deere dealer.

TX1219407—UN—18JUL16



European Union (EU)

TX1219405—UN—18JUL16



Eurasian Economic Union (EAEU)

MB60223,0000023-19-19JUL16-1/1

EPA Non-road Emissions Control Warranty Statement—Compression Ignition

DXLOGOV1—UN—28APR09



JOHN DEERE

U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

JOHN DEERE'S WARRANTY RESPONSIBILITY

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission-related components include engine parts developed to control emissions related to the following:

Air-Induction System
Fuel System
Ignition System
Exhaust Gas Recirculation Systems

Aftertreatment Devices
Crankcase Ventilation Valves
Sensors
Engine Electronic Control Units

EMISSION WARRANTY EXCLUSIONS

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Emission_CI_EPA (18Dec09)

Continued on next page

DX,EMISSIONS,EPA-19-12DEC12-1/2



JOHN DEERE

U.S. AND CANADA EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emissions Control Information" label located on the engine. If the engine is operated in the United States or Canada and the Emissions Control information label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine conforms to US EPA nonroad compression-ignition regulations", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the label states: "This engine complies with US EPA and CARB regulations for nonroad diesel engines", or "This engine conforms to US EPA and California nonroad compression-ignition emission regulations", also refer to the "California Emission Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emissions-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

JOHN DEERE'S WARRANTY RESPONSIBILITY

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine including all parts of its emission-control system was designed, built and equipped so as to conform at the time of the sale with Section 213 of the Clean Air Act and is free from defects in materials and workmanship which would cause the engine to fail to conform with applicable US EPA regulations for a period of five years from the date the engine is placed into service or 3,000 hours of operation, whichever first occurs.

Where a warrantable condition exists, John Deere will repair or replace, as it elects, any part or component with a defect in materials or workmanship that would increase the engine's emissions of any regulated pollutant within the stated warranty period at no cost to you, including expenses related to diagnosing and repairing or replacing emission-related parts. Warranty coverage is subject to the limitations and exclusions set forth herein. Emission-related components include engine parts developed to control emissions related to the following:

Air-Induction System
Fuel System
Ignition System
Exhaust Gas Recirculation Systems

Aftertreatment Devices
Crankcase Ventilation Valves
Sensors
Engine Electronic Control Units

EMISSION WARRANTY EXCLUSIONS

John Deere may deny warranty claims for malfunctions or failures caused by:

- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Emission_CI_EPA (18Dec09)

TS1721—UN—15JUL'13

DX,EMISSIONS,EPA-19-12DEC12-2/2

CARB Non-road Emissions Control Warranty Statement—Compression Ignition Emissions Control Warranty Statement 2022 through 2024

DXLOGOV1—UN—28APR09



JOHN DEERE

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Continued on next page

DX,EMISSIONS,CARB-19-15DEC23-1/6

Air Induction System

- Intake manifold
- Turbocharger
- Charge air cooler

Fuel Metering system

- Fuel injection system

Exhaust Gas Recirculation

- EGR valve

Catalyst or Thermal Reactor Systems

- Catalytic converter
- Exhaust manifold

Emission control labels

Particulate Controls

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

Positive Crankcase Ventilation (PCV) System

- PCV valve
- Oil filler cap

Advanced Oxides of Nitrogen (NOx) Controls

- NOx absorbers and catalysts

SCR systems and urea containers/dispensing systems

Miscellaneous Items used in Above Systems

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (14Apr20)

Continued on next page

DX,EMISSIONS,CARB-19-15DEC23-2/6

Emissions Control Warranty Statement 2022 through 2024

DXLOGOV1 —UN—28APR09

**JOHN DEERE**
**CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS**

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty on 2022 through 2024 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB. John Deere warrants that this engine is free from defects in materials and workmanship which would cause the failure of emissions warranted parts to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. This applies to all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

Continued on next page

DX,EMISSIONS,CARB-19-15DEC23-3/6

RG32758—UN—19AUG20

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts or labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System

- Intake manifold
- Turbocharger
- Charge air cooler

Fuel Metering system

- Fuel injection system

Exhaust Gas Recirculation

- EGR valve

Catalyst or Thermal Reactor Systems

- Catalytic converter
- Exhaust manifold

Emission control labels**Particulate Controls**

- Any device used to capture particulate emissions
- Any device used in the regeneration of the capturing system
- Enclosures and manifolding
- Smoke Puff Limiters

Positive Crankcase Ventilation (PCV) System

- PCV valve
- Oil filler cap

Advanced Oxides of Nitrogen (NOx) Controls

- NOx absorbers and catalysts

SCR systems and urea containers/dispensing systems**Miscellaneous Items used in Above Systems**

- Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Emission_CI_CARB (14Apr20)

Emissions Control Warranty Statement 2025 through 2027

DXLOGOV1—UN—28APR09



JOHN DEERE

**CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS**

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

Continued on next page

DX,EMISSIONS,CARB-19-15DEC23-4/6

RG32759—UN—19AUG20

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty in 2025 through 2027 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts and labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx) Controls
• Intake manifold • Turbocharger • Charge air cooler	Particulate Controls • Any device used to capture particulate emissions • Any device used in the regeneration of the capturing system • Enclosures and manifold • Smoke Puff Limiters	• NOx absorbers and catalysts
Fuel Metering system		SCR systems and urea containers/dispensing systems
• Fuel injection system		Miscellaneous Items used in Above Systems
Exhaust Gas Recirculation		• Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware
• EGR valve	Positive Crankcase Ventilation (PCV) System	
Catalyst or Thermal Reactor Systems	• PCV valve • Oil filler cap	
• Catalytic converter • Exhaust manifold		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Continued on next page

DX,EMISSIONS,CARB-19-15DEC23-5/6

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS

To determine if the John Deere engine qualifies for the additional warranties set forth below, look for the "Emission Control Information" label located on the engine. If the engine is operated in the United States or Canada and the engine label states: "This engine complies with US EPA regulations for nonroad and stationary diesel engines", or "This engine complies with US EPA regulations for stationary emergency diesel engines", refer to the "U.S. and Canada Emission Control Warranty Statement." If the engine is operated in California, and the engine label states: "This engine complies with US EPA and California regulations for nonroad/off-road diesel engines" also refer to the "California Emissions Control Warranty Statement."

Warranties stated on this certificate refer only to emissions-related parts and components of your engine. The complete engine warranty, less emission-related parts and components, is provided separately. If you have any questions about your warranty rights and responsibilities, you should contact John Deere at 1-319-292-5400.

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

The California Air Resources Board (CARB) is pleased to explain the emission-control system warranty in 2025 through 2027 off-road diesel engines. In California, new off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards. John Deere must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

John Deere warrants to the ultimate purchaser and each subsequent purchaser that this off-road diesel engine was designed, built, and equipped so as to conform at the time of sale with all applicable regulations adopted by CARB and is free from defects in materials and workmanship which would cause the failure of a warranted part to be identical in all material respects to the part as described in John Deere's application for certification for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first for all engines rated at 19 kW and greater. In the absence of a device to measure hours of use, the engine shall be warranted for a period of five years.

EMISSIONS WARRANTY EXCLUSIONS:

John Deere may deny warranty claims for failures caused by the use of an add-on or modified part which has not been exempted by the CARB. A modified part is an aftermarket part intended to replace an original emission-related part which is not functionally identical in all respects and which in any way affects emissions. An add-on part is any aftermarket part which is not a modified part or a replacement part.

In no event will John Deere, any authorized engine distributor, dealer, or repair facility, or any company affiliated with John Deere be liable for incidental or consequential damage.

JOHN DEERE'S WARRANTY RESPONSIBILITY:

Where a warrantable condition exists, John Deere will repair or replace, as it elects, your off-road diesel engine at no cost to you, including diagnosis, parts and labor. Warranty coverage is subject to the limitations and exclusions set forth herein. The off-road diesel engine is warranted for a period of five years from the date the engine is delivered to an ultimate purchaser or 3,000 hours of operation, whichever occurs first. The following are emissions-related parts:

Air Induction System	Emission control labels	Advanced Oxides of Nitrogen (NOx Controls)
Intake manifold	Particulate Controls	NOx absorbers and catalysts
Turbocharger	Any device used to capture particulate emissions	SCR systems and urea containers / dispensing systems
Charge air cooler	Any device used in the regeneration of the capturing system	Miscellaneous Items used in Above Systems
Fuel Metering System	Enclosures and manifold	Electronic control units, sensors, actuators, wiring harnesses, hoses, connectors, clamps, fittings, gasket, mounting hardware
Fuel injection system	Smoke Puff Limiters	
Exhaust Gas Recirculation	Positive Crankcase Ventilation (PCV) System	
EGR valve	PCV valve	
Catalyst or Thermal Reactor Systems	Oil filler cap	
Catalytic converter		
Exhaust manifold		

Any warranted emissions-related part scheduled for replacement as required maintenance is warranted by John Deere for the period of time prior to the first scheduled replacement point for the part. Any warranted emissions-related part not scheduled for replacement as required maintenance or scheduled only for regular inspection is warranted by John Deere for the stated warranty period.

OWNER'S WARRANTY RESPONSIBILITIES:

As the off-road diesel engine owner you are responsible for the performance of the required maintenance listed in your Operator's Manual. John Deere recommends that the owner retain all receipts covering maintenance on the off-road diesel engine, but John Deere cannot deny warranty solely for the lack of receipts or for the owner's failure to ensure the performance of all scheduled maintenance. However, as the off-road diesel engine owner, you should be aware that John Deere may deny you warranty coverage if your off-road diesel engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel may result in the engine no longer operating in compliance with applicable emissions requirements.

The owner is responsible for initiating the warranty process, and should present the machine to the nearest authorized John Deere dealer as soon as a problem is suspected. The warranty repairs should be completed by the authorized John Deere dealer as quickly as possible.

Emissions regulations require the customer to bring the unit to an authorized servicing dealer when warranty service is required. As a result, John Deere is NOT liable for travel or mileage on emissions warranty service calls.

Required Emission-Related Information Service Provider

A repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall, and all other services paid for by John Deere must be performed at an authorized John Deere service center.

DX,EMISSIONS,REQINFO-19-08DEC23-1/1

FCC Notifications to User

FCC Notification

These devices comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

These devices must be operated as supplied by John Deere Ag Management Solutions. Any changes or modifications made to these devices without the express written approval of John Deere Ag Management Solutions may void the user's authority to operate these devices.

Modular Telematics Gateway and Satellite Module

This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a

residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, no guarantee shall be made that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

MM16284,000196F-19-20FEB19-1/1

Service ADVISOR™ Remote (SAR)—SOFTWARE TERMS AND CONDITIONS

IMPORTANT -- READ CAREFULLY: THIS SOFTWARE LICENSE AGREEMENT IS A LEGAL CONTRACT BETWEEN YOU AND THE LICENSOR ("LICENSOR") IDENTIFIED BELOW AND GOVERNS YOUR USE OF THE SOFTWARE DELIVERED TO YOUR MACHINE (THE "MACHINE").

BY INDICATING YOUR ACCEPTANCE ON A DISPLAY ON THE MACHINE, BY INSTALLING SOFTWARE TO THE MACHINE, OR USING SOFTWARE ON THE MACHINE, YOU ARE ACCEPTING AND AGREEING TO THE TERMS OF THIS LICENSE AGREEMENT WITH RESPECT TO THE SOFTWARE (THE "Software") THAT IS DELIVERED TO YOUR MACHINE. YOU AGREE THAT THIS SOFTWARE LICENSE AGREEMENT, INCLUDING THE WARRANTY DISCLAIMERS, LIMITATIONS OF LIABILITY AND TERMINATION PROVISIONS BELOW, IS BINDING UPON YOU, AND UPON ANY COMPANY ON WHOSE BEHALF YOU USE THE SOFTWARE AS WELL AS THE EMPLOYEES OF ANY SUCH COMPANY (COLLECTIVELY REFERRED TO AS "YOU" IN THIS SOFTWARE LICENSE AGREEMENT). IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, OR IF YOU ARE NOT AUTHORIZED TO ACCEPT THESE TERMS ON BEHALF OF YOUR COMPANY OR ITS EMPLOYEES, PLEASE CLICK THE [Decline] ICON ON THE DISPLAY ON THE MACHINE TO DECLINE THESE TERMS AND CONDITIONS. THIS LICENSE AGREEMENT REPRESENTS THE ENTIRE AGREEMENT CONCERNING THE SOFTWARE BETWEEN YOU AND THE LICENSOR.

1.

Delivery of Software. Software may be delivered to your Machine by Licensor wirelessly or via an agent of Licensor, such as a dealer. If it is delivered wirelessly, you may be responsible for any data transmission fees incurred due to such delivery.

2.

License. Licensor hereby grants to you, and you accept, a nonexclusive license to use the Software in machine-readable, object code form, only as authorized in this License Agreement and the applicable provisions of the Operators' Manuals, which you agree to review carefully prior to using the Software. The Software may be used only on the Machine to which it was initially delivered. You agree that you will not assign, sublicense, transfer, pledge, lease, rent, or share your rights under this License Agreement, except that you may permanently transfer all of your rights under this License Agreement in connection with the sale of the Machine on which the Software covered by this Agreement is installed.

3.

Licensor's Rights. You acknowledge and agree that the Software is proprietary to Licensor and is protected under copyright law. You further acknowledge and agree that all right, title, and interests in and to the Software, including associated intellectual property rights, are and shall remain

with Licensor. This License Agreement does not convey to you any title or interest in or to the Software, but only a limited right of use revocable in accordance with the terms of this License Agreement. You agree that you will not: (a) reverse assemble, reverse compile, modify, or otherwise translate the Software, or attempt to defeat the copyright protection and application enabling mechanisms therein; (b) copy or reproduce the Software; or, (b) remove or obliterate any copyright, trademark or other proprietary rights notices from the Software. You also agree not to permit any third party acting under your control to do any of the foregoing.

4.

License Fees. The license fees paid by you, if any, are paid in consideration of the licenses granted under this License Agreement.

5.

Limited Warranty. Licensor warrants, for your benefit alone and not for the benefit of any other party, that during the "**Warranty Period**" defined below, the Software will operate substantially in accordance with the applicable functional specifications ("**Specifications**") set forth in the Operators' Manuals. If, prior to expiration of the Warranty Period, the Software fails to perform substantially in accordance with the Specifications, you may return the Machine to the place of purchase for repair or replacement of the non-performing Software. The Warranty Period is ninety (90) days from the date of installation of the Software or the duration of the warranty period of the component of the Machine on which the Software is installed, whichever is longer. The Software Warranty Period does not affect the warranty period of the Machine itself or any component thereof.

6.

DISCLAIMER OF WARRANTIES. YOU HEREBY AGREE THAT THE LIMITED WARRANTY PROVIDED ABOVE (THE "**LIMITED WARRANTY**") CONSTITUTES YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY PROBLEM WHATSOEVER WITH THE SOFTWARE. EXCEPT AS PROVIDED IN THE LIMITED WARRANTY, THE SOFTWARE IS LICENSED "AS IS," AND LICENSOR, ITS AFFILIATES AND THIRD PARTY SUPPLIERS EXPRESSLY DISCLAIM AND YOU EXPRESSLY WAIVE, RELEASE AND RENOUNCE ALL WARRANTIES ARISING BY LAW OR OTHERWISE WITH RESPECT TO THE SOFTWARE, INCLUDING, BUT NOT LIMITED TO: ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE; ANY IMPLIED WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE; ANY WARRANTY OF TITLE OR NON-INFRINGEMENT; AND, ANY OTHER WARRANTY ARISING UNDER ANY THEORY OF LAW, INCLUDING TORT, NEGLIGENCE, STRICT LIABILITY, CONTRACT OR OTHER LEGAL OR EQUITABLE THEORY. NO REPRESENTATION OR OTHER AFFIRMATION OF FACT INCLUDING, BUT NOT LIMITED TO, STATEMENTS

Continued on next page

OUT4001,00006C5-19-08NOV10-1/4

REGARDING SUITABILITY FOR USE, SHALL BE DEEMED TO BE A WARRANTY BY LICENSOR OR ANY OF ITS AFFILIATES OR THIRD PARTY SUPPLIERS. LICENSOR DOES NOT WARRANT THAT THE SOFTWARE IS ERROR-FREE OR WILL OPERATE WITHOUT INTERRUPTION.

7.

LIMITATION OF LIABILITY. EXCEPT AS SET FORTH IN THE LIMITED WARRANTY, UNDER NO CIRCUMSTANCES SHALL LICENSOR, ITS AFFILIATES OR ITS THIRD PARTY SUPPLIERS BE LIABLE TO YOU OR TO ANY THIRD PARTIES FOR DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ANY LOSS OR DAMAGE CAUSED BY THE SOFTWARE; ANY PARTIAL OR TOTAL FAILURE OF THE SOFTWARE; PERFORMANCE, NONPERFORMANCE OR DELAYS IN CONNECTION WITH ANY INSTALLATION, MAINTENANCE, WARRANTY OR REPAIRS OF THE SOFTWARE, DAMAGES FOR CROP LOSS, DAMAGE TO LAND, LOST PROFITS, LOSS OF BUSINESS OR LOSS OF GOODWILL, LOSS OF USE OF EQUIPMENT OR SERVICES OR DAMAGES TO BUSINESS OR REPUTATION ARISING FROM THE PERFORMANCE OR NON-PERFORMANCE OF ANY ASPECT OF THIS AGREEMENT, WHETHER IN CONTRACT, TORT OR OTHERWISE, AND WHETHER OR NOT LICENSOR, ITS AFFILIATES OR ITS THIRD PARTY SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL LICENSOR'S CUMULATIVE LIABILITY TO YOU OR TO ANY OTHER PARTY FOR ANY LOSSES OR DAMAGES RESULTING FROM ANY CLAIMS, LAWSUITS, DEMANDS, OR ACTIONS ARISING FROM OR RELATING TO USE OF THE SOFTWARE EXCEED YOUR TOTAL PAYMENT FOR THE MACHINE AND FOR THE LICENSE OF THE SOFTWARE.

8.

Termination of License. Licensor may terminate the license granted under this Agreement upon written notice of termination provided to you if you violate any material term of this Agreement pertaining to your use of the Software or Licensor's rights, including, without limitation, the provisions of Sections 2 and 3 above.

9.

Compliance with Law. You agree that you will use the Software in accordance with United States law and the laws of the country in which you are located, as applicable, including foreign trade control laws and regulations. The Software may be subject to export and other foreign trade controls restricting re-sales and/or transfers to other countries and parties. By accepting the terms of this Agreement, you acknowledge that you understand that the Software may be so controlled, including, but not limited to, by the Export Administration Regulations and/or the foreign trade control regulations of the Treasury Department of the United States. Any other provision of this Agreement to the contrary notwithstanding, you agree that the Software will

not be resold, re-exported or otherwise transferred. The Software remains subject to applicable U.S. laws.

10.

Indemnification. You agree to defend, indemnify and hold Licensor, its affiliates and third party supplier, and their, officers, directors, employees, agents and representatives (each an "**Indemnified Party**"), harmless from and against all claims, demands proceedings, injuries, liabilities, losses, or costs and expenses (including reasonable legal fees) brought by any third party against any such persons arising from or in connection with your use of the Software, regardless of whether such losses are caused, wholly or partially, by any negligence, breach of contract or other fault of an Indemnified Party.

11.

Costs of Litigation. If any claim or action is brought by either party to this License Agreement against the other party regarding the subject matter hereof, the prevailing party shall be entitled to recover, in addition to any other relief granted, reasonable attorney fees and expenses of litigation.

12.

Severability and Waiver. Should any term of this Agreement be declared void or unenforceable by any court of competent jurisdiction, such declaration shall have no effect on the remaining terms hereof. The failure of either party to enforce any rights granted hereunder or to take action against the other party in the event of any breach hereunder shall not be deemed a waiver by that party as to subsequent enforcement of rights of subsequent actions in the event of future breaches.

13.

Language Clause. If you are a resident of Canada at the time you accept this Agreement, then the parties hereby acknowledge that they have required this Agreement, and all other documents relating hereto, be drawn up in the English language only. Les parties reconnaissent avoir demandé que le présent contrat ainsi que toute autre entente ou avis requis ou permis à être conclu ou donné en vertu des stipulations du présent contrat, soient rédigés en langue anglaise seulement. If you are a resident of any country other than the United States, Canada, Great Britain, Australia or New Zealand then you agree as follows: there may be a translated version of this Agreement. If there is an inconsistency or contradiction between the translated version and the English version of this Agreement, the English version of this Agreement shall control.

14.

Assignment by Licensor. Licensor may assign this Agreement without your prior consent to any company or entity affiliated with Licensor, or by an assignment associated with a corporate restructuring, merger or acquisition.

15.

Governing Law and Forum. This Agreement will be

governed by and construed in accordance with the substantive laws identified in the table in Section 18, below. The respective courts of the venue identified in the table in Section 18, below, for the location of the Machine shall have non-exclusive jurisdiction over all disputes relating to this Agreement. This Agreement will not be governed by the conflict of law rules of any jurisdiction or the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

16.

Specific Exceptions.

16.1

Limited Warranty for Users Residing in European

Economic Area Countries or Switzerland. If you obtained the Software in any European Economic Area country or Switzerland, and you usually reside in such country, then Section 6 does not apply, instead, Licensor warrants that the Software provides the functionalities set forth in the Operators Manuals (the "**agreed upon functionalities**") for the Warranty Period. As used in this Section, "Warranty Period" means one (1) year. Non-substantial variation from the agreed upon functionalities shall not be considered and does not establish any warranty rights. **THIS LIMITED WARRANTY DOES NOT APPLY TO SOFTWARE PROVIDED TO YOU FREE OF CHARGE, FOR EXAMPLE, UPDATES, OR SOFTWARE THAT HAS BEEN ALTERED BY YOU, TO THE EXTENT SUCH ALTERATIONS CAUSED A DEFECT.** To make a warranty claim, during the Warranty Period you must return, at our expense, the Software and proof of purchase to the location where you obtained it. If the functionalities of the Software vary substantially from the agreed upon functionalities, Licensor is entitled -- by way of re-performance and at its own discretion -- to repair or replace the Software. If this fails, you are entitled to a reduction of the purchase price (reduction) or to cancel the purchase agreement (rescission). For further warranty information, please contact Licensor at the address listed in Section 18.

16.2

Limitation of Liability for Users Residing in European Economic Area Countries or Switzerland.

(a) If you obtained the Software in any European Economic Area country or Switzerland, and you usually reside in such country, then Sections 7 and 10 do not apply, Instead,

Licensor's statutory liability for damages shall be limited as follows: (a) Licensor shall be liable only up to the amount of damages as typically foreseeable at the time of entering into this Agreement in respect of damages caused by a slightly negligent breach of a material contractual obligation and (b) Licensor shall not be liable for damages caused by a slightly negligent breach of a non-material contractual obligation.

(b) The aforesaid limitation of liability shall not apply to any mandatory statutory liability, in particular, to liability under the German Product Liability Act, liability for assuming a specific guarantee or liability for culpably caused personal injuries.

(c) You are required to take all reasonable measures to avoid and reduce damages, in particular to make back-up copies of the Software and your computer data subject to the provisions of this Agreement.

17.

Representations of Licensee. BY ACCEPTING THIS AGREEMENT, YOU: (A) ACKNOWLEDGE THAT YOU HAVE READ AND UNDERSTAND THIS AGREEMENT; (B) REPRESENT THAT YOU HAVE THE AUTHORITY TO ENTER INTO THIS AGREEMENT; (C) AGREE THAT THIS AGREEMENT IS ENFORCEABLE AGAINST YOU AND ANY LEGAL ENTITY THAT OBTAINED THE SOFTWARE AND ON WHOSE BEHALF IT IS USED; AND, (D) AGREE TO PERFORM THE OBLIGATIONS OF THIS AGREEMENT.

18.

Identification of Licensor and Notices. The Licensor is the entity identified in the table below. All notices to Licensor shall be sent by certified or registered mail to the corresponding address for the Licensor given below. In each case a copy of the notice shall also be sent to John Deere Intelligent Solutions Group, ATTN: Legal, 4140 114th Street Urbandale, IA 50322 U.S.A. All notices to Licensor shall be effective upon receipt. All notices required to be given to you shall, in Licensor's sole discretion, either be sent via certified or registered mail to the address given to Licensor in connection with your purchase of the Machine. Either method of notification used by Licensor shall be effective upon dispatch. You agree to notify Licensor of any change in your address in the manner set forth above.

Place of Purchase	Address	Governing Law	Venue
United States of America	John Deere Shared Services, Inc. One John Deere Place Moline, IL 61265 U.S.A.	State of Illinois, USA	Rock Island County, Illinois, USA
Argentina	Industrias John Deere Argentina, S.A. Casilla de Correo 80 Rosario (Santa Fe), 2000, Argentina	Province of Santa Fe, Argentina	Province of Santa Fe, Argentina
Australia or New Zealand	John Deere Limited (Australia) P.O. Box 2022 Crestmead, Queensland, Australia 4132	State of Queensland, Australia	State of Queensland, Australia
Canada	John Deere Limited 295 Hunter Road P.O. Box 1000	Province of Ontario, Canada	Province of Ontario, Canada

Continued on next page

OUT4001,00006C5-19-08NOV10-3/4

Introduction

	Grimsby, ON L9K 1M3		
Chile	John Deere Water, S.A. Cerro Santa Lucia 9990 Quilicura, Santiago, Chile	Province of Santiago, Chile	Province of Santiago, Chile
Mexico	Industrias John Deere, S.A. de C.V. Boulevard Diaz Ordaz #500 Garza Garcia Nuevo Leon 66210, Mexico	State of Nuevo Leon, Mexico	State of Nuevo Leon, Mexico
Europe	ETIC Strassburgerallee 5 67657 Kaiserslautern, Germany	Federal Republic of Germany	Kaiserslautern, Germany
Other	The John Deere entity identified for the location of your Machine on www.JDLink.com .	The John Deere entity identified for the location of your Machine on www.JDLink.com .	The John Deere entity identified for the location of your Machine on www.JDLink.com .

OUT4001,00006C5-19-08NOV10-4/4

John Deere Online Bookstore

The Technical Service Information Bookstore is available for John Deere Construction & Forestry, and Waratah products.

Technical information can be purchased from John Deere. Publications are available in print, PDF download, or PDF on DVD formats.

Orders can be made using one of the following:

- John Deere Technical Information Store:
<http://www.johndeeretechninfo.com/>
- Call 1-866-213-3373
- Contact an authorized John Deere dealer

Available information includes:

- **PARTS CATALOGS** listing service parts available for machines with exploded view illustrations to help identify the correct parts. It is also useful in assembling and disassembling.
- **OPERATOR'S MANUALS** providing safety, operating, maintenance, and service information.
- **TECHNICAL MANUALS** outlining service information for machines. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in a separate component technical manual.



John Deere Online Bookstore

- **TRAINING GUIDES AND VIDEOS** covering components, preventative maintenance, operation safety, and demonstration tips.

TX1213033—UN—07APR16

MB60223,0005117-19-01APR22-1/1

Contents

	Page		Page
Safety—Safety and Operator Conveniences		Monitor Display Unit—Accessory Menu	
Safety and Operator Convenience Features	1-1-1	Normal Display.....	2-1-3
Safety—General Precautions		Sealed Switch Module (SSM)	2-1-4
Information for European Union Directives and		Sealed Switch Module (SSM) Functions	2-1-5
Eurasian Economic Union Technical		Left Console Switch Functions	2-1-6
Regulations Compliance	1-2-1	Transmission Control Lever (TCL)	2-1-7
Recognize Safety Information	1-2-2	Using Park Lock Levers	2-1-7
Follow Safety Instructions	1-2-3	Horn	2-1-8
Operate Only If Qualified	1-2-3	Auxiliary Power Outlet	2-1-8
Wear Protective Equipment	1-2-3	Secondary Exits—Cab Units	2-1-9
Avoid Unauthorized Machine Modifications	1-2-3	Seat Adjustment	2-1-10
Inspect Machine	1-2-4	Seat Belt	2-1-10
Stay Clear of Moving Parts	1-2-4	Operation—Operating The Machine	
Avoid High-Pressure Oils	1-2-4	Inspect Machine Daily Before Starting	2-2-1
Work In Ventilated Area	1-2-5	Check Instruments Before Starting	2-2-2
Prevent Fires, Clean Debris From Machine	1-2-5	Engine Break-In Period	2-2-3
Prevent Battery Explosions	1-2-6	Battery Disconnect Switch	2-2-3
Handle Chemical Products Safely	1-2-6	Starting the Engine	2-2-4
Decommissioning — Proper Recycling and		Engine Block Heater—If Equipped	2-2-5
Disposal of Fluids and Components	1-2-7	Engine Warm-Up	2-2-5
Exhaust Filter Ash Handling and Disposal	1-2-7	Cold Weather Warmup	2-2-6
Prepare for Emergencies	1-2-8	Driving the Machine	2-2-6
Add Cab Guarding for Special Uses	1-2-8	Steering the Machine	2-2-7
Clean Debris from Machine	1-2-8	Using Engine Speed Control Dial	2-2-7
Safety—Operating Precautions		Setting Travel Speed	2-2-8
Use Steps and Handholds Correctly	1-3-1	Decelerator/Brake Pedal and Decelerator Mode	
Start Only From Operator's Seat	1-3-1	Switch	2-2-8
Use and Maintain Seat Belt	1-3-1	Exhaust Filter	2-2-9
Prevent Unintended Machine Movement	1-3-2	Stopping the Machine	2-2-11
Avoid Work Site Hazards	1-3-2	Parking the Machine	2-2-12
Keep Riders Off Machine	1-3-3	Operating in Water and Mud	2-2-12
Avoid Backover Accidents	1-3-3	Ripper Control Lever—If Equipped	2-2-13
Avoid Machine Tip Over	1-3-4	Operating Blade	2-2-13
Inspect and Maintain ROPS	1-3-4	Tilting Blade	2-2-14
Add and Operate Attachments Safely	1-3-4	Angling Blade	2-2-14
Safety—Maintenance Precautions		Blade Pitch Operation	2-2-15
Park and Prepare for Service Safely	1-4-1	Blade Control Lever—Operation	2-2-16
Service Cooling System Safely	1-4-1	Operating on Steep Hills	2-2-17
Remove Paint Before Welding or Heating	1-4-2	Avoid Track Damage	2-2-18
Make Welding Repairs Safely	1-4-2	Loading Machine on a Trailer	2-2-18
Drive Metal Pins Safely	1-4-2	Lifting the Machine	2-2-19
Clean Exhaust Filter Safely	1-4-3	Releasing Park Brake to Tow the Machine	2-2-19
Safety—Safety Signs		Service ADVISOR™ Remote (SAR) Software	
Safety Signs	1-5-1	Delivery Process	2-2-22
Operation—Operator's Station		Operating Winch—If Equipped	2-2-23
Standard Display Monitor (SDM)	2-1-1	Fasten Cable to Winch Drum—4000S Series	2-2-24
Standard Display Monitor (SDM) Functions	2-1-2	Winch Free Spool Drag Adjustment	2-2-27
		Operation—Monitor Operation	
		Standard Display Monitor (SDM)	2-3-1
		Standard Display Monitor (SDM)—Main Menu	2-3-2

Continued on next page

Original Instructions. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

COPYRIGHT © 2023
DEERE & COMPANY
Moline, Illinois
All rights reserved.
A John Deere ILLUSTRATION™ Manual
Previous Editions
Copyright © 2012, 2013, 2014, 2017, 2019

	Page		Page
Standard Display Monitor (SDM)—Main Menu—Codes	2-3-3	Standard Display Monitor (SDM)—Main Menu—Software Delivery—Software Update	2-3-25
Standard Display Monitor (SDM)—Main Menu—Codes—Active Codes	2-3-3	Maintenance—Machine	
Standard Display Monitor (SDM)—Main Menu—Codes—Stored Codes	2-3-4	Alternative and Synthetic Lubricants	3-1-1
Standard Display Monitor (SDM)—Main Menu—Exhaust Filter	2-3-5	Hydraulic and Hydrostatic Oil	3-1-2
Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Auto Cleaning	2-3-6	Track Rollers, Front Idler, and Carrier Roller Oil	3-1-3
Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Parked Cleaning	2-3-7	Final Drive Oil	3-1-3
Standard Display Monitor (SDM)—Main Menu—Service	2-3-8	Winch Oil	3-1-4
Standard Display Monitor (SDM)—Main Menu—Machine Settings	2-3-9	Grease	3-1-4
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Transmission	2-3-10	Lubricant Storage	3-1-5
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Hydraulics (IGC machines only)	2-3-11	Mixing of Lubricants	3-1-5
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Reversing Fan	2-3-12	Diesel Fuel	3-1-6
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Brake Mode	2-3-12	Diesel Fuel Specifications	3-1-6
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Controller Info	2-3-13	Lubricity of Diesel Fuel	3-1-7
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Job Timer	2-3-13	Handling and Storing Diesel Fuel	3-1-7
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Track Info	2-3-14	Biodiesel Fuel	3-1-8
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security	2-3-15	Testing Diesel Fuel	3-1-9
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Owner PIN	2-3-16	Minimizing the Effect of Cold Weather on Diesel Engines	3-1-10
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Operator PINs	2-3-17	John Deere Break-In Plus™ Engine Oil	3-1-11
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Transport PIN	2-3-18	Diesel Engine Oil—Interim Tier 4 and Stage III B Engines	3-1-11
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Password	2-3-19	Engine Oil and Filter Service Intervals — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V Engines	3-1-12
Standard Display Monitor (SDM)—Main Menu—Diagnostics	2-3-19	Diesel Engine Coolant (engine with wet sleeve cylinder liners)	3-1-13
Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values	2-3-20	Drain Intervals for Diesel Engine Coolant	3-1-14
Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Temperatures	2-3-20	John Deere COOL-GARD™ II Coolant Extender	3-1-14
Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Pressures	2-3-21	Supplemental Coolant Additives	3-1-14
Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Speeds	2-3-21	Operating in Warm Temperature Climates	3-1-15
Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—JDLink™ System	2-3-22	Additional Information About Diesel Engine Coolants and John Deere COOL-GARD™ II Coolant Extender	3-1-15
Standard Display Monitor (SDM)—Main Menu—Monitor	2-3-22	Testing Diesel Engine Coolant	3-1-16
Standard Display Monitor (SDM)—Main Menu—Monitor—Units	2-3-23	Disposing of Coolant	3-1-16
Standard Display Monitor (SDM)—Main Menu—Monitor—Contrast	2-3-23	Maintenance—Periodic Maintenance	
Standard Display Monitor (SDM)—Main Menu—Software Delivery	2-3-24	Service Your Machine at Specified Intervals	3-2-1
		Check Hour Meter Regularly	3-2-1
		Prepare Machine for Maintenance	3-2-2
		Fuel Tank	3-2-3
		Fluid Analysis Program Test Kits and 3-Way Coolant Test Kit	3-2-3
		Service Intervals	3-2-4
		Required Parts	3-2-5
		Maintenance—As Required	
		Check Coolant	3-3-1
		Inspect Belt and Check Tension	3-3-2
		Check Engine Air Filter Restriction Indicator	3-3-3
		Clean or Replace Cab Fresh Air Filter	3-3-3
		Clean or Replace Cab Recirculating Air Filter	3-3-3
		Check Track Sag	3-3-5
		Adjust Track Sag	3-3-5
		Drain Sediment From Fuel Tank	3-3-8
		Service Exhaust Filter	3-3-8
		Maintenance—Every 10 Hours or Daily	
		Check Coolant Level at Surge Tank	3-4-1
		Check Engine Oil Level	3-4-2

Continued on next page

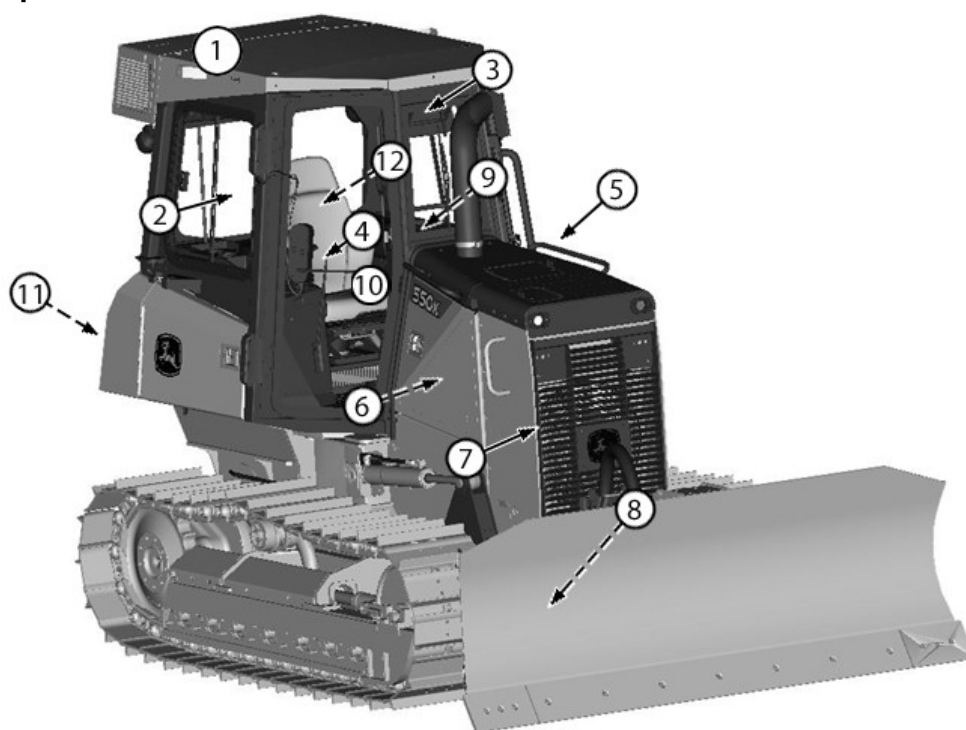
	Page		Page
Check or Drain Primary Fuel Filter	3-4-3	Using Battery Charger	4-1-4
Check Hydraulic System Oil Level	3-4-3	Using Booster Batteries—24-Volt System	4-1-6
Check Hydrostatic Transmission Oil Level	3-4-4	Replacing and Removing Batteries	4-1-6
Check or Drain Auxiliary Fuel Filter and Water Separator—If Equipped	3-4-4	Opening and Closing the Grille	4-1-7
Lubricate Dozer Linkage and Blade Socket	3-4-5	Check Engine Speeds	4-1-7
Check Winch Oil Level—If Equipped	3-4-6	Replace Engine Air Filter Elements	4-1-8
Maintenance—Every 50 Hours		Replacing Fuses	4-1-9
Lubricate Ripper—If Equipped	3-5-1	Keep ROPS Installed Properly	4-1-10
Maintenance—Every 250 Hours		Lubricating Door Latches	4-1-10
Check Final Drive Oil Level	3-6-1	Checking Park Lock Start System	4-1-10
Take Engine Oil Sample	3-6-1	Checking Transmission Start System	4-1-11
Check Blade Shim Adjustment	3-6-2	JDLINK Machine Monitoring System (MMS)—If Equipped	4-1-11
Maintenance—Every 500 Hours		Check Air Conditioner Refrigerant Level—If Equipped	4-1-11
Drain and Refill Engine Oil and Replace Filter	3-7-1	Checking Coolant Hoses	4-1-12
Replace Primary and Final Fuel Filters	3-7-2	Fluid Sampling Test Ports	4-1-12
Replace Auxiliary Fuel Filter and Water Separator—If Equipped	3-7-3	Quick Service Connectors—If Equipped	4-1-13
Replace Winch Oil Filter—If Equipped	3-7-5	Bleed Fuel System	4-1-13
Check Battery Electrolyte Level; Clean and Tighten Terminals	3-7-6	Drain Fuel From Fuel Tank	4-1-14
Take Fluid Samples	3-7-7	Track Sag General Information	4-1-15
Maintenance—Every 1000 Hours		Checking Carrier Roller Oil Level	4-1-15
Check Coolant	3-8-1	Checking Idlers and Rollers for Oil Leakage	4-1-16
Drain and Refill Final Drive Oil	3-8-1	Checking Track Shoe Cap Screw Torque	4-1-16
Check Air Intake Hose	3-8-1	Checking Track Shoe Cap Screw Torque— Master Link	4-1-17
Drain and Refill Winch Oil and Replace Filter—If Equipped	3-8-2	Replacing Ripper Teeth—If Equipped	4-1-17
Clean or Replace Winch Hydraulic Breather Filter—If Equipped	3-8-3	Hardware Torque Specifications	4-1-17
Maintenance—Every 2000 Hours		Unified Inch Bolt and Screw Torque Values	4-1-18
Drain and Refill Hydraulic System Oil and Replace Filter	3-9-1	Metric Bolt and Screw Torque Values	4-1-19
Drain and Refill Hydrostatic Transmission Oil and Replace Filter	3-9-2	Miscellaneous—Operational Checkout	
Replace Open Crankcase Ventilation (OCV) Filter	3-9-3	Operational Checkout	4-2-1
Maintenance—Every 3000 Hours		Miscellaneous—Troubleshooting	
Check and Adjust Engine Valve Lash	3-10-1	Troubleshooting Procedure	4-3-1
Maintenance—Every 6000 Hours		Engine	4-3-2
Drain and Refill Engine Cooling System	3-11-1	Electrical System	4-3-5
Miscellaneous—Machine		Hydraulic System	4-3-7
Welding On Machine	4-1-1	Hydrostatic Transmission	4-3-8
Welding Near Electronic Control Units	4-1-1	Air Conditioning	4-3-8
Keep Electronic Control Unit Connectors Clean	4-1-2	Integrated Grade Control (IGC) System—If Equipped	4-3-9
Do Not Service or Adjust Injection Nozzles or Injection Pump	4-1-2	Software Update	4-3-11
Do Not Service Control Valves, Cylinders, Pumps, or Motors	4-1-2	Miscellaneous—Storage	
Precautions for Alternator and Regulator	4-1-2	Prepare Machine for Storage	4-4-1
Handling, Checking and Servicing Batteries Carefully	4-1-3	Monthly Storage Procedure	4-4-1
		Miscellaneous—Machine Numbers	
		Record Product Identification Number (PIN)	4-5-1
		Record Engine Serial Number	4-5-1
		Keep Proof of Ownership	4-5-1
		Keep Machines Secure	4-5-1
		Miscellaneous—Specifications	
		550K-XLT Crawler Dozer Dimensions	4-6-1
		550K-XLT Crawler Dozer Specifications	4-6-3
		550K-XLT Crawler Dozer Weights	4-6-4
		550K-LGP Crawler Dozer Dimensions	4-6-5
		550K-LGP Crawler Dozer Specifications	4-6-7

Continued on next page

	Page
550K-LGP Crawler Dozer Weights	4-6-8
550K-XLT and 550K-LGP Crawler Dozer Drain and Refill Capacities	4-6-8
650K-XLT Crawler Dozer Dimensions	4-6-9
650K-XLT Crawler Dozer Specifications	4-6-11
650K-XLT Crawler Dozer Weights	4-6-12
650K-LGP Crawler Dozer Dimensions	4-6-13
650K-LGP Crawler Dozer Specifications	4-6-15
650K-LGP Crawler Dozer Weights	4-6-16
650K-XLT and 650K-LGP Crawler Dozer Drain and Refill Capacities	4-6-16
Parallelogram Ripper	4-6-17
4000S Winch	4-6-18
Eurasian Economic Union	4-6-18
Machine Design Life	4-6-18

Safety—Safety and Operator Conveniences

Safety and Operator Convenience Features



Model 550K Shown

Please remember, the operator is the key to preventing accidents.

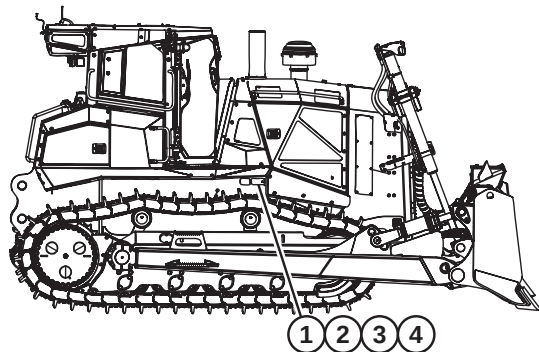
1. **ROPS, FOPS, and OPS.** Structures designed to help protect the operator are certified to ISO, SAE, and OSHA standards. Enclosed structures also help protect the operator from the surrounding environment and elements.
2. **Pressurized Cab.** Positive pressure ventilation system circulates both outside and inside air through filters for a cleaner working environment. Built-in defroster vents direct air flow for effective window defogging/deicing.
3. **Interior Rear View Mirror.** Offers the operator a partial view of activity behind the operator station and/or machine.
4. **Park Lock Levers.** When park lock levers are placed in up (locked) position, the transmission shifts to neutral and the park brake is engaged.
5. **Handholds.** Large conveniently placed handholds facilitate entering and exiting the operator's station.
6. **Bypass Start Protection.** Shielding over the starter solenoid deters dangerous bypass starting.
7. **Engine Fan Guard.** A secondary fan guard inside engine compartment deters unintentional contact with engine fan blades.
8. **Steps.** Wide skid-resistant steps help operator avoid slipping while entering or exiting the operator's station.
9. **Neutral Start.** Neutral start feature prevents the engine from being started unless transmission control lever is in neutral.
10. **Automatic Seat Belt Retractors.** Seat belt retractors help keep belts clean and convenient to use.
11. **Backup Alarm.** Audible signal alerts bystanders when reverse travel direction is selected by operator.
12. **Operator Manual Holder.** A sealed manual holder located on the back of operator seat keeps manual on machine clean and dry.

ER93822,00000BF-19-09JAN12-1/1

TX1100362A—UN—02NOV11

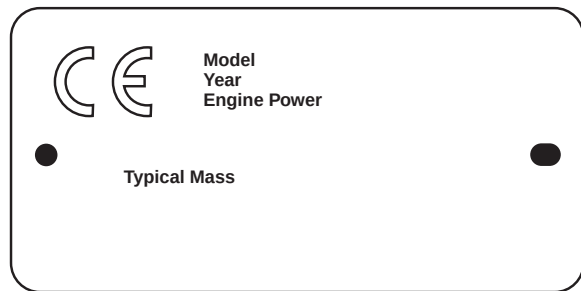
Safety—General Precautions

Information for European Union Directives and Eurasian Economic Union Technical Regulations Compliance



Crawler

TX1195036—UN—03JUN15



CE Mark

TX1066144—UN—19OCT09



PIN Plate

TX1066156—UN—15OCT09



EAC Marking

TX1252152—UN—09FEB18

To the Customer

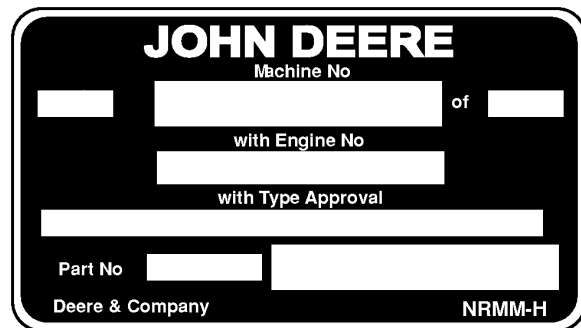
Effective June, 2006, all machines sold in the European Union must comply with the machinery directive 2006/42/EC and any amendments. Each machine meeting these requirements must bear the conformity mark CE. In addition, each machine must be accompanied with a Declaration of Conformity by the machine manufacturer. This declaration must be kept with the machine at all times and does not declare conformity to national road regulations.

Effective February 15, 2013, all machines sold in the Eurasian Economic Union must comply with the Technical Regulations of the Eurasian Economic Union TR TS 010/2011 "On Safety of machinery and Equipment." Each machine meeting these requirements must bear the EAC Marking.

NOTE: This machine may need country approval for travel on public roads in Europe as some European countries require special equipment and approvals.

Product Identification Number (PIN), CE Mark, EAC Marking, and EU Flex Label Locations

The machine is identified by the PIN that is stamped on a serial number plate. The PIN plate (1), CE Mark or EAC Marking, and if required, EU flex label are located on the machine as indicated in the machine image.



EU Flex Label

TX1066630—UN—21OCT09

1—PIN Plate
2—CE Mark (if required)

3—EAC Marking (if required)
4—EU Flex Label (if required)

NOTE: If this machine was certified (homologated) to the requirements of the European Union, there will be a CE mark affixed in indicated area (2). If required this machine will also be affixed with an EU Flex label (4) beside the CE mark in the indicated area.

If this machine was certified (homologated) to the requirements of the Eurasian Economic Union, there will be a EAC marking (3) affixed in the indicated area.

Continued on next page

MB60223,0005074-19-16APR18-2/1

Sound and Vibration Specifications

Model	550K	650K
Operator sound pressure and exterior sound power levels are:		
Cab	71 dB(A) and 109 dB(A) or less *	71 dB(A) and 109 dB(A) or less *
NOTE: Factors affecting listed values include operator performance, machine age, seat condition, the use of accessories, environment, and any machine movement.		
(*) Data acquisition system precision values with a 2% technical uncertainty.		
Sound levels were obtained using the test method specified per ISO 6396:2008 and ISO 6395:2008, respectively.		
Eurasian Economic Union		
Operator vibration levels are for properly maintained machines operating on a flat dirt area free of large objects such as trees and rocks. Whole body vibration levels were obtained using the test method specified per GOST 31191.1:2004.		
Whole Body		
Hand Arm		
NOTE: Factors affecting listed values include operator performance, machine age, the condition of window and door seals, the use of accessories, environment, and any machine movement.		
European Union		
Operator vibration levels are for properly maintained machines operating on a flat dirt area free of large objects such as trees and rocks. Vibration levels were obtained using the test method specified per ISO 2631-1:1997 or ISO TR 25398 where applicable.		
Whole Body	0.6 m/s ² or less	0.6 m/s ² or less
Hand Arm	2.5 m/s ² or less	2.5 m/s ² or less
NOTE: Factors affecting listed values include operator performance, machine age, the condition of window and door seals, the use of accessories, environment, and any machine movement.		

MB60223,0005074-19-16APR18-1/1

Recognize Safety Information

This is the safety alert symbol. When you see this symbol on your machine or in this manual, be alert for the potential of personal injury.

Follow the precautions and safe operating practices highlighted by this symbol.

A signal word — DANGER, WARNING, or CAUTION — is used with the safety alert symbol. DANGER identifies the most serious hazards.

On your machine, DANGER signs are red in color, WARNING signs are orange, and CAUTION signs are yellow. DANGER and WARNING signs are located near specific hazards. General precautions are on CAUTION labels.



▲ DANGER

▲ WARNING

▲ CAUTION

T133555—UN—15APR13

T133588—19—28AUG00

TX,RECOGNIZE-19-28JUN10-1/1

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Use this operator's manual for correct safety sign placement. Be sure that new equipment components and repair parts include the current safety signs. Replacement safety signs are available at your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine could impair the function or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



TS201—UN—15APR13

TX,FOLLOW-19-28AUG23-1/1

Operate Only If Qualified

Do not operate this machine unless the operator's manual has been read carefully, and you have been qualified by supervised training and instruction.

Operator should be familiar with the job site and

surroundings before operating. Try all controls and machine functions with the machine in an open area before starting to work.

Know and observe all safety rules that may apply to every work situation and work site.

TX,QUALIFIED-19-18JAN11-1/1

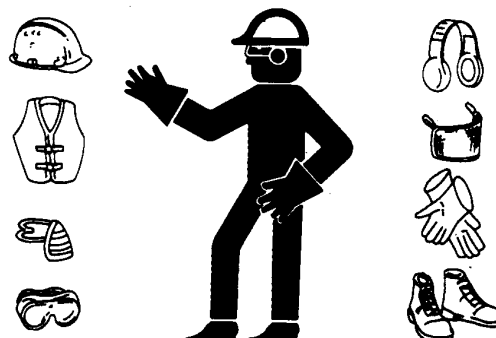
Wear Protective Equipment

Guard against injury from flying pieces or metal or debris; wear goggles or safety glasses.

Wear close fitting clothing and safety equipment appropriate to the job.

Operating equipment safety requires the full attention of the operator. Do not wear radio or music headphones while operating machine.

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protection such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises. Radio or music headphones are not suitable to use for hearing protection.



TS206—UN—15APR13

TX,WEAR,PE-19-28AUG23-1/1

Avoid Unauthorized Machine Modifications

John Deere recommends using only genuine John Deere replacement parts to ensure machine performance. Never substitute genuine John Deere parts with alternate parts not intended for the application as these can create hazardous situations or hazardous performance. Non-John Deere parts, or any damage or failures resulting from their use are not covered by any John Deere warranty.

Modifications of this machine, or addition of unapproved products or attachments, may affect machine stability or

reliability, and may create a hazard for the operator or others near the machine. The installer of any modification which may affect the electronic controls of this machine is responsible for establishing that the modification does not adversely affect the machine or its performance.

Always contact an authorized dealer before making machine modifications that change the intended use, weight or balance of the machine, or that alter machine controls, performance or reliability.

AM40430,00000A9-19-20AUG09-1/1

Inspect Machine

Inspect machine carefully each day by walking around it before starting.

Keep all guards and shields in good condition and properly installed. Fix damage and replace worn or broken parts immediately. Pay special attention to hydraulic hoses and electrical wiring.



T6607AQ—UN—15APR13

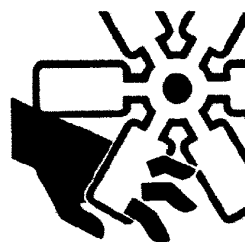
TX,INSPECT-19-16MAY23-1/1

Stay Clear of Moving Parts

Entanglements in moving parts can cause serious injury.

Stop engine before examining, adjusting, or maintaining any part of machine with moving parts.

Keep guards and shields in place. Replace any guard or shield that has been removed for access as soon as service or repair is complete.



T133592—UN—15APR13

TX,MOVING,PARTS-19-20JAN11-1/1

Avoid High-Pressure Oils

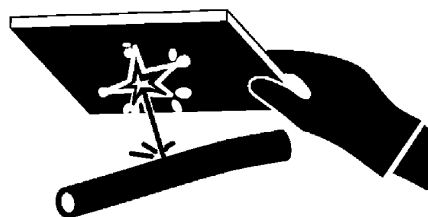
This machine uses a high-pressure hydraulic system. Escaping oil under pressure can penetrate the skin causing serious injury.

Never search for leaks with your hands. Protect hands. Use a piece of cardboard to find location of escaping oil. Stop engine and relieve pressure before disconnecting lines or working on hydraulic system.

If hydraulic oil penetrates your skin, seek medical assistance immediately.



T133509—UN—15APR13



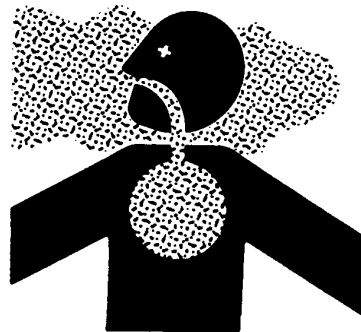
T133840—UN—20SEP00

TX,HPOILS-19-21DEC21-1/1

Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.



TS220—UN—15APR13

DX,AIR-19-17FEB99-1/1

Prevent Fires, Clean Debris From Machine

Handle Fluids Safely: All fuels, most lubricants, and some coolant mixtures are flammable. Store flammable fluids away from fire hazards. Never refuel machine while smoking or when near sparks or flame.

Clean Machine Regularly: Engine temperatures may be elevated following engine shut-down. Keep flammable debris (trash, leaves, twigs, straw, etc.), grease and oil from accumulating in or around engine compartment, radiator, batteries, fuel tank, operator station, fuel lines, hydraulic lines, exhaust components, and electrical wiring. Never store oily rags or flammable materials inside any machine compartment.

Maintain Hoses, Tubes, and Wiring: Replace hoses and tubes immediately if they begin to leak, and clean up any oil spills. Examine electrical wiring and connectors frequently for damage.

Keep a Fire Extinguisher Available: Always keep a multipurpose fire extinguisher on or near the machine. Know how to use an extinguisher properly.

Be Aware of the Operating Environment: debris may contain sparks or embers. Do not operate near any flames.



Handle Fuel Safely



Clean Machine Regularly



Carry a Fire Extinguisher



Caution

T133552—UN—15APR13

T133553—UN—07SEP00

T133554—UN—07SEP00

T133555—UN—15APR13

TX,PREVENT,FIRE-19-02NOV22-1/1

Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



TS204—UN—15APR13

DX,SPARKS-19-03MAR93-1/1

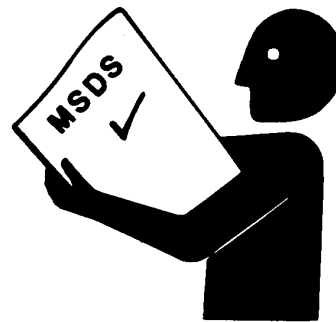
Handle Chemical Products Safely

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



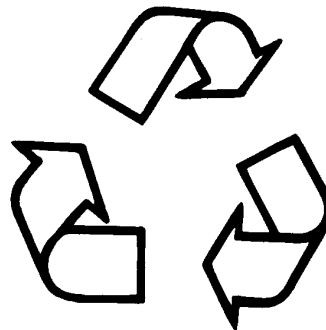
TS1132—UN—15APR13

DX,MSDS,NA-19-03MAR93-1/1

Decommissioning — Proper Recycling and Disposal of Fluids and Components

Safety and environmental stewardship measures must be taken into account when decommissioning a machine and/or component. These measures include the following:

- Use appropriate tools and personal protective equipment such as clothing, gloves, face shields or glasses, during the removal or handling of objects and materials.
- Follow instructions for specialized components.
- Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and other similar systems.
- Minimize exposure to components which may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers when draining fluids. Do not use food or beverage containers.
- Do not pour waste fluids onto the ground, down a drain, or into any water source.
- Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (example: oil, fuel, coolant, brake fluid);



TS1133—UN—15APR13

- filters; batteries; and, other substances or parts. Burning of flammable fluids or components in other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants which could damage the atmosphere if allowed to escape.
- Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components which may be recyclable, in part or completely.
- Contact your local environmental or recycling center, or your John Deere dealer for information on the proper way to recycle or dispose of waste.

DX,DRAIN-19-01JUN15-1/1

Exhaust Filter Ash Handling and Disposal

CAUTION: Under federal, state, and local laws or regulations, exhaust filter ash can be classified as a hazardous waste. Hazardous waste must be disposed of in accordance with all applicable federal, state, and local laws or regulations governing hazardous waste disposal. Only a qualified service provider should remove ash from the exhaust filter. Personal protective equipment and clothing, maintained in a sanitary and reliable condition, should be used when handling and cleaning exhaust filter. See an authorized John Deere dealer for exhaust filter ash handling and disposal.

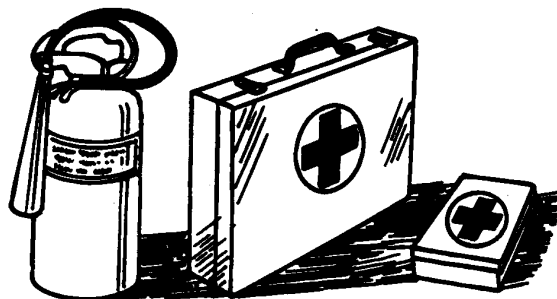
TX,ASH,DISP-19-31MAR22-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291—UN—15APR13

DX,FIRE2-19-03MAR93-1/1

Add Cab Guarding for Special Uses

Special work situations or machine attachments could create an environment with falling or flying objects. Working near an overhead bank, demolition work, using a hydraulic hammer or winch, working in a forestry application or wooded area, or working in a waste management application, for example, could require added guarding to protect the operator.

Additional level II FOPS (falling object protective structure),

forestry protection packages, and special screens or guarding should be installed when falling or flying objects could enter or damage the machine. A rear screen should always be used with a winch to protect against a snapping cable. Before operating in any special work environments, follow the operator protection recommendations of the manufacturer of any specialized attachment or equipment. Contact your authorized John Deere dealer for information on protective guarding.

TX,CABGUARD-19-12FEB13-1/1

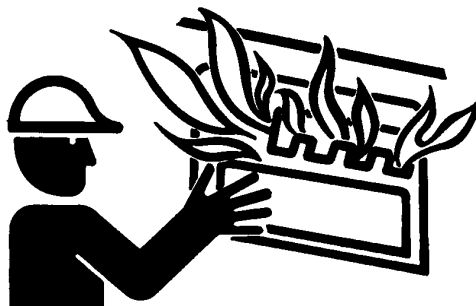
Clean Debris from Machine

Keep engine compartment, radiator, batteries, hydraulic lines, exhaust components, fuel tank, and operator's station clean and free of debris.

Clean any oil spills or fuel spills on machine surfaces.

Temperature in engine compartment could go up immediately after engine is stopped. **BE ON GUARD FOR FIRES DURING THIS PERIOD.**

Open access door(s) to cool the engine faster, and clean engine compartment.



T6669AG—UN—15APR13

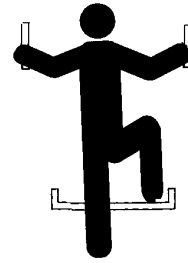
TX,DEBRIS-19-16MAY23-1/1

Safety—Operating Precautions

Use Steps and Handholds Correctly

Prevent falls by facing the machine when you get on and off. Maintain 3-point contact with steps and handrails. Never use machine controls as handholds.

Use extra care when mud, snow, or moisture present slippery conditions. Keep steps clean and free of grease or oil. Never jump when exiting machine. Never mount or dismount a moving machine.



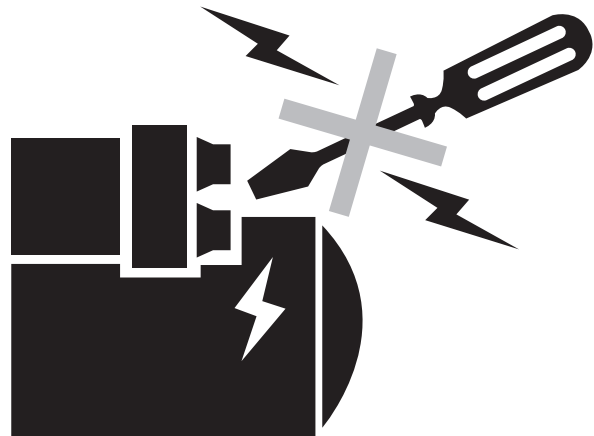
T133468—UN—15APR13

TX,STEPS-19-09FEB11-1/1

Start Only From Operator's Seat

Avoid unexpected machine movement. Start engine only while sitting in operator's seat. Ensure that all controls and working tools are in proper position for a parked machine.

Never attempt to start engine from the ground. Do not attempt to start engine by shorting across the starter solenoid terminals.



TX1314398—UN—29JUN21

Operate Only From Operators Seat

TX,SOFOS-19-29JUN21-1/1

Use and Maintain Seat Belt

Use seat belt when operating machine. Remember to fasten seat belt when loading and unloading from trucks and during other uses.

CAUTION: Prevent personal injury. Check condition of seat belt and mounting hardware before operating machine. Replace if worn, frayed, or damaged.

Replace seat belt at least every 3 years, regardless of condition.



USE SEAT BELT

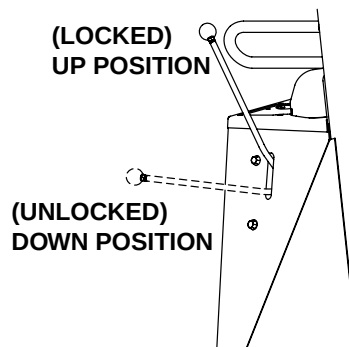
TX1165594—19—23JUL14

TX,SEAT,BELT-19-27JUL20-1/1

Prevent Unintended Machine Movement

Always move the park lock levers to the up (locked) position before leaving the operator's seat for any reason.

Be careful not to accidentally actuate controls when coworkers are present. Engage park lock and lower work equipment to the ground during work interruptions. Stop the engine before allowing anyone to approach the machine. Follow these same precautions before standing up, leaving the operator's seat, or exiting the machine.



T207688—19—31JAN05

ER79617,0000CF9-19-30NOV10-1/1

Avoid Work Site Hazards

Avoid contact with gas lines, buried cables and water lines. Call utility line location services to identify all underground utilities before starting work.

Prepare work site properly. Avoid operating near structures or objects that could fall onto the machine. Clear away debris that could move unexpectedly if run over.

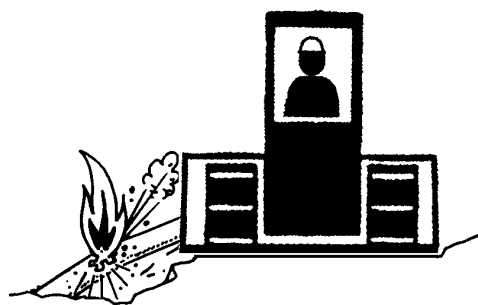
Avoid boom or attachment contact with overhead obstacles or overhead electrical lines. Never move machine closer than 3 m (10 ft) plus twice the line insulator length to overhead wires.

Keep bystanders clear at all times. Keep bystanders away from raised booms, attachments, and unsupported loads. Avoid swinging or raising booms, attachments, or loads over or near personnel. Use barricades or a signal person to keep vehicles and pedestrians away. Use a signal person if moving machine in congested areas or where visibility is restricted. Always keep signal person in view. Coordinate hand signals before starting machine.

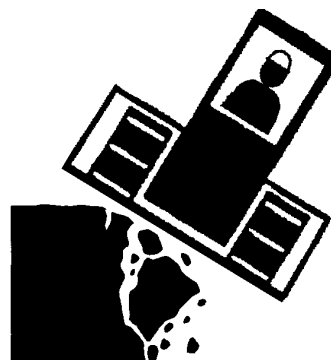
Operate only on solid footing with strength sufficient to support machine. Be especially alert working near embankments or excavations.

Avoid working under over-hanging embankments or stockpiles that could collapse under or on machine.

Reduce machine speed when operating with tool on or near ground when obstacles may be hidden (e.g., during snow removal or clearing mud, dirt, etc.). At high speeds



T139002—UN—05MAR01



T139003—UN—05MAR01

hitting obstacles (rocks, uneven concrete or manholes) can cause a sudden stop. Always wear your seat belt.

VD76477,00013A2-19-11SEP09-1/1

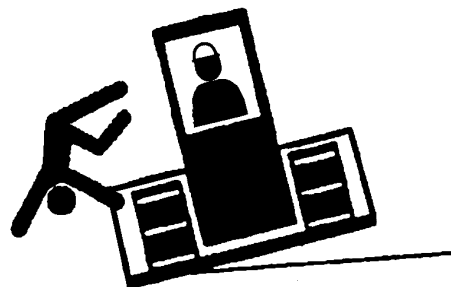
Keep Riders Off Machine

Always use seat belt.

Only allow operator on machine.

The instructional seat, if equipped, is used to accommodate trainers, persons that need to observe machine operation, and for coworkers to provide further operational instructions.

Riders are subject to injury due to fall from machine, being caught between machine parts, or being struck by foreign objects. Riders may obstruct the operator's view or impair the operator's ability to operate machine safely.



Keep Riders Off Machine

TX,NO,RIDERS,CRW-19-23APR20-1/1

T137680—UN—22FEB01

Avoid Backover Accidents

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use mirrors to assist in checking all around machine. Keep windows and mirrors clean, adjusted, and in good repair.

Be certain reverse warning alarm is working properly.

Use a signal person when backing if view is obstructed or when in close quarters. Keep signal person in view at all times. Use prearranged hand signals to communicate.

Do not rely on the rear camera and radar object detection systems, if equipped, to determine if personnel are behind the machine. The system has limitations due to

maintenance practices, environmental conditions, and operating range.



PC10857XW—UN—15APR13

TX,AVOID,BACKOVER-19-04MAR16-1/1

Avoid Machine Tip Over

Use seat belt at all times.

Do not jump if the machine tips. You will be unlikely to jump clear and the machine may crush you.

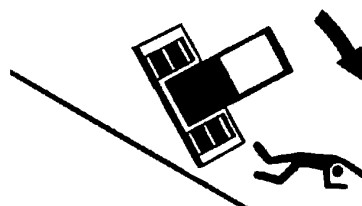
Load and unload from trucks or trailers carefully. Be sure truck is wide enough and secured on a firm level surface. Use loading ramps and attach them properly to truck bed. Avoid trucks with steel beds because tracks slip more easily on steel.

Be careful on slopes. Use extra care on soft, rocky or frozen ground because machine may slip sideways in these conditions. When traveling up or down steep slopes, keep the bucket or blade on uphill side and just above ground level.

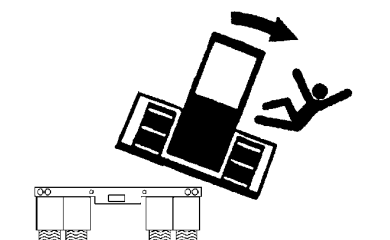
Ensure solid footing. Use extra care when operating on stockpile materials, or near banks or excavations that may cave-in and cause machine to tip or fall.



T133716—19—17APR13



T138416—UN—22FEB01



T138415—UN—22FEB01

TX03768.0000B6B-19-03NOV08-1/1

Inspect and Maintain ROPS

A damaged rollover protective structure (ROPS) should be replaced, not reused.

The protection offered by ROPS could be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting.

If ROPS was loosened or removed for any reason, inspect it carefully before operating the machine again.

To maintain the ROPS:

- Replace missing hardware using correct grade hardware.
- Check hardware torque.
- Check isolation mounts for damage, looseness, or wear; replace them if necessary.
- Check ROPS for cracks or physical damage.

TX,ROPS-19-20JAN11-1/1

Add and Operate Attachments Safely

Always verify compatibility of attachments by contacting your authorized dealer. Adding unapproved attachments could affect machine stability or reliability and could create a hazard for others near the machine.

Ensure that a qualified person is involved in attachment installation. Add guards to machine if operator protection is

required or recommended. Verify that all connections are secure and attachment responds properly to controls.

Carefully read attachment manual and follow all instructions and warnings. In an area free of bystanders and obstructions, carefully operate attachment to learn its characteristics and range of motion.

TX,ATTACH-19-20JAN11-1/1

Safety—Maintenance Precautions

Park and Prepare for Service Safely

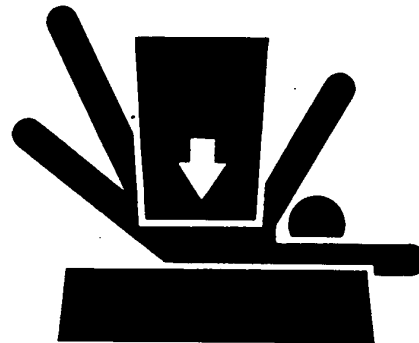
Warn others of service work. Always park and prepare your machine for service or repair properly.

- Do not support machine with blade or attachments.
- Do not support machine with cinder blocks or wooden pieces that may crumble or crush.
- Do not support machine with a single jack or other devices that may slip out of place.
- Park machine on a level surface and lower blade and attachment to the ground.
- Engage park brake.
- Stop engine.
- Attach a “Do Not Operate” tag in an obvious place in the operator's station.

Securely support machine or attachment before working under it.

Understand service procedures before beginning repairs. Keep service area clean and dry. Use two people whenever the engine must be running for service work.

When performing above-ground maintenance, use appropriate support devices such as ladders, lifts, or platforms. If equipped, use the machine anchorage points and approved fall arrest harnesses and lanyards.



T133332—19—17APR13

TS229—UN—23AUG88

TX,PARK,CRW-19-21AUG20-1/1

Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

Do not service radiator through the radiator cap. Only fill through the surge tank filler cap. Shut off engine. Only remove surge tank filler cap when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.



TS281—UN—15APR13

TX,SURGE-19-19JAN11-1/1

Remove Paint Before Welding or Heating

Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Remove paint before heating:

- Remove paint a minimum of 100 mm (4 in.) from area to be affected by heating. If paint cannot be removed, wear an approved respirator before heating or welding.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

Do not use a chlorinated solvent in areas where welding will take place.

Do all work in an area that is well ventilated to carry toxic fumes and dust away.

Dispose of paint and solvent properly.



TS220—UN—15APR13

DX, PAINT-19-24JUL02-1/1

Make Welding Repairs Safely

IMPORTANT: Disable electrical power before welding. Turn off main battery switch and disconnect positive (+) and negative (-) battery cables.

Do not weld or apply heat on any part of a reservoir or tank that has contained oil or fuel. Heat from welding and cutting can cause oil, fuel, or cleaning solution to create gases which are explosive, flammable, or toxic.

Avoid welding or heating near pressurized fluid lines. Flammable spray may result and cause severe burns if pressurized lines malfunction as a result of heating. Do not let heat go beyond work area to nearby pressurized lines.

Remove paint properly. Do not inhale paint dust or fumes.

Use a qualified welding technician for structural repairs. Make sure there is good ventilation. Wear eye protection and protective equipment when welding.



Heating Near Pressurized Fluid Lines

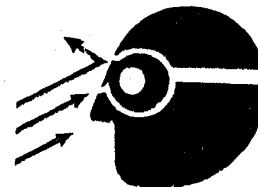
T133547—UN—15APR13

MB60223,0000212-19-02JUL15-1/1

Drive Metal Pins Safely

Always wear protective goggles or safety glasses and other protective equipment before striking hardened parts. Hammering hardened metal parts such as pins and bucket teeth could dislodge chips at high velocity.

Use a soft hammer or a brass bar between hammer and object to prevent chipping.



T133738—UN—15APR13

TX, PINS-19-20JAN11-1/1

Clean Exhaust Filter Safely

During exhaust filter cleaning operations, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

Keep machine away from people, animals, or structures which may be susceptible to harm or damage from hot exhaust gases or components. Avoid potential fire or explosion hazards from flammable materials and vapors near the exhaust. Keep exhaust outlet away from people and anything that can melt, burn, or explode.

Closely monitor machine and surrounding area for smoldering debris during and after exhaust filter cleaning.

Adding fuel while an engine is running can create a fire or explosion hazard. Always stop engine before refueling machine and clean up any spilled fuel.

Always make sure that engine is stopped while hauling machine on a truck or trailer.

Contact with exhaust components while still hot can result in serious personal injury.

Avoid contact with these components until cooled to safe temperatures.

If service procedure requires engine to be running:

- Only engage power-driven parts required by service procedure
- Ensure that other people are clear of operator station and machine

Keep hands, feet, and clothing away from power-driven parts.

Always disable movement (neutral), set the parking brake or mechanism and disconnect power to attachments or tools before leaving the operator's station.

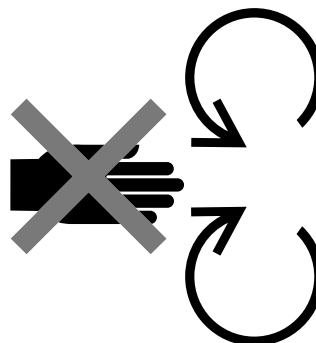
Shut off engine and remove key (if equipped) before leaving the machine unattended.



TS227—UN—15APR13



TS271—UN—23AUG88



TS1693—UN—09DEC09

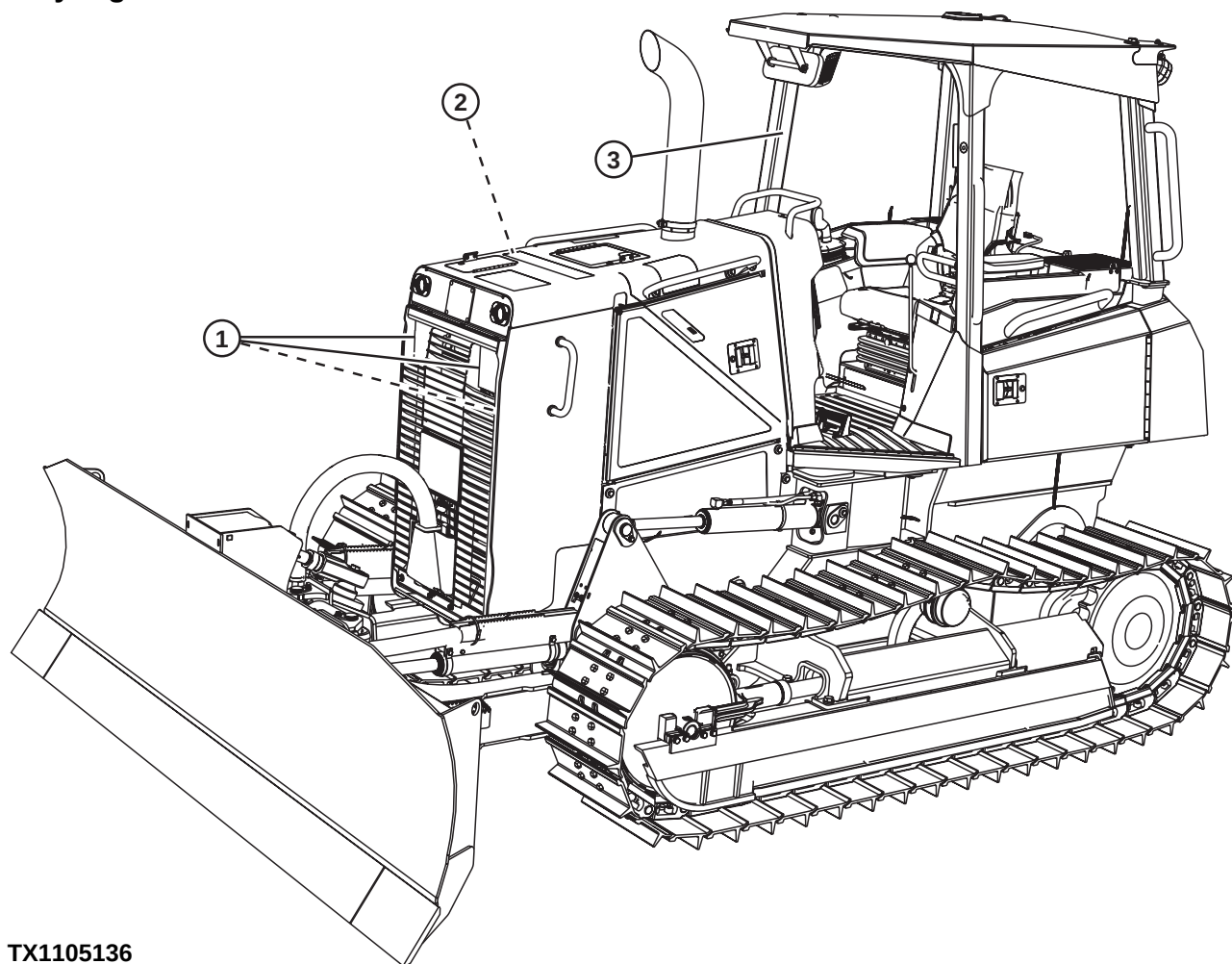


TS1695—UN—07DEC09

DX,EXHAUST,FILTER-19-12JAN11-1/1

Safety—Safety Signs

Safety Signs



TX1105136

Safety Signs

1—WARNING, Rotating Fan Blade

2—WARNING, Avoid Injury From Escaping Fluid

3—WARNING, Seat Belt Should Be Worn At All Times

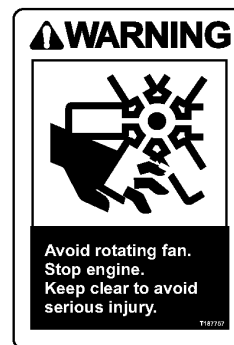
ER93822,000006B-19-12JAN12-1/4

1. WARNING, Rotating Fan Blade

Rotating Fan Blade. Rotating fan blades can cause injury or death.

Avoid rotating fan. Stop engine. Keep clear to avoid serious injury.

This safety message is positioned on the upper surface of the grille near fan.



WARNING, Rotating Fan Blade

Continued on next page

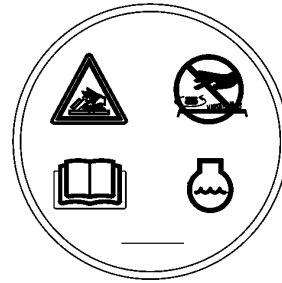
ER93822,000006B-19-12JAN12-2/4

TX1103569—19—16DEC11

2. WARNING, Pressurized System

Pressurized system. Hot coolant can cause serious burns, injury or death. To open the cooling system filler cap, stop the engine and wait until the cooling system components are cool. Loosen the cooling system pressure cap slowly in order to relieve the pressure.

This safety message is positioned on the surge tank cap.



WARNING, Pressurized System

ER93822,000006B-19-12JAN12-3/4

TX1099924—UN—24OCT11

3. WARNING, Seat Belt Should Be Worn At All Times

A seat belt should be worn at all times during machine operation to prevent serious injury or death in the event of an accident or machine overturn. Failure to wear a seat belt during machine operation may result in serious injury or death.

Avoid crushing. DO NOT JUMP if machine tips. Use seat belt.

This safety message is positioned on the ROPS post inside the cab.



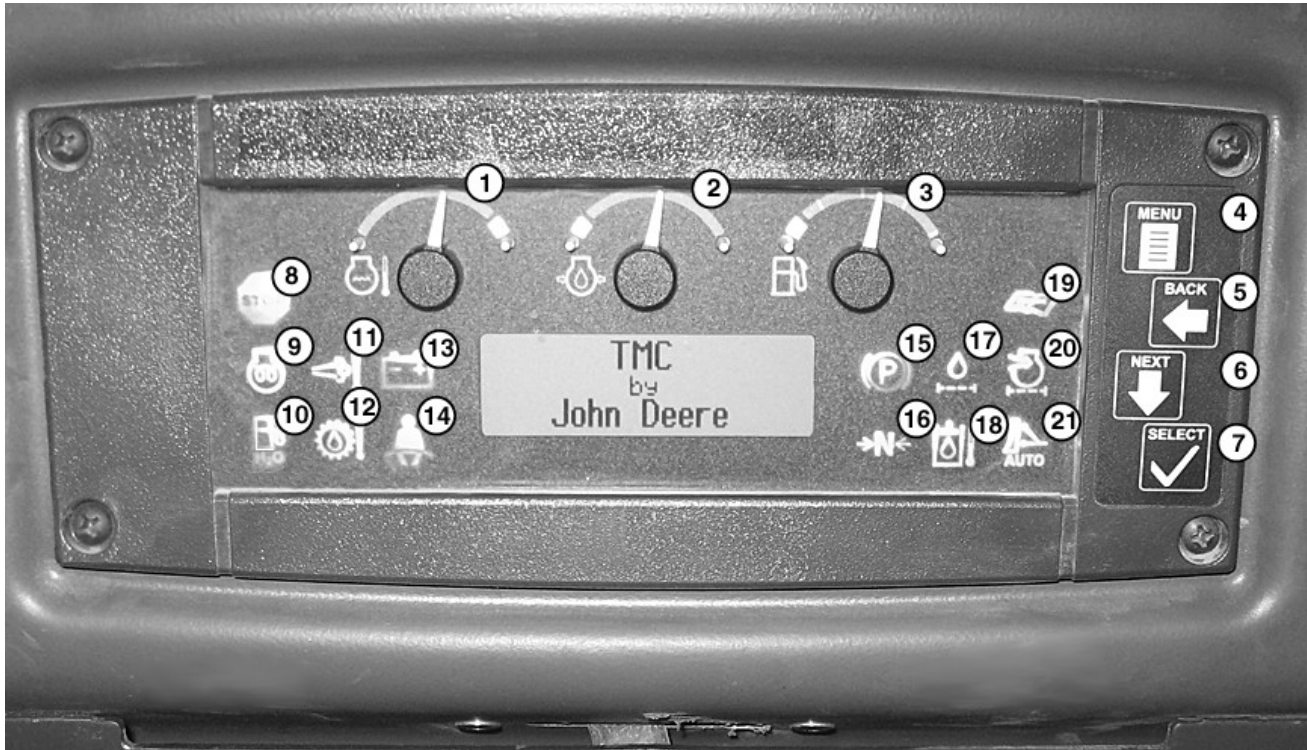
WARNING, Seat Belt Should Be Worn At All Times

ER93822,000006B-19-12JAN12-4/4

TX1099887—19—05DEC11

Operation—Operator's Station

Standard Display Monitor (SDM)



TX1084082A—UN—04NOV10

Display Monitor

- | | | | |
|------------------------------------|---|---|--|
| 1—Engine Coolant Temperature Gauge | 8—STOP Indicator | 13—Engine Alternator Voltage Indicator | 18—Hydraulic Oil Temperature Indicator |
| 2—Engine Oil Pressure Gauge | 9—Wait to Start Indicator | 14—Fasten Seat Belt Indicator | 19—Check Service Code Indicator |
| 3—Fuel Level Gauge | 10—Water-In-Fuel (WIF) Indicator | 15—Park Brake Indicator | 20—Engine Air Filter Restriction Indicator |
| 4—MENU Button | 11—Exhaust Filter Cleaning Indicator | 16—Return to Neutral Indicator | 21—Auto Blade Indicator |
| 5—BACK Button | 12—Transmission Oil Temperature Indicator | 17—Oil Filter Restriction Warning Indicator | |
| 6—NEXT Button | | | |
| 7—SELECT Button | | | |

NOTE: Battery disconnect switch must be in ON position for monitor to operate.

ER79617,0000C92-19-03APR12-1/1

Standard Display Monitor (SDM) Functions

1. **Engine Coolant Temperature Gauge:** Gauge indicates temperature of engine coolant. Normal operating temperature is indicated by the green zone.

IMPORTANT: Prevent machine damage. DO NOT operate machine when engine coolant temperature is high.

If gauge pointer points to red indicator, the engine is over operating temperature. Stop machine and operate engine at fast idle under no load until engine cools. If gauge pointer still points to red indicator after several minutes, stop engine. See your authorized dealer.

2. **Engine Oil Pressure Gauge:** When engine is running and engine oil pressure drops below recommended pressure, a segment will light and flash, the STOP indicator will light, and an audible alarm will sound. Immediately park machine in a safe area and stop the engine.
3. **Fuel Level Gauge:** Gauge indicates fuel level in tank. Yellow light will appear on gauge when fuel is low. Always fill fuel tank at end of day to eliminate condensation in fuel tank.
4. **MENU Button:** Provides initial entry into machine settings, diagnostics, and monitor settings. Used to display main menu window.
5. **BACK Button:** Will back out of a menu, one item each time the button is pressed. Displays last screen.
6. **NEXT Button:** Will move to the next selection within a menu or mode. Displays next screen.
7. **SELECT Button:** Toggles between the hour meter, charge pressure, and voltmeter displays during normal operation. Opens highlighted menu item.
8. **STOP Indicator:**

IMPORTANT: Avoid machine damage. Stop engine immediately if STOP indicator flashes and alarm sounds indicating a diagnostic trouble code (DTC) has been detected.

Red indicator flashes and alarm sounds when a diagnostic trouble code (DTC) is detected which requires the engine to be immediately stopped. Diagnostic trouble codes that trigger the STOP indicator include:

- Low engine oil pressure
- High engine coolant temperature
- High hydraulic oil temperature
- Water in fuel
- Fuel injection pump solenoid problems
- Fuel pressure problems

- Selected problems with sensor supply voltages, electronics, and data communication

- High Transmission Oil

If indicators do not function correctly, see Miscellaneous —Troubleshooting. (Section 4-3.)

9. **Wait to Start Indicator:** Wait to start indicates that the glow plugs are on. When light goes out engine can be started. See Starting the Engine. (Section 2-2.)
10. **Water-in-Fuel (WIF) Indicator:** Indicator will light, STOP indicator will light, and audible alarm will sound when water is detected in the fuel system. Stop engine immediately.
11. **Exhaust Filter Cleaning Indicator:** White indicator illuminates when elevated idle is active or exhaust filter cleaning is in process.

If auto cleaning is being performed, machine can be operated as normal and indicator will disappear when exhaust filter auto cleaning is complete and exhaust temperatures return to normal.

If parked cleaning is being performed, machine CANNOT be operated until the process is complete. Indicator will disappear when exhaust filter parked cleaning is complete and exhaust temperatures return to normal.
12. **Transmission Oil Temperature Indicator:** Amber indicator will light, STOP indicator will flash, and audible alarm will sound when the temperature is too high. Stop machine and operate engine at fast idle under no load until transmission cools. If indicator remains illuminated after several minutes, stop engine and see your authorized dealer.
13. **Engine Alternator Voltage Indicator:** Indicator will light when alternator voltage drops below 25 volts and when engine start switch is on and engine is not running.
14. **Fasten Seat Belt Indicator:** Indicator will light and stay on for 5 seconds when the machine is started.
15. **Park Brake Indicator:** Indicator will light when machine is in PARK.
16. **Return to Neutral Indicator:** With park lock levers in up (locked) position and transmission control lever (TCL) out of neutral (N) position, pressing engine start switch will cause the return to neutral indicator to light. TCL must be moved back to neutral (N) position for machine movement.
17. **Oil Filter Restriction Warning Indicator:** Indicator will light and check service code will pop-up when engine is running and an oil filter becomes restricted. Park machine in a safe area and shut engine off immediately. Check transmission and hydraulic filters for restrictions. Replace filters as necessary.

Continued on next page

ER79617,0000C93-19-10AUG15-1/2

18. Hydraulic Oil Temperature Indicator:

IMPORTANT: Prevent machine damage. DO NOT operate machine when hydraulic oil temperature is high.

Indicator will light, STOP indicator will flash, and audible alarm will sound indicating that the temperature is over operating temperature. Stop machine and cycle hydraulic functions with no load until temperature lowers. If indicator remains lit after several minutes, stop engine. See your authorized dealer.

19. **Check Service Code Indicator:** Indicator will light

when a problem is detected in the monitor, transmission, or engine controller electrical systems.

20. **Engine Air Filter Restriction Indicator:** Indicator will illuminate when engine is running with restricted engine air filter elements.

NOTE: The auto blade indicator is functional only when third party global positioning system (GPS) and/or laser guidance equipment is installed on machines with integrated grade control (IGC) only.

21. **Auto Blade Indicator:** Indicator will light when auto blade function is enabled (IGC machines only).

ER79617,0000C93-19-10AUG15-2/2

Standard Display Monitor (SDM) Runtime Display

When the engine start switch is pressed and released, standard display monitor (SDM) will go into bulb check mode. All lights on SDM will illuminate, all gauges will position gauge needle to the 12 o'clock position, and an

audible alarm will activate. If security system has been enabled by owner,

1. SDM displays OPERATOR LOGON screen
2. Operator must enter valid personal identification number (PIN) on sealed switch module (SSM)

ER93822,00000D4-19-06JAN12-1/2

Approximately 5 seconds later, the runtime display will be shown. The runtime display reveals the most current machine information while the machine is turned on.

Transmission Mode Display (1)

The transmission mode display indicates the forward (F), neutral (N), reverse (R), and park (P) status. When the park lock levers are in the up (locked) position, "P" will be displayed. When a transmission controller unit malfunction occurs, "N" is displayed.

Transmission Speed Display (2)

The transmission speed display indicates the transmission speed from 1.0 to 3.0 to the nearest tenth. When a transmission controller unit malfunction occurs, "---" is displayed.

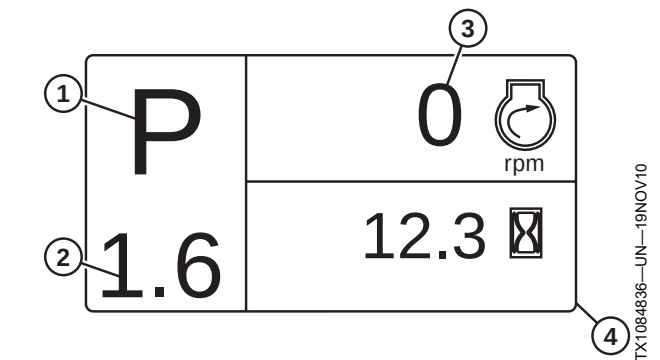
Tachometer Display (3)

The tachometer display indicates engine revolutions per minute to the nearest 5 rpm. When an engine controller unit malfunction occurs, "---" is displayed.

Hour Meter, Transmission Charge Pressure, and System Voltage Display (4)

Hour meter, transmission charge pressure, and system voltage display indicates machine hours, transmission charge pressure and system voltage. Press SELECT or NEXT button to navigate through the each of the displays.

The hour meter display indicates the machine hours to the nearest tenth of an hour. The hour meter accumulates



Runtime Display Window

- | | |
|------------------------------|--|
| 1—Transmission Mode Display | 3—Tachometer Display |
| 2—Transmission Speed Display | 4—Hour Meter, Transmission Charge Pressure, and System Voltage Display |

hours only when the engine is on; and the icon flashes once per second. The hour meter displays up to 99 999.9 hours.

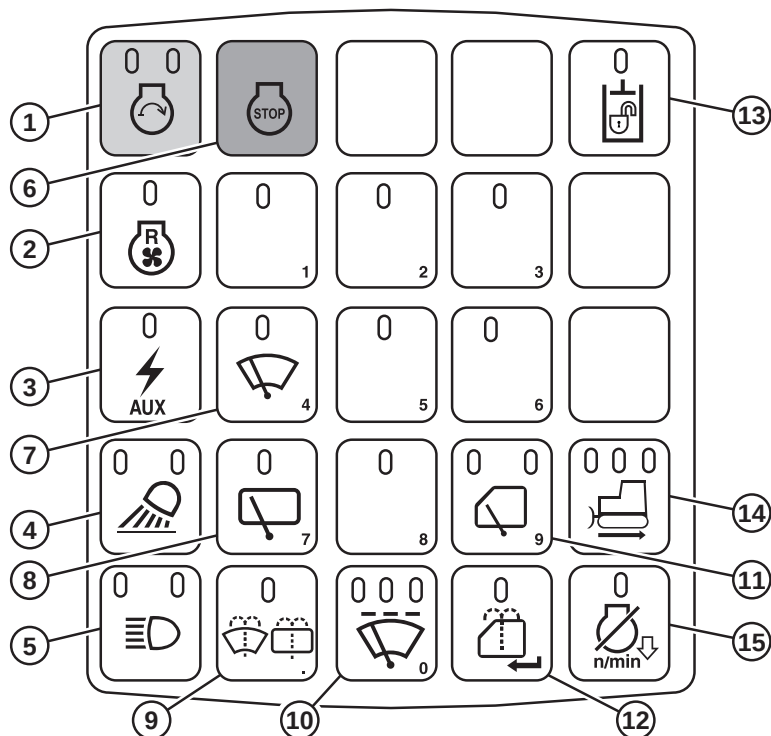
The transmission charge pressure display indicates transmission charge pressure.

The system voltage display indicates the vehicle's system voltage.

To modify units of measurements used on display, see Standard Display Monitor (SDM)—Main Menu—Monitor—Units. (Section 2-3.)

ER93822,00000D4-19-06JAN12-2/2

Sealed Switch Module (SSM)



TX1101194

Sealed Switch Module (SSM)

- 1—Engine Start Switch
- 2—Fan Reverse Switch
- 3—Auxiliary Power Switch
- 4—Cab Work Light Switch—If Equipped

- 5—Drive and Marker Lights Switch
- 6—Engine Stop Switch
- 7—Front Window Wiper Switch
- 8—Rear Window Wiper Switch

- 9—Front and Rear Window Washer Switch
- 10—Wiper Speed Switch
- 11—Door Window Wiper Switch
- 12—Door Window Washer Switch

- 13—Hydraulic Enable Switch (IGC machines only)
- 14—Reverse Ratio Switch
- 15—Decelerator Mode Switch

ER93822,00000DF-19-06JAN12-1/1

TX1101194—UN—18NOV11

Sealed Switch Module (SSM) Functions

The sealed switch module (SSM) is located in the upper right portion of the operator station. Switches on the SSM equipped with light emitting diodes (LEDs) indicate the current setting for the switch directly underneath the LED. Press and release switch to advance to next setting. For switches with more than one LED, press and hold switch for 2—3 seconds to return to OFF from any setting.

The SSM may also be used as a numeric keypad. When the SSM is in keypad mode:

- A short audible sound will activate when a number is pushed.
- The LEDs on the keypad buttons are turned off.
- The functions normally associated with the buttons will be ignored.

1. Engine Start Switch:

- Press and release switch to energize ignition and apply power to control units and display unit. Left LED will be illuminated while switch is depressed.
- After SSM and standard display monitor (SDM) successfully complete the activation process, press and hold engine start switch to start engine. Both LEDs are illuminated while switch is depressed and engine is cranking. After switch is release, only left LED is illuminated while engine is running.
- When engine stop switch is pressed, engine stops and both LEDs are off.

2. Fan Reverse Switch:

Manually reverses the direction of the fan rotation to purge debris from the radiator and coolers.

- Press and release switch to reverse fan. LED is illuminated while fan reverse is enabled.
- To disable fan reverse, press and release switch. LED is not lit while fan reverse is disabled.

3. Auxiliary Power Switch:

Enables spare power output from the vehicle control unit (VCU) to power additional lighting or a beacon—if equipped.

- Press and release switch to enable auxiliary power. LED is illuminated while auxiliary power is enabled.
- To disable auxiliary power, press and release switch to turn off auxiliary power. LED is not lit while auxiliary power is off.

4. Cab Work Light Switch—If Equipped:

- Press and release switch to illuminate cab work lights located above cab doors. LEDs will be illuminated while cab work lights are activated.
- To turn off cab work lights, press and release switch. LEDs are not illuminated while cab work lights are off.

5. Drive and Marker Light Switch:

Controls the drive lights above the grille and the two rear drop-down lights.

NOTE: When marker or drive lights are turned on, the intensity of the backlighting on SSM will dim.

Marker lights, drive lights, and backlighting will turn on when a communication error occurs between SSM and VCU or a stuck button condition occurs.

- To illuminate marker lights, press and release switch. One LED is illuminated while marker lights are activated.
- To illuminate both drive lights and marker lights, press and release switch again. Two LEDs are illuminated while both marker lights and drive lights are activated.
- To turn off both drive lights and marker lights, press and release switch a third time. LEDs are not illuminated while drive and marker lights are off.

6. Engine Stop Switch:

Press switch to shut off engine. If vehicle speed is greater than 0.5 km/h (0.3 mph), engine stops and ignition power remains on until vehicle speed is less than 0.5 km/h (0.3 mph). To turn off ignition power while vehicle is still moving, press and hold switch or press and release switch twice.

7. Front Window Wiper Switch:

- To activate front window wiper, press and release switch. LED is illuminated while front windshield wiper is active.
- To turn off front window wiper, press and release switch a second time. LED is not illuminated while front window wiper is not active.

8. Rear Window Wiper Switch:

- To activate rear window wiper, press and release switch. LED is illuminated while rear windshield wiper is active.
- To turn off rear window wiper, press and release switch a second time. LED is not illuminated while rear window wiper is not active.

9. Front and Rear Window Washer Switch:

- To spray washer fluid on front and rear windows and activate low speed front and rear wipers, press and hold switch until windows are cleaned to the operator's satisfaction. LED is illuminated while front and rear window washers are active.
- To stop spraying washer fluid and front and rear wipers, release switch. LED is not illuminated while window washers are not active.

10. Wiper Speed Switch:

Switch controls speed of cab wipers.

NOTE: Wiper speed switch will only work when the door, window, or cab window wiper switch is also activated.

- To operate wipers at intermittent low speed, press and release switch. One LED is illuminated to indicate intermittent low wiper speed has been enabled.
- To operate wipers at medium speed, press and release switch. Two LEDs are illuminated to indicate medium wiper speed has been enabled.
- To operate wipers at high speed, press and release

Continued on next page

ER93822,00000E0-19-11JAN12-1/2

switch. Three LEDs are illuminated to indicate high wiper speed has been enabled.

11. Door Window Wiper Switch: Controls window wipers on left and right cab door windows.

- To operate window wipers on both doors, press and release switch.
- To turn off wiper operation on both doors, press and release switch a second time.
- To activate advanced mode, press and hold switch until module audibly alerts operator that switch is in advanced mode. In advanced mode, left and right door wiper operation can be controlled independently. Press the switch to select left wiper, right wiper, or both off.

12. Door Window Washer Switch:

- To spray washer fluid on left and right cab door windows and activate low speed left and right cab door wipers, press and hold switch until windows are cleaned to the operator's satisfaction. LED is illuminated while left and right cab door window washers are active.
- To stop spraying washer fluid and left and right cab door wipers, release switch. LED is not illuminated while window washers are not active.

13. Hydraulic Enable Switch (IGC machines only):

- To enable hydraulic functions for normal operation, press and release switch. LED is illuminated to indicate hydraulic functions are enabled.
- To disable hydraulic functions, press and release

switch again. LED is not illuminated when hydraulic functions are disabled.

14. Reverse Ratio Switch:

- To select a reverse speed ratio of 100%, press and release switch. Left LED is illuminated to indicate reverse speed ratio of 100%.
- To select a reverse speed ratio of 115%, press and release switch. Middle LED is illuminated to indicate reverse speed ratio of 115%.
- To select a reverse speed ratio of 130%, press and release switch. Right LED is illuminated to indicate reverse speed ratio of 130%.

15. Decelerator Mode Switch:

- To activate engine mode, press and release switch. LED is not lit when machine is in engine mode. While the machine is in engine mode, engine speed will be decreased and effectively decrease ground speed when the decelerator/brake pedal is pushed.
- To activate transmission mode, press and release switch a second time. LED is illuminated when machine is in transmission mode. While the machine is in transmission mode, transmission speed will be decreased but engine speed will remain constant when the decelerator/brake pedal is pushed.

ER93822,00000E0-19-11JAN12-2/2

Left Console Switch Functions

1—Seat Heater Switch—If Equipped: Push to warm operator's seat.

2—Under Seat Heater Switch—If Equipped: Push to activate heater located under operator's seat.

IMPORTANT: Do not operate air conditioner when air temperature is below (—1°C) 30°F.

When warm weather begins, check refrigerant for proper charge before using air conditioner.

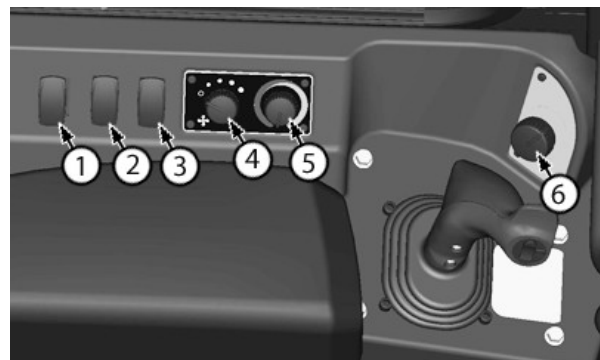
NOTE: Move louvers left or right to direct or restrict air flow.

3—Air Conditioner Switch: Push to activate air conditioner. Push a second time to deactivate air conditioner.

4—Blower Control Dial: Turning dial clockwise increases blower speed. Turning dial counterclockwise decreases blower speed.

5—Temperature Dial: Turning dial clockwise increases ambient temperature. If ambient temperature is too cold, the temperature dial may be turned to add heat while air conditioner is active.

6—Engine Speed Control Dial: Turning dial clockwise



Left Console Panel

- 1—Seat Heater Switch—If Equipped
- 2—Under Seat Heater—If Equipped
- 3—Air Conditioner Switch

- 4—Blower Control Dial
- 5—Temperature Dial
- 6—Engine Speed Control Dial

towards the rabbit symbol increases engine speed. Turning dial counterclockwise towards the turtle symbol decreases engine speed.

ER93822,00000D5-19-09NOV11-1/1

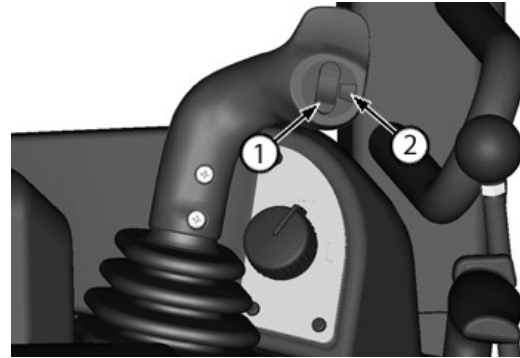
Transmission Control Lever (TCL)

Push the top of the transmission speed-in-grip (SIG) button (1) to increase transmission speed. Push the bottom of the SIG button to decrease the machine transmission speed.

Push the horn button (2) to activate horn.

The transmission control lever (TCL) controls the direction (forward and reverse), steering (left turn, right turn), pivot turn, and counter-rotation.

- Push lever forward to go forward.
- Pull lever back to go backward.
- Push lever to the right to go right.
- Push lever to the left to go left.



Transmission Control Lever (TCL)

1—Transmission Speed-In-Grip (SIG) Button

2—Horn Button

ER93822,00000D6-19-09JAN12-1/1

Using Park Lock Levers

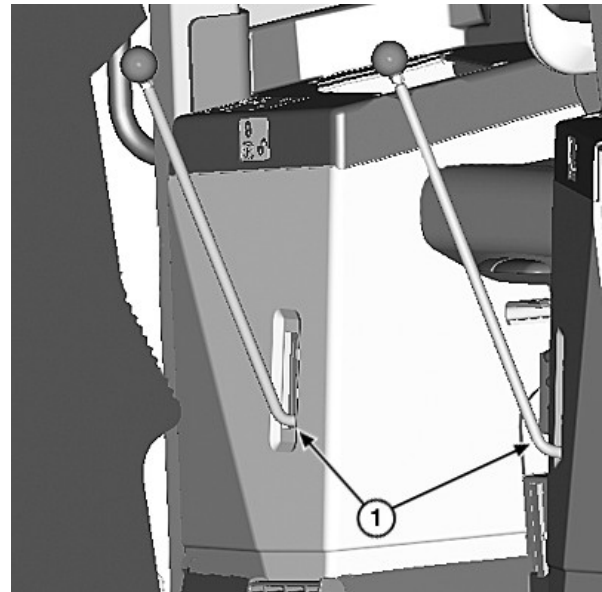
CAUTION: Prevent possible injury from unexpected machine movement. Always move park lock levers up (locked) before starting or dismounting.

When park lock levers (1) are in the up (locked) position, transmission control lever (TCL) can move but will not operate the machine.

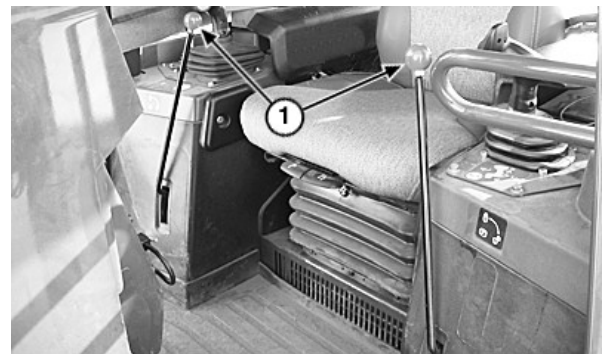
When park lock levers are in the down (unlocked) position, TCL can move machine.

If park lock levers are pulled down while the TCL is in forward or reverse, the machine will not move. Put TCL in neutral (N), then raise and lower the park lock levers. Machine is now operable.

1—Park Lock Lever (2 Used)



Park Lock Levers (unlocked position)



Park Lock Levers (locked position)

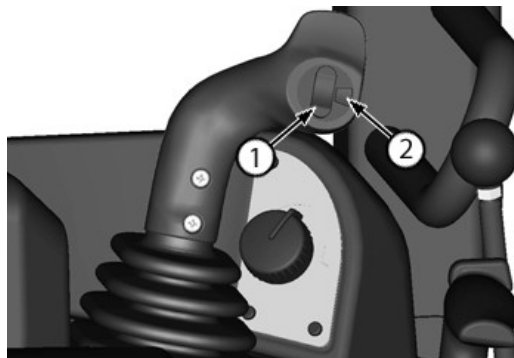
ER79617,0000CD1-19-16DEC10-1/1

Horn

NOTE: Activate the horn momentarily to audibly warn bystanders before starting the engine or commencing operation.

The horn button (2) is located on the front of the transmission control lever (TCL). Push horn button to activate horn.

1—Transmission Speed-In-Grip (SIG) Button 2—Horn Button



Transmission Control Lever (TCL)

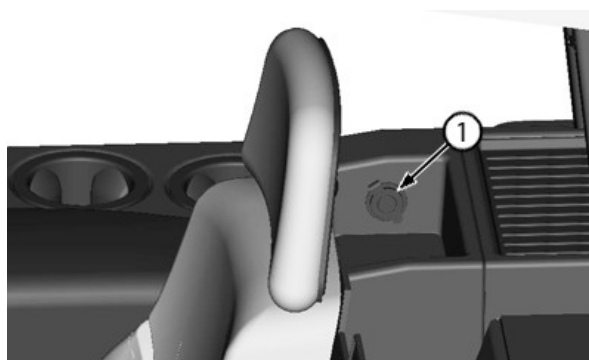
ER93822,00000D8-19-11NOV11-1/1

TX1100771—UN—09NOV11

Auxiliary Power Outlet

The 12-volt auxiliary power outlet (1) is located on the rear right side of the operator's station.

1—Auxiliary Power Outlet



Auxiliary Power Outlet

ER93822,00000D9-19-12DEC11-1/1

TX1100812—UN—09NOV11

Secondary Exits—Cab Units

Entering and exiting the cab should be done utilizing the cab door (2) on the left side of the operator's station. If operator is unable to safely exit the cab utilizing the left cab door, a secondary exit (1) is provided by the door on the right side of the operator's station.

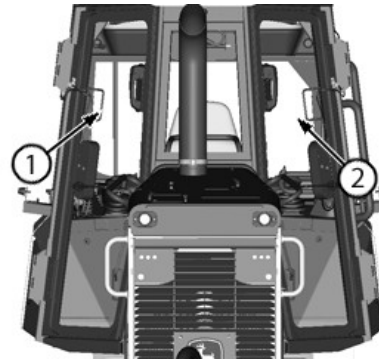
The side windows can also be used as secondary exits.

To open windows, pull locking lever (3) down and squeeze tabs (4) together. Slide window forward to desired position. Raise locking lever to lock window in place.

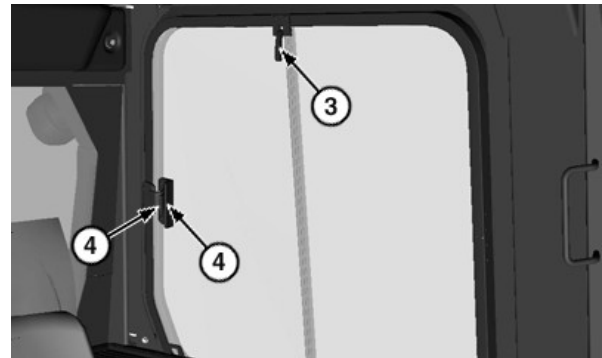
To close, pull locking lever down, squeeze tabs and slide window rearward until window latch engages.

1—Secondary Exit
2—Cab Door

3—Locking Lever
4—Tab (2 used)



Cab Unit (Front View)



Cab Window (left side)

TX1100823—UN—09NOV11

TX1105032A—UN—06JAN12

ER93822,00000DA-19-10JAN12-1/1

Seat Adjustment

⚠ CAUTION: Operator can lose control of machine and be injured if seat is loose. Be sure seat is properly locked in position before operating machine.

Seat height adjusts automatically to weight of operator.

Lift seat fore-aft adjustment lever (1) to move seat forward or rearward. Release lever to lock seat in position.

Lift seat tilt adjustment lever (2) to adjust cushion position. Release lever to lock seat in position.

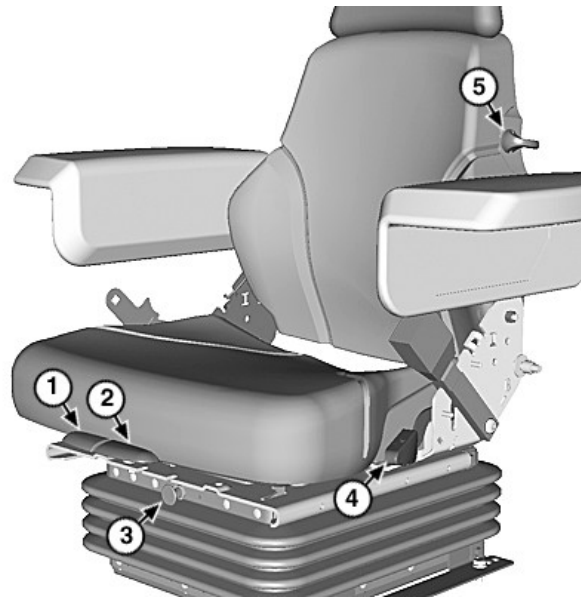
Push seat height adjustment knob (3) in to add air and raise seat. Pull seat height adjustment knob out to release air and lower seat. Release knob to lock seat into position.

While sitting in seat, lift backrest tilt adjustment lever (4) to tilt seat forward or backward. Release lever to lock seat in position.

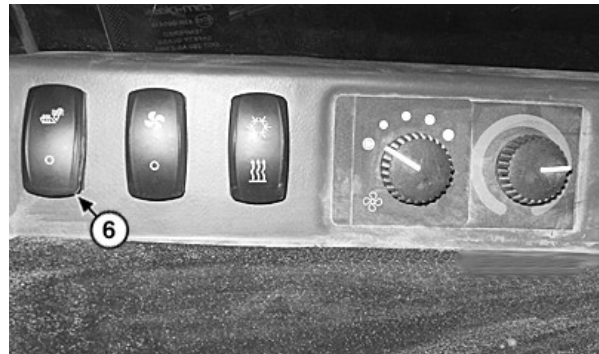
While sitting in seat, turn backrest lumbar adjustment lever (5) to increase or decrease support to lower back.

Press seat heater switch—if equipped (6) on left console to energize seats equipped with heaters.

- | | |
|-------------------------------|------------------------------------|
| 1—Fore-Aft Adjustment Lever | 4—Backrest Tilt Adjustment Lever |
| 2—Seat Tilt Adjustment Lever | 5—Backrest Lumbar Adjustment Lever |
| 3—Seat Height Adjustment Knob | 6—Seat Heater Switch—if Equipped |



Air Suspension Seat



Seat Heater Switch—if equipped

ER79617,0000C9C-19-09JAN12-1/1

Seat Belt

Seat belt and mounting hardware must be inspected for wear or damage before operating the machine. Replace the belt or mounting hardware if worn or damaged.

Replace the complete seat belt assembly every 3 years regardless of appearance.

TX,10,DH3548-19-29APR08-1/1

Operation—Operating The Machine

Inspect Machine Daily Before Starting

Safety and Protective Devices Checks

Walk around machine to clear all persons from machine area before starting machine.

Check condition of guards, shields, and covers.

Overall Machine Checks

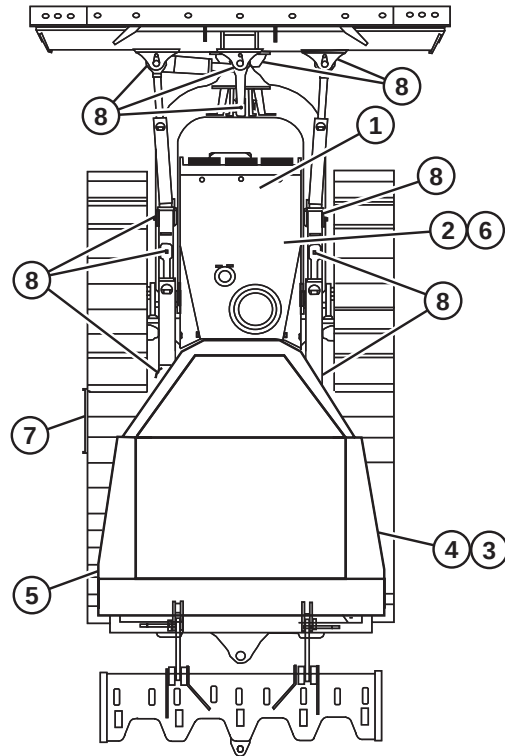
Check for worn or frayed electrical wires and loose or corroded connections.

Check for bent, broken, loose, or missing boom, bucket, sheet metal, track parts.

Check for loose or missing hardware.

Check for oil leaks, missing or loose hose clamps, kinked hoses, and lines or hoses that rub against each other or other parts.

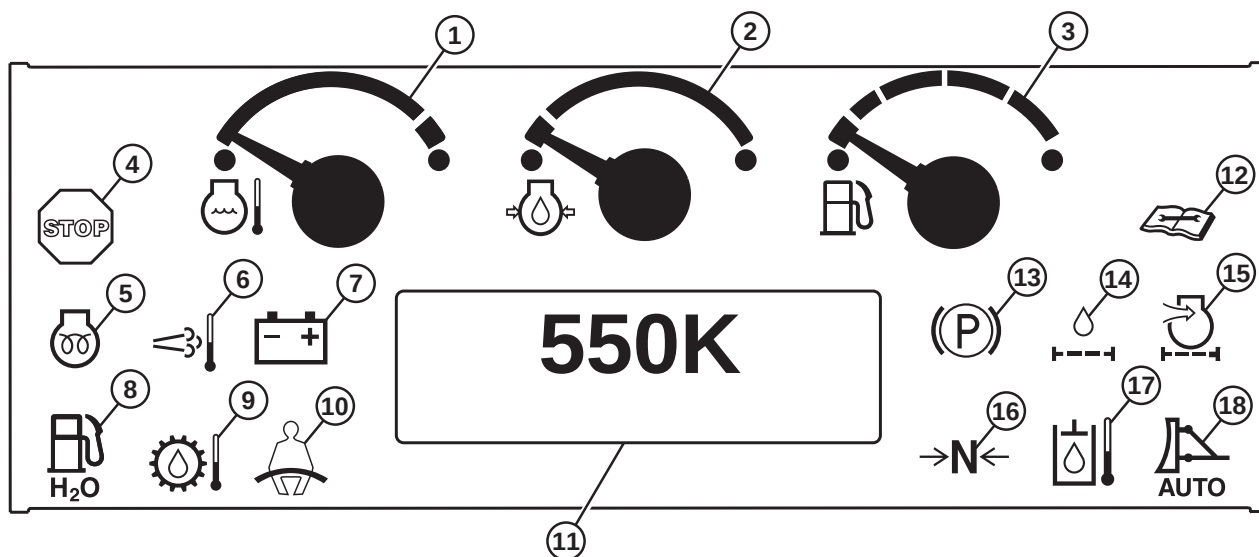
- | | |
|---|--|
| 1—Check engine coolant level in coolant surge tank. | 5—Check transmission oil level. |
| 2—Check engine oil level. | 6—Check engine air cleaner and engine air filter elements. |
| 3—Drain sediment from water separator. | 7—Check track sag. |
| 4—Check hydraulic system oil level. | 8—Grease dozer linkage. |



TX1101137—UN—07DEC11

ER93822,00000E1-19-05APR12-1/1

Check Instruments Before Starting



TX1100890

550K Shown

- | | | | |
|------------------------------------|---|--|---|
| 1—Engine Coolant Temperature Gauge | 6—Exhaust Filter Cleaning Indicator (Yellow) | 10—Seat Belt Indicator (Red) | 15—Engine Air Filter Restriction Indicator (Yellow) |
| 2—Engine Oil Pressure Gauge | 7—Engine Alternator Voltage Indicator (Red) | 11—Display Window | 16—Return to Neutral Indicator |
| 3—Fuel Level Gauge | 8—Water in Fuel Indicator (Red) | 12—Check Service Code Indicator (Yellow) | 17—Hydraulic Oil Temperature Indicator (Yellow) |
| 4—STOP Indicator (Red) | 9—Transmission Oil Temperature Indicator (Yellow) | 13—Park Brake Indicator (Red) | 18—Auto Blade Indicator |
| 5—Wait to Start Indicator (Green) | | 14—Oil Filter Restriction Indicator (Yellow) | |

Press and release engine start switch. (Do not start engine.) The following must occur:

- The audible alarm must sound twice.
- All LCD segments in the display window (11) must illuminate.
- Gauges (1—3) must be backlit, and all gauge needles must cycle from minimum (left) to maximum (right) in approximately 1 second.
- All indicators (4—10 and 12—18) must illuminate for 5

seconds. With the engine not running, the engine alternator voltage indicator (7) and park brake indicator (13) must remain lit after other indicators go out.

For descriptions of indicators, see Standard Display Monitor (SDM) Functions. (Section 2-1.)

If any indicator fails to illuminate, see your authorized dealer.

ER93822.00000DE-19-12AUG15-1/1

TX1100890—UN—02DEC11

Engine Break-In Period

IMPORTANT: To avoid engine damage it is critical to observe the engine break-in period. Extra care during the first 500 hours of operation will result in more satisfactory long-term engine performance and life. **DO NOT** exceed 500 hours of operation with John Deere Break-In Plus™ engine oil.

This machine is factory filled with John Deere Break-In Plus engine oil.

1. Operate the machine at heavy or normal loads with minimal idling during the break-in period. During the first 20 hours, avoid prolonged periods of engine idling or sustained maximum load operation. If engine will idle longer than 5 minutes, stop engine.

IMPORTANT: **DO NOT** add make-up oil until the oil level is **BELOW** the **ADD** mark on the dipstick. John Deere Break-In Plus oil should be used to make up any oil consumed during the break-in period. See John Deere Break-In Plus Engine Oil. (Section 3-1.)

If John Deere Break-In Plus Engine Oil is not available, use a 10W-30 diesel engine oil meeting one of the following during the initial 250 hours of operation:

- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

2. Check engine oil level more frequently during the engine break-in period.
3. Change oil and oil filter after first 500 hours of operation (maximum). Fill crankcase with the normal seasonal viscosity grade oil. See Diesel Engine Oil—Interim Tier 4 and Stage III B Engines. (Section 3-1.)
4. Watch coolant temperature gauge closely. If coolant temperature rises above specified limits on the gauge, reduce load on engine. Unless temperature drops quickly, stop the engine and determine the cause before resuming operation. See Miscellaneous—Troubleshooting. (Section 4-3.)
5. Watch oil pressure gauge for pressure within specification.
6. Check belt for proper alignment and seating in pulley grooves.

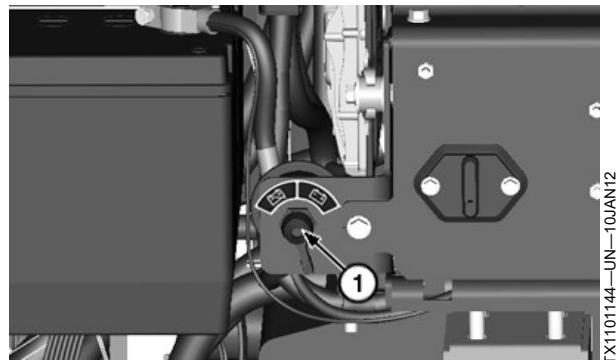
Break-In Plus is a trademark of Deere & Company

OUT4001,00005FE-19-11AUG15-1/1

Battery Disconnect Switch

Battery disconnect switch (1) is located next to machine batteries in the rear left side machine compartment. Turn switch to OFF position to disconnect electrical power to machine.

1—Battery Disconnect Switch



Battery Disconnect Switch

ER93822,00000E4-19-06JAN12-1/1

Starting the Engine

CAUTION:

Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or someone else.

If you must operate engine in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and/or windows to bring enough outside air into the area.

CAUTION: Avoid possible injury or death from a runaway machine. Do not start engine by shorting across starter terminals. Machine will move if normal starting circuitry is bypassed.

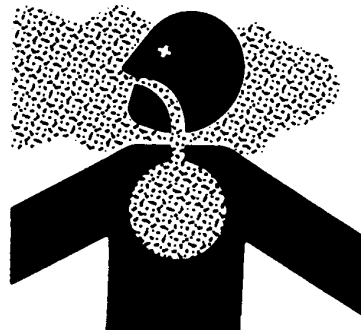
NEVER start engine while standing on ground. Start engine only from operator's seat with transmission control lever (TCL) placed in neutral (N) position and park lock levers up.

1. Turn battery disconnect switch (1) clockwise to ON position.

2. Sit in seat and fasten seat belt.

NOTE: Controls and switches must be in the positions described before starting engine.

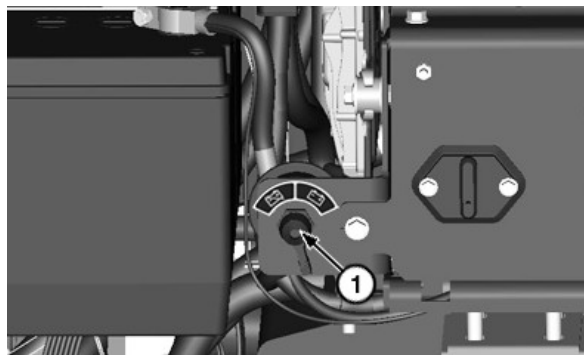
1—Battery Disconnect Switch



TS220—UN—15APR13

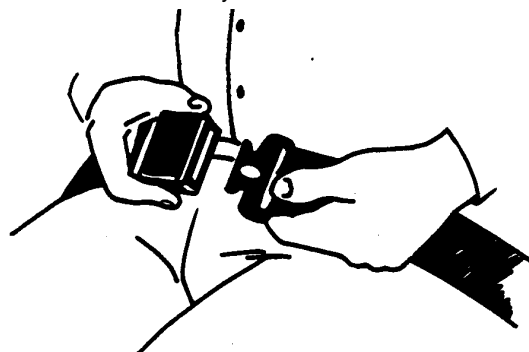


T6607AO—UN—18OCT88



TX1101144—UN—10JAN12

Battery Disconnect Switch



TS175—UN—23AUG88

Continued on next page

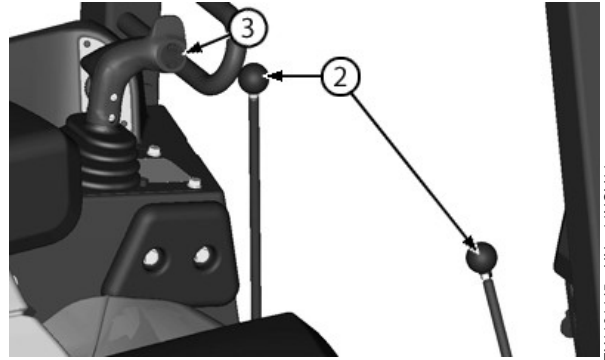
ER93822,00000E2-19-12AUG15-1/2

3. Place park lock levers (2) in up (locked) position.
4. Press and release horn switch (3).

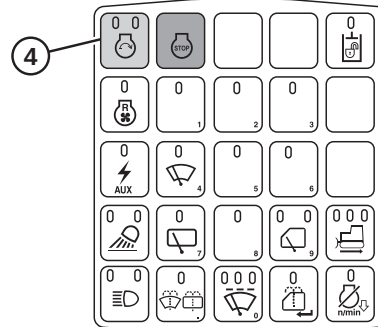
IMPORTANT: Do not operate starter more than 20 seconds at a time or starter may be damaged. If engine does not start, wait at least two minutes before trying again. If engine does not start in four attempts, refer to Miscellaneous—Troubleshooting. (Section 4-3.)

5. Press and hold engine start switch (4) on sealed switch module (SSM) to start engine. When engine has started, release pressure on engine start switch. With engine running, adjust engine speed to 1/2 speed (1600 rpm). See Engine Warm-Up in this section.

2—Park Lock Lever (2 used) 4—Engine Start Switch
3—Horn



Park Lock Levers and Horn



Sealed Switch Module (SSM)

ER93822,00000E2-19-12AUG15-2/2

TX1101145—UN—11NOV11

TX1101195—UN—18NOV11

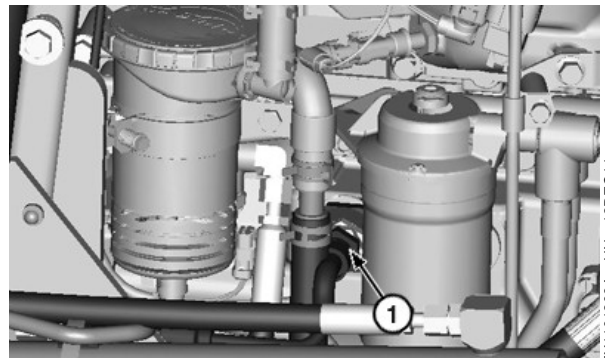
Engine Block Heater—If Equipped

CAUTION: Prevent possible injury from electrical shock. Use grounded cord and inspect for damage before connecting to power source.

IMPORTANT: Prevent property damage as a result of possible fire from an overheated electrical cord. Use a heavy-duty, grounded cord to connect heater to electrical power.

Supply voltage for engine block heater can be 220 V or 110 V. Ensure the correct engine block heater is used for the correct supply voltage.

Engine block heater is accessed by opening the front right engine service door. Connect engine block heater (1) to electrical power 10 hours before starting engine.



Engine Block Heater

1—Engine Block Heater

ER93822,00000E5-19-09JAN12-1/1

TX1101203A—UN—12DEC11

Engine Warm-Up

1. Under normal operating temperatures, after engine starts, run at 1600 rpm for 2 minutes. Do not run at fast or slow idle.

2. Operate machine at less-than-normal loads and speeds until engine is at normal operating temperature.

HG31779,0000020-19-14JAN08-1/1

Cold Weather Warmup

IMPORTANT: If hydraulic oil is cold, hydraulic functions move slowly. Do not attempt machine operations until hydraulic functions move at close-to-normal cycle times.

For temperatures of 0°C (32°F) or below, an extended warmup period will be necessary. The transmission speed and engine speed will be limited.

The transmission oil temperature indicator will light up indicating the crawler engine and ground speed are being limited due to extreme cold conditions. Engine speed will be limited to 1300 rpm for up to 10 minutes. The transmission oil temperature indicator will turn off when the engine speed is no longer limited. After completing the engine warmup period, the transmission speed setting will be limited to 1.7 until the crawler has moved 92 meters (300 feet). The transmission oil temperature indicator will light up if a transmission speed setting above 1.7 is commanded to indicate that the transmission speed is limited.

For transmission oil temperatures over 0°C (32°F) and less than 37°C (99°F), the transmission speed setting will be limited to 2.5 or lower. The transmission oil temperature indicator will light up if a transmission speed setting above the transmission limit is commanded to indicate that the transmission speed is limited. Full functionality is restored when oil temperature exceeds 40°C (104°F).

Avoid sudden operation of hydraulic functions until engine is thoroughly warmed up. Remove ice, snow, and mud before operation.

NOTE: Use lower viscosity oil in the hydraulic and transmission system to help start the engine when ambient temperature is below -18°C (0°F). See *Hydraulic and Hydrostatic Oil*. (Section 3-1.)

Cycle all hydraulic functions to distribute warmed oil until all functions operate freely.

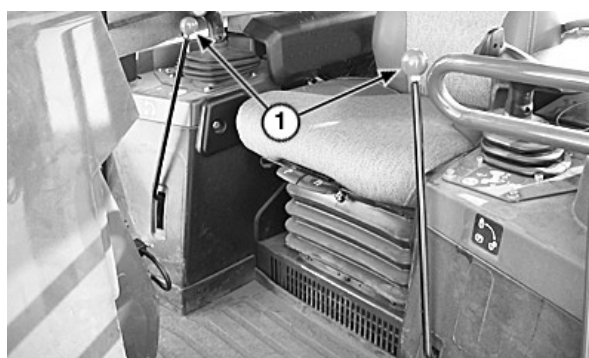
ER93822,00000B8-19-12AUG15-1/1

Driving the Machine

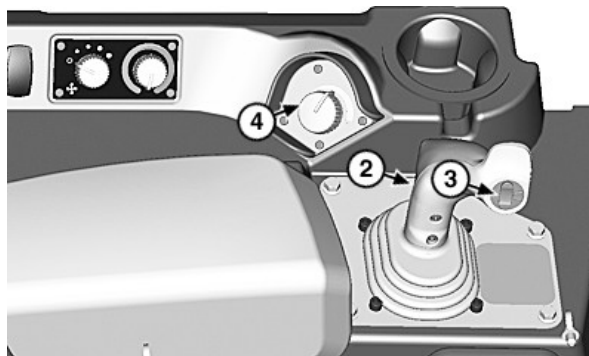
1. Fasten seat belt.
2. Park lock levers (1) must be in the up (locked) position.
3. Place transmission control lever (TCL) (2) to neutral (N).
4. Start engine.
5. Rotate engine speed control dial (4) to desired engine speed.
6. Depress decelerator/brake pedal.
7. Move park lock levers to down (unlocked) position. Speed gauge will display default transmission setting 1.6.

NOTE: Transmission speed-in-grip (SIG) button (3) adjusts travel speed and may be adjusted at any time.

8. Place TCL in desired travel position.
9. Current transmission speed may be viewed in standard display monitor's runtime window. Press transmission SIG button (3) to desired setting (1.0—3.0). The transmission speed range is preset to a startup speed range of 1.6. The transmission speed range can vary depending on operator's preference from 1.0 to 3.0. Actual machine ground speed can vary from 0 to 8.0 km/h (0 to 5.0 mph).
10. Slowly release decelerator/brake pedal to move machine.
11. Move TCL in desired turning direction to steer.



Park Lock Levers



Transmission Control Lever (TCL)

- | | |
|------------------------------------|---|
| 1—Park Lock Lever (2 used) | 3—Transmission Speed-In-Grip (SIG) Button |
| 2—Transmission Control Lever (TCL) | 4—Engine Speed Control Dial |

ER93822,0000065-19-09JAN12-1/1

Steering the Machine

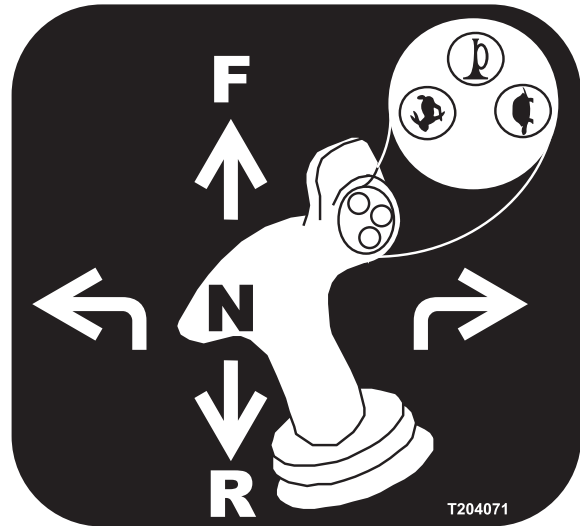
The transmission control lever (TCL) (1) controls the direction (forward and reverse), the steering (left turn, right turn), pivot turn, and counter-rotation. Moving the TCL fully right or left will cause the machine to counter-rotate.

1—Transmission Control Lever



Transmission Control Lever

TX1101208A—UN—18NOV11



Transmission Control Lever Label

TX1101209—UN—16NOV11

ER93822,00000E6-19-06JAN12-1/1

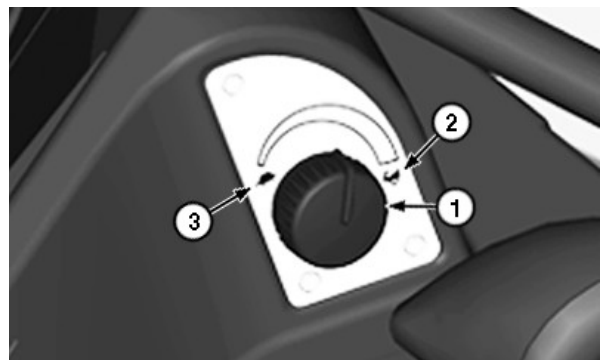
Using Engine Speed Control Dial

To increase engine speed, rotate engine speed control dial (1) clockwise to the fast idle position (2) (rabbit). To decrease engine speed, rotate dial counterclockwise to slow idle position (3) (turtle).

NOTE: After starting engine, engine speed control dial must be set to slow idle before dial can be used to increase engine speed.

NOTE: When transmission control lever (TCL) is in forward or reverse, rotating engine speed control dial clockwise may cause machine to move, or will increase machine travel speed.

1—Engine Speed Control Dial 3—Slow Idle Position
2—Fast Idle Position



Engine Speed Control Dial

TX1101211—UN—17NOV11

ER93822,00000E7-19-06JAN12-1/1

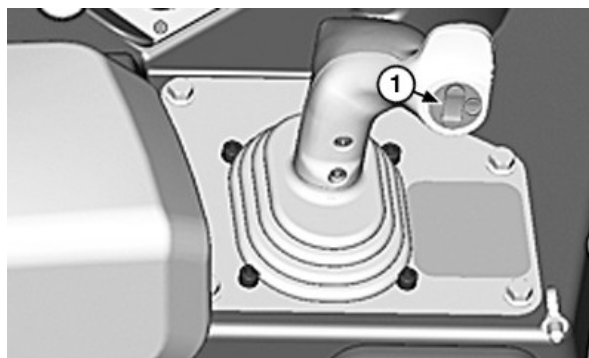
Setting Travel Speed

Push the top of the transmission speed-in-grip (SIG) button (1) to increase transmission speed. Push the bottom of the SIG button to lower the machine transmission speed.

Hydrostatic dual path transmission provides variable travel speed (1.0—3.0) ranging from 0—8.0 km/h (0—5.0 mph) in forward or reverse.

Reverse speed ratios of 100%, 115%, and 130% are available until maximum speed is reached, from 0—8.0 km/h (0—5.0 mph) in reverse.

1—Transmission Speed-In-Grip (SIG) Button



Transmission Control Lever (TCL)

ER93822,0000066-19-09JAN12-1/1

Decelerator/Brake Pedal and Decelerator Mode Switch

CAUTION: Prevent possible injury from unexpected machine movement. Pushing decelerator/brake pedal (1) beyond a point of increased resistance will apply brakes and stop machine abruptly.

Do not apply brakes to stop machine during normal operating conditions. Pushing decelerator/brake pedal (1) beyond a point of increased resistance will apply brakes and stop machine abruptly.

The decelerator mode switch (2) is used to set operational mode of foot pedal. Two modes are available.

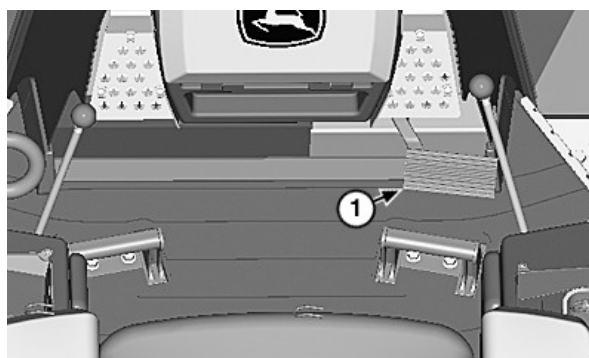
Engine Mode

The default setting is engine mode. In engine mode, pressing on the decelerator/brake pedal will both slow engine speed and reduce machine ground speed. Pushing pedal beyond a point of increase resistance will apply brakes and machine will stop abruptly. **Travel will resume as pedal is released.**

Transmission Mode

Pressing the decelerator mode switch will illuminate the LED and set the decelerator/brake pedal in transmission mode. In transmission mode, pressing the decelerator/brake pedal will reduce machine ground speed but will not slow engine speed. Pushing pedal beyond a point of increased resistance will apply brakes and machine will stop abruptly. **Travel will resume as pedal is released.**

NOTE: Decelerator mode can be changed at any time. With transmission control lever (TCL) in neutral (N), mode change will take effect immediately. If TCL is not in neutral (N), return to neutral indicator will light indicating TCL must be moved to neutral for decelerator mode change to take effect.



Decelerator/Brake Pedal



Decelerator Mode Switch

1—Decelerator/Brake Pedal 2—Decelerator Mode Switch

ER79617,0000CD0-19-10JAN12-1/1

Exhaust Filter

The exhaust filter is a critical component in the engine's emissions control system. The exhaust filter must be maintained and cared for properly to ensure the engine meets governmental emissions regulations.

The exhaust filter captures soot and ash to prevent its release into the atmosphere. The soot and ash must be eliminated from the exhaust filter to keep it functioning properly. The process of eliminating collected soot is called exhaust filter cleaning. There are three types of exhaust filter cleaning available to the operator:

- **NATURAL/PASSIVE**
- **AUTO**
- **PARKED**

There are five soot levels to describe the amount of restriction in the exhaust filter. These levels determine the type of cleaning that is required:

- **LOW**
- **MODERATE**
- **HIGH**
- **VERY HIGH**
- **SERVICE**

For more information, see Standard Display Monitor—Main Menu—Exhaust Filter. (Section 2-3.)

Auto cleaning is able to activate (if not disabled by the operator) when the exhaust filter restriction is anywhere between MODERATE and HIGH soot levels. Auto cleaning is no longer available if exhaust filter restriction reaches VERY HIGH or SERVICE soot levels.

Parked cleaning can only be initiated when the exhaust filter restriction reaches HIGH or VERY HIGH soot levels.

If exhaust filter restriction reaches SERVICE soot level, contact your authorized dealer.

In addition to the cleaning procedures, the exhaust filter also requires maintenance to remove accumulated ash as required, which is a noncombustible result of additives used in crankcase lubrication oils and the fuel. Ash removal CANNOT be performed by the operator. For more information on exhaust filter ash removal, see Service Exhaust Filter. (Section 3-3.)

NOTE: *Unnecessary idling can cause exhaust filter soot to accumulate more quickly. For the best possible exhaust filter operation that requires the least amount of operator interaction, keep idling to a minimum.*

Natural/Passive Cleaning

During normal machine operation the exhaust heat will naturally clean the soot build up in the exhaust filter.

Auto Cleaning

CAUTION: Servicing machine during exhaust filter auto cleaning can result in serious personal injury. Avoid exposure and skin contact with hot gases and components.

During exhaust filter auto cleaning, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components may reach temperatures hot enough to burn people and ignite or melt common materials.

Auto cleaning is set from the factory in the standard display monitor (SDM) menu to be enabled. Different settings can be chosen for the default state after a power cycle. These settings are:

NOTE: *If auto cleaning is set to disabled, machine may revert back to enabled after a power cycle.*

- **DEFAULT PREVIOUS**
- **DEFAULT ENABLED**
- **DEFAULT DISABLED**

See your authorized dealer if a different default setting is preferred.

With auto cleaning enabled, exhaust filter cleaning is automatically performed as needed, with no interaction from the operator. An exhaust filter cleaning indicator will illuminate on the SDM when the system is actively performing an exhaust filter auto cleaning. Machine can be operated as normal. When the exhaust filter auto cleaning process has completed its cycle, the cleaning indicator will automatically turn off.

If filter restriction reaches the HIGH soot level with auto cleaning enabled, further action is needed to clean the filter. Initiate a parked filter cleaning.

NOTE: *Disabling exhaust filter auto cleaning is not preferred. Whenever possible, auto cleaning should be enabled to keep soot buildup to a minimum and to increase overall machine uptime.*

If operating in conditions where it may be unsafe for elevated exhaust temperatures, auto cleaning can be disabled using the SDM menu. If filter restriction reaches the HIGH soot level with auto cleaning disabled, SDM window will display message auto cleaning needs to be enabled. For more information, see Standard Display Monitor—Main Menu—Exhaust Filter—Auto Cleaning. (Section 2-3.)

Parked Cleaning

CAUTION: Servicing machine during exhaust filter parked cleaning can result in serious personal injury. Avoid exposure and skin contact with hot gases and components.

During exhaust filter parked cleaning, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components may reach temperatures hot enough to burn people and ignite or melt common materials.

Avoid death or serious injury from machine movement. Do not leave running machine unattended during exhaust filter cleaning.

IMPORTANT: Avoid machine damage. Always park machine in a safe location and check for adequate fuel level before beginning exhaust filter parked cleaning.

Parked cleaning is prompted by the SDM and initiated by the operator. This process allows the system to clean the exhaust filter. It is most commonly initiated after extended operation with exhaust filter auto cleaning disabled or frequent engine shut downs have occurred while the auto cleaning process was active.

During the cleaning process, the engine speed will be controlled automatically and the machine must remain parked to complete the procedure. Complete cleaning time takes less than 45 minutes, but will vary on several criteria including fuel type, oil type, duty cycle, and the number of previously aborted exhaust filter cleaning requests.

Parked cleaning needs to be activated through the SDM menu. The first parked cleaning menu offers a choice to either automatically shut down the machine after parked cleaning is complete or to not shutdown. For more information, see Standard Display Monitor—Main Menu—Exhaust Filter—Parked Cleaning. (Section 2-3.) Parked cleaning can only be initiated if the filter restriction is at HIGH or VERY HIGH soot levels. Machine needs to be in a predetermined safe state. This safe state includes two conditions:

- Park brake applied
- Engine running at idle

Parked cleaning occurs in two stages. The first stage is to prepare the exhaust filter by automatically raising exhaust filter temperature to 300°C (572°F). Preparation status is displayed on the monitor. Once the exhaust filter temperature reaches 275—300°C (527—572°F), the cleaning process may begin. The second stage is when the cleaning process begins and may result in exhaust filter

temperatures exceeding 550°C (1022°F). Progress status is displayed on the monitor. The cleaning process will continue until one of the following conditions exist:

- Until there is no soot restriction in the exhaust filter
- 45 minutes has elapsed causing a time-out
- Operator cancels the parked cleaning procedure by releasing park brake or increasing engine speed
- Parked cleaning is aborted due to a fault
- Engine runs out of fuel
- Engine is shut off by operator (not recommended)

The exhaust filter cleaning indicator will be illuminated on the SDM during a parked cleaning. When parked cleaning procedure is complete, engine will automatically return to low idle and exhaust filter cleaning indicator will turn off. Machine is ready to return to operation.

IMPORTANT: Avoid engine damage. If machine will NOT be returning to operation immediately after a parked cleaning procedure, allow the engine and exhaust filter time to return to normal operating temperatures BEFORE stopping engine.

Operator can choose to have the machine automatically shutdown when parked cleaning procedure is complete by selecting the auto shutdown feature from the SDM parked cleaning menu. If auto shutdown was not chosen and operator decides not to return to operation after a parked cleaning procedure, allow the engine and exhaust filter time to return to normal operating temperatures BEFORE stopping engine.

Avoid disabling the auto cleaning process unless absolutely necessary. Repeated disabling of the auto cleaning process or ignoring prompts to perform a parked cleaning procedure, will cause engine power limitations and can eventually lead to dealer required service cleaning.

Ash Removal

The exhaust filter cleaning procedures described previously cleaned the soot from the machine's exhaust filter. The exhaust filter also traps ash deposits over time which are not removed during an exhaust filter cleaning. When the exhaust filter has run several thousand hours, these ash deposits can restrict engine performance and must be removed. For more information on ash removal, see Service Exhaust Filter. (Section 3-3.)

ER93822.00000E8-19-12AUG15-2/2

Stopping the Machine

IMPORTANT: During freezing weather, park machine on a hard surface to prevent tracks from freezing to the ground. Clean debris from tracks.

If tracks are frozen to the ground, move machine carefully to prevent damage to drive train and tracks.

NOTE: Brake automatically engages under the following conditions:

1. When the engine is not running.
2. If transmission control lever (TCL) is in neutral (N) and machine senses hydrostatic motor movement for more than 3 seconds.
3. If TCL is in forward (F) or reverse (R) and decelerator/brake pedal is pushed all the way to the first stop position (not into brake range) and machine senses hydrostatic motor movement for more than 3 seconds.

Stop machine by doing one of the following:



CAUTION: Prevent possible injury from unexpected machine movement. Pushing on decelerator/brake pedal will stop machine abruptly. Brake will release as pedal is released. Moving the park lock levers to up (locked) position will stop machine abruptly.

- Move transmission control lever (TCL) to neutral (N).
- Push decelerator/brake pedal to second stop position (fully depress pedal).
- Move park lock levers to up (locked) position.



CAUTION: Prevent possible injury from overturning the machine. If blade is dropped when moving rapidly down a steep hill machine may overturn.

- If machine cannot be stopped using methods listed above, drop blade to stop machine.

ER93822,00000BB-19-01NOV11-1/1

Parking the Machine

1. Position machine on a level surface.
2. Lower blade to ground.
3. Move transmission control lever (TCL) (1) to neutral (N).

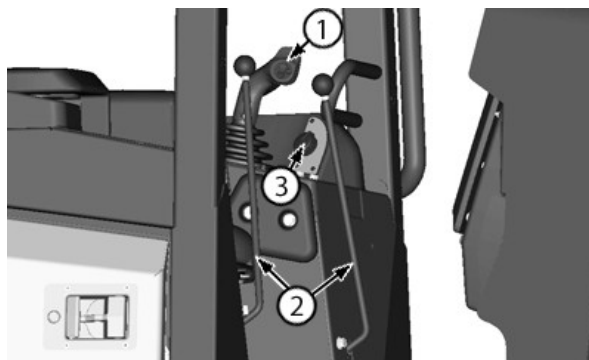
CAUTION: Prevent possible injury from unexpected machine movement. Never rely on transmission control lever (TCL) alone to keep machine from moving. Machine can unexpectedly roll or move under power, resulting in death or serious injury. Always engage park lock levers to hold machine.

4. Move park lock levers (2) to up (locked) position.

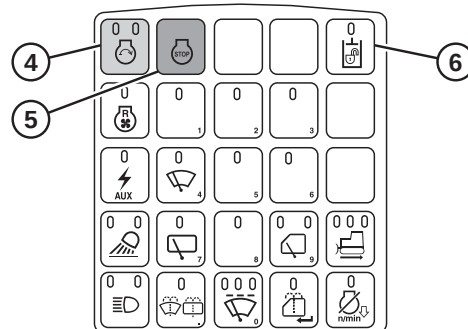
IMPORTANT: To avoid damage to turbocharger, run engine at 1/2 speed with no load for 2 minutes.

5. Run engine at 1/2 speed with no load for 2 minutes.
6. Rotate engine speed control dial (3) to slow idle position.
7. Press engine stop switch (5) to stop engine.
8. Move the blade control lever and ripper control lever (if equipped) to release hydraulic pressure (non-IGC machines only).
9. Turn battery disconnect switch (7) to OFF position.

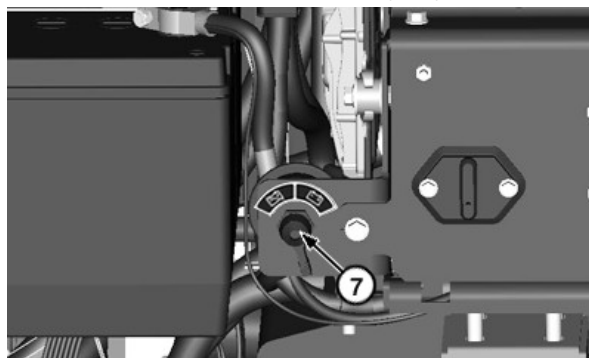
- | | |
|------------------------------------|---|
| 1—Transmission Control Lever (TCL) | 5—Engine Stop Switch |
| 2—Park Lock Lever (2 used) | 6—Hydraulic Enable Switch (IGC machines only) |
| 3—Engine Speed Control Dial | 7—Battery Disconnect Switch |
| 4—Engine Start Switch | |



Operator's Station Controls



Sealed Switch Module (SSM)



Battery Disconnect Switch

ER93822,00000E9-19-10JAN12-1/1

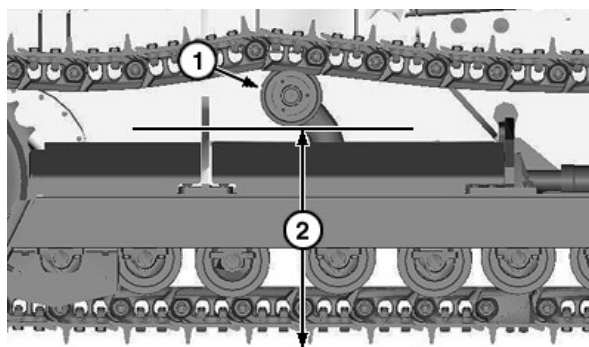
Operating in Water and Mud

IMPORTANT: Damage to the hydrostatic motors, hydrostatic pumps, cooling fan, and other components could occur if fording depth is exceeded. Never exceed maximum fording depth (2) higher than the lower edge of carrier rollers (1).

When it is necessary to operate or drive the machine in water or mud, water or mud must not go higher than the lower edge of carrier rollers (1).

After working in water or mud, lubricate all grease and lubrication points.

- | | |
|---------------------------|-------------------------|
| 1—Carrier Roller (2 used) | 2—Maximum Fording Depth |
|---------------------------|-------------------------|



Maximum Fording Depth

PN36905,00099D6-19-17APR19-1/1

Ripper Control Lever—If Equipped

IMPORTANT: When using the ripper, operate the machine in **LOW** travel speed.

Avoid machine damage. Do not turn machine with ripper engaged in material.

With multi-teeth rippers it is usually more beneficial to install multiple teeth than to select a higher travel speed.

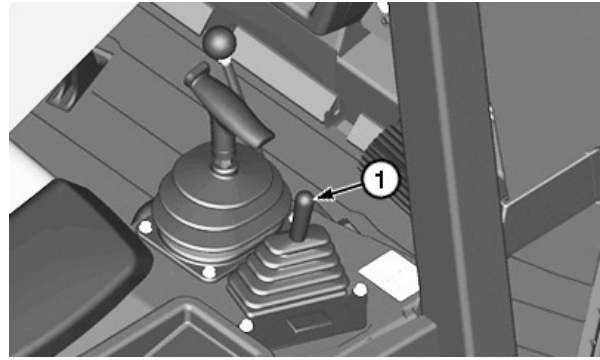
Use only one ripper tooth to rip out difficult or large sized material.

Easy to rip material, which breaks into smaller pieces, can be removed with a multi-tooth ripper with two or three teeth.

During the ripper application, always make sure that both tracks are fully on the ground at all times. If necessary, prepare the site accordingly.

The ground should be ripped as deep as possible. If the ground is layered, proceed to rip one layer at a time. To reach the desired depth, it may be necessary to run over the same track several times.

In some cases, it may be necessary to cut crosswise.



Ripper Control Lever

1—Ripper Control Lever

On slopes, always rip going downhill.

Operation of the Ripper

- To lower ripper, push the ripper control lever (1) forward.
- To raise ripper, pull the ripper control lever rearward.

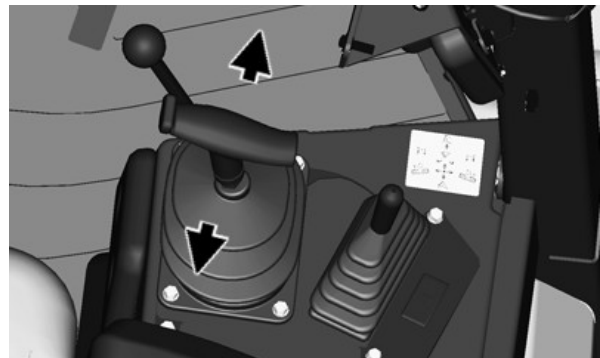
ER93822,00000BD-19-09JAN12-1/1

Operating Blade

IMPORTANT: To avoid overheating of hydraulic oil, allow control lever to return to neutral when cylinders reach the end of their travel.

Move blade control lever rearward to raise blade. Move blade control lever forward to lower blade.

Move blade control lever to full forward detent for float position. This position allows the blade to follow the contour of the ground. Manually release blade control lever from this position.



Blade Control Lever

ER93822,00000EB-19-14NOV11-1/1

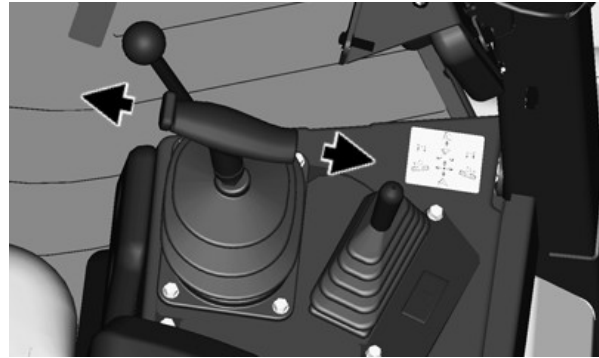
Tilting Blade

Move the blade control lever left to tilt the blade left.

Move the blade control lever right to tilt the blade right.

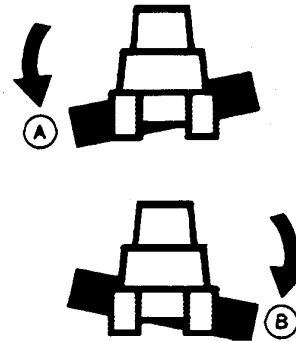
A—Tilt Blade Left

B—Tilt Blade Right



TX1101283—UN—18NOV11

Blade Control Lever



Blade Tilt Left and Right

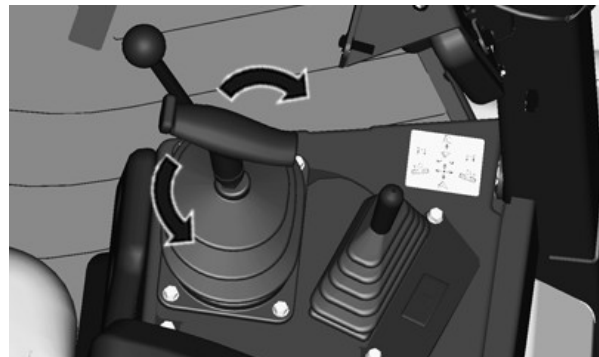
T6508AW—UN—19MAY89

ER93822,00000EC-19-06JAN12-1/1

Angling Blade

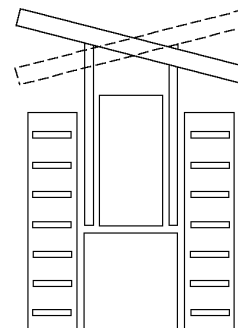
Twist blade control lever clockwise to move left edge of blade forward.

Twist blade control lever counterclockwise to move right edge of blade forward.



TX1101284—UN—18NOV11

Blade Control Lever



T118641

Angling Blade

T118641—UN—01DEC98

ER93822,00000ED-19-06JAN12-1/1

Blade Pitch Operation

Blade pitch can be changed depending on the type of work performed and soil conditions encountered, or to change the feel of the dozer to operator's preference.

Pitching the Blade Forward Advantages:

With the top of blade pitched forward (2), the blade will not carry as much soil. The weight of the soil carried by the blade adds to the weight of the dozer and moves the balance of weight on the tracks forward. This can cause the front idlers of the crawler to sink in loose or soft soils. When the idlers sink, the blade cuts unevenly into the soil. With the blade forward, the dozer balance does not change as much with a full blade; therefore, the tendency for idlers to sink is reduced.

With the blade forward, there is less of a tendency for dirt to come over the back of the blade when dozing uphill. It is also easier to drop dirt at the end of a push when dozing uphill or when dozing very sticky materials.

Pitching the Blade Back Advantages:

With the blade pitched back (1), the cutting edge lies more horizontally resulting in a heavier cut into soils. Having the cutting edge more horizontal also provides a smoother cut in heavy soils. More soil is carried by the blade when it is pitched back. Carrying more soil on the blade adds to the weight of the dozer. This added weight can increase push force in heavy soils. The soil carried by the blade also moves the balance of weight forward on the machine. In heavy soils, this can be an advantage because the increased weight can help keep the front of the machine down and keep the cutting edge penetrating during heavy cutting.

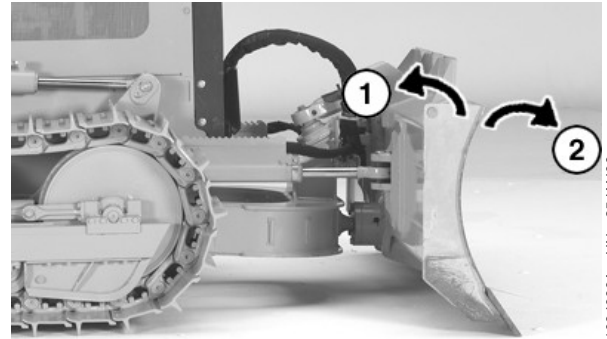
Changing the Pitch:

NOTE: Machine is delivered from the factory with the blade in the mid-pitched position (56°).

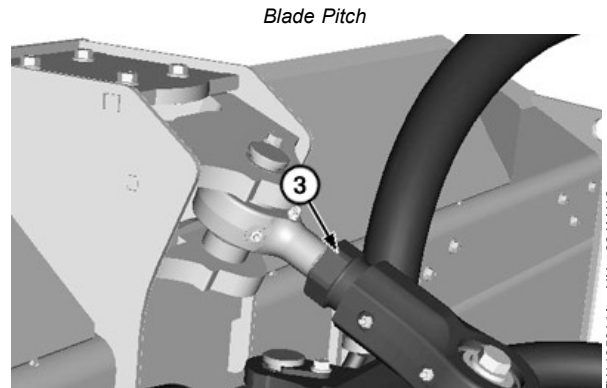
Pitching the blade back:

To pitch the blade back, rotate the adjusting sleeve nut (3) counterclockwise (left handed threads). The blade can be pitched back to a minimum of 52°. To achieve minimum pitch, rotate adjusting sleeve nut counterclockwise until it bottoms out against the casting.

Pitching the blade forward:



TX1034969A—UN—25JAN08



TX1105011A—UN—06JAN12

1—Back Pitch
2—Forward Pitch

3—Adjusting Sleeve Nut

To pitch the blade forward, rotate the adjusting sleeve nut clockwise (left-handed threads). The blade can be pitched forward to a maximum of 58°. To achieve maximum blade pitch, rotate adjusting sleeve nut clockwise until the internal snap ring bottoms out.

Setting blade at mid-pitch:

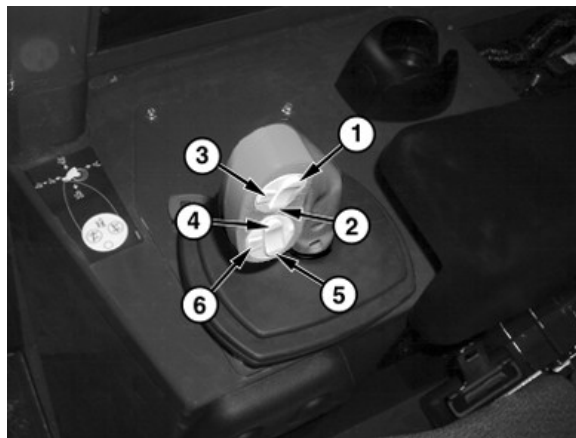
Depending on the pitch of the blade, rotate the adjusting sleeve nut clockwise (if pitched less than 56°), or counterclockwise (if pitched greater than 56°). Look for visual indication of ridge on adjusting sleeve nut to be in line with leading edge of casting.

NOTE: Blade pitch adjustment may require release of cylinder hydraulic pressure.

ER93822,0000062-19-10JAN12-1/1

Blade Control Lever—Operation

- | | |
|-------------------------------|--------------------------------|
| 1—Increment (Up) (IGC only) | 4—Blade Angle Clockwise |
| 2—Decrement (Down) (IGC only) | 5—Blade Angle Counterclockwise |
| 3—Not used | 6—IGC On/Off (IGC only) |



TX1010864A—UN—03AUG06

IGC Blade Control Lever Shown

Continued on next page

VD76477,0001373-19-15JAN08-1/2

IMPORTANT: To avoid overheating hydraulic oil, allow control lever to return to neutral position when cylinders reach end of stroke.

Blade control lever is used for all hydraulic functions on all non-IGC units.

Blade float detent position (7) is used for backblading. When blade control lever is put into float position, it must be moved manually back to neutral position.

- Push lever forward to float detent position (7) for blade float.
- Push lever forward one position (8) to lower blade.
- Pull lever rearward (10) to lift blade.
- Push lever to the left (11) to tilt blade to the left.
- Push lever to the right (9) to tilt blade to the right.

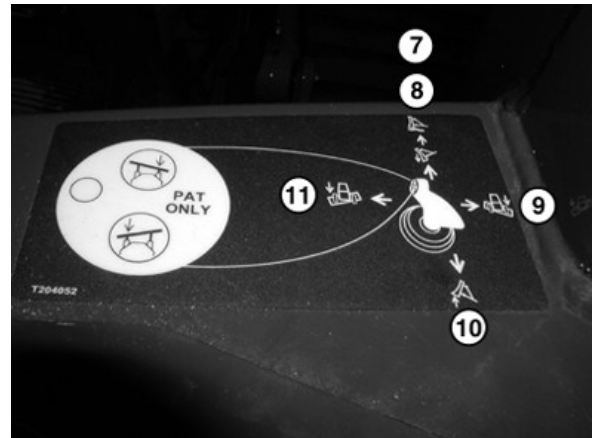
Electronic blade control lever is used for all hydraulic functions on IGC units.

Blade float detent position (7) is used for back blading.

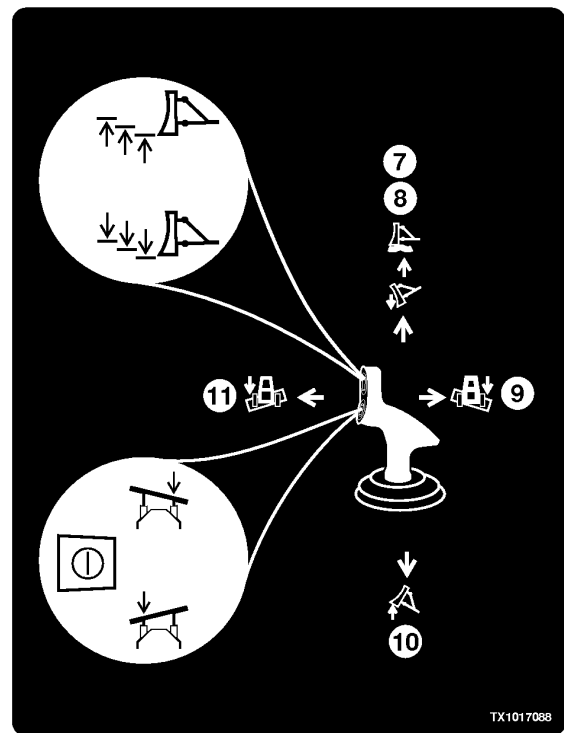
When blade control lever is put into float position, it will return to neutral on its own.

To disable blade float, push the lever forward or rearward after the joystick has returned to neutral. Moving the lever to the left or right will not disable blade float.

- | | |
|-------------------------------|--------------------|
| 7—Blade Float Detent Position | 10—Blade Lift |
| 8—Blade Lower | 11—Blade Tilt Left |
| 9—Blade Tilt Right | |



Power Angle Tilt



IGC Machines

VD76477,0001373-19-15JAN08-2/2

Operating on Steep Hills

IMPORTANT: Use caution when operating on steep hills. It is important to operate machine at slow transmission speeds to protect the engine and/or transmission from damage.

VD76477,000045E-19-15DEC10-1/1

Avoid Track Damage

IMPORTANT: Avoid machine damage. If machine is equipped with a sealed and lubricated track, avoid water being forced between the plastic pins and rubber plugs while washing machine with pressure washer.

JH91824,00002EA-19-22JUL10-1/1

Loading Machine on a Trailer

1. Keep the trailer bed clean.
2. Install wheel chocks (1) against truck wheels.
3. Use a ramp or loading dock. Ramps must be strong enough, have a low angle, and be of correct height.
4. Fasten seat belt before starting engine.
5. Load and unload the machine on a level surface.

CAUTION: Prevent possible injury from unexpected machine movement. Whenever possible, back the machine onto the trailer to prevent possible tipping.

6. Drive the machine onto the ramps squarely.
7. The centerline of the machine should be over the centerline of the trailer.
8. Lower all equipment onto blocks.
9. Move transmission control lever (TCL) to neutral (N).

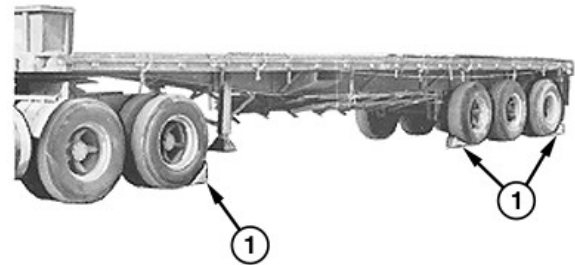
CAUTION: Prevent possible injury from unexpected machine movement. Never rely on transmission control lever (TCL) alone to keep machine from moving. Machine can unexpectedly roll or move under power, resulting in death or serious injury. Always engage park lock levers to hold machine.

10. Move park lock levers to up (locked) position.

IMPORTANT: To avoid damage to turbocharger, run engine at slow idle (no load) for 2 minutes.

If engine stop switch is pressed and the turbocharger needs to cool down, a popup displays on the monitor. The engine will run until the turbocharger is cool enough to shut down.

Continued on next page



TX1010855A—UN—03AUG06

Loading Machine on a Trailer

1— Wheel Chocks

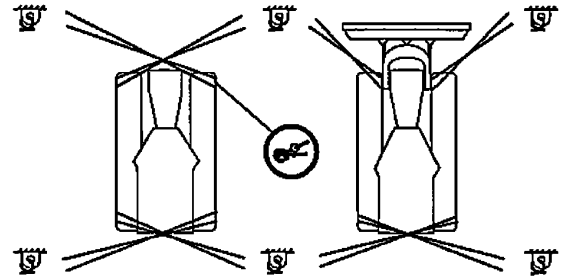
11. Run engine at slow idle no load for 2 minutes.
12. Rotate engine speed control dial counterclockwise to slow idle position.
13. Press engine stop switch to stop engine.
14. Move the blade control lever and ripper control lever (if equipped) to release hydraulic pressure (non-IGC machines only).
15. Turn battery disconnect switch to OFF position.
16. Cover exhaust opening to prevent entry of wind and water.

ER93822,0000068-19-07JAN12-1/2

IMPORTANT: Avoid machine damage. Fasten chains or cables to machine frame or track shoes. Do not place chains or cables over or against hydraulic lines or hoses.

17. Fasten each corner of the machine to the trailer with chains or cables.

- Front: Use either the outside or inside of the track shoe as shown.
- Side: Use inside edge of track shoe.
- Rear: Use outer edge of track shoe. In addition, it is permissible to use the drawbar—if equipped.



Tie Downs

ER93822,0000068-19-07JAN12-2/2

TX1053585—UN—22DEC08

Lifting the Machine

CAUTION: Avoid injury or machine damage from unexpected machine movement. Properly lift machine and use proper tie-downs.

NOTE: Do not use handles or steps in order to lift or tie down the machine.

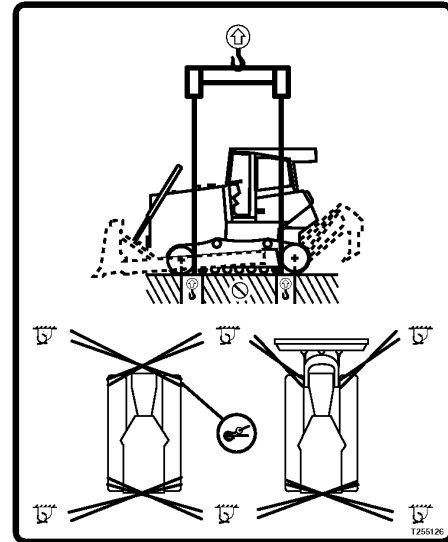
For specific weight information, see Miscellaneous—Specifications. (Section 4-6.)

ER79617,0000D56-19-11AUG15-1/2

1. Engage the parking brake.
2. Use proper rated cables and slings for lifting. The crane should be positioned so that the machine is lifted parallel to the ground.

Position the slings beneath the front of the track and beneath the rear of the track in designated lifting zones.

3. On sharp corners, use corner protectors.
4. To prevent contact with the machine, lifting cables should have sufficient length.
5. The width and strength of the spreader bar should be sufficient to prevent contact with the machine.



Lifting the Machine

ER79617,0000D56-19-11AUG15-2/2

TX1085702—UN—13DEC10

Releasing Park Brake to Tow the Machine

SERVICE EQUIPMENT AND TOOLS

- | |
|------------------------------|
| AM102420 Male Quick Coupler |
| Port-a-Power Pump With Gauge |
| 1-3/8 in. Socket |

This procedure is used to release the park brakes for towing the machine.

Continued on next page

ER93822,0000060-19-12JAN12-1/3

CAUTION: Prevent possible injury from unexpected machine movement. Place blocks at front and rear of tracks and secure machine to prevent it from rolling.

Do not allow an operator on the machine being towed unless the operator can control the steering and brakes.

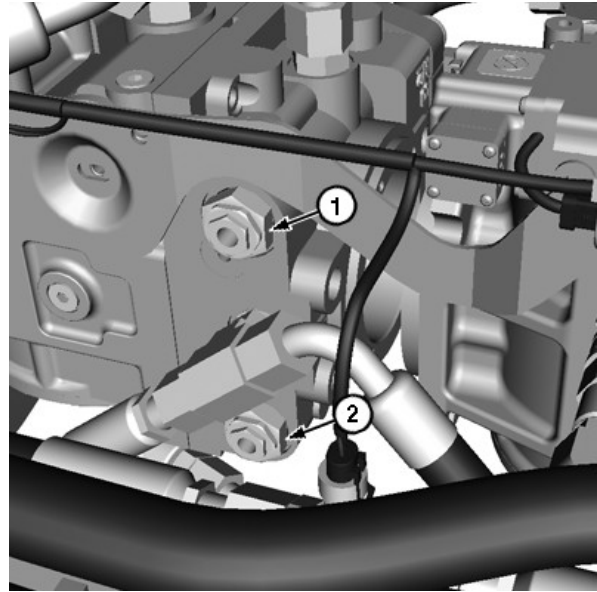
1. Remove rubber mat and floor plate from operator's station to access hydrostatic pumps.

NOTE: Multi-function valves can be turned out using a 1-3/8 in. socket and a flexible head ratchet. Engine does not have to be running to tow machine.

IMPORTANT: The lower multi-function valves are in the reverse side of the closed-loop circuit and must be loosened to tow the machine in forward. Likewise, the upper multi-function valves are in the forward side of the closed-loop circuit and must be loosened to tow the machine in reverse.

2. **TO TOW MACHINE FORWARD** — both front and rear pump reverse multi-function relief valves (2) must be turned out (counterclockwise) 1/2 to 1 turn and blade must be raised off the ground. (If engine will crank but will not start, blade can be raised by cranking engine while holding blade raise function on control valve.)

TO TOW MACHINE IN REVERSE — both front and rear



TX1099754A—UN—07NOV11

Front Pump Multi-Function Valves

1—Forward Multi-Function Valve (2 used)

2—Reverse Multi-Function Valve (2 used)

pump forward multi-function valves (1) must be turned out (counterclockwise) 1/2 to 1 turn.

Continued on next page

ER93822,0000060-19-12JAN12-2/3

3. Disconnect brake hose quick coupler (3) from pump.

NOTE: If spare AM102420 Male Quick Coupler is not available, the male quick coupler can be removed from hydrostatic pump and used to adapt port-a-power hose. Install fitting cap to seal hydrostatic pump fitting.

4. Install AM102420 Male Quick Coupler fitting (4) on port-a-power hose. Connect quick coupler fittings so port-a-power can pressurize the brake circuit.
5. Set brake mode to TOW as follows:
 - a. Press SELECT button on standard display monitor (SDM) to display MAIN MENU.
 - b. Press NEXT button until MACHINE SETTINGS menu option is highlighted.
 - c. Press SELECT button.
 - d. Press NEXT button until BRAKE MODE is highlighted.
 - e. Press SELECT button.

NOTE: TOW will allow the machine to be towed without the system automatically applying the brakes (hill hold disabled).

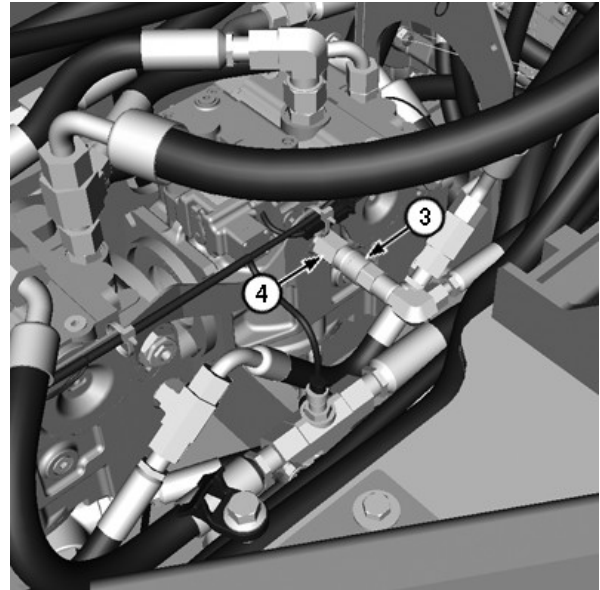
6. View park brake oil pressure as follows:
 - a. Select DIAGNOSTICS from the SDM main menu.
 - b. Select LIVE VALUES from the diagnostics submenu.
 - c. Select PRESSURES and push NEXT until BRAKE pressure is displayed.
7. Move park lock levers to the unlock (down) position.

IMPORTANT: Prevent over pressurizing the brake circuit. Brake circuit pressure must not exceed the maximum charge pressure. Brake seals can be damaged if pressurized above 2758 kPa (27.58 bar) (400 psi).

Release brakes using a port-a-power equipped with a pressure gauge so the pressure applied to the brakes can be monitored. Apply a minimum pressure of 1378 kPa (13.79 bar) (200 psi) and a maximum pressure of 2758 kPa (27.58 bar) (400 psi).

NOTE: The brakes initially start to release at approximately 896 kPa (8.96 bar) (130 psi) and are fully released at approximately 1310 kPa (13.1 bar) (190 psi). When the park lock levers are in the unlock (down) position, pressure to release the park brake can be monitored by accessing the BRAKE pressure submenu located in the SDM menu structure.

8. Pressurize brake circuit to specification.



Park Brake Quick Coupler

3—Brake Hose Quick Coupler 4—AM102420 Male Quick Coupler

Specification

Brake Circuit—Pressure.	1379—2758 kPa
	13.8—27.6 bar
	200—400 psi

IMPORTANT: Do not tow machine faster than 1.6 km/h (1 mph) (646 motor rpm max) for 10 minutes or not to exceed 305 m (1000 ft) of total tow distance. Failure to do this may result in extensive machine damage.

9. Tow machine.

NOTE: Brake pressure will degrade due to internal brake valve leakage. Brake pressure will fall quickly from 2068 kPa (20.68 bar) (300 psi), however, the brake pistons will not need to be pumped up again until pressure drops below 1000 kPa (10 bar) (145 psi).

10. Remove port-a-power and connect brake hose to hydrostatic pump.
11. Tighten multi-function valve lock nut to specification.

Specification

Multi-Function Valve Lock	
Nut—Torque.	79 N·m
	58 lb.-ft.

12. Press engine stop switch to turn off ignition (switched) power and reset brake mode to NORMAL.

ER93822,0000060-19-12JAN12-3/3

Service ADVISOR™ Remote (SAR) Software Delivery Process

Theory of Operation

Service ADVISOR™ is a diagnostic tool used by John Deere dealers to perform diagnostics as well as updates to machine settings and software. Dealers can access diagnostic trouble codes and diagnostic addresses, create readings and recordings, and program controllers. This technology consists of both software and hardware. Technicians attend a minimum of 8 hours of training to become certified in utilizing this tool.

Service ADVISOR Remote (SAR) is a function of Service ADVISOR. It allows the dealer technician to connect to a SAR-enabled machine via the JDLink™ network to remotely access diagnostic trouble code information and record diagnostic data, as well as program controllers.

Similar to software (payload) updates in the computer industry, SAR enables John Deere to remotely deliver updated software via the JDLink hardware on board. Remote programming gives John Deere the ability to update software to enhance the performance of the machine. This capability can be used to reprogram most machine controllers. The user actively participates with the dealer in this process by both downloading the software update and installing the software update.

*Service ADVISOR is a trademark of Deere & Company
JDLink is a trademark of Deere & Company*

NOTE: Some vehicle controllers may not be compatible for SAR reprogramming.

For more information about Service ADVISOR Remote, consult your local John Deere dealer.

Vehicle Reprogramming

NOTE: Factory setting is set to always accept software downloads. To change this setting, consult your John Deere dealer to either be prompted for software updates or deny all software updates.

Normal machine operation can continue during the software download process.

Customer will be notified by John Deere or a John Deere dealer of pending software updates with appropriate installation instructions via letter or phone.

Customer will determine the appropriate time and place to install the new software on the machine via the machine monitor. For more information, see Standard Display Monitor (SDM)—Main Menu—Software Delivery—Software Update. (Section 2-3.)

Once the customer initiates delivery and installation of the software, SAR will start and manage the installation of the new payload to the appropriate machine controllers.

NOTE: Software download speed capability depends on JDLink cellular coverage.

ER93822,0000100-19-07JAN12-1/1

Operating Winch—If Equipped

CAUTION: Prevent possible injury from breaking cable. Always be sure rear screen between winch and operating compartment is in place before operating winch.

Operate the winch only from operator's station.

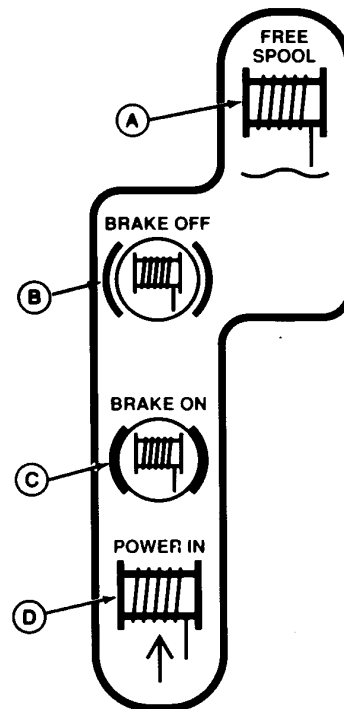
A coolant heater is recommended with winch option if ambient temperature is below -18°C (0°F).

Before operating winch, place winch control in free spool to circulate oil through winch until winch oil reaches operating temperature.

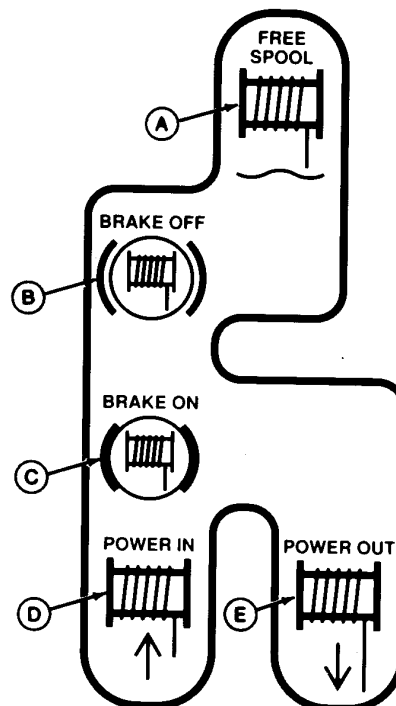
- Move lever to FREE SPOOL (A) position so cable can be pulled out freely.
- Move lever to the BRAKE OFF (B) position so cable can be pulled out with tension.
- Move lever to the BRAKE ON (C) position to hold cable.
- Move lever to POWER IN (D) position to wind cable on drum.
- Move lever to POWER OUT (E) position (if equipped) to unwind cable from drum.

A—Free Spool
B—Brake Off
C—Brake On

D—Power In
E—Power Out



Standard Control Pattern



Power In, Power Out Control Pattern

T7440BG—UN—20DEC90

T7440BH—UN—20DEC90

TX,36,FF2210-19-02DEC14-1/1

Fasten Cable to Winch Drum—4000S Series

Maximum Cable Capacities	
Cable Size	Winch Capacity
15.88 mm (0.625 in.)	77.4 m (254 ft)
19.05 mm (0.75 in)	54.6 m (179 ft)
22.23 mm (0.875 in)	39.3 m (129 ft)

TX,35,RR,798-19-21AUG17-1/4

To conform with certain state laws, the cable must be attached to the drum so that it can come loose if the cable is unwound from winch drum.

Attach cable to winch drum using one of the following methods:

⚠ CAUTION: Prevent possible personal injury from cutting wire. Wear gloves when handling cable to protect hands from cable wire cuts. **DO NOT** guide cable on winch with hands.

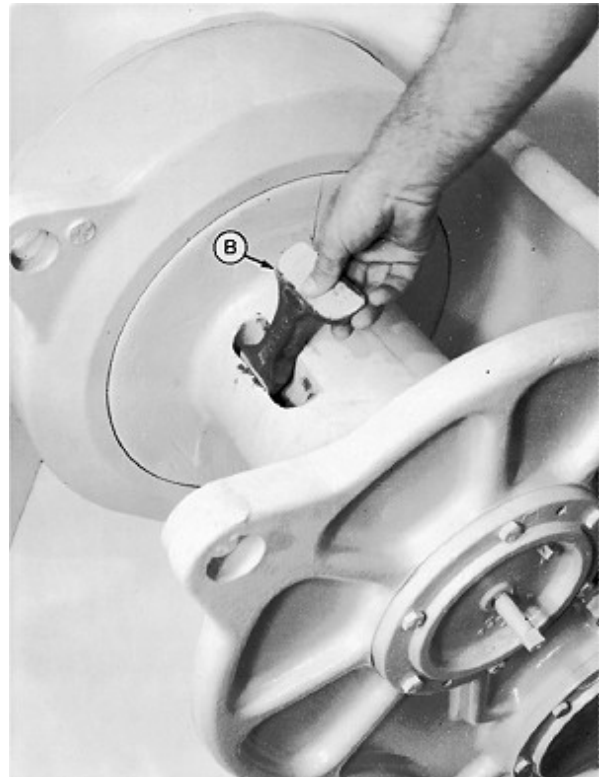
IMPORTANT: If a ferruled cable is used, the drum plug (B) **MUST** be installed to prevent cable from bending cable slot.

First Method—Breakaway Anchor:

1. Attach a ferrule or cable clamp (A) to end of cable.
2. Wrap cable around the drum and slide the ferrule or cable clamp under the cable and into slot in drum and secure with tab (C).

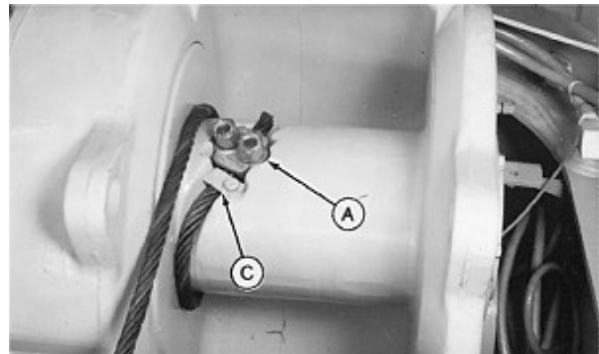
A—Ferrule or Cable Clamp
B—Drum Plug

C—Tab



T7347AS—UN—27SEP90

Drum Plug



T7382AH—UN—03OCT90

Cable Clamp and Tab

Continued on next page

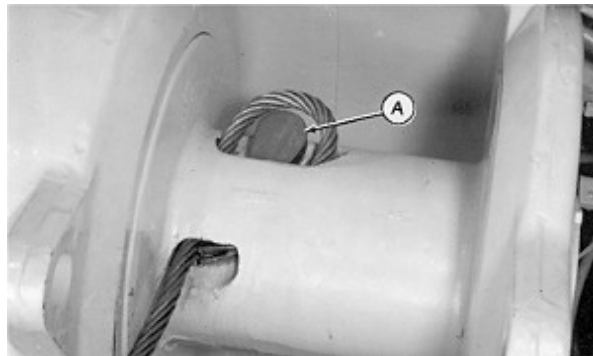
TX,35,RR,798-19-21AUG17-2/4

Second Method—Fixed Anchor:

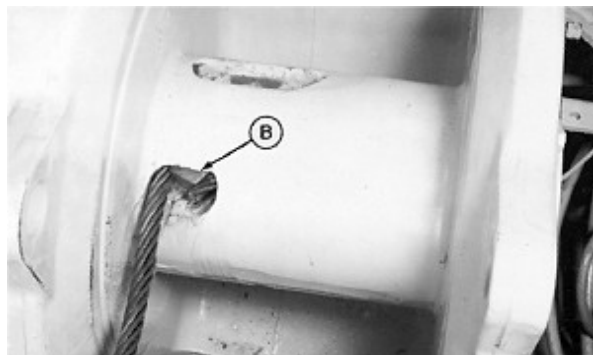
1. Remove drum plug.
2. Thread cable up through small hole and wrap cable around wedge (A). Insert cable back down through lower hole and pull wedge into drum (B).

A—Wedge

B—Drum



Cable Around Wedge



Drum

Continued on next page

TX,35,RR,798-19-21AUG17-3/4

Third Method:

IMPORTANT: If cable is unwound below one turn on drum, cable will come off drum.

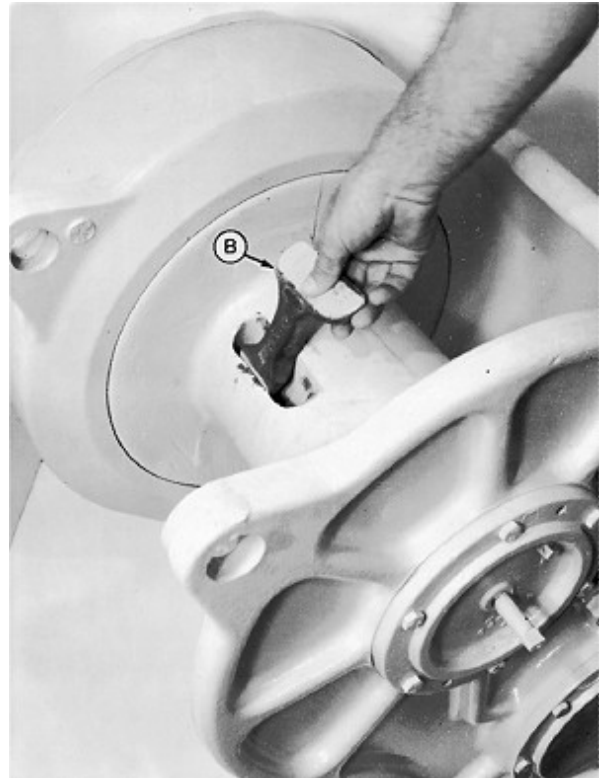
1. Remove drum plug (B).

⚠ CAUTION: Prevent possible personal injury from cutting wire. Wear gloves when handling cable to protect hands from cable wire cuts. **DO NOT** guide cable on winch with hands.

2. Thread cable up through small hole and insert cable back down through lower hole. Pull loop into drum.
3. Adjust free spool drag to operator's preference. See Winch Free Spool Drag Adjustment in this section.

NOTE: Factory free spool drag setting was done without cable; adjust free spool drag to operator's preference when cable is added.

B—Drum Plug



Drum Plug



Loop in Drum

TX,35,RR,798-19-21AUG17-4/4

T7347AS—UN—27SEP90

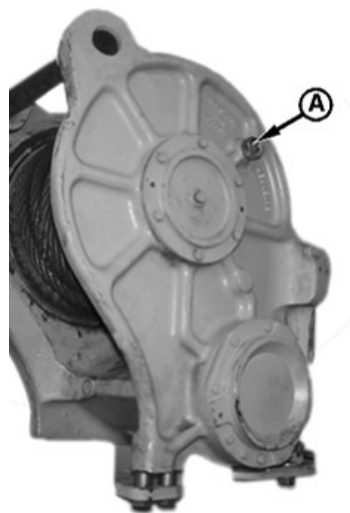
T7382AI—UN—03OCT90

Winch Free Spool Drag Adjustment

The winch drum drag can be adjusted to operator's preference.

1. Start engine.
2. Lower equipment to ground.
3. Engage park brake.
4. Place winch control handle in FREE SPOOL position.
5. Loosen nut (A).
6. Adjust slotted shaft to desired winch drum drag.
7. Tighten nut.

A—Nut



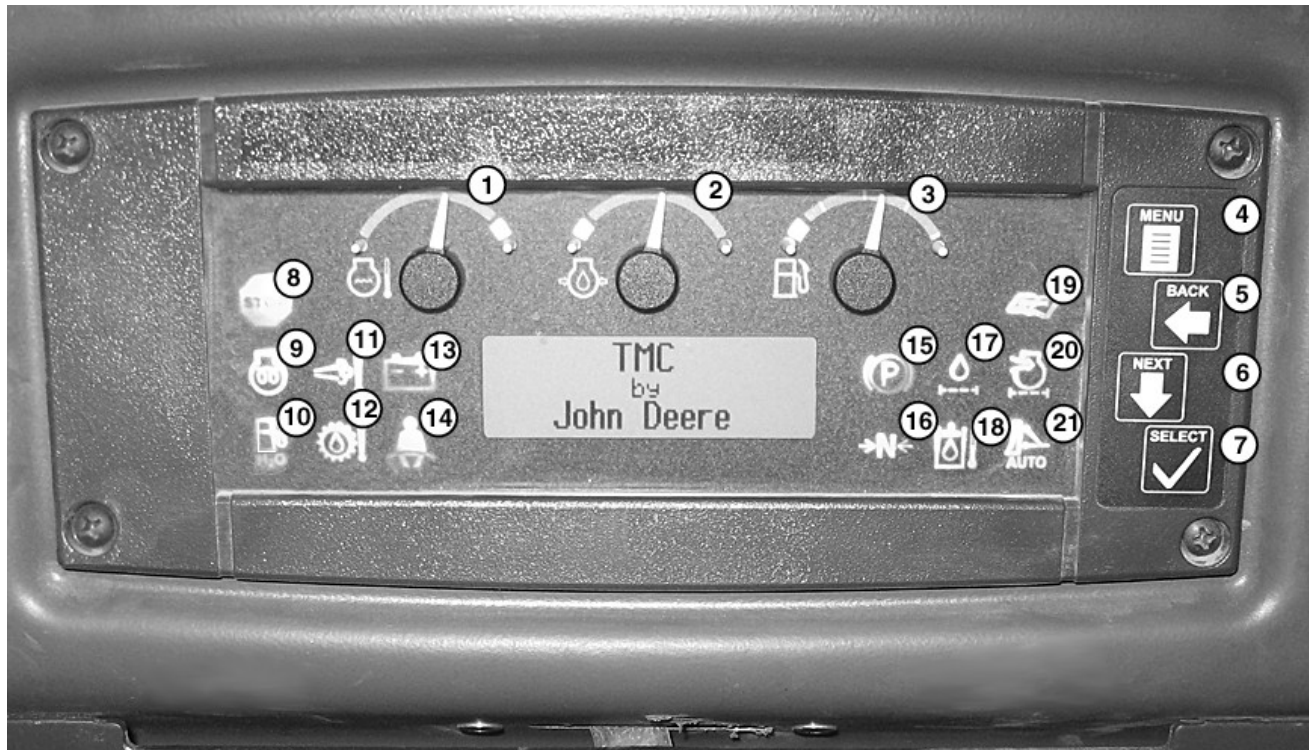
T118240B—UN—12NOV98

Winch (right side)

TX,35,RR4679-19-10JAN12-1/1

Operation—Monitor Operation

Standard Display Monitor (SDM)



TX1084082A—UN—04NOV10

Display Monitor

- | | | | |
|------------------------------------|---|--|--|
| 1—Engine Coolant Temperature Gauge | 8—STOP Indicator | 13—Engine Alternator Voltage Indicator | 18—Hydraulic Oil Temperature Indicator |
| 2—Engine Oil Pressure Gauge | 9—Wait to Start Indicator | 14—Fasten Seat Belt Indicator | 19—Check Service Code Indicator |
| 3—Fuel Level Gauge | 10—Water-In-Fuel (WIF) Indicator | 15—Park Brake Indicator | 20—Engine Air Filter Restriction Indicator |
| 4—MENU Button | 11—Exhaust Filter Cleaning Indicator | 16—Return to Neutral Indicator | 21—Auto Blade Indicator |
| 5—BACK Button | 12—Transmission Oil Temperature Indicator | 17—Oil Filter Restriction Indicator | |
| 6—NEXT Button | | | |
| 7—SELECT Button | | | |

NOTE: The MENU, BACK, NEXT, and SELECT navigation buttons are located on the right side of the SDM display.

NOTE: Battery disconnect switch must be in ON position for monitor to operate.

NOTE: Translations shown on display may be abbreviated.

ER93822,0000091-19-04APR12-1/1

Standard Display Monitor (SDM)—Main Menu

MENU button (1) - Press MENU button to exit the current menu screen (5) and return to runtime screen.

BACK button (2) - Press BACK button to return to previous menu screen.

NEXT button (3) - Press NEXT button to highlight the available menu option in the current screen.

SELECT button (4) - Press SELECT button to initiate and access the MAIN MENU screen. After the MAIN MENU has been activated, press SELECT button to:

- Proceed to the next menu level.
- Modify the machine or SDM as indicated by highlighted menu item.
- Perform the action indicated by the highlighted menu item.

NOTE: Translations shown on display may be abbreviated.

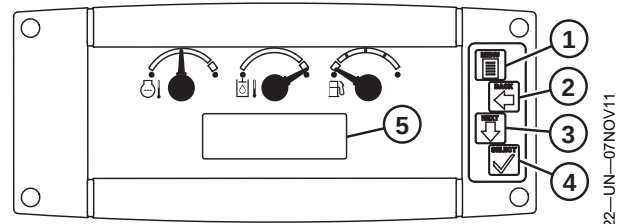
MAIN MENU screen is the initial SDM screen activated when operator begins to view or modify machine and monitor settings.

The MAIN MENU is accessed by pressing the SELECT button once while viewing the runtime display.

MAIN MENU contains seven options from which the operator may view or modify machine:

1. **CODES**—Utilize this menu option to view active or stored diagnostic trouble codes. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Codes in this section.
2. **EXHAUST FILTER**—Utilize this menu option to enable or disable auto cleaning and start a parked cleaning, if needed. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Exhaust Filter in this section.
3. **SERVICE**—Utilize this menu option to view the status of maintenance items. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Service in this section.

Service ADVISOR is a trademark of Deere & Company



TX1100522—UN—07NOV11

Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

4. **MACHINE SETTINGS**—Utilize this menu option to change various operating characteristics of the machine. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings in this section.
5. **DIAGNOSTICS**—Provides a limited set of tools and is intended for diagnostic and troubleshooting functions. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Diagnostics in this section.
6. **MONITOR**—Utilize this menu option to change various operating characteristics of the monitor. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Monitor in this section.
7. **SOFTWARE DELIVERY**—Utilize this menu option to accept, reject, or download Service ADVISOR™ Remote updates. For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Software Delivery in this section.

ER93822,0000092-19-12JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Codes

NOTE: Translations shown on display may be abbreviated.

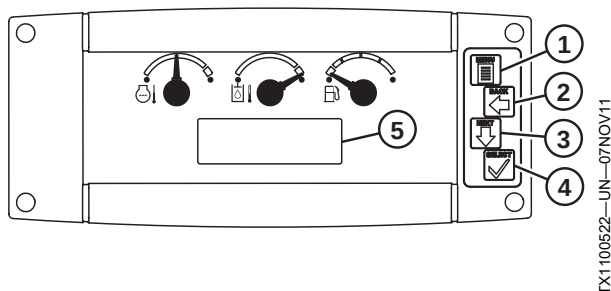
The CODES menu screen displays diagnostic trouble codes (DTCs) that are currently active or stored on the machine. Each DTC is saved in order of occurrence.

To access CODES menu screen from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until CODES menu option is highlighted.
3. Press SELECT button.

CODES submenu items include:

1. ACTIVE CODES—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Codes—Active Codes in this section.
2. STORED CODES—For more information concerning



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

this menu option, see Standard Display Monitor (SDM)—Main Menu—Codes—Stored Codes in this section.

ER93822,0000104-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Codes—Active Codes

NOTE: Translations shown on display may be abbreviated.

The ACTIVE CODES submenu displays a maximum of 20 of the most recent diagnostic trouble codes (DTCs) that are currently active on the machine. As the DTCs are resolved or fixed, the code will be removed from the active codes list.

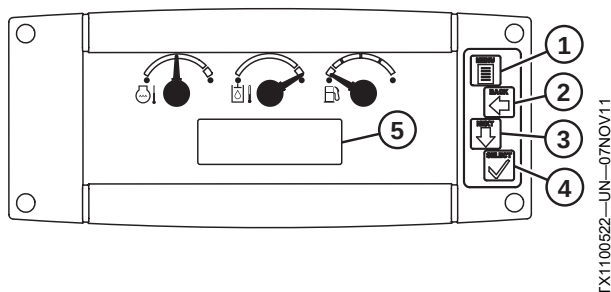
To access ACTIVE CODES submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until CODES menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until ACTIVE CODES menu option is highlighted.
5. Press SELECT button.

If NO ACTIVE CODES is displayed, the SDM has not received any DTCs to relay to the operator.

If one or more DTCs are displayed, the operator may view more information on a specific code by pressing the NEXT button until the appropriate DTC is highlighted and then pressing the SELECT button.

The following is displayed for each active code:



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

NOTE: Circuit information varies based upon diagnostic trouble code.

- Text description of the DTC
- Source controller of fault (ECU, VCU, or SDM)
- Suspect Parameter Number (SPN)
- Failure Mode Indicator (FMI)

In the example 000744.04, 000744 is the SPN and 04 is the FMI number.

After viewing the DTC information, press the BACK button (2) once to return to the list of active DTCs.

ER93822,0000105-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Codes—Stored Codes

NOTE: Translations shown on display may be abbreviated.

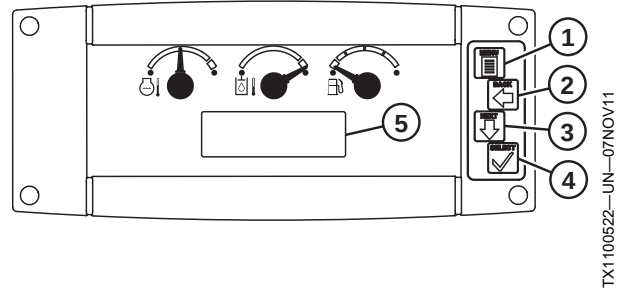
The STORED CODES submenu provides the capability to display in sequence up to 20 of the latest diagnostic trouble codes (DTCs) that have occurred on the machine. Each DTC is saved in the order it occurred. If 20 codes exist and another DTC occurs, the oldest DTC is removed from the list.

To access STORED CODES submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until CODES menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until STORED CODES menu option is highlighted.
5. Press SELECT button.

If NO STORED CODES is displayed, the SDM has not stored any DTCs to relay to the operator.

If one or more DTCs are displayed, the operator may view more information on a specific code by pressing the NEXT button until the appropriate DTC is highlighted and then pressing the SELECT button.



Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

The following is displayed for each stored code:

NOTE: Circuit information varies based upon diagnostic trouble code.

- Text description of the DTC
- Source controller of fault (ECU, VCU, or SDM)
- Suspect Parameter Number (SPN)
- Failure Mode Indicator (FMI)

In the example 000744.04, 000744 is the SPN and 04 is the FMI number.

ER93822,0000106-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Exhaust Filter

NOTE: Translations shown on display may be abbreviated.

The EXHAUST FILTER menu:

- Relays the exhaust filter restriction level.
- Allows the operator to enable or disable auto filter cleaning.
- Allows the operator to initiate a parked filter cleaning.

There are five exhaust filter restriction levels. These levels determine the type of cleaning that is required:

- LOW
- MODERATE
- HIGH
- VERY HIGH
- SERVICE

Auto cleaning is able to activate (if not disabled) when the SOOT LEVEL (exhaust filter restriction level) information screen displays MODERATE or HIGH. Auto cleaning is no longer available if SOOT LEVEL information screen displays VERY HIGH or SERVICE.

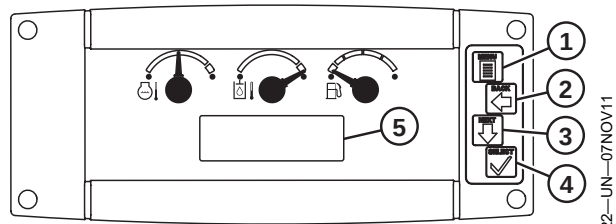
Parked cleaning can only be initiated when the soot level displays at HIGH or VERY HIGH.

If soot level displays SERVICE, contact your authorized dealer.

For more information on the exhaust filter, see Exhaust Filter. (Section 2-2.)

To access EXHAUST FILTER submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU screen.
2. Press NEXT button (3) until EXHAUST FILTER menu option is highlighted.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

3. Press SELECT button to display EXHAUST FILTER submenu.

EXHAUST FILTER submenu items include:

1. SOOT LEVEL—Press SELECT button to view soot level information screen.
2. AUTO CLEANING—For more information on this menu option, see Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Auto Cleaning in this section.
3. PARKED CLEANING—For more information on this menu option, see Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Parked Cleaning in this section.

ER93822,0000107-19-21APR15-1/1

Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Auto Cleaning

NOTE: Translations shown on display may be abbreviated.

CAUTION: Servicing machine during exhaust filter auto cleaning can result in serious personal injury. Avoid exposure and skin contact with hot gases and components.

During exhaust filter auto cleaning, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components may reach temperatures hot enough to burn people and ignite or melt common materials.

NOTE: Disabling exhaust filter auto cleaning is not preferred. Whenever possible, auto cleaning should be enabled to keep soot buildup to a minimum and to increase overall machine uptime.

For auto clean settings and service settings, see your authorized dealer.

Auto cleaning is set from the factory to be enabled. If operating in conditions where it may be unsafe for elevated exhaust temperatures, auto cleaning can be disabled.

The AUTO CLEANING menu allows the operator to enable or disable the auto cleaning function for the exhaust filter.

If exhaust filter restriction level reaches HIGH with auto cleaning enabled, the SDM will display:

- FILTER RESTRICTED
PRESS SELECT TO ENTER CLEANING CYCLE

Pop-up remains on display window for 5 seconds. If SELECT button (4) is not pressed while the message is displayed or parked filter cleaning is not initiated, the SDM will repeat the message at 10 minute intervals until the SELECT button is pressed during the message display or exhaust filter restriction level changes.

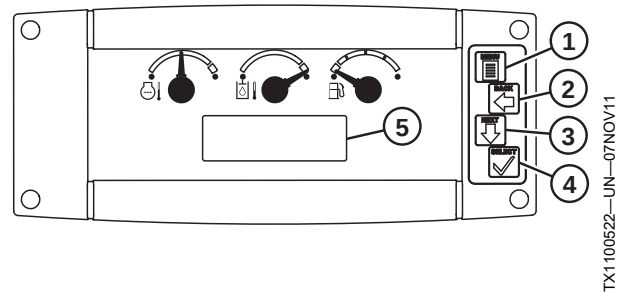
To access AUTO CLEANING submenu from the runtime display:

1. Press SELECT button to display MAIN MENU.
2. Press NEXT (3) button until EXHAUST FILTER menu option is highlighted.
3. Press SELECT button to display EXHAUST FILTER submenu.
4. Press NEXT button until AUTO CLEANING is highlighted.
5. Press SELECT button to display AUTO CLEANING submenu.

AUTO CLEANING submenu items include:

- ENABLED
- DISABLED

A checkmark will be displayed in front of the current setting.



Standard Display Monitor (SDM)

- 1—MENU Button
- 2—BACK Button
- 3—NEXT Button

- 4—SELECT Button
- 5—Display Window

To change the auto cleaning setting from the AUTO CLEANING submenu:

1. Press NEXT button until desired setting is highlighted.
2. Press SELECT button to activate new setting.
3. SDM will activate a short audible acknowledgement and display:
 - AUTO CLEANING DISABLED if DISABLED was selected in previous step
 - or AUTO CLEANING ENABLED if ENABLED was selected in previous step.

If auto cleaning is enabled, SDM will further display HIGHER IDLE SPEEDS POSSIBLE and HIGHER EXHAUST TEMP POSSIBLE.

If exhaust filter restriction level becomes HIGH while auto cleaning is disabled, the SDM will display:

- AUTO CLEANING OFF
PUSH 'SELECT' TO REVIEW

Pop-up remains on display window for 5 seconds. If SELECT button is not pressed while message is displayed, SDM will repeat the message display at 10 minute intervals.

If the SELECT button is pressed while the message is displayed, the SDM will display the EXHAUST FILTER menu screen to permit the operator to change the auto cleaning settings.

1. Press NEXT button until AUTO CLEANING is highlighted.
2. Press SELECT button to display AUTO CLEANING submenu.
3. Press NEXT button until ENABLED is highlighted.
4. Press SELECT button to activate new setting. SDM will activate a short audible acknowledgement and display AUTO CLEANING ENABLED.

ER93822,0000108-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Exhaust Filter—Parked Cleaning

NOTE: Translations shown on display may be abbreviated.

CAUTION: Servicing machine during exhaust filter parked cleaning can result in serious personal injury. Avoid exposure and skin contact with hot gases and components.

During exhaust filter parked cleaning, the engine may run at elevated idle and hot temperatures for an extended period of time. Exhaust gases and exhaust filter components may reach temperatures hot enough to burn people and ignite or melt common materials.

IMPORTANT: Avoid machine damage. Always park machine in a safe location and check for adequate fuel level before beginning exhaust filter parked cleaning.

NOTE: Release park brake, move transmission control lever (TCL), or increase engine speed to cancel parked cleaning.

Parked cleaning can only be performed when the exhaust filter restriction level is HIGH or VERY HIGH and the machine operator chooses to have the machine actively clean the exhaust filter while it is in a predetermined safe state. This safe state includes three conditions:

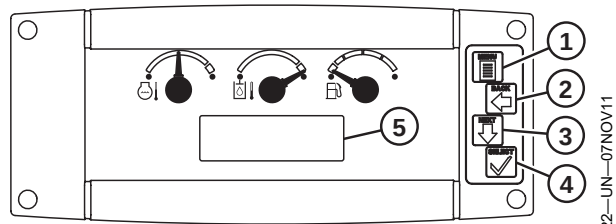
- Park brake applied
- TCL in neutral (N)
- Engine running at idle

Parked cleaning occurs in two stages. The first stage prepares the exhaust filter by automatically raising exhaust filter temperature to 300°C (572°F). The cleaning process is only able to begin when the exhaust filter temperature reaches 275—300°C (527—572°F). The second stage is when the cleaning process begins and can result in exhaust filter temperatures exceeding 550°C (1022°F). The cleaning process will continue until one of the following conditions exist:

- SOOT LEVEL (exhaust filter restriction level) information screen displays LOW
- 45 minutes has elapsed causing a time-out
- Operator cancels the parked cleaning procedure by releasing park brake, moving TCL out of neutral (N), or increasing engine speed
- Parked cleaning is aborted due to a fault
- Engine runs out of fuel
- Engine is shut off by operator (not recommended)

Attempting to initiate a parked cleaning when the SOOT LEVEL information screen displays LOW or MODERATE will result in the vehicle control unit (VCU) not initiating a parked cleaning and the SDM displaying EXHAUST FILTER CLEANING CYCLE NOT REQUIRED for 3 seconds. The SDM will then return to EXHAUST FILTER menu.

Attempting to initiate a parked cleaning when the SOOT



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

LEVEL information screen displays SERVICE will result in the VCU not initiating a parked cleaning and the SDM displaying SERVICE REQUIRED for 3 seconds. The SDM will then return to EXHAUST FILTER menu. Contact your authorized dealer for exhaust filter cleaning at this soot level.

The PARKED CLEANING menu allows the operator to initiate a parked cleaning. If the operator chooses to initiate a parked cleaning, the SDM will ask if machine shutdown procedures should begin immediately following the cleaning process. When cleaning is complete and auto shutdown is enabled, the SDM displays COMPLETE until the machine shuts down or the operator presses SELECT to cancel the auto shutdown. When cleaning is complete and auto shutdown is disabled, the SDM displays COMPLETE until the SELECT button is pressed and the SDM returns to runtime display.

To access PARKED CLEANING submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until EXHAUST FILTER menu option is highlighted.
3. Press SELECT button to display EXHAUST FILTER submenu.
4. Press NEXT button until PARKED CLEANING is highlighted.
5. Press SELECT button to begin parked cleaning process.
6. When prompted with question SHUTDOWN WHEN DONE?, press the NEXT button until the desired choice (NO or YES) is highlighted. Press SELECT button to confirm choice.
7. The SDM navigates through a series of screens to ensure machine is in a safe state for parked cleaning to take place. If any of the safe state conditions are not met,

Continued on next page

ER93822,0000109-19-11JAN12-2/1

the SDM displays screens informing the operator what condition is not met until operator satisfies condition.

Once the SDM displays a check mark in front of both PARK and LOW IDLE, the machine is in a safe state to begin the parked cleaning procedure.

NOTE: If the current fuel level of the machine is potentially too low to complete the parked cleaning process, the SDM displays:

- **PARKED CLEANING
FUEL LEVEL LOW
SELECT CONTINUES or BACK CANCELS**

The final line in the display message will alternate between **SELECT CONTINUES** and **BACK CANCELS** every 3 seconds until either **SELECT** button or **BACK** button (2) is pressed. Pressing the **BACK** button will cancel the parked cleaning process and return the SDM to the runtime display. Press **SELECT** button to initiate the parked cleaning procedure.

8. If the current fuel level of the machine is sufficient to complete the parked cleaning procedure, the parked cleaning procedure will begin. The SDM displays:

- **EXHAUST FILTER**

PREPARING TO CLEAN

The final line in the display message indicates the progress of the first stage of the parked cleaning process. After the first stage of the parked cleaning process is complete, the second stage will begin and the SDM displays:

- **EXHAUST FILTER
CLEANING FILTER**

The final line in the display message indicates the progress of the second stage of the parked cleaning process. When the second stage is complete, the SDM displays **COMPLETE**.

9. If the operator selected **NO** for **SHUTDOWN WHEN DONE?**, the SDM maintains the display until the **SELECT** button is pressed to confirm completion. The SDM then displays the runtime screen.

If the operator selected **YES** for **SHUTDOWN WHEN DONE?**, the SDM continues to display **COMPLETE** until the machine shuts down or the operator presses the **SELECT** button to cancel the auto shutdown.

ER93822,0000109-19-11JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Service

NOTE: Translations shown on display may be abbreviated.

NOTE: If **SERVICE** is disabled, status items will display "-----" instead of the value of remaining hours. See your authorized dealer to enable **SERVICE** submenu.

The **SERVICE** submenu displays the remaining available hours for various serviceable items.

To access **SERVICE** submenu from the runtime display:

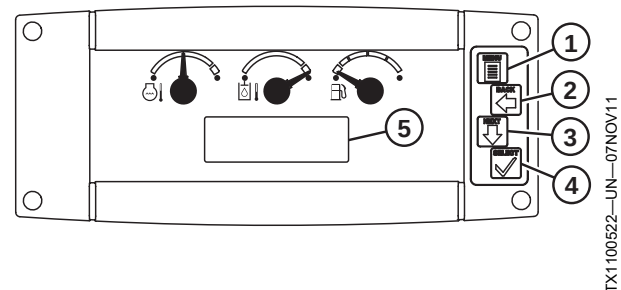
1. Press **SELECT** button (4) to display **MAIN MENU**.
2. Press **NEXT** button (3) until **SERVICE** menu option is highlighted.
3. Press **SELECT** button.

SERVICE submenu item includes:

1. **STATUS**—The **STATUS** menu displays six maintenance items. Each maintenance item displays the remaining hours before service is required.

Press **SELECT** button to display the **STATUS** submenu. Navigate through each submenu item by pressing the **NEXT** button.

STATUS submenu items include:



Standard Display Monitor (SDM)

- 1—**MENU** Button
- 2—**BACK** Button
- 3—**NEXT** Button

- 4—**SELECT** Button
- 5—**Display Window**

1. Engine Oil
2. Fuel Filter
3. Final Drive Oil
4. Transmission Oil and Filter
5. Hydraulic Oil and Filter
6. Air Filter

ER93822,000010A-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings

NOTE: *Translations shown on display may be abbreviated.*

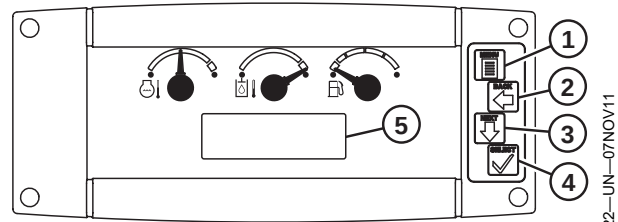
The MACHINE SETTINGS submenu allows the operator to make changes to various operating conditions of the machine. Normally, the last setting is stored when the engine is shut off and is retrieved when the engine is restarted.

To access MACHINE SETTINGS submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.

MACHINE SETTINGS submenu items include:

1. TRANSMISSION—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Transmission in this section.
2. HYDRAULICS (IGC machines only)—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Hydraulics (IGC machines only) in this section.
3. REVERSING FAN—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Reversing Fan in this section.
4. BRAKE MODE—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Brake Mode in this section.



TX1100522—UN—07NOV11

Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

5. CONTROLLER INFO—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Controller Info in this section.
6. JOB TIMER—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Job Timer in this section.
7. TRACK INFO—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Track Info in this section.
8. SECURITY—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security in this section.

ER93822,000010B-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Transmission

NOTE: Translations shown on display may be abbreviated.

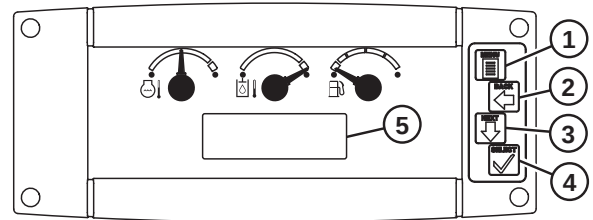
The TRANSMISSION submenu contains settings that affect transmission function and performance.

To access TRANSMISSION submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until TRANSMISSION menu option is highlighted.
5. Press SELECT button.

TRANSMISSION submenu items include:

1. REVERSE RATIO
2. AGGRESSIVENESS
3. DECEL RESPONSE
4. FNR SHIFT RATE
5. STEER RATE



Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

6. STEER MODULATION

The machine may be modified to the preferences of the operator by adjusting the rates used by the vehicle control unit. Use the following table when adjusting transmission machine settings.

Rate	Description	Factory Setting	Operator Comment	Solution
REVERSE RATIO	Enables operator to preset reverse speeds based on forward speed.	100%		115% 130%
AGGRESSIVENESS	Affects operator perception of machine power. Affects engine pull-down and opposite track movement when the track drive goes over relief.	NORMAL	"The engine speed pulls down too far." "The tracks stop too soon."	LOW decreases engine pull-down.
DECEL RESPONSE	Affects machine responsiveness to pedal movement.	NORMAL	"The machine is too jerky when I use the decelerator/brake pedal." "The decelerator/brake pedal is too slow."	Change to LOW. Change to HIGH.
FNR SHIFT RATE	Affects how quickly the machine shifts between forward and reverse.	NORMAL	"The direction shift is too jerky." "The direction shift is too slow."	Change to LOW. Change to HIGH.
STEER RATE	Affects steering response to steering lever movement.	NORMAL	"The steering is too jerky." "The steering is too slow."	Change to LOW. Change to HIGH.
STEER MODULATION	Affects amount of steering that occurs per amount of lever movement.	NORMAL	"The lever travel for steering is too long on this joystick." "The steering throw is too short on this joystick and the steering is too jerky."	Change to HIGH. Change to LOW.

To modify the adjustable rate:

1. Access the TRANSMISSION menu.
2. Press the NEXT button until the adjustable rate to be modified is highlighted.
3. Press SELECT button.
4. Press the NEXT button until the desired setting is highlighted.

5. Press SELECT to activate new setting.

6. An audible signal activates as the SDM displays SAVING SETTING.

If the modification was successful, the SDM displays SETTINGS SAVED. If the modification was not successful, the SDM displays SAVE FAILED.

ER93822,000010C-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Hydraulics (IGC machines only)

NOTE: Translations shown on display may be abbreviated.

The HYDRAULICS menu can be used to fine-tune the hydraulic performance of the blade control for machines with integrated grade control (IGC).

To access HYDRAULICS submenu from the runtime display:

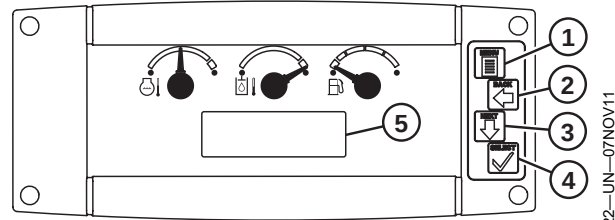
1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until HYDRAULICS menu option is highlighted.
5. Press SELECT button.

HYDRAULICS submenu items include:

1. LIFT—Lift speed can be set to LOW, NORMAL, or HIGH.
2. POWER DOWN—Power down speed can be set to LOW, NORMAL, or HIGH.
3. TILT LEFT—Tilt left speed can be set to LOW, NORMAL, or HIGH.
4. TILT RIGHT—Tilt right speed can be set to LOW, NORMAL, or HIGH.

To modify hydraulic setting:

1. Access the HYDRAULICS submenu.



TX1100522—UN—07NOV11

Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

2. Press the NEXT button until the adjustable rate to be modified is highlighted.
3. Press SELECT button.
4. Press the NEXT button until the desired setting is highlighted.
5. Press SELECT to activate new setting.

If the modification was successful, the SDM displays SETTINGS SAVED. If the modification was not successful, the SDM displays SAVE FAILED.

ER93822,000010D-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Reversing Fan

NOTE: Translations shown on display may be abbreviated.

The REVERSING FAN submenu is used to set the interval between reverse cycles for the hydraulic fan.

To access REVERSING FAN submenu from the runtime display:

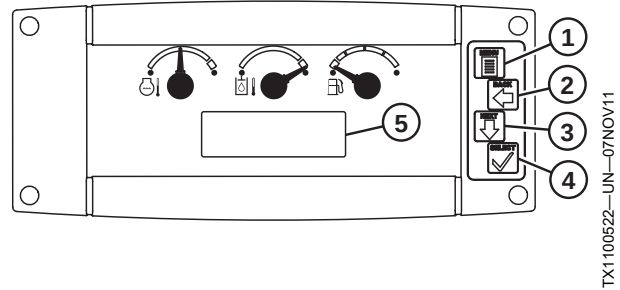
1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until REVERSING FAN menu option is highlighted.
5. Press SELECT button.

REVERSING FAN submenu items include:

- OFF—Turns the reversing function off.
- 30 MINUTES—Fan will reverse every half hour.
- 45 MINUTES—Fan will reverse every 45 minutes.
- 60 MINUTES—Fan will reverse every hour.
- 90 MINUTES—Fan will reverse every 90 minutes.

To modify the reversing fan setting:

1. Access the REVERSING FAN submenu.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

2. Press the NEXT button until desired new setting is highlighted.

3. Press SELECT button to activate new setting.

If the modification was successful, the SDM displays SETTINGS SAVED. If the modification was not successful, the SDM displays SAVE FAILED.

ER93822,000010E-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Brake Mode

NOTE: Translations shown on display may be abbreviated.

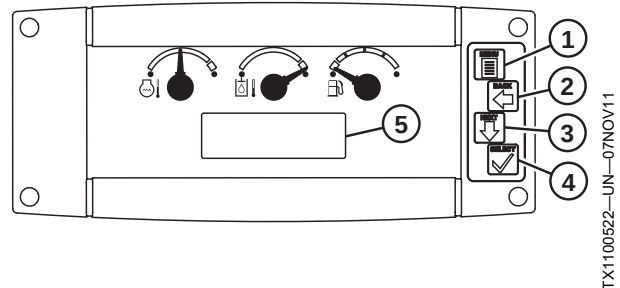
The BRAKE MODE submenu will allow the machine to be towed without automatically applying the brakes.

To access BRAKE MODE submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT (3) button until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until BRAKE MODE menu option is highlighted.
5. Press SELECT button.

BRAKE MODE submenu items include:

1. NORMAL—Normal machine operation.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

2. TOW—Allows the machine to be towed without automatically applying the brakes.

ER93822,000010F-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Controller Info

NOTE: Translations shown on display may be abbreviated.

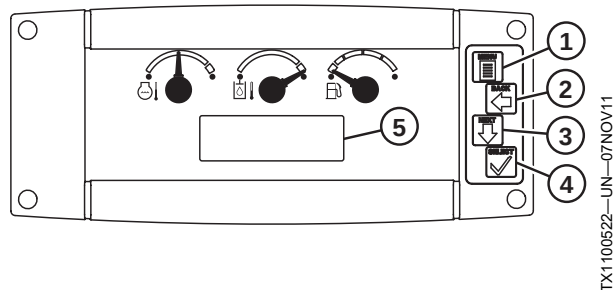
The CONTROLLER INFO submenu displays current versions of software installed for diagnostics.

To access CONTROLLER INFO submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until CONTROLLER INFO menu option is highlighted.
5. Press SELECT button.

CONTROLLER INFO submenu items include:

1. SDM—Press SELECT button when SDM is highlighted to display software version number of SDM. Press SELECT button again to display software part number of SDM. Press SELECT button once more to display hardware part number of SDM. Press MENU button (1) to return to runtime screen.
2. VCU—Press SELECT button when VCU is highlighted to display software version number of the vehicle control unit (VCU). Press SELECT button again to display software part number of VCU. Press SELECT button once more to display hardware part number of VCU. Press MENU button to return to runtime screen.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

3. EHC (IGC machines only)—Press SELECT button when EHC is highlighted to display software version number of the electrohydraulic controller (EHC). Press SELECT button again to display software part number of EHC. Press SELECT button once more to display hardware part number of EHC. Press MENU button to return to runtime screen.
4. ECU—Press SELECT button when ECU is highlighted to display software version number of the engine control unit (ECU). Press SELECT button again to display software part number of ECU. Press SELECT button once more to display hardware part number of ECU. Press MENU button to return to runtime screen.

ER93822,0000110-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Job Timer

NOTE: Translations shown on display may be abbreviated.

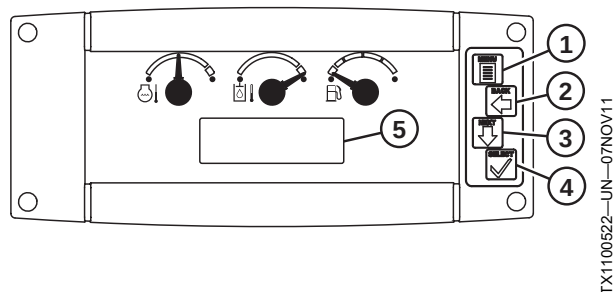
The JOB TIMER submenu contains an hour meter that can be reset. The hour meter will measure to the nearest tenth of an hour.

To access JOB TIMER submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until JOB TIMER menu option is highlighted.
5. Press SELECT button.

JOB TIMER submenu items include:

1. SHOW TIMER—Displays the current hours since last reset.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

2. RESET TIMER—Resets the job timer.

ER93822,0000111-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Track Info

NOTE: Translations shown on display may be abbreviated.

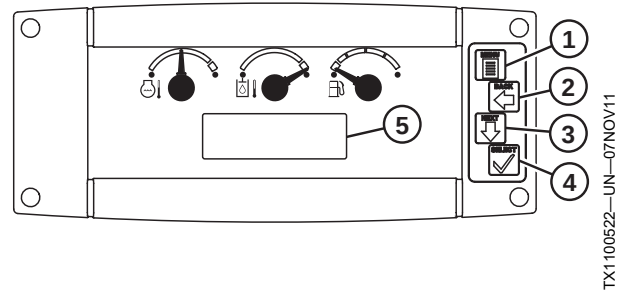
The TRACK INFO submenu displays track information calculated by the vehicle control unit (VCU).

To access TRACK INFO submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until TRACK INFO menu option is highlighted.
5. Press SELECT button.

The TRACK INFO submenu items include:

- FORWARD DISTANCE—The distance the machine has traveled in forward direction is displayed in miles.
- REVERSE DISTANCE—The distance the machine has traveled in reverse direction is displayed in miles.
- FORWARD HOURS—The hours the machine has spent traveling in forward direction is displayed.



Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

- REVERSE HOURS—The hours the machine has spent traveling in reverse direction is displayed.

Press NEXT button to view each of the submenu items.
Press MENU button (1) to return to MAIN MENU screen.

ER93822,0000112-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Machine Settings—Security

NOTE: Translations shown on display may be abbreviated.

The SECURITY submenu is designed to impede theft or unauthorized use of the machine by preventing the engine from starting until the operator correctly enters a valid security code. The system provides for one master owner personal identification number (PIN) and up to ten operator PINs.

When security is enabled, the following occurs:

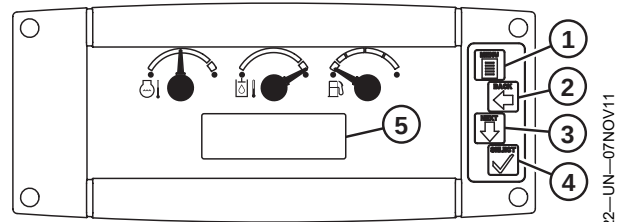
- When engine start switch is pressed, operator is prompted to enter a PIN on the sealed switch module (SSM). Valid PIN must be entered or engine will not start.
- When engine stop switch is pressed and engine shuts down, system automatically locks the vehicle controllers. Operator can restart engine within preset logout delay time. After delay time expires, PIN must be entered to start engine.

The machine owner can perform any of the following security system functions:

- Enable or disable security system.
- Change owner PIN.
- Manage and assign operator PINs.
- Manage and assign transport PIN.
- Change operator logout delay time.

To access SECURITY submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MACHINE SETTINGS menu option is highlighted.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

3. Press SELECT button.
4. Press NEXT button until SECURITY menu option is highlighted.
5. Press SELECT button.

SECURITY submenu items include:

- SECURITY ON/OFF—Press SELECT button to highlight ON (enable security) or OFF (disable security). Press SELECT button to confirm setting.
- OWNER PIN
- OPERATOR PINs
- TRANSPORT PIN
- PASSWORD DELAY

ER93822,0000113-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Owner PIN

NOTE: Translations shown on display may be abbreviated.

The OWNER PIN submenu allows machine owner to change their personal identification number (PIN) at any time.

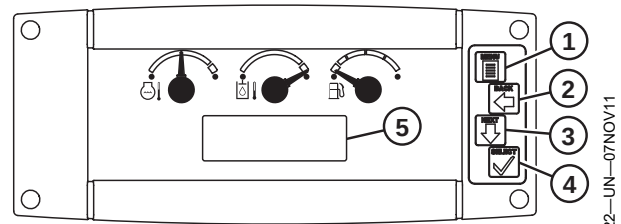
PINs can be from 1—8 numeric characters in length. Leading zeros are recognized. For example, 1, 01, and 001 are each valid and unique PINs.

To modify owner PIN:

1. Access SECURITY submenu.
2. Press NEXT button (4) until OWNER PIN menu option is highlighted.
3. Press SELECT button (3). OWNER PIN screen is displayed on SDM.

NOTE: To end the process without modifying or entering owner PIN, press BACK button (2) before completing next step.

4. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
5. Press NEXT button until CHANGE OWNER PIN is highlighted.
6. Press SELECT button. Current OWNER PIN menu is displayed on SDM.
7. Enter owner PIN on numeric keypad on sealed switch



Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

module (SSM), then press ENTER key on SSM. NEW OWNER PIN screen is displayed on SDM.

8. Enter new owner PIN using numeric keypad on SSM, then press ENTER key on SSM. CONFIRM OWNER PIN screen is displayed on SDM.
9. Enter new owner PIN again using numeric keypad on SSM, then press ENTER key on SSM to confirm change or BACK button to exit without changing.

ER93822,0000114-19-10JAN12-1/1

TX1100522—UN—07NOV11

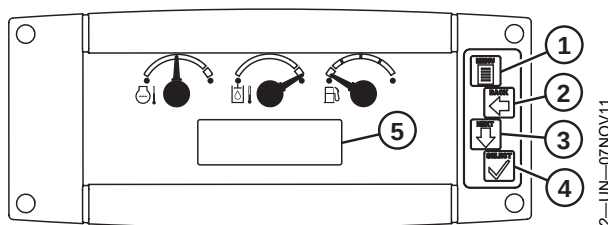
Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Operator PINs

NOTE: Translations shown on display may be abbreviated.

The OPERATOR PIN submenu allows the machine owner to enter up to ten unique personal identification numbers (PINs) for operators. OPERATOR PIN menu can only be accessed and modified by entering the machine OWNER PIN.

PINs can be from 1—8 numeric characters in length. Leading zeros are recognized. For example, 1, 01, and 001 are each valid and unique PINs.

OPERATOR PINS screen appears showing PINs for operators 1—2. PINs for operators 3—10 can be accessed by pressing NEXT button (3) to highlight PINs 3—10, then pressing SELECT button.



Standard Display Monitor (SDM)

- 1—MENU Button
2—BACK Button
3—NEXT Button
4—SELECT Button
5—Display Window

To delete existing operator PIN:

1. Access SECURITY submenu.
2. Press NEXT button until OPERATOR PINS menu option is highlighted.
3. Press SELECT button (4). OWNER PIN screen is displayed on SDM.
4. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
5. Press NEXT button until OPERATOR PINS is highlighted.
6. Press SELECT button. OPERATOR PINS screen is displayed on SDM.
7. Press NEXT button until operator PIN to be deleted is highlighted.
8. Press SELECT button. OPERATOR PIN UPDATE screen is displayed on SDM.
9. Press NEXT button until CLEAR PIN is highlighted.
10. Press SELECT button. CLEAR PIN screen is displayed on SDM.
11. To confirm deletion of operator PIN, press SELECT button. To navigate to previous screen without deleting operator PIN, press BACK button (2).

To enter a new operator PIN:

1. Access SECURITY submenu.

2. Press NEXT button until OPERATOR PINS menu option is highlighted.
3. Press SELECT button. OWNER PIN screen is displayed on SDM.

NOTE: To end the process without modifying or entering operator PIN, press BACK button before completing next step.

4. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
5. Press NEXT button until OPERATOR PINS is highlighted.
6. Press SELECT button. OPERATOR PINS screen is displayed on SDM.
7. Press NEXT button until the next available unassigned operator PIN option is highlighted.
8. Press SELECT button. OPERATOR PIN UPDATE screen is displayed on SDM.
9. Press NEXT button until ENTER PIN is highlighted.
10. Press SELECT button. ENTER NEW PIN screen is displayed on SDM.
11. Enter new PIN using the numeric keypad on SSM followed by pressing the ENTER key on SSM.

ER93822,0000115-19-12JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Transport PIN

NOTE: Translations shown on display may be abbreviated.

The machine owner PIN is utilized to access the TRANSPORT PIN submenu item. A transport personal identification number (PIN) is a temporary PIN for use by maintenance personnel during service or while transporting machine.

The transport PIN is valid for a specified length of time entered by the machine owner. The specified length of time will be 1—8 hours. The specific length of time refers to actual machine operating hours and will only decrease when the machine is operating.

The machine can be started any number of times using the transport PIN. Once the transport PIN time expires, the machine will continue to run until the engine stop switch is pressed. After the transport PIN time expires, the engine will not restart unless a valid owner or operator PIN is entered.

If an owner PIN is entered before transport PIN time expires, the time is reset to zero.

A valid transport PIN can be from 1—8 numeric characters in length. Leading zeros are acceptable and recognized. For example, 1, 01, and 001 are each valid and unique PINs.

TRANSPORT PIN menu options include:

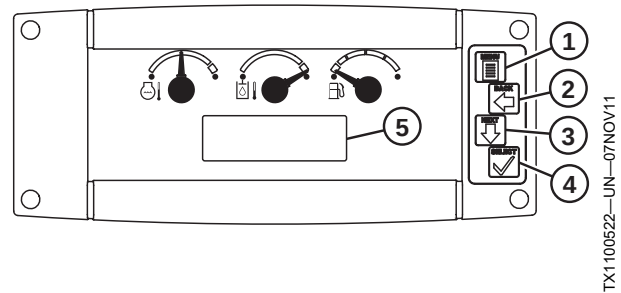
- ENTER PIN
- CLEAR PIN
- TRANSPORT TIME

To modify or enter new transport PIN:

1. Access SECURITY submenu.
2. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
3. Press NEXT button (3) until TRANSPORT PIN is highlighted.
4. Press SELECT button (4). TRANSPORT PIN submenu is displayed.
5. Press NEXT button until ENTER PIN is highlighted.
6. Press SELECT button. Screen displays USE KEYPAD TO ENTER VALUES before displaying ENTER NEW PIN.

NOTE: To end the process without modifying or entering transport PIN, press BACK button (2) before completing next step.

7. Enter transport PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SDM displays PIN ACCEPTED before returning to TRANSPORT PIN submenu.



Standard Display Monitor (SDM)

1—MENU Button
2—BACK Button
3—NEXT Button

4—SELECT Button
5—Display Window

To clear transport PIN:

1. Access SECURITY submenu.
2. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
3. Press NEXT button until TRANSPORT PIN is highlighted.
4. Press SELECT button. TRANSPORT PIN submenu is displayed.
5. Press NEXT button until CLEAR PIN is highlighted.
6. Press SELECT button. SDM displays PIN CLEARED before displaying TRANSPORT PIN submenu.

To enter or change transport PIN time:

1. Access SECURITY submenu.
2. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
3. Press NEXT button until TRANSPORT PIN is highlighted.
4. Press SELECT button. TRANSPORT PIN submenu is displayed.
5. Press NEXT button until TRANSPORT TIME is highlighted.
6. Press SELECT button. SDM displays TRANSPORT TIME screen.
7. Enter new transport time on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SDM displays the new transport time before displaying TRANSPORT PIN submenu.

ER93822,0000116-19-07JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Machine Settings—Security—Password Delay

NOTE: Translations shown on display may be abbreviated.

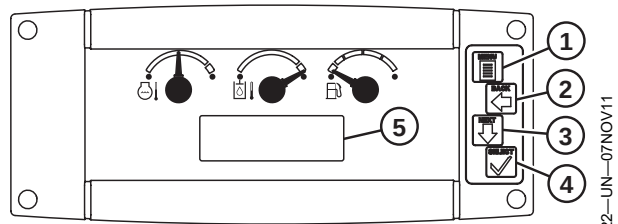
The PASSWORD DELAY submenu allows the machine owner to set the time interval allowed for logout after the machine is shut off. Once the logout time expires, the operator must enter a PIN to restart the machine. This feature simplifies the procedure and reduces the restart time when operator must periodically shut down machine for short wait times. The delayed operator logout time can only be reset by owner.

PASSWORD DELAY submenu items include:

- OFF
- 5 MINUTES
- 60 MINUTES

To modify password delay:

1. Access SECURITY submenu.
2. Enter owner PIN on numeric keypad on sealed switch module (SSM), then press ENTER key on SSM. SECURITY submenu is displayed on SDM.
3. Press NEXT button (3) until PASSWORD DELAY is highlighted.
4. Press SELECT button (4). PASSWORD DELAY submenu is displayed on SDM.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

5. Press NEXT button until desired PASSWORD DELAY time setting is highlighted.
6. Press SELECT button. PASSWORD DELAY screen displays new password delay setting on SDM before returning to SECURITY submenu.

ER93822,0000117-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Diagnostics

NOTE: Translations shown on display may be abbreviated.

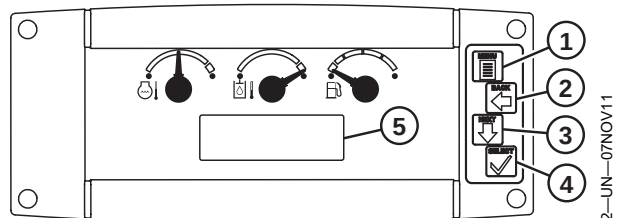
The DIAGNOSTICS submenu provides a limited set of tools and is intended for diagnostics and troubleshooting functions.

To access DIAGNOSTICS submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until DIAGNOSTICS menu option is highlighted.
3. Press SELECT button.

DIAGNOSTICS submenu item includes:

- LIVE VALUES—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values in this section.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

ER93822,0000119-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values

NOTE: Translations shown on display may be abbreviated.

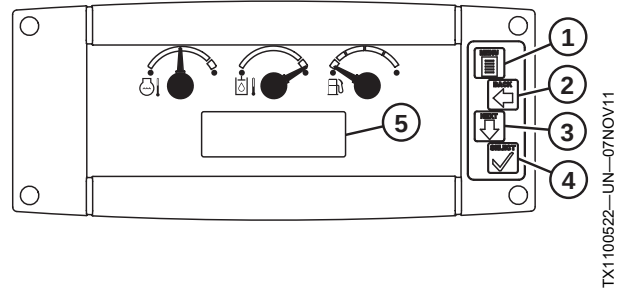
The LIVE VALUES submenu displays current machine temperatures, pressures, and speed values.

To access LIVE VALUES submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until DIAGNOSTICS menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until LIVE VALUES menu option is highlighted.
5. Press SELECT button.

The LIVE VALUES submenu items include:

1. TEMPERATURES—For more information, see Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Temperatures in this section.
2. PRESSURES—For more information, see Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Pressures in this section.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

3. SPEEDS—For more information, see Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Speeds in this section.
4. JDLINK SYSTEM INFO—For more information, see Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—JDLINK System Info in this section.

ER93822,000011A-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Temperatures

NOTE: Translations shown on display may be abbreviated.

The TEMPERATURES submenu displays current temperatures for various machine components.

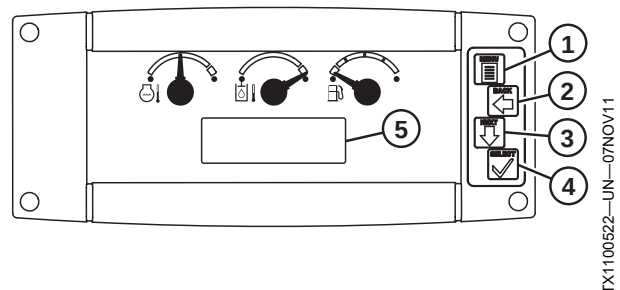
To access TEMPERATURES submenu:

1. Access LIVE VALUES submenu.
2. Press NEXT (3) button until TEMPERATURES is highlighted.
3. Press SELECT (4) button. TEMPERATURES submenu is displayed on SDM.

TEMPERATURES submenu items include:

- Coolant
- Fuel
- Manifold Air
- Transmission Oil
- Hydraulic Oil
- Charge Air Cooler Outlet
- Turbocharger Inlet
- Exhaust
- Ambient Air

4. Press NEXT or SELECT button to navigate through current machine temperature displays.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

5. Press BACK button (2) to return to LIVE VALUES submenu.

To modify unit of measurement viewed in TEMPERATURES screen displays, see Standard Display Monitor (SDM)—Main Menu—Monitor—Units in this section.

ER93822,000011B-19-07JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Diagnostics—Live Values—Pressures

NOTE: Translations shown on display may be abbreviated.

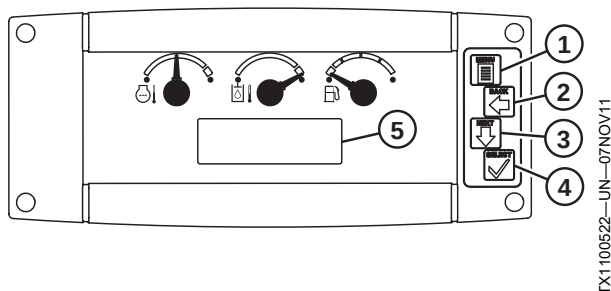
The PRESSURES submenu displays current pressures for various machine components.

To access PRESSURES submenu:

1. Access LIVE VALUES submenu.
2. Press NEXT button (3) until PRESSURES is highlighted.
3. Press SELECT button (4). PRESSURES submenu is displayed on SDM.

PRESSURES submenu items include:

- Transmission Charge Oil
- Brake
- Left Hydrostatic System
- Right Hydrostatic System
- Boom Pilot Press
- Engine Oil
- Fuel Rail
- Fuel
- Manifold Air
- Coolant



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

4. Press NEXT or SELECT button to navigate through current machine pressure displays.
5. Press BACK button (2) to return to LIVE VALUES submenu.

To modify unit of measurement viewed in PRESSURES screen displays, see Standard Display Monitor (SDM)—Main Menu—Monitor—Units in this section.

ER93822,000011C-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Diagnostics—Live Values—Speeds

NOTE: Translations shown on display may be abbreviated.

The SPEEDS submenu displays the live speed values for the various components.

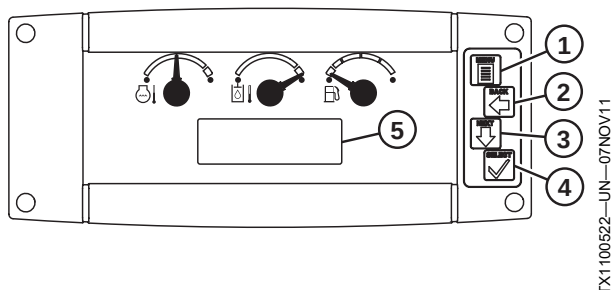
To access SPEEDS submenu:

1. Access LIVE VALUES submenu.
2. Press NEXT button (3) until SPEEDS is highlighted.
3. Press SELECT button (4). SPEEDS submenu is displayed on SDM.

SPEEDS submenu items include:

- Engine Speed
- Left Hydrostatic Motor
- Right Hydrostatic Motor
- Crankshaft
- Camshaft
- Fan

4. Press NEXT or SELECT button to navigate through current machine speed displays.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

5. Press BACK button (4) to return to LIVE VALUES submenu.

To modify unit of measurement viewed in SPEEDS screen displays, see Standard Display Monitor (SDM)—Main Menu—Monitor—Units in this section.

ER93822,000011D-19-09JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Diagnostics—Live Values—JDLINK™ System

NOTE: Translations shown on display may be abbreviated.

The JDLINK SYSTEM submenu allows the operator or technician to view the JDLINK™ system values.

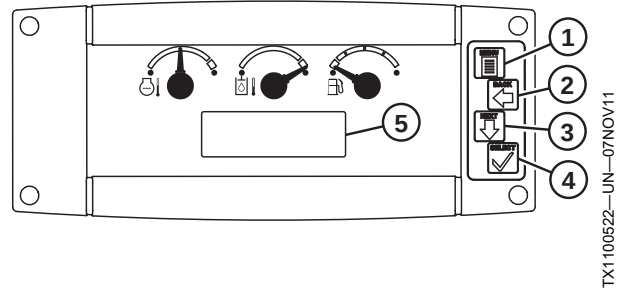
To access JDLINK SYSTEM submenu:

1. Access LIVE VALUES submenu.
2. Press NEXT button (3) until JDLINK SYSTEM is highlighted.
3. Press SELECT button (4). JDLINK SYSTEM submenu is displayed on SDM.

JDLINK SYSTEM submenu items include:

- CELL STRENGTH—Displays cellular strength by percentage.
- CARRIER—Displays cellular provider.
- REGISTRATION STATE—Displays registration status of the JDLINK system as either REGISTERED, UNREGISTERED, PENDING or UNKNOWN.
- LATITUDE—Displays latitude reading of GPS position.
- LONGITUDE—Displays longitude reading of GPS position.
- GPS ANTENNA—Displays cell antenna status as either GOOD or NOT GOOD.

JDLINK is a trademark of Deere & Company



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

- CELL ANTENNA—Displays cellular antenna version as US, EU, OPEN, or SHORT.
4. Press NEXT or SELECT button to navigate through JDLINK system value displays.
 5. Press BACK button (2) to return to LIVE VALUES submenu.

ER93822,000011E-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Monitor

NOTE: Translations shown on display may be abbreviated.

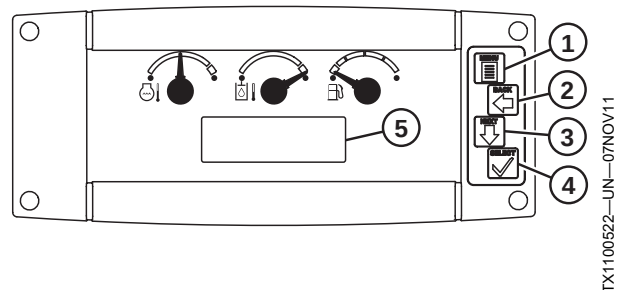
The MONITOR submenu allows for changes to display settings of the monitor.

To access MONITOR submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MONITOR menu option is highlighted.
3. Press SELECT button.

MONITOR submenu items include:

- UNITS—For more information concerning this menu option, see Standard Display Monitor (SDM)—Main Menu—Monitor—Units in this section.
- CONTRAST—For more information concerning this



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

menu option, see Standard Display Monitor (SDM)—Main Menu—Monitor—Contrast in this section.

ER93822,000011F-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Monitor—Units

NOTE: Translations shown on display may be abbreviated.

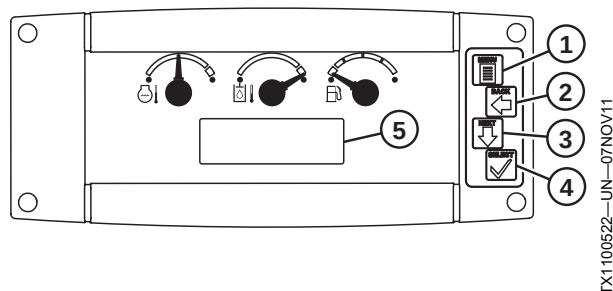
The UNITS submenu allows the operator to modify the units of measurement for all functions and displays of the SDM.

To access UNITS submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MONITOR menu option is highlighted.
3. Press SELECT button.

UNITS submenu items include:

1. ENGLISH—Press SELECT button when ENGLISH is highlighted to display readings in English standard units. An audible signal will activate and ENGLISH SELECTED displays on the SDM.
2. METRIC—Press SELECT button when METRIC is highlighted to display readings in metric units. An audible



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

signal will activate and METRIC SELECTED displays on the SDM.

ER93822,0000120-19-10JAN12-1/1

Standard Display Monitor (SDM)—Main Menu —Monitor—Contrast

NOTE: Translations shown on display may be abbreviated.

The CONTRAST submenu allows the operator to adjust the contrast setting of the monitor display. The range of adjustment is from 1 (lightest, or least contrast) to 10 (darkest, or most contrast). The default contrast value is 5.

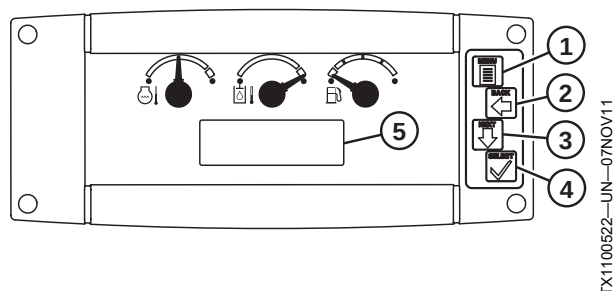
To access CONTRAST submenu from the runtime display:

1. Press SELECT button (4) to display MAIN MENU.
2. Press NEXT button (3) until MONITOR menu option is highlighted.
3. Press SELECT button.
4. Press NEXT button until CONTRAST menu option is highlighted.
5. Press SELECT button.

NOTE: Changing the contrast without storing the setting with the SELECT button will affect the contrast only until the engine stop switch is pressed. The previously stored value will be used when the engine start switch is pressed.

To modify contrast setting of the monitor display:

1. Access CONTRAST submenu.



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

2. Press NEXT button or BACK button (2) until desired contrast setting is displayed. Pressing NEXT button increases contrast by 1. Pressing BACK button decreases contrast by 1.
3. Press SELECT button to store the displayed contrast setting and return to MAIN MENU.

ER93822,0000121-19-09JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Software Delivery

NOTE: Translations shown on display may be abbreviated.

The SOFTWARE DELIVERY submenu is set by the dealer to enable Service ADVISOR™ Remote (SAR) software to be downloaded and installed on machine through the JDLink™ cellular connection. (For JDLink connection information, see Standard Display Monitor—Main Menu—Diagnostics—Live Values—JDLink™ System in this section.) A series of screens will appear on the SDM to walk the operator through the download and installation process. It will be necessary to contact your John Deere dealer or technician for needed information.

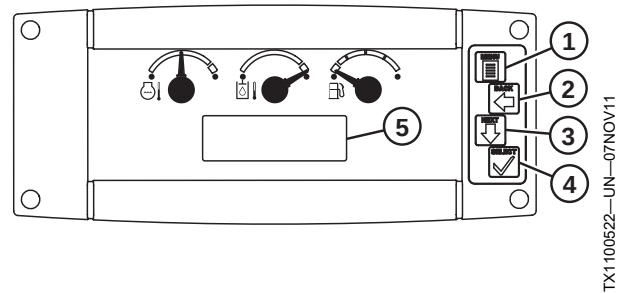
To access SOFTWARE DELIVERY submenu from the runtime display:

1. Press SELECT button to display MAIN MENU.
2. Press NEXT button until SOFTWARE DELIVERY menu option is highlighted.

NOTE: If software delivery has NOT been enabled by the dealer, SDM screen will display:

**SOFTWARE DELIVERY HAS NOT BEEN ENABLED
SEE DEALER TO ENABLE**

*Service ADVISOR is a trademark of Deere & Company
JDLink is a trademark of Deere & Company*



Standard Display Monitor (SDM)

- | | |
|---------------|------------------|
| 1—MENU Button | 4—SELECT Button |
| 2—BACK Button | 5—Display Window |
| 3—NEXT Button | |

3. Press SELECT button. SOFTWARE DELIVERY screen will be displayed with SOFTWARE UPDATE highlighted.

SOFTWARE DELIVERY submenu item is:

1. SOFTWARE UPDATE

ER93822,0000122-19-13JAN12-1/1

Standard Display Monitor (SDM)—Main Menu—Software Delivery—Software Update

The SOFTWARE UPDATE menu is for receiving Service ADVISOR™ Remote (SAR) software downloads and installations to the machine. Downloads can take place with the engine running and machine operating. However, installation of the software can only process if the engine is not running and park brake applied. If conditions exist that will not allow the download or installation to happen, screens will appear on the monitor advising what needs to be done in order to continue. For more information, contact your authorized John Deere dealer.

At SOFTWARE DELIVERY submenu, press SELECT button to display SOFTWARE UPDATE menu option.

NOTE: To avoid delays, it will be helpful at this point to make sure engine is not running, park brake is applied, and the SOFTWARE TERMS AND CONDITIONS have been read before continuing. (Find SOFTWARE TERMS AND CONDITIONS at the beginning of this manual.)

Press SELECT to begin software update process. The standard display monitor (SDM) displays a series of screens depending on the status of the update and the status of the machine. If update is already downloaded, the SDM displays the following message:

DOWNLOAD COMPLETE

READY TO INSTALL

After 3 seconds, the SDM displays three SOFTWARE LICENSE AGREEMENT screens. Press NEXT through screens. SOFTWARE LICENSE AGREEMENT states:

PRESS SELECT TO ACCEPT THE TERMS AND CONDITIONS DEFINED IN THE OPERATOR'S MANUAL AND TO BEGIN LOADING THE NEW SOFTWARE UPDATE

Once SELECT is pressed, installation will take place if all conditions are acceptable. A warning screen displays for 5 seconds stating:

WARNING

DO NOT PRESS STOP BUTTON ONCE SOFTWARE UPDATE HAS STARTED

The following message displays:

SOFTWARE INSTALLATION MAY TAKE 10 MINUTES

SCREEN MAY BE BLANK

When completed, the SDM displays:

SOFTWARE INSTALLATION COMPLETED SUCCESSFULLY

PLEASE CYCLE POWER

Service ADVISOR is a trademark of Deere & Company

The machine is set at the factory to auto approve software downloads, but if the dealer or technician has changed this setting to notify operator before downloading, the following message displays:

NEW SOFTWARE AVAILABLE FOR DOWNLOAD

1. APPROVE DOWNLOAD
2. REJECT DOWNLOAD

Press NEXT button to highlight desired function.

Press SELECT button to activate chosen function.

Press BACK button to return to previous menu.

If APPROVE DOWNLOAD is selected, SDM displays for 5 seconds:

SOFTWARE DOWNLOADING

NORMAL MACHINE OPERATION MAY CONTINUE

(SDM returns to the runtime screen after the message is displayed and normal machine operation may continue while the software is being downloaded.)

If REJECT DOWNLOAD is selected, a pop-up will appear on the monitor for 5 seconds stating:

SOFTWARE DOWNLOAD REJECTED

(SDM returns to the runtime screen after the message is displayed and normal machine operation may continue.)

NOTE: To get rejected software downloaded at some other time, dealer interaction will be necessary.

To change the setting back to auto approve software downloads, contact your authorized John Deere dealer.

If software download was sent when machine power was off, upon cycle start up and initial display check, an alarm will beep and runtime screen displays the message:

SOFTWARE DOWNLOAD IS AVAILABLE

"SELECT" TO DOWNLOAD

"BACK" TO ASK LATER

If software is ready to install upon cycle start up and initial display check, an alarm will beep and runtime screen displays the message:

SOFTWARE READY TO INSTALL

"SELECT" TO GO TO SOFTWARE UPDATE MENU

"BACK" TO ASK LATER

ER93822,0000123-19-11JAN12-1/1

Maintenance—Machine

Alternative and Synthetic Lubricants

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Consult your John Deere dealer to obtain information and recommendations.

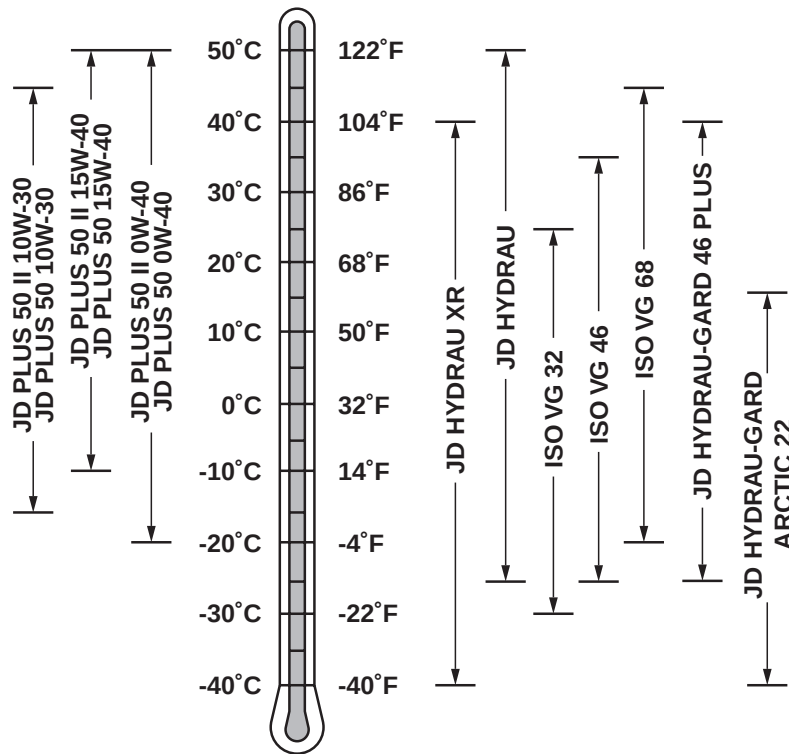
Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to John Deere branded fluids or fluids that have been tested and/or approved for use in John Deere equipment.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

DX,ALTER-19-13JAN18-1/1

Hydraulic and Hydrostatic Oil



TX1180348

Oil Viscosities for Ambient Temperature Ranges

Use oil viscosity based on the expected air temperature range during the period between oil changes.

IMPORTANT: Avoid machine damage. Do not mix fluids of different type or brand. Do not mix zinc-free and zinc-based. Mixing fluids can result in additive fall-out and lubricant degradation. Zinc-free oils are not approved for use.

2000-Hour Change Interval

The following oils are preferred:

- John Deere Hydrau™
- John Deere Hydrau™XR
- John Deere Plus-50™ II
- John Deere Plus-50™
- John Deere Hydrau-Gard™ 46 Plus¹

1000-Hour Change Interval

Other oils may be used if they meet one or more of the following:

- Minimum API classification CI-4
- Anti-Wear Hydraulic Oils (AWHO):
 - ISO 11158 Category HV
 - DIN 51524-3

Cold weather operation only:

- John Deere Hydrau-Gard™ 22 Arctic¹

¹Fluid is not available in the United States or Canada.

Hydrau is a trademark of Deere & Company
 Plus-50 is a trademark of Deere & Company
 Hydrau-Gard is a trademark of Deere & Company

CN93077,0000332-19-06MAR17-1/1

TX1180348—UN—18DEC14

Track Rollers, Front Idler, and Carrier Roller Oil

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere GL-5 GEAR LUBRICANT (SAE 80W90)

- John Deere EXTREME-GARD

The following oils are recommended:

- API Service Classification API GL-5 gear oil (SAE 80W90)
- Arctic oils such as (MIL-L-10324A) may be used at temperatures below -30°C (-11°F).

ER93822,0000034-19-14DEC11-1/1

Final Drive Oil

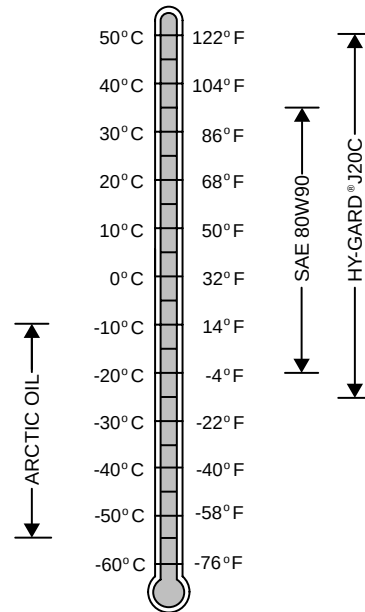
Depending on the expected air temperature range between oil changes, use oil viscosity shown on the chart above.

John Deere Hy-Gard™ is preferred.

Other oils may be used if they meet the following:

- John Deere API GL-5 Gear Oil (SAE 80W90)

Arctic oils (such as Military Specifications MIL-L-46167B) may be used at temperatures below -30°C (-22°F).



Final Drive Oil Temperature Specifications

XJ1257012—UN—17MAY18

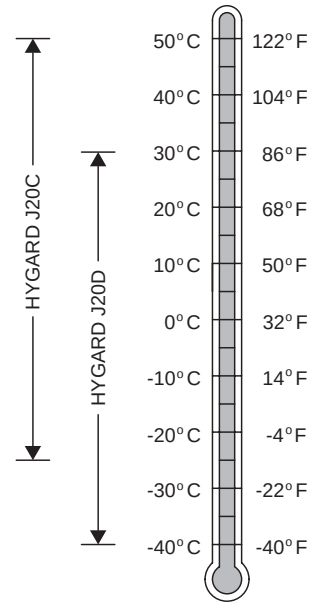
Hy-Gard is a trademark of Deere & Company

MD04263,0000001-19-21MAY18-1/1

Winch Oil

Depending on the expected air temperature range between oil changes, use oil viscosity shown on the chart above.

John Deere Hy-Gard is preferred.



Winch Oil Temperature Specifications

MD04263,0000002-19-30SEP23-1/1

TX1050436—UN—28OCT08

Grease

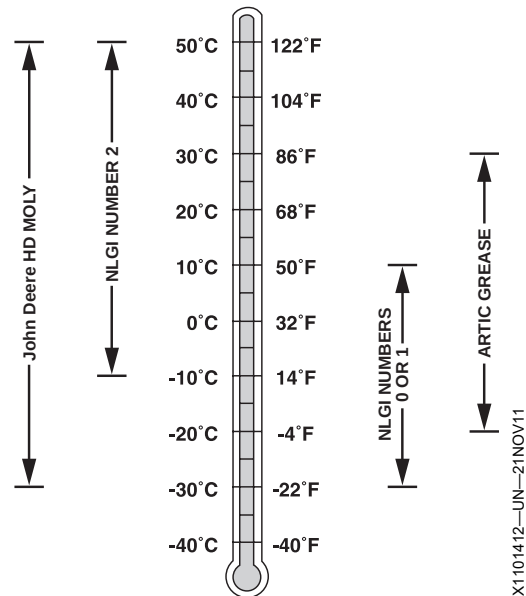
Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval. The preferred greases are:

- **John Deere Moly High Temperature/EP Grease**
- **SAE Multipurpose EP Grease containing 3–5% molybdenum disulfide**

Other greases may be used if they meet the following:

- SAE Multipurpose EP Grease

IMPORTANT: Some types of grease thickeners are not compatible with others. Consult your grease supplier before mixing different types of grease.



Greases for Air Temperature Ranges

ER93822,00000F8-19-21NOV11-1/1

TX1101412—UN—21NOV11

Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

DX,LUBST-19-11APR11-1/1

Mixing of Lubricants

In general, avoid mixing different brands or types of oil. Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.

Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.

Consult your John Deere dealer to obtain specific information and recommendations.

DX,LUBMIX-19-18MAR96-1/1

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975, or EN 15940 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 40 minimum. Cetane number greater than 47 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1675 m (5500 ft.).

Cloud Point should be below the expected lowest ambient temperature or **Cold Filter Plugging Point (CFPP)** should be a maximum 10°C (18°F) below the fuel cloud point.

Fuel lubricity should pass a maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

Diesel fuel quality and sulfur content must comply with all existing emissions regulations for the area in which the engine operates. DO NOT use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

Materials such as copper, lead, zinc, tin, brass and bronze should be avoided in fuel handling, distribution and storage equipment as these metals can catalyze fuel oxidation reactions which can lead to fuel system deposits and plugged fuel filters.

E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

 **CAUTION: Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.**

¹ See DX, ENOIL12, OEM, DX, ENOIL12, T2, STD, or DX, ENOIL12, T2, EXT for more information on Engine Oil and Filter Service Intervals.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV, and Stage V Engines Above 560 kW

- Use ONLY diesel fuel with a maximum of 500 mg/kg (500 ppm) sulfur content.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV Engines, and Stage V Engines

- Use ONLY ultra low sulfur diesel (ULSD) fuel with a maximum of 15 mg/kg (15 ppm) sulfur content.

Sulfur Content for Tier 3 and Stage III A Engines

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 1000—2000 mg/kg (1000—2000 ppm) REDUCES the oil and filter change interval.
- BEFORE using diesel fuel with sulfur content greater than 2000 mg/kg (2000 ppm), contact your John Deere dealer.

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) REDUCES the oil and filter change interval.¹
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

- Use of diesel fuel with sulfur content less than 5000 mg/kg (5000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) REDUCES the oil and filter change interval.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX, FUEL1-19-01NOV22-1/1

Diesel Fuel Specifications

The engine in this machine is designed to operate only with ultra low sulfur diesel (ULSD) fuel. Use of fuel other than ULSD will reduce the efficiency and durability of the engine, will harm and permanently damage the engine's advanced

emissions control systems, reduce fuel economy, and possibly prevent the engine from running at all. Emission-related warranties are likely to be rendered void by the use of fuel that does not meet these specifications.

TX, FUEL, SPECS-19-26OCT20-1/1

Lubricity of Diesel Fuel

Most diesel fuels manufactured in the United States, Canada, and the European Union have adequate lubricity to ensure proper operation and durability of fuel injection system components. However, diesel fuels manufactured in some areas of the world may lack the necessary lubricity.

IMPORTANT: Make sure the diesel fuel used in your machine demonstrates good lubricity characteristics.

Fuel lubricity should pass a maximum scar diameter of 0.52

mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

If fuel of low or unknown lubricity is used, add John Deere Fuel-Protect Diesel Fuel Conditioner (or equivalent) at the specified concentration.

Lubricity of BioDiesel Fuel

Fuel lubricity can improve significantly with BioDiesel blends up to B20 (20% BioDiesel). Further increase in lubricity is limited for BioDiesel blends greater than B20.

DX,FUEL5-19-07FEB14-1/1

Handling and Storing Diesel Fuel

⚠ CAUTION: Reduce the risk of fire. Handle fuel carefully. DO NOT fill the fuel tank when engine is running. DO NOT smoke while you fill the fuel tank or service the fuel system.

Fill the fuel tank at the end of each day's operation to prevent water condensation and freezing during cold weather.

Keep all storage tanks as full as practical to minimize condensation.

Ensure that all fuel tank caps and covers are installed properly to prevent moisture from entering. Monitor water content of the fuel regularly.

When using biodiesel fuel, the fuel filter may require more frequent replacement due to premature plugging.

Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

IMPORTANT: The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel. Keeping the free water drained and treating the bulk fuel storage tank quarterly with a maintenance dose of a biocide will prevent microbial growth. Contact your fuel supplier or John Deere dealer for recommendations.

DX,FUEL4-19-13JAN18-1/1

Biodiesel Fuel

Biodiesel is a fuel comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel blends are biodiesel mixed with petroleum diesel fuel on a volume basis.

Before using fuel containing biodiesel review the Biodiesel Use Requirements and Recommendations in this Operator's Manual.

Environmental laws/regulations may encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

US/Canada

While 5% blends are preferred (B5), biodiesel concentrations up to a 20% blend (B20) in petroleum diesel fuel can be used in all John Deere engines. Biodiesel blends up to B20 can be used **ONLY** if the biodiesel (100% biodiesel or B100) meets ASTM D6751 (US), EN 14214 (EU), or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 may harm the engine's emission control systems and should not be used in the US and Canada. Risks may include, but not be limited to, more frequent exhaust filter parked cleanings, soot accumulation, and increased intervals for ash removal.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ9000 Certified Marketer and sourced from a BQ9000 Accredited Producer (as certified by the National Biodiesel Board). Certified Marketers and Accredited Producers can be found at the following website: <http://www.bq9000.org>.

Other regions

John Deere engines can operate on biodiesel blends below and above B20 (up to 100% biodiesel). Operate at levels above B20 **ONLY** if the biodiesel meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 may not fully comply with all applicable emissions regulations. Expect up to a 12% reduction in power and an 18% reduction in fuel economy when using 100% biodiesel. John Deere approved fuel conditioners containing detergent/dispersant additives are required.

Biodiesel Use Requirements

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

When using biodiesel fuel, the fuel filter may require more frequent replacement due to premature plugging. Check engine oil level daily prior to starting engine. A rising oil level may indicate fuel dilution of the engine oil.

John Deere approved fuel conditioners containing detergent/dispersant additives are required when using B20 blends and recommended when using lower biodiesel blends. Biodiesel blends up to B20 must be used within 90 days of the date of biodiesel manufacture. Biodiesel blends above B20 must be used within 45 days from the date of biodiesel manufacture.

Biodiesel Use Recommendations

When using biodiesel blends up to B20 the following must be considered:

- Cold weather flow degradation
- Stability and storage issues (moisture absorption, oxidation, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)

Request a certificate of analysis from an authorized fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult an authorized John Deere dealer for approved fuel conditioners to improve storage and performance with biodiesel fuels.

The following must also be considered when using biodiesel blends above B20:

- Possible coking and/or blocked injector nozzles, resulting in power loss and engine misfire if John Deere approved fuel conditioners containing detergent/dispersant additives are not used
- Possible crankcase oil dilution, requiring more frequent oil changes
- Possible lacquering and/or seizure of internal components
- Possible formation of sludge and sediments
- Possible thermal oxidation of fuel at elevated temperatures
- Possible compatibility issues with other materials (including copper, lead, zinc, tin, brass, and bronze) used in fuel handling equipment
- Possible reduction in water separator efficiency
- Possible damage to paint if exposed to biodiesel

IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines. The use could cause engine failure.

OUT4001,0000671-19-25JAN16-1/1

Testing Diesel Fuel

A fuel analysis program can help to monitor the quality of diesel fuel. The fuel analysis can provide critical data such as calculated cetane index, fuel type, sulfur content, water content, appearance, suitability for cold weather operations, bacteria, cloud point, acid number, particulate

contamination, and whether the fuel meets ASTM D975 or equivalent specification.

Contact your John Deere dealer for more information on diesel fuel analysis.

DX,FUEL6-19-13JAN18-1/1

Minimizing the Effect of Cold Weather on Diesel Engines

John Deere diesel engines are designed to operate effectively in cold weather.

However, for effective starting and cold weather operation, a little extra care is necessary. The following information outlines steps that can minimize the effect that cold weather may have on starting and operation of your engine. See your John Deere dealer for additional information and local availability of cold weather aids.

Use Winter Grade Fuel

When temperatures fall below 0°C (32°F), winter grade fuel (No. 1D in North America) is best suited for cold weather operation. Winter grade fuel has a lower cloud point and a lower pour point.

Cloud point is the temperature at which wax will begin to form in the fuel and this wax causes fuel filters to plug. **Pour point** is the lowest temperature at which movement of the fuel is observed.

NOTE: On an average, winter grade diesel fuel has a lower BTU (heat content) rating. Using winter grade fuel may reduce power and fuel efficiency, but should not cause any other engine performance effects. Check the grade of fuel being used before troubleshooting for low power complaints in cold weather operation.

Air Intake Heater

An air intake heater is an available option for some engines to aid cold weather starting.

Ether

An ether port on the intake is available to aid cold weather starting.

 **CAUTION: Ether is highly flammable. Do not use ether when starting an engine equipped with glow plugs or an air intake heater.**

Coolant Heater

An engine block heater (coolant heater) is an available option to aid cold weather starting.

Seasonal Viscosity Oil and Proper Coolant Concentration

Use seasonal grade viscosity engine oil based on the expected air temperature range between oil changes and a proper concentration of low silicate antifreeze as recommended.

Diesel Fuel Flow Additive

Use John Deere PREMIUM DIESEL FUEL CONDITIONER

(winter formula), which contains antigel chemistry, or equivalent fuel conditioner to treat non-winter grade fuel (No. 2D in North America) during the cold weather season. This generally extends operability to about 10°C (18°F) below the fuel cloud point. For operability at even lower temperatures, use winter grade fuel.

IMPORTANT: Treat fuel when outside temperature drops below 0°C (32°F). For best results, use with untreated fuel. Follow all recommended instructions on label.

BioDiesel

When operating with biodiesel blends, wax formation can occur at warmer temperatures. Begin using John Deere PREMIUM BIODIESEL FUEL CONDITIONER (winter formula) at 5°C (41°F) to treat biodiesel fuels during the cold-weather season. Use B5 or lower blends at temperatures below 0°C (32°F). Use only winter grade petroleum diesel fuel at temperatures below -10°C (14°F). In colder weather, engines operating with biodiesel may have more frequent parked cleanings, soot accumulation, and increased intervals for ash removal from the exhaust filter.

Winterfronts

Use of fabric, cardboard, or solid winterfronts is not recommended with any John Deere engine. Their use can result in excessive engine coolant, oil, and charge air temperatures. This can lead to reduced engine life, loss of power and poor fuel economy. Winterfronts may also put abnormal stress on fan and fan drive components potentially causing premature failures. If winterfronts are used, they should never totally close off the grill frontal area. Approximately 25% area in the center of the grill should remain open at all times. At no time should the air blockage device be applied directly to the radiator core.

Radiator Shutters

If equipped with a thermostatically controlled radiator shutter system, this system should be regulated in such a way that the shutters are completely open by the time the coolant reaches 93°C (200°F) to prevent excessive intake manifold temperatures. Manually controlled systems are not recommended. If air-to-air aftercooling is used, the shutters must be completely open by the time the intake manifold air temperature reaches the maximum allowable temperature out of the charge air cooler. For more information, see your John Deere dealer.

OUT4001,0000632-19-11AUG15-1/1

John Deere Break-In Plus™ Engine Oil

New engines are filled at the factory with either John Deere Break-In™ or Break-In Plus™ Engine Oil. During the break-in period, add John Deere Break-In or Break-In Plus Engine Oil, respectively, as needed to maintain the specified oil level.

Operate the engine under various conditions, particularly heavy loads with minimal idling, to help seat engine components properly.

Change the oil and filter at 250 hours maximum for Break-In Oil or 500 hours maximum for Break-In Plus Oil during the initial operation of a new or rebuilt engine.

After engine overhaul, fill the engine with either John Deere Break-In or Break-In Plus Engine Oil.

If John Deere Break-In or Break-In Plus Engine Oil is not available, use a 10W-30 diesel engine oil meeting one of the following during the first 250 hours of operation:

- API Service Classification CE
- API Service Classification CD
- API Service Classification CC
- ACEA Oil Sequence E2
- ACEA Oil Sequence E1

*Break-In is a trademark of Deere & Company.
Break-In Plus is a trademark of Deere & Company
Plus-50 is a trademark of Deere & Company.*

IMPORTANT: Do not use Plus-50™ II, Plus-50, or engine oils meeting any of the following for the initial break-in of a new or rebuilt engine:

API CJ-4	ACEA E9
API CI-4 PLUS	ACEA E7
API CI-4	ACEA E6
API CH-4	ACEA E5
API CG-4	ACEA E4
API CF-4	ACEA E3
API CF-2	
API CF	

These oils will not allow the engine to break in properly.

John Deere Break-In Plus Engine Oil can be used for all John Deere diesel engines at all emission certification levels.

After the break-in period, use John Deere Plus-50 II, John Deere Plus-50, or other diesel engine oil as recommended in this manual.

OUT4001,000067D-19-31MAR11-1/1

Diesel Engine Oil—Interim Tier 4 and Stage III B Engines

Use oil viscosity based on the expected air temperature range during the period between oil changes.

John Deere Plus-50™ II is the recommended engine oil.

Extended service intervals may apply when John Deere Plus-50 II engine oil is used. Refer to the engine oil drain interval table and consult an authorized John Deere dealer for more information.

If John Deere Plus-50 II engine oil is not available, engine oil meeting one or more of the following may be used:

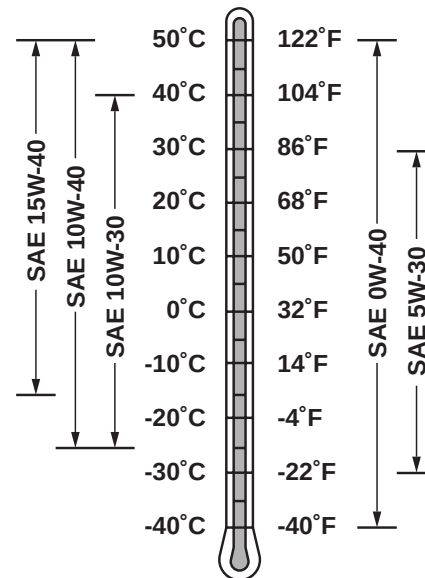
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

DO NOT use engine oil containing more than 1.0% sulfated ash, 0.12% phosphorus, or 0.4% sulfur.

Multi-viscosity diesel engine oils are preferred.

Diesel fuel quality and fuel sulfur content must comply with all existing emissions regulations for the area in which the engine operates.

Plus-50 is a trademark of Deere & Company



Oil Viscosities for Air Temperature Ranges

IMPORTANT: Use only ultra low sulfur diesel (ULSD) fuel with a maximum sulfur content of 15 mg/kg (15 ppm).

TX1114353—UN—22MAY12

VD76477,00004E6-19-25JAN16-1/1

Engine Oil and Filter Service Intervals — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V Engines

Failure to follow applicable oil standards and drain intervals can result in severe engine damage that might not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere oils, parts, or service.

Recommended oil and filter service intervals are based on a combination of oil pan capacity, type of engine oil and filter used, and sulfur content of the diesel fuel. Actual service intervals also depend on operation and maintenance practices.

Approved Oil Types:

- John Deere Plus-50™ II
- “Other Oils” include API CK-4, API CJ-4, ACEA E9, and ACEA E6

Use oil analysis to evaluate the condition of the oil and to aid in selection of the proper oil and filter service interval. Contact your John Deere dealer or other qualified service provider for more information on engine oil analysis.

Change the oil and oil filter at least once every 12 months even if the hours of operation are fewer than the otherwise recommended service interval.

Diesel fuel sulfur content affects engine oil and filter service intervals. Higher fuel sulfur levels reduce oil and filter service intervals.

Plus-50 is a trademark of Deere & Company

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is **REQUIRED**.

Engine operation at high altitude decreases oil change intervals. See Diesel Engine Oil Service Interval for Operation at High Altitude for additional information.

NOTE: The 500 hour extended oil and filter change interval is only allowed if all of the following conditions are met:

- Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm)
- Use of John Deere Plus-50™ II oil
- Use of an approved John Deere oil filter

Engine Oil and Filter Service Intervals	
John Deere Plus-50™ II	500 hours
Other Oils	250 hours
Oil analysis may extend the service interval of “Other Oils” to a maximum not to exceed the interval of Plus-50™ II oils. Oil analysis means taking a series of oil samples at 50-hour increments beyond the normal service interval until either the data indicates the end of useful oil life or the maximum service interval of John Deere Plus-50 II oils is reached.	

IMPORTANT: To avoid engine damage:

- **Reduce oil and filter service intervals by 50% when using biodiesel blends greater than B20. Oil analysis may allow longer service intervals.**
- **Use only approved oil types.**

DX,ENOIL15,IT4,120TOMAX-19-13JAN18-1/1

Diesel Engine Coolant (engine with wet sleeve cylinder liners)

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty. Warranties, including the emissions warranty, are not conditioned on the use of John Deere coolants, parts, or service.

Preferred Coolants

The following pre-mix engine coolants are preferred:

- John Deere COOL-GARD™ II
- John Deere COOL-GARD II PG

COOL-GARD II pre-mix coolant is available in several concentrations with different freeze protection limits as shown in the following table.

COOL-GARD II Pre-Mix	Freeze Protection Limit
COOL-GARD II 20/80	-9°C (16°F)
COOL-GARD II 30/70	-16°C (3°F)
COOL-GARD II 50/50	-37°C (-34°F)
COOL-GARD II 55/45	-45°C (-49°F)
COOL-GARD II PG 60/40	-49°C (-56°F)
COOL-GARD II 60/40	-52°C (-62°F)

Not all COOL-GARD II pre-mix products are available in all countries.

Use COOL-GARD II PG when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD II Concentrate in a 40—60% mixture of concentrate with quality water.

IMPORTANT: When mixing coolant concentrate with water, do not use less than 40% or greater than 60% concentration of coolant. Less than 40% gives inadequate additives for corrosion protection. Greater than 60% can result in coolant gelation and cooling system problems.

Other Coolants

Other ethylene glycol or propylene glycol base coolants may be used if they meet the following specification:

COOL-GARD is a trademark of Deere & Company

¹ Coolant analysis may extend the service interval of other "Coolants" to a maximum not to exceed the interval of Cool-Gard II coolants. Coolant analysis means taking a series of coolant samples at 1000 hour increments beyond the normal service interval until either the data indicate the end of useful coolant life or the maximum service interval of Cool-Gard II is reached.

- Pre-mix coolant meeting ASTM D6210 requirements
- Is formulated with a 2-ethylhexanoic acid (2-EHA) free additive package
- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

If coolant meeting one of these specifications is unavailable, use a coolant concentrate or pre-mix coolant that has a minimum of the following chemical and physical properties:

- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Is formulated with a nitrite-free additive package
- Is formulated with a 2-ethylhexanoic acid (2-EHA) free additive package
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

Water Quality

Water quality is important to the performance of the cooling system. Deionized or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

Coolant Drain Intervals

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

When COOL-GARD II or COOL-GARD II PG is used, the drain interval is 6 years or 6000 hours of operation.

If a coolant other than COOL-GARD II or COOL-GARD II PG is used, reduce the drain interval to 2 years or 2000 hours of operation.¹

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

DX,COOL3-19-25AUG20-1/1

Drain Intervals for Diesel Engine Coolant

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

John Deere COOL-GARD™ II Premix, COOL-GARD II PG Premix and COOL-GARD II Concentrate are maintenance free coolants for up to six years or 6000 hours of operation, provided that the cooling system is topped off using only John Deere COOL-GARD II Premix or COOL-GARD II PG Premix.

Test the coolant condition annually with Coolant Test Strips designed for use with John Deere COOL-GARD II coolants. If the test strip chart indicates that additive is required, add John Deere COOL-GARD II Coolant Extender as directed.

COOL-GARD is a trademark of Deere & Company

If John Deere COOL-GARD™ II Premix, COOL-GARD II PG Premix, or COOL-GARD II Concentrate is used, but the coolant is not tested OR additives are not replenished by adding John Deere COOL-GARD II Coolant Extender, the drain interval is four years or 4000 hours of operation. This drain interval only applies to COOL-GARD II coolants that have been maintained within a 40—60% mixture of concentrate with quality water.

If a coolant other than COOL-GARD II, or COOL-GARD II PG is used, reduce the drain interval to two years or 2000 hours of operation.

DX,COOL11-19-14APR11-1/1

John Deere COOL-GARD™ II Coolant Extender

Some coolant additives gradually deplete during engine operation. For COOL-GARD™ II pre-mix and COOL-GARD II Concentrate, replenish coolant additives between drain intervals by adding COOL-GARD II Coolant Extender.

COOL-GARD II Coolant Extender should not be added unless indicated by COOL-GARD II Test Strips. These test strips provide a simple, effective method to check the freeze point, additive levels, and pH of your engine coolant.

Test the coolant solution at intervals of 12 months and whenever excessive coolant is lost through leaks or overheating.

IMPORTANT: Do not use COOL-GARD II Test Strips with COOL-GARD II PG.

COOL-GARD II Coolant Extender is a chemically matched

COOL-GARD is a trademark of Deere & Company

additive system for use with all COOL-GARD II coolants. COOL-GARD II Coolant Extender is not intended for use with nitrite-containing coolants.

IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:

- John Deere COOL-GARD II
- John Deere COOL-GARD II PG

The use of non-recommended supplemental coolant additives can result in additive drop-out, gelation of the coolant, or corrosion of cooling system components.

Add the recommended concentration of COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

DX,COOL16-19-15MAY13-1/1

Supplemental Coolant Additives

Some coolant additives will gradually deplete during engine operation. For nitrite-containing coolants, replenish coolant additives between drain intervals by adding a supplemental coolant additive as determined necessary by coolant testing.

John Deere Liquid Coolant Conditioner is recommended as a supplemental coolant additive for nitrite-containing coolants.

John Deere Liquid Coolant Conditioner is not designed for use with John Deere COOL-GARD™ II Premix, COOL-GARD II PG Premix, or COOL-GARD II Concentrate.

IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:

COOL-GARD is a trademark of Deere & Company

- John Deere COOL-GARD II
- John Deere COOL-GARD II PG

If other coolants are used, consult the coolant supplier and follow the manufacturer's recommendation for use of supplemental coolant additives.

The use of non-recommended supplemental coolant additives may result in additive drop-out and gelation of the coolant.

Add the manufacturer's recommended concentration of supplemental coolant additive. DO NOT add more than the recommended amount.

DX,COOL4-19-14APR11-1/1

Operating in Warm Temperature Climates

John Deere engines are designed to operate using recommended engine coolants.

Always use a recommended engine coolant, even when operating in geographical areas where freeze protection is not required.

IMPORTANT: Water may be used as coolant in emergency situations only.

Foaming, hot surface aluminum and iron corrosion, scaling, and cavitation occur when water is used as the coolant, even when coolant conditioners are added.

Drain cooling system and refill with recommended engine coolant as soon as possible.

DX,COOL6-19-17FEB20-1/1

Additional Information About Diesel Engine Coolants and John Deere COOL-GARD™ II Coolant Extender

Engine coolants are a combination of three chemical components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

Coolant Specifications

John Deere COOL-GARD™ II Premix either EG or PG, are fully formulated coolants that contain all three components in their correct concentrations. DO NOT add an initial charge of John Deere COOL-GARD II Coolant Extender to COOL-GARD II Premix. DO NOT add any other supplemental coolant additive or water to COOL-GARD II Premix.

John Deere COOL-GARD II Concentrate contains both ethylene glycol and inhibiting coolant additives. Mix this product with quality water, but DO NOT add an initial charge of John Deere COOL-GARD II Coolant Extender or any other supplemental coolant additive.

Replenish Coolant Additives

Some coolant additives will gradually deplete during engine operation. Periodic replenishment of inhibitors is required, even when John Deere COOL-GARD II Premix or COOL-GARD II Concentrate is used. Follow the recommendations in this manual for the use of John Deere COOL-GARD II Coolant Extender.

Why use John Deere COOL-GARD II Coolant Extender?

Operating without proper coolant additives will result in increased corrosion, cylinder liner erosion and pitting, and other damage to the engine and cooling system. A simple mixture of ethylene glycol or propylene glycol and water will not give adequate protection.

John Deere COOL-GARD II Coolant Extender is a chemically matched additive system designed to fortify the proprietary additives used in John Deere COOL-GARD II Premix and COOL-GARD II Concentrate and to provide optimum protection for up to six years or 6000 hours of operation.

COOL-GARD is a trademark of Deere & Company

Avoid Automotive-type Coolants

Never use automotive-type coolants (such as those meeting ASTM D3306). These coolants do not contain the correct additives to protect heavy-duty diesel engines. Do not treat an automotive engine coolant with supplemental coolant additives because the high concentration of additives can result in additive fallout.

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate. All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total dissolved solids	<340 mg/L
Total hardness	<170 mg/L
pH	5.5 to 9.0

Freeze Protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

Ethylene Glycol	Freeze Protection Limit
40%	-24°C (-12°F)
50%	-37°C (-34°F)
60%	-52°C (-62°F)
Propylene Glycol	Freeze Protection Limit
40%	-21°C (-6°F)
50%	-33°C (-27°F)
60%	-49°C (-56°F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol or 60% propylene glycol.

DX,COOL17-19-20APR11-1/1

Testing Diesel Engine Coolant

Maintaining adequate concentrations of glycol and inhibiting additives in the coolant is critical to protect the engine and cooling system against freezing, corrosion, and cylinder liner erosion and pitting.

Test the coolant solution at intervals of 12 months or less and whenever excessive coolant is lost through leaks or overheating.

Coolant Test Strips

Coolant test strips are available from your John Deere dealer. These test strips provide a simple, effective method to check the freeze point and additive levels of your engine coolant.

When Using John Deere COOL-GARD II

John Deere COOL-GARD II Premix™, COOL-GARD II PG Premix and COOL-GARD II Concentrate are maintenance free coolants for up to six years or 6000 hours of operation, provided that the cooling system is topped off using only John Deere COOL-GARD II Premix or COOL-GARD II PG premix. Test the coolant condition annually with coolant test strips designed for use with John Deere COOL-GARD II coolants. If the test strip chart indicates that additive is required, add John Deere COOL-GARD II Coolant Extender as directed.

COOL-GARD is a trademark of Deere & Company

Add only the recommended concentration of John Deere COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

When Using Nitrite-Containing Coolants

Compare the test strip results to the supplemental coolant additive (SCA) chart to determine the amount of inhibiting additives in your coolant and whether more John Deere Liquid Coolant Conditioner should be added.

Add only the recommended concentration of John Deere Liquid Coolant Conditioner. DO NOT add more than the recommended amount.

Coolant Analysis

For a more thorough evaluation of your coolant, perform a coolant analysis. The coolant analysis can provide critical data such as freezing point, antifreeze level, pH, alkalinity, nitrite content (cavitation control additive), molybdate content (rust inhibitor additive), silicate content, corrosion metals, and visual assessment.

Contact your John Deere dealer for more information on coolant analysis.

DX,COOL9-19-11APR11-1/1

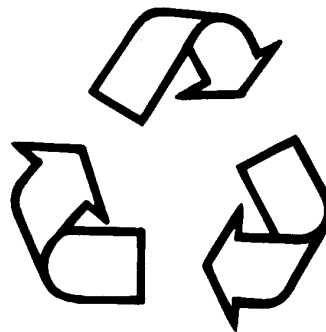
Disposing of Coolant

Improperly disposing of engine coolant can threaten the environment and ecology.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your authorized John Deere dealer.



Recycle Waste

TS1133—UN—15APR13

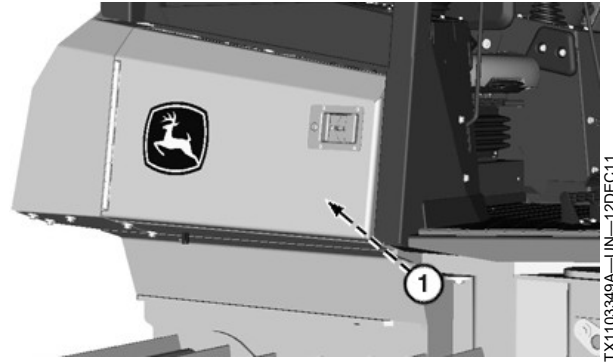
OUT4001,0000685-19-09JUL10-1/1

Maintenance—Periodic Maintenance

Service Your Machine at Specified Intervals

Lubricate and make service checks and adjustments at intervals shown on the periodic maintenance chart and on the following pages. The periodic maintenance chart is located on the inside of the rear right service door.

1—Location of Periodic Maintenance Chart



Location of Periodic Maintenance Chart

ER93822,0000013-19-09JAN12-1/1

Check Hour Meter Regularly

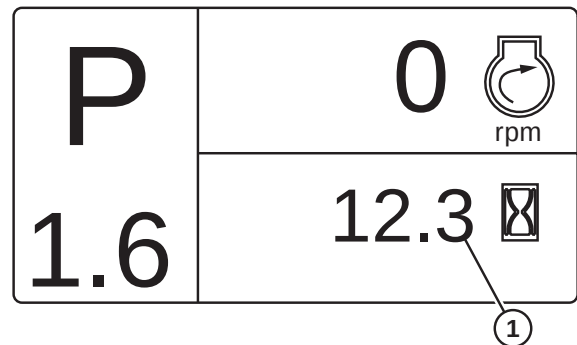
NOTE: Hour meter display is located in bottom right corner of the runtime display window. Press **SELECT** or **NEXT** navigation buttons to toggle between hours, charge pressure, and system voltage. Hour meter display is indicated by the hourglass icon to the right of the number displayed.

ER93822,00000EE-19-09JAN12-1/2

Use the hour meter (1) display to determine when your machine needs periodic maintenance. If hour meter is not displayed on standard display monitor (SDM), press **SELECT** or **NEXT** navigation buttons to toggle display until the hourglass icon is displayed. For more information, see Standard Display Monitor (SDM) Runtime Display. (Section 2-1.)

Intervals on the periodic maintenance chart are for operating in normal conditions. If operating machine in severe conditions, machine should be serviced at shorter intervals.

1—Hour Meter



Check Hour Meter

ER93822,00000EE-19-09JAN12-2/2

Prepare Machine for Maintenance

Before performing maintenance procedures in the following chapters and before leaving operator's seat, park machine as described below unless another position is specified in the procedure.

IMPORTANT: Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment includes such items as oil, fuel, coolant, brake fluid, filters, and batteries. Do not pour waste onto the ground, down a drain, or into any water source.

1. Park machine on a level surface.
2. Lower all equipment to ground.
3. Move transmission control lever (TCL) (1) to neutral (N) position.

CAUTION: Prevent possible injury from unexpected machine movement. Never rely on transmission control lever (TCL) alone to keep machine from moving. Machine can unexpectedly roll or move under power, resulting in death or serious injury. Always engage park lock levers to hold machine.

4. Move park lock levers (3) to up (locked) position.

IMPORTANT: Turbocharger may be damaged if engine is not properly shut down.

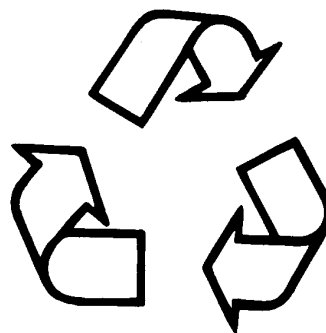
5. Run engine at 1/2 speed without load for 2 minutes.
6. Rotate engine speed control dial (2) to slow idle position.
7. Stop engine.

NOTE: If maintenance must be performed with engine running, do not leave machine unattended.

8. Move the blade control lever and ripper control lever (if equipped) to release hydraulic pressure (non-IGC machines only).

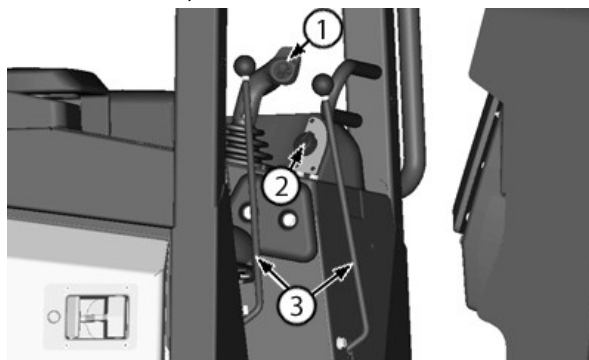
IMPORTANT: Before welding, avoid electronic component damage; turn battery disconnect switch (4) OFF.

9. Turn battery disconnect switch (4) to OFF position (counterclockwise) if making adjustments to electrical systems or welding on machine.



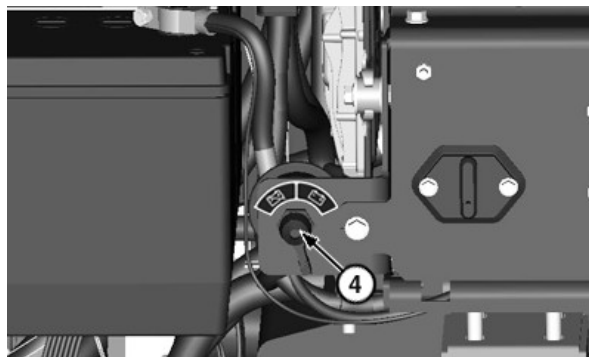
TS1133—UN—15APR13

Prepare Machine for Maintenance



TX1101286A—UN—14NOV11

TCL, Engine Speed Dial and Park Lock Levers



TX1101287A—UN—10JAN12

Battery Disconnect Switch

- 1—Transmission Control Lever (TCL) 3—Park Lock Lever (2 used)
2—Engine Speed Control Dial 4—Battery Disconnect Switch

ER93822,00000EF-19-12JAN12-1/1

Fuel Tank

⚠ CAUTION: Handle fuel carefully. If the engine is hot or running, do not fill the fuel tank. Do not smoke while you fill fuel tank or work on fuel system.

To avoid condensation, fill the fuel tank at the end of each day's operation.

For additional information concerning capacity of fuel system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)



TS185—UN—23AUG88

No Smoking Around Fuel Tank

ER93822,00000F0-19-12AUG15-1/1

Fluid Analysis Program Test Kits and 3-Way Coolant Test Kit

Fluid Analysis Program Test Kits and the 3-Way Coolant Test Kit are John Deere fluid sampling products to help you monitor machine maintenance and system condition. The objective of a fluid sampling program is to ensure machine availability when you need it and to reduce repair costs by identifying potential problems before they become critical.

Engine, hydraulic, power train, and coolant samples should be taken from each system on a periodic basis, before a filter or fluid change interval. Certain systems require more frequent sampling. Consult your authorized John Deere dealer on a maintenance program for your specific application. Your authorized John Deere dealer has the



TX1003513A—UN—20FEB06

sampling products and expertise to assist you in lowering your overall operating costs through fluid sampling.

TX,ANALYSIS-19-20JAN11-1/1

Service Intervals

Models: 550K and 650K Engine 4045HT070		PIN/Serial Number:	
Hour Meter Reading:			
SERVICE INTERVALS			
Service machine at intervals shown on this chart. Also, perform service on items at multiples of the original requirement. For example, at 500 hours also service those items (if applicable) listed under 250 hours, 100 hours, 50 hours, and 10 hours or daily.			
FLUID SAMPLING			
Take fluid samples from each system as indicated on this form. The manufacturer of the fluid analysis kits will provide maintenance recommendations based upon the results of the fluid analysis and the operating information you supply. Regular fluid sampling extends the operational life of machine.			
As Required			
☐ Inspect and check belt tension	☐ Drain sediment from fuel tank		
☐ Check engine air filter restriction indicator	☐ Service exhaust filter		
☐ Clean or replace cab fresh air filter	☐ Clean or replace cab recirculating air filter		
☐ Check and adjust track sag	☐ Add coolant extender as indicated by COOL-GARD™ II test strips		
Every 10 Hours or Daily			
☐ Check coolant level at surge tank	☐ Check hydraulic system oil level		
☐ Check engine oil level	☐ Check hydrostatic transmission oil level		
☐ Check or drain primary fuel filter	☐ Lubricate dozer linkage and blade socket		
☐ Check or drain auxiliary fuel filter and water separator—if equipped	☐ Check winch oil—if equipped		
Every 50 Hours			
☐ Lubricate ripper—if equipped			
Every 250 Hours			
☐ Check final drive oil level	☐ Take engine oil sample		
☐ Check blade shim adjustment			
Every 500 Hours			
☐ Drain and refill engine oil and replace filter	☐ Take diesel fuel sample		
☐ Replace primary and final fuel filters	☐ Take engine coolant sample		
☐ Replace auxiliary fuel filter and water separator—if equipped	☐ Take final drive oil sample		
☐ Replace winch oil filter—if equipped	☐ Take hydraulic oil sample		
☐ Check battery electrolyte level; clean and tighten terminals	☐ Take hydrostatic transmission oil sample		
Every 1000 Hours			
☐ Check coolant	☐ Drain and refill winch oil and replace filter—if equipped		
☐ Check air intake hose	☐ Clean or replace winch hydraulic breather filter—if equipped		
☐ Drain and refill final drive oil			
Every 2000 Hours			
☐ Drain and refill hydraulic system oil and replace filter	☐ Replace open crankcase ventilation (OCV) filter		
☐ Drain and refill hydrostatic transmission oil and replace filter			
Every 3000 Hours			
☐ Check and adjust engine valve lash			
Every 6000 Hours			
☐ Drain and refill engine cooling system			

COOL-GARD is a trademark of Deere & Company

ER93822.00000F1-19-13AUG15-1/1

Required Parts

REQUIRED PARTS						
Ensure machine performance and availability; use only genuine John Deere parts. Verify part numbers are current and that any associated parts are also on-hand, i.e., filter O-rings.						
Description	Every 250 Hours	Every 500 Hours	Every 1000 Hours	Every 2000 Hours	Every 3000 Hours	Every 6000 Hours
Engine Oil Filter		1	1	1	1	1
Primary Fuel Filter		1	1	1	1	1
Final Fuel Filter		1	1	1	1	1
Auxiliary Fuel Filter (if equipped)		1	1	1	1	1
Winch Oil Filter (if equipped)		1	1	1	1	1
Winch Hydraulic Reservoir Breather Filter (if equipped)		1	1	1	1	1
Open Crankcase Ventilation (OCV) Filter				1		1
Hydraulic System Oil Filter				1		1
Transmission Oil Filter				1		1
Engine Rocker Arm Cover Gasket					1	1
Diesel Particulate Filter (component of exhaust filter)	As Required					
Engine Air Cleaner Elements						
• Primary Element	As Required					
• Secondary Element	As Required					
Cab Air Filter Elements						
• Fresh Air (2 used)	As Required					
• Recirculating Air	As Required					
John Deere Plus-50™ II Engine Oil ¹		15.4 L (4.1 gal)	15.4 L (4.1 gal)	15.4 L (4.1 gal)	15.4 L (4.1 gal)	15.4 L (4.1 gal)
John Deere Hydrau™ Hydraulic Oil ¹				34.0 L (9.0 gal)		34.0 L (9.0 gal)
John Deere Hydrau™ Hydrostatic Transmission Oil ¹				55.6 L (14.7 gal)		55.6 L (14.7 gal)
John Deere Hy-Gard™ Final Drive Oil			8.5 L (2.3 gal)	8.5 L (2.3 gal)	8.5 L (2.3 gal)	8.5 L (2.3 gal)
John Deere Hy-Gard™ Winch Oil (if equipped)			38.0 L (10.0 gal)	38.0 L (10.0 gal)	38.0 L (10.0 gal)	38.0 L (10.0 gal)
COOL-GARD™ II Pre-Mix						22.6 L (6.0 gal)
Coolant Extender	As Required					
Fluid Analysis Kits²						
• Diesel Engine Oil	1	1	1	1	1	1
• Hydraulic Oil		1	1	1	1	1
• Transmission Oil		1	1	1	1	1
• Final Drive Oil		2	2	2	2	2
• Diesel Fuel		1	1	1	1	1
• Engine Coolant		1	1	1	1	1
• COOL-GARD™ II Test Strips			1	1	1	1
¹ For recommended oil type and oil viscosities based on operating temperatures, see Maintenance—Machine. (Section 3-1.)						
² Based on fluid analysis results, intervals may need to be adjusted for operating conditions. See an authorized John Deere dealer.						

PLUS-50 is a trademark of Deere & Company
 Hydrau is a trademark of Deere & Company
 Hy-Gard is a trademark of Deere & Company
 COOL-GARD is a trademark of Deere & Company

ER93822,00000F2-19-05OCT16-1/1

Maintenance—As Required

Check Coolant

CAUTION: Prevent possible injury from hot spraying fluids. Shut off engine. Remove filler cap only when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

IMPORTANT: John Deere COOL-GARD™ II Coolant Extender does not protect against freezing. Coolant conditioner prevents rust, scale, and liner cavitation.

NOTE: Check coolant every 1000 hours or 1 year, when replacing 1/3 or more of coolant. Add coolant conditioner as indicated by COOL-GARD™ II test strips.

1. Remove surge tank cap (1) only when engine is cold enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely. Test coolant solution. Use the following kit to check coolant:

- **COOL-GARD II Test Strips**

Coolant test strips provide an effective method to check freeze point and additive levels of engine coolant. See your authorized dealer for COOL-GARD II test strips and follow instructions on kit.

2. Add John Deere COOL-GARD™ II Coolant Extender as necessary. Follow instructions on container for amount.

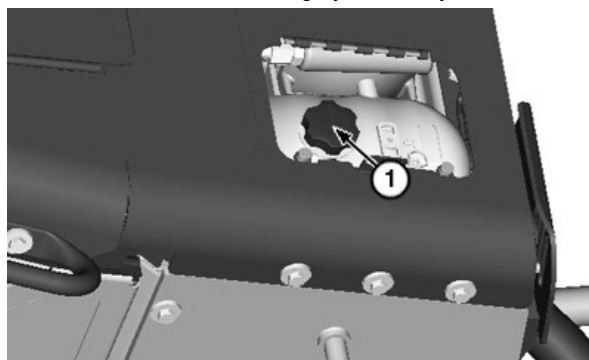
For additional information concerning capacity of cooling system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)

3. Install surge tank cap.

COOL-GARD is a trademark of Deere & Company



Service Cooling System Safely



Surge Tank

1—Surge Tank Cap

TS281—UN—15APR13

TX1101369A—UN—21NOV11

ER93822.00000F3-19-12AUG15-1/1

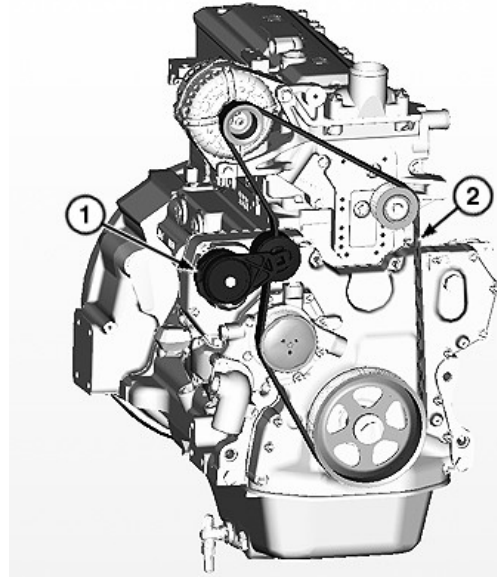
Inspect Belt and Check Tension

Belt drive systems equipped with automatic belt tensioner (1) cannot be adjusted or repaired. The automatic belt tensioner is designed to maintain proper belt tension over the life of the belt.

A belt tension gauge will not give an accurate measure of the belt tension when automatic spring tensioner is used.

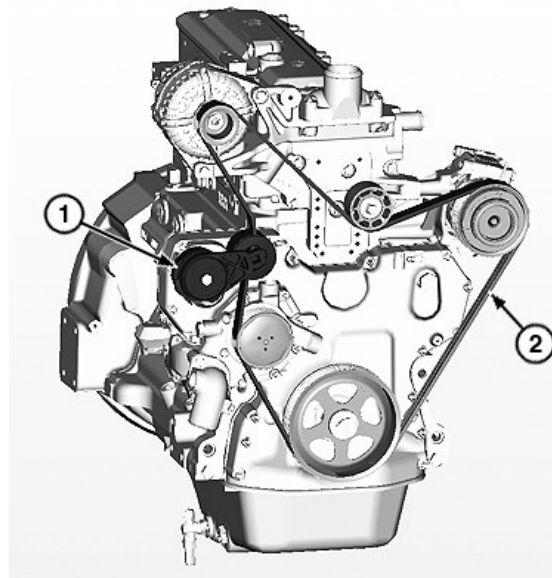
1. Start engine and run at fast idle.
2. Belt (2) must not emit a loud squealing sound at slow idle, fast idle, or rapid acceleration. If belt produces a squealing sound under any of these conditions, see your authorized dealer. If belt does not produce a squealing sound, proceed to next step.
3. Turn on air conditioning (if equipped) and lights. If belt produces a squealing sound under any of these conditions, see your authorized dealer. If belt does not produce a squealing sound, proceed to next step.
4. Visually inspect belt for wear, cracks, or fraying. If belt shows signs of excessive wear, see your authorized dealer.

1— Automatic Belt Tensioner 2— Belt



Belt Routing

TX1136809—UN—21MAY13



Belt Routing with Air Conditioning

TX1136810—UN—21MAY13

SK44377,00000C9-19-22MAY13-1/1

Check Engine Air Filter Restriction Indicator

Check engine air filter restriction indicator (1).

If indicator is on, replace engine air filter elements. See Replace Engine Air Filter Elements. (Section 4-1.)

1—Engine Air Filter Restriction Indicator



Engine Air Filter Restriction Indicator

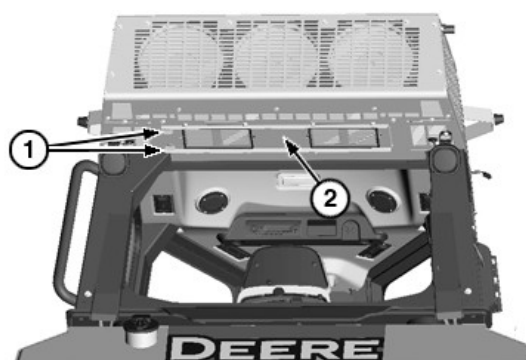
ER93822,00000F4-19-05APR12-1/1

Clean or Replace Cab Fresh Air Filter

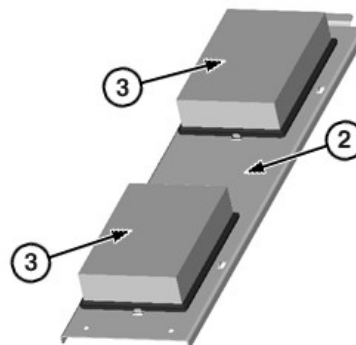
1. Loosen wing nuts (1) to open fresh air filter panel (2).
2. Remove fresh air filter elements (3).
3. Tap filter elements on flat surface with dirty side down to loosen and remove large portions of dirt.
4. Install filter elements.
5. Close fresh air filter panel and tighten wing nuts.

1—Wing Nut (2 used)
2—Fresh Air Filter Panel

3—Fresh Air Filter Element (2 used)



Fresh Air Filters Panel



Fresh Air Filters

ER93822,0000009-19-24SEP13-1/1

Clean or Replace Cab Recirculating Air Filter

Cab recirculating air filter is located inside the upper rear of the cab.

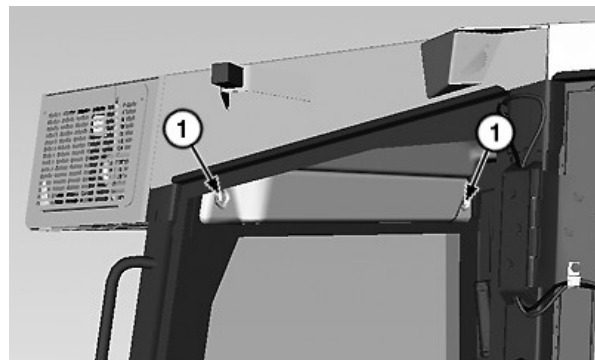
Continued on next page

JS93577,0000670-19-24SEP13-1/2

1. Remove cab air recirculating filter cover holding screws (1).
2. Remove filter cover.
3. Pull filter tab (2) to remove recirculating air filter (3).
4. Use compressed air under 210 kPa (2.1 bar) (30 psi).
Direct air opposite to normal air flow.
5. Wash filter in warm, soapy water, rinse and dry.
6. If filter will not come clean, replace as necessary.
7. Install cover and tighten holding screws.

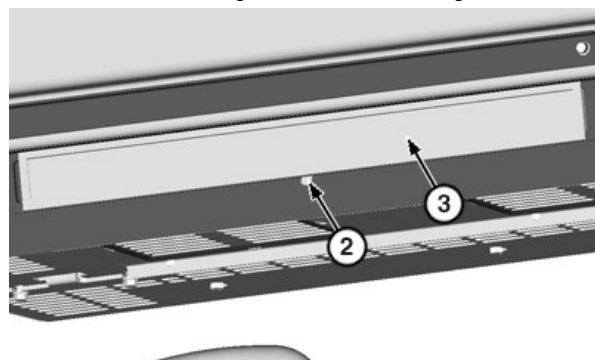
1—Holding Screw (2 used)
2—Filter Tab

3—Recirculating Air Filter



TX1144481A—UN—24SEP13

Cab Recirculating Air Filter Cover Holding Screws



TX1103238A—UN—09DEC11

Recirculating Air Filter and Tab

JS93577,0000670-19-24SEP13-2/2

Check Track Sag

Maintaining the proper amount of track sag is the single most important adjustment the operator can make. Tight tracks can reduce the amount of wear life by more than 50% over tracks which are properly maintained at 51 mm (2 in.) of sag. Tight tracks increase the loading on the undercarriage components and accelerate the wear rate. Track sag should be adjusted as the soil conditions change. See Track Sag General Information. (Section 4-1.)

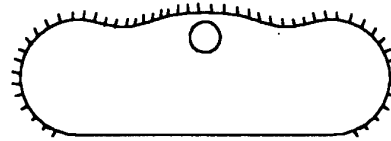
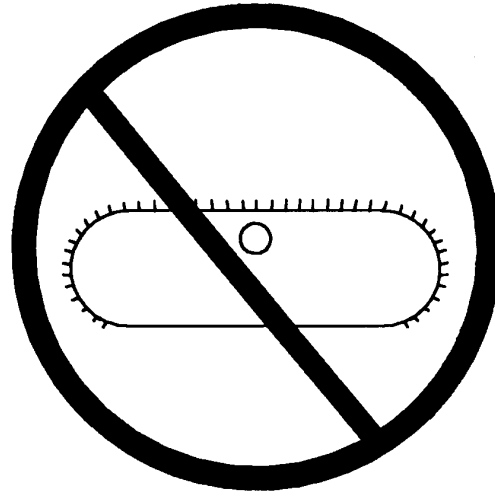
1. Position track so that a track pin is centered over the carrier roller.
2. Measure sag of track between carrier roller and front idler from the top of track grouser (A) to a straight edge (B). If adjustment is needed, see Adjust Track Sag in this section.

Specification

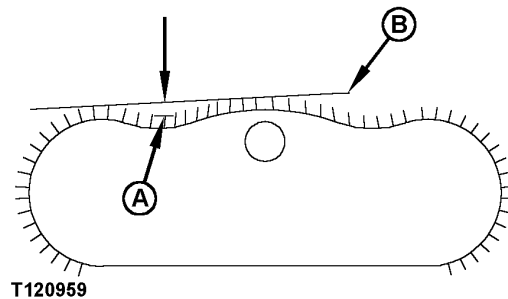
Track Sag—Distance. 51 ± 6 mm (2 ± 0.250 in.)

A—Grouser

B—Straight-Edge



Proper Track Sag



T120959

Measure Track Sag

TX,55,RR2718-19-23MAY12-1/1

T7800AH—UN—31JUL92

T120959—UN—20APR99

Adjust Track Sag

CAUTION: Grease for track adjuster cylinder is under high pressure. Never remove grease fitting to release the grease. If grease does not escape immediately from vent hole when fitting has been loosened, slowly drive unit in forward and reverse until grease escapes. **DO NOT** disassemble parts unless you know the correct procedure and have correct tools. (See your authorized dealer.)

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.

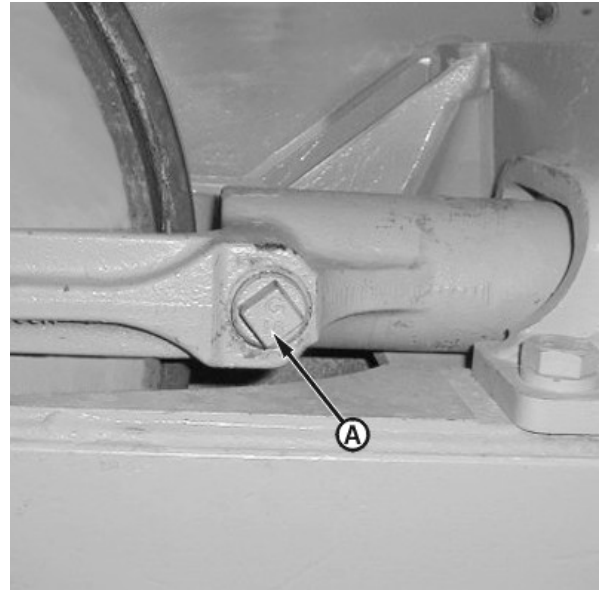
Decrease Track Sag:

Continued on next page

CED,OUO1032,1028-19-20MAR15-1/3

1. Remove access plug (A).

A—Access Plug



Remove Plug

Continued on next page

CED,OUO1032,1028-19-20MAR15-2/3

NOTE: Grease gun with 55 200 kPa (552 bar) (8000 psi) minimum capacity is required.

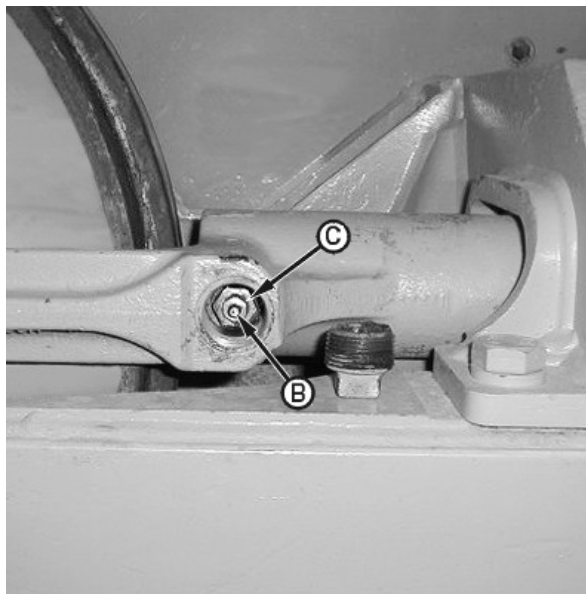
2. Apply grease to grease fitting (B) using a 55 200 kPa (552 bar) (8000 psi) capacity grease gun.
3. After adding grease, move machine forward and reverse to allow track adjuster cylinder to fully adjust.
4. Check track sag again. Repeat procedure if necessary.
5. Install plug.

Increase Track Sag:

1. Remove access plug.
2. Loosen fitting (C) (not grease fitting), one to two turns counterclockwise to release grease through vent hole (D).
3. Tighten fitting.
4. Move machine forward and reverse to allow track adjuster cylinder to fully adjust.
5. Check track sag again. Repeat procedure if necessary.
6. Install plug.

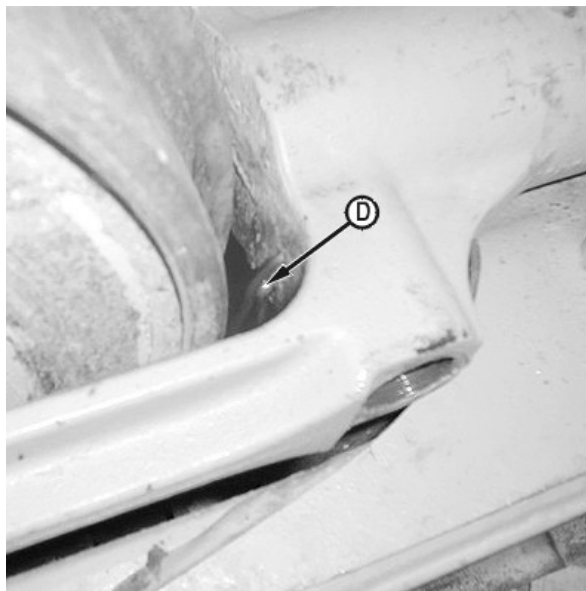
B—Grease Fitting
C—Fitting

D—Vent Hole



T118012B—UN—01DEC98

Grease Fitting



T118013B—UN—11NOV98

Vent Hole

CED,OUO1032,1028-19-20MAR15-3/3

Drain Sediment From Fuel Tank

NOTE: Fuel tank must be at least half full to drain sediment.

Drain fuel tank sediment as required.

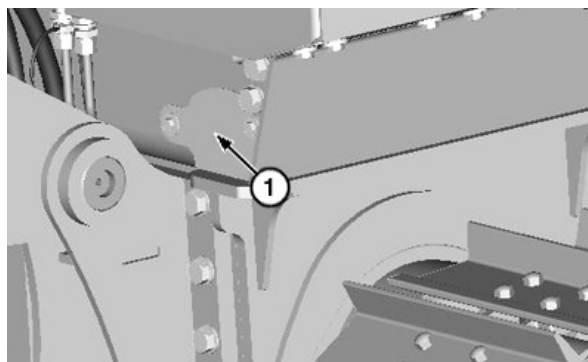
1. Remove fuel tank drain access cover (1).
2. Attach drain hose to fuel tank drain fitting (2).
3. Route drain hose into a suitable container.

NOTE: Drain waste into a container. Dispose of waste properly.

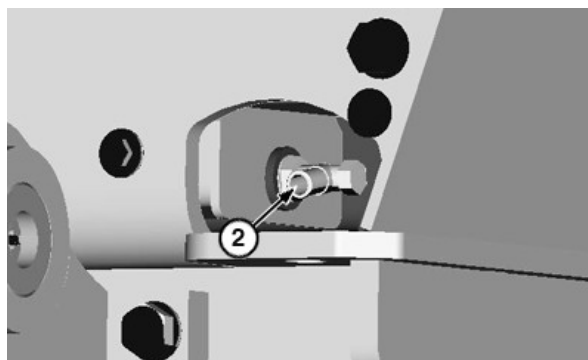
4. Loosen drain valve. Drain liquid into a container until clean fuel emerges.
5. Close drain valve.
6. Remove drain hose.
7. Dispose of waste properly.
8. Attach fuel tank drain access cover.

1—Fuel Tank Drain Access
Cover

2—Fuel Tank Drain Fitting



Fuel Tank Drain Access Cover



Fuel Tank Drain Fitting

ER93822,00000F6-19-16NOV11-1/1

TX1101414A—UN—16NOV11

TX1101415A—UN—16NOV11

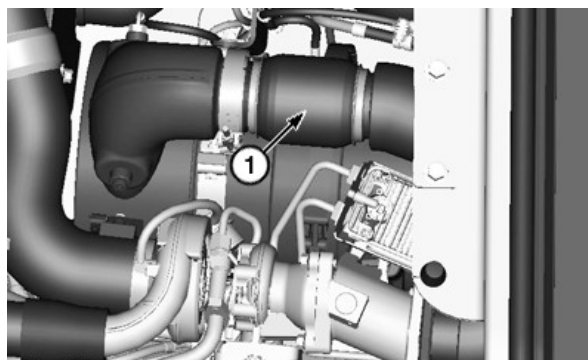
Service Exhaust Filter

CAUTION: Under federal, state, and/or local laws or regulations, exhaust filter ash may be classified as a hazardous waste. Hazardous waste must be disposed of in accordance with all applicable federal, state and local laws or regulations governing hazardous waste disposal. Only a qualified service provider should remove ash from the exhaust filter. See your authorized dealer for exhaust filter ash handling and disposal.

Do not attempt to remove exhaust filter (1) from machine. **Contact your authorized dealer to remove exhaust filter for ash removal or replacement.**

Failure to follow the approved ash removal methods may violate U.S. federal, state and local hazardous waste laws, along with damage to the exhaust filter resulting in potential denial of the emissions warranty.

The exhaust filter is designed to retain residual ash, which is a noncombustible result of additives used in crankcase lubrication oils and the fuel. As ash levels rise, the capacity



Exhaust Filter

1—Exhaust Filter

for soot storage is reduced. Engine performance can be reduced due to increased exhaust system back pressure. The residual ash must be removed from the filter. Ash removal is performed by removing the exhaust filter from machine and having it cleaned by specialized equipment or replacing the exhaust filter.

ER93822,0000005-19-28DEC11-1/1

TX1102798A—UN—12JAN12

Maintenance—Every 10 Hours or Daily

Check Coolant Level at Surge Tank

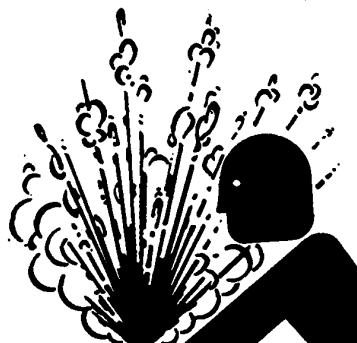
⚠ CAUTION: Prevent possible injury from hot spraying fluids. Shut off engine. Remove filler cap only when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

1. With the engine cold, coolant level must be between MIN COLD level (2) and MAX COLD level markings on surge tank (1).
2. If coolant is below the MIN COLD level marking, add coolant to the surge tank.
3. If there is no coolant in the surge tank, add coolant to the surge tank and the radiator.

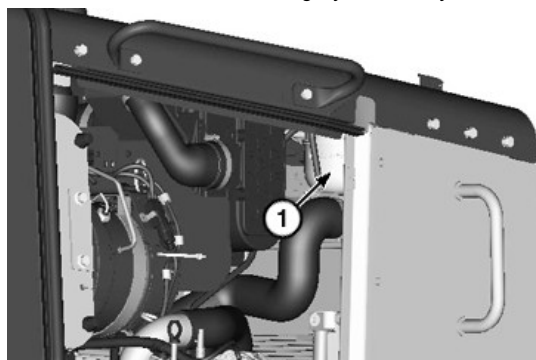
1—Surge Tank

3—MAX COLD Level

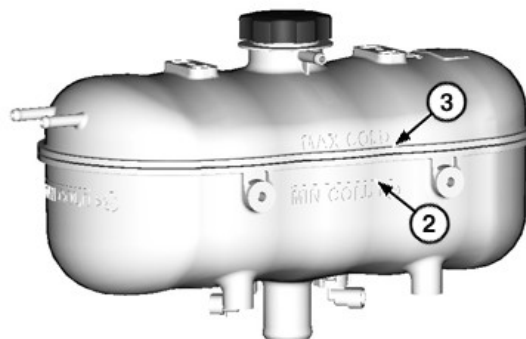
2—MIN COLD Level



Service Cooling System Safely



Location of Surge Tank



Surge Tank

ER93822,00000F9-19-19MAR13-1/1

T6464AV—UN—18OCT88

TX1101425A—UN—16NOV11

TX1101426A—UN—16NOV11

Check Engine Oil Level

IMPORTANT: Do not run engine when oil level is below the ADD notch (4) on dipstick.

The most accurate oil level reading is obtained when the engine is cold before starting the engine for the day's operation.

1. Park machine on a level surface.
2. Engage park lock levers in the up (locked) position.
3. Make sure dipstick (1) is fully seated.
4. Remove dipstick to check oil level.

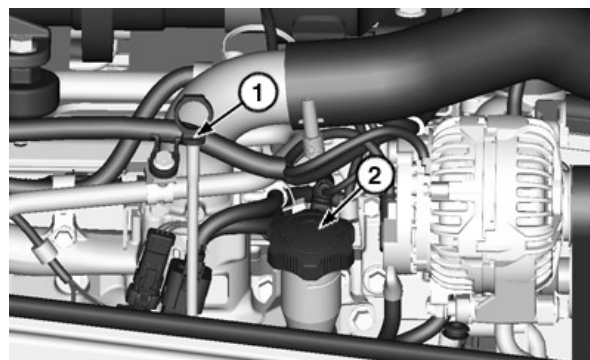
BEFORE THE ENGINE IS STARTED: The engine is full when oil level is between the FULL notch and ADD notch (4). It is acceptable to run the engine when the oil level is above the ADD notch.

AFTER THE ENGINE HAS BEEN RUN: Allow the oil to drain into the oil pan for 10 minutes before checking the oil level. Ten minutes after shutdown the engine oil level must be above the ADD notch.

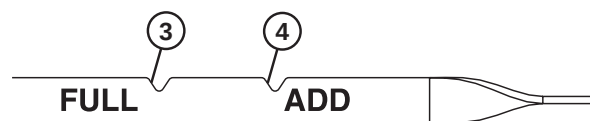
5. If necessary, remove the filler cap (2) to add oil. See Diesel Engine Oil—Interim Tier 4 and Stage III B Engines. (Section 3-1.)
6. Check oil on dipstick again.

1—Dipstick
2—Filler Cap

3—FULL Notch
4—ADD Notch



Engine Oil Dipstick and Filler Tube Location (550K shown)



Oil Dipstick Markings

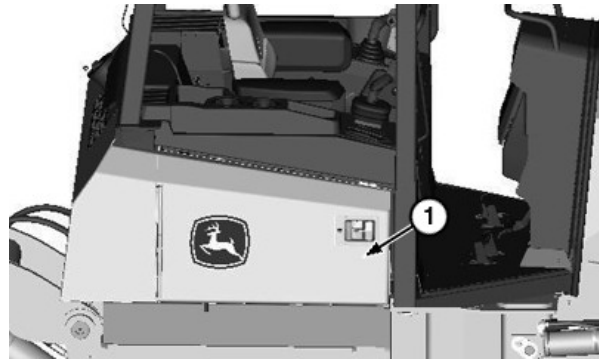
ER93822,00000FB-19-12AUG15-1/1

Check or Drain Primary Fuel Filter

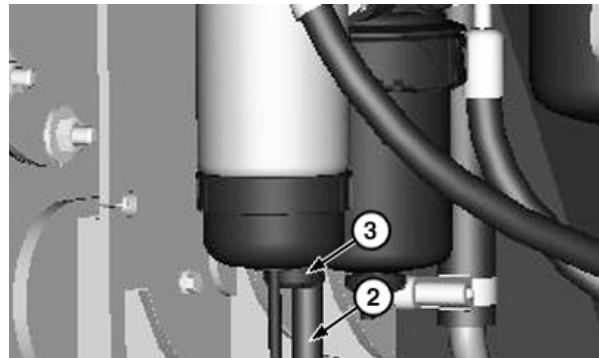
1. Open rear right service door (1).
 2. Route drain hose (2) into a suitable container.
- NOTE:** Drain waste into a container. Dispose of waste properly.
3. Loosen drain valve (3). Drain liquid for several seconds or until water and sediment is removed.
 4. Close drain valve.
 5. Replace drain hose.
 6. Dispose of waste properly.
 7. Bleed fuel system. See Bleed Fuel System. (Section 4-1.)

1—Service Door
2—Drain Hose

3—Drain Valve



Service Door



Primary Filters

ER93822,00000FC-19-12JAN12-1/1

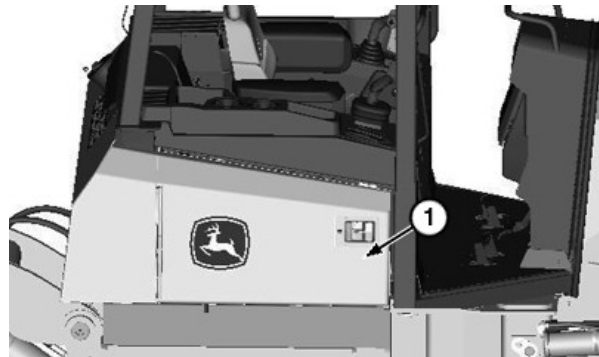
Check Hydraulic System Oil Level

IMPORTANT: DO NOT operate engine without oil in reservoir.

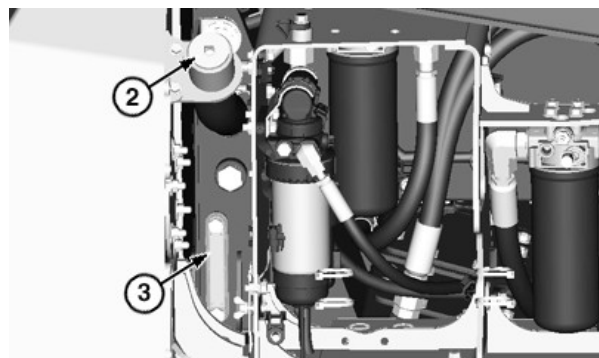
1. Park machine on level surface and lower all equipment to ground.
2. Stop engine.
3. Open rear right service door (1).
4. Oil must be between ADD and FULL marks in sight glass (3).
5. If necessary, remove cap and add oil to fill port (2). See Hydraulic and Hydrostatic Oil. (Section 3-1.)
6. Check O-ring on cap before installing. Replace if necessary.
7. Close service door.

1—Service Door
2—Fill Port

3—Sight Glass



Service Door



Hydraulic Oil Fill Port and Sight Glass

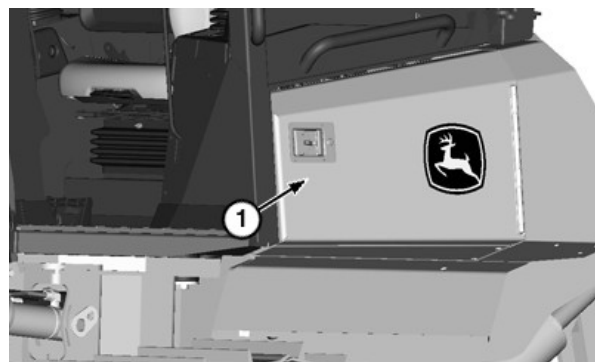
ER93822,00000FD-19-12AUG15-1/1

Check Hydrostatic Transmission Oil Level

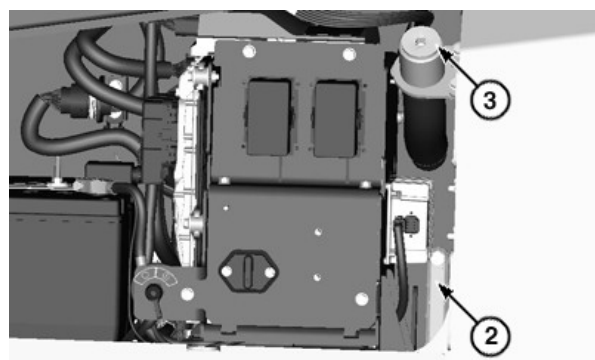
1. Park machine on level ground.
2. Stop engine.
3. The hydrostatic transmission oil reservoir, fill port and sight glass are located on the left side of the machine. Open rear left service door (1).
4. Oil must be within the ADD mark and FULL mark on sight glass (2).
5. If necessary, add oil to fill port (3). See Hydraulic and Hydrostatic Oil. (Section 3-1.)
6. Check O-ring on cap before installing. Replace if necessary.
7. Close rear left service door.

1—Service Door
2—Sight Glass

3—Fill Port



Service Door



Sight Glass

ER93822,00000FE-19-13AUG15-1/1

TX1101553A—UN—17NOV11

TX1101544A—UN—17NOV11

Check or Drain Auxiliary Fuel Filter and Water Separator—If Equipped

NOTE: Auxiliary fuel filter and water separator comes equipped with a heater element (6). Heater element prevents fuel from solidifying in severe cold conditions.

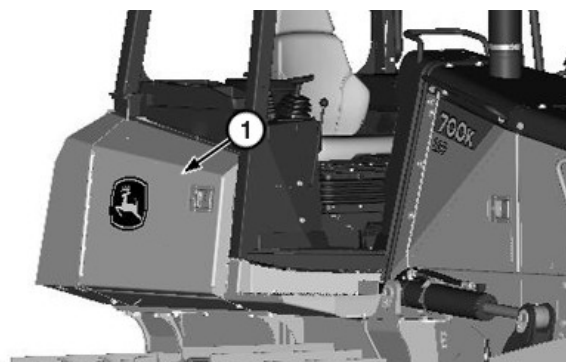
1. Open right rear service door (1) to access auxiliary fuel filter and water separator.
2. Place suitable container under drain hose (2).
3. Loosen air vent (3) and drain valve (4). Drain water and sediment into suitable container.
4. Tighten drain valve.

IMPORTANT: Do NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

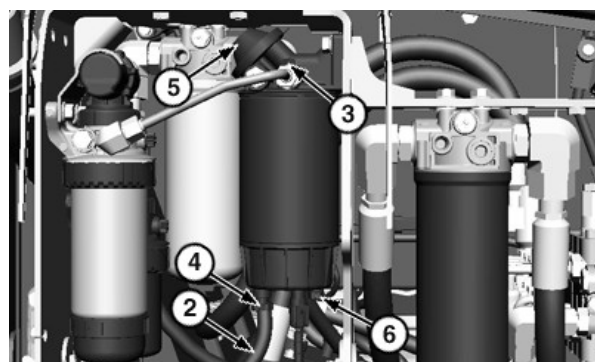
5. Bleed fuel system with fuel priming pump button (5), until air is vented.
6. Tighten air vent.
7. Operate engine and check for leaks.

1—Service Door
2—Drain Hose
3—Air Vent

4—Drain Valve
5—Fuel Priming Pump Button
(hand operated)
6—Heater Element



Service Door



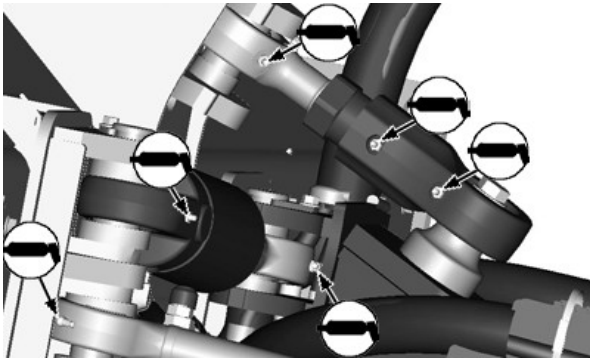
Severe Duty Fuel Filter

ER93822,000003E-19-09JAN12-1/1

TX1103552A—UN—13DEC11

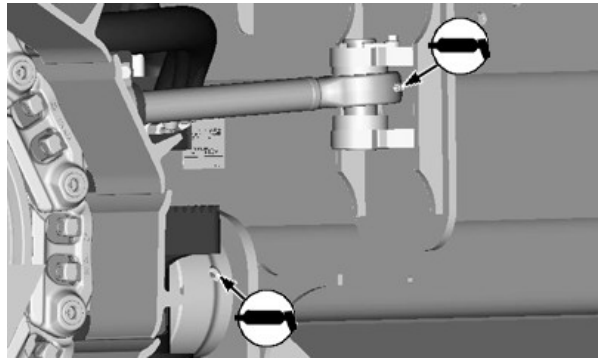
TX1103903A—UN—09JAN12

Lubricate Dozer Linkage and Blade Socket



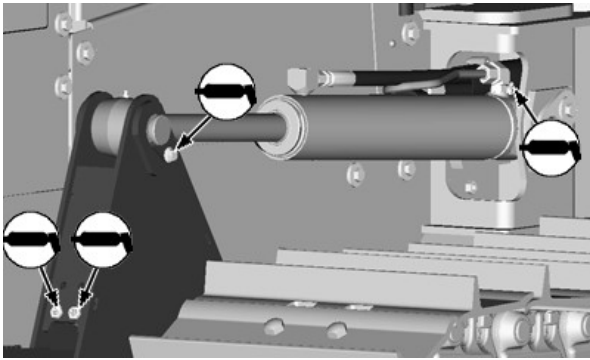
TX1101850A—UN—21NOV11

Blade Linkage Front Left



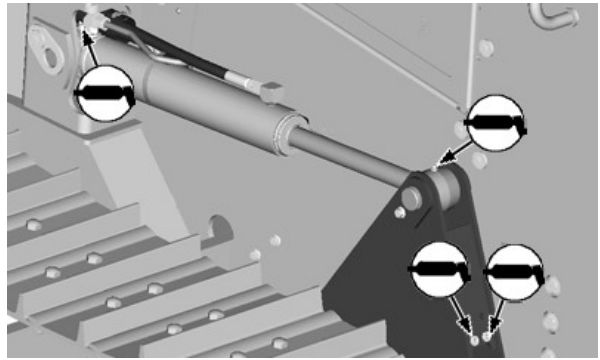
TX1101853A—UN—21NOV11

Blade Linkage Front Right



TX1101851A—UN—21NOV11

Dozer Linkage Left



TX1101852A—UN—21NOV11

Dozer Linkage Right

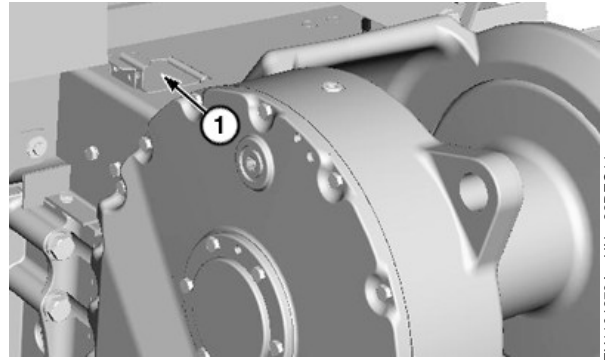
Using a grease gun, lubricate each grease fitting until grease escapes at joints. See Grease. (Section 3-1.)

ER93822,0000101-19-12JAN12-1/1

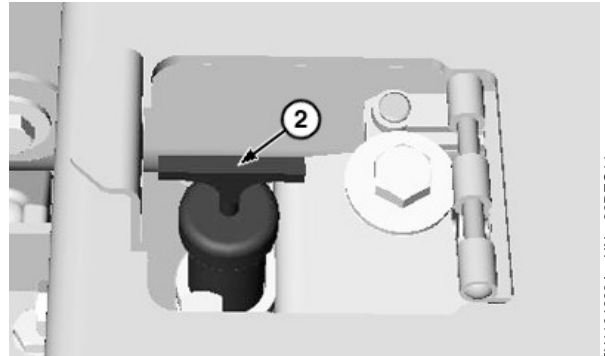
Check Winch Oil Level—If Equipped

1. Park machine on level surface and lower all equipment to ground.
2. Place transmission control lever in neutral position (N).
3. Move park lock levers to up (locked) position.
4. With engine running, move engine speed control dial to fast idle.
5. Open winch oil dipstick access cover (1).
6. Loosen winch oil dipstick (2) and remove.
7. Check dipstick.
8. Oil must be between ADD and FULL marks on dipstick.
9. If necessary, add oil. See Final Drive Oil and Winch Oil. (Section 3-1.)
10. Close access cover.

1—Winch Oil Dipstick Access Cover 2—Winch Oil Dipstick Cover



Winch Oil Dipstick Access Cover



Winch Oil Dipstick

ER93822,0000057-19-12AUG15-1/1

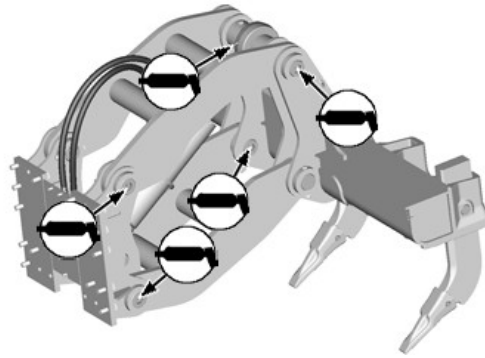
TX1104279A—UN—22DEC11

TX1104280A—UN—22DEC11

Maintenance—Every 50 Hours

Lubricate Ripper—If Equipped

Lubricate each grease fitting until grease escapes at joints.
See Grease. (Section 3-1.)



9 Points Total; Right Side Shown

TX1101858A—UN—21NOV11

ER93822,0000102-19-11JAN12-1/1

Maintenance—Every 250 Hours

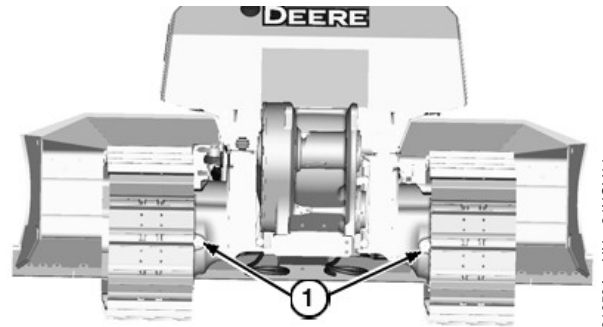
Check Final Drive Oil Level

1. Park machine on a level surface and turn engine off.
2. Remove filler plug (1). Oil must be within 13 mm (0.5 in.) of bottom of filler hole.

IMPORTANT: Avoid overheating and damage to components. Do not overfill final drives. If specified fill volumes are not met, malfunction of final drive can occur.

3. Add oil if needed. See Final Drive Oil. (Section 3-1.)
4. Install filler plug.
5. Repeat procedure for other final drive.

1—Filler Plug (2 used)



Final Drive Plugs

TX1101859A—UN—21NOV11

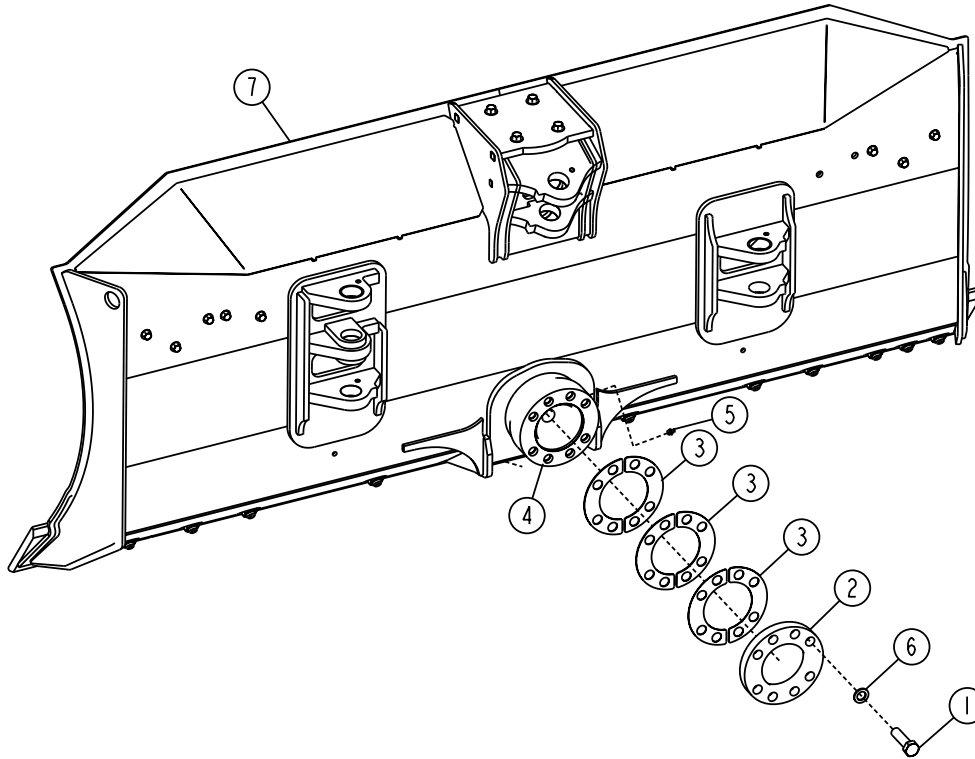
ER93822,000006D-19-11MAY16-1/1

Take Engine Oil Sample

See your authorized dealer.

OUT4001,000039B-19-14MAR12-1/1

Check Blade Shim Adjustment



TX1064880

Blade Pivot Shim Adjustment

1—Cap Screw (8 used)
2—Socket Retainer

3—Shim (3 included)
4—Socket

5—Lubrication Fitting
6—Washer (8 used)

7—Blade

1. Park machine on level surface. Lower blade to ground.
2. Remove cap screws (1) from socket retainer (2). Remove shims (3).

3. Install ball socket retainers without shims. Measure gap, remove ball socket retainers.
4. Install enough shims to fill gap, plus one extra shim.

ER93822,0000004-19-05DEC14-1/2

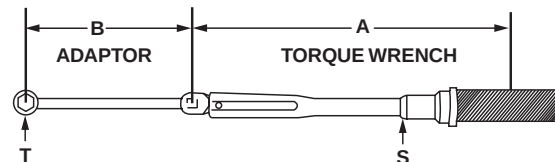
NOTE: Do not use anti-seize lubricant on these cap screws.

5. Install ball socket retainers and install socket cap screws to blade ball. Tighten pivot cap screws using DFT1278 (see your authorized dealer) along with torque adaptor formula: $S = (A \cdot T) / (A + B)$;

- S = Torque setting on the torque wrench.
- A = Distance from center of the square drive to the center of the handle grip.
- B = Length of the adapter from the center of the square drive to the center of the cap screw. Use only the length which is parallel to the handle.
- T = Torque desired.

Specification

Socket Retainer Cap
Screws—Torque. 490 N·m
361 lb.-ft.



Torque Wrench

6. Verify the ball and socket joint is bound.

NOTE: There should be some play in the ball and socket joint.

ER93822,0000004-19-05DEC14-2/2

Maintenance—Every 500 Hours

Drain and Refill Engine Oil and Replace Filter

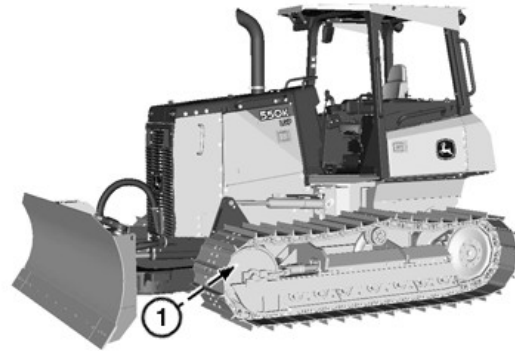
1. Run engine to warm oil. Park machine on a level surface. Lower equipment to ground and stop engine.
2. Remove engine oil pan service cover (1) located on the bottom side of machine.
3. Remove drain plug and allow oil to drain into a suitable container. Dispose of waste oil properly.
4. Install drain plug.
5. Turn engine oil filter (3) counterclockwise to remove. Clean mounting surface on base.
6. Apply thin film of oil to gasket of new filter.
7. Install new filter. Turn filter clockwise by hand until gasket touches mounting surface.
8. Tighten 1/2 turn more.
9. Remove fill tube cap (4). Fill engine with oil at fill tube. See Diesel Engine Oil—Interim Tier 4 and Stage III B Engines. (Section 3-1.)

For additional information concerning capacity of engine oil system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)

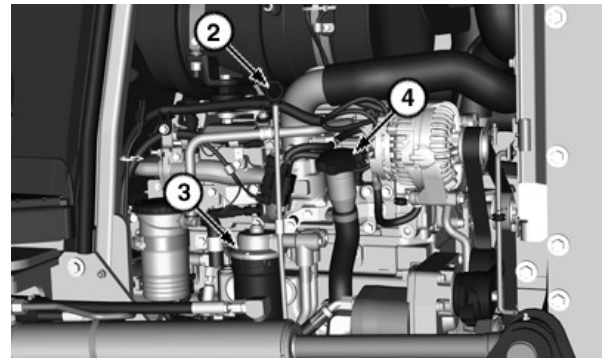
10. Install fill tube cap, start engine.

Engine oil pressure indicator on standard display monitor must go out within 15—20 seconds. If not, stop engine immediately and find the cause.

11. After running engine for 2 minutes, stop engine. Using dipstick (2), check oil level.
12. Check for leaks around filter and drain plug. Tighten only enough to stop leaks.



Location of Engine Oil Pan Service Cover



Engine Oil Filter, Dipstick and Filler Tube

1—Service Cover
2—Dipstick

3—Engine Oil Filter
4—Fill Tube Cap

13. Install oil pan service cover.

ER93822,0000103-19-12AUG15-1/1

TX1105260A—UN—11JAN12

TX1102632A—UN—12DEC11

Replace Primary and Final Fuel Filters

IMPORTANT: Do not prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

NOTE: Perform this service at 500 hour intervals when operating in normal conditions. When operating in dry, dusty conditions, replace fuel filter as necessary.

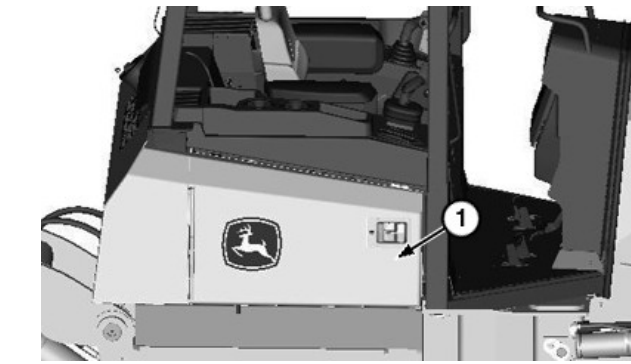
NOTE: Both primary and final filters must be replaced at the same time. Bleed fuel system after replacing one or both fuel filters. See *Bleed Fuel System*. (Section 4-1.)

Remove and Install Primary Fuel Filter Element

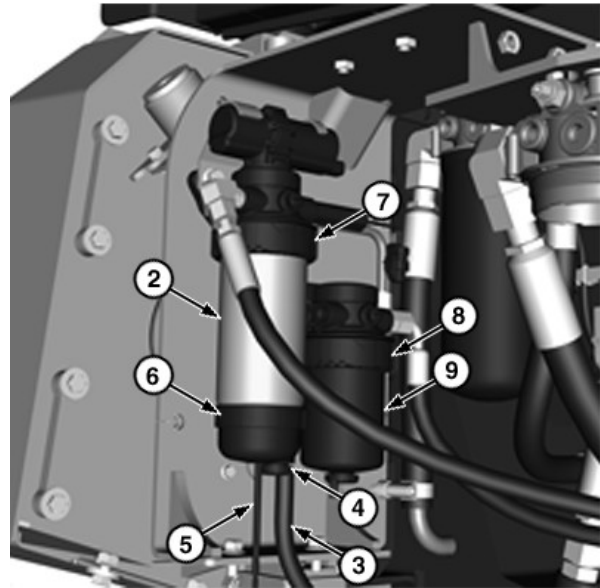
1. Park machine on a level surface.
 2. Open service door (1) to access fuel filters.
 3. Thoroughly clean primary fuel filter (2) and surrounding area to keep from getting dirt and debris into fuel system.
 4. Place end of drain hose (3) into a suitable container.
- CAUTION:** Fuel in filter may be under pressure. Escaping fuel under pressure can penetrate the skin and cause serious injury. Relieve pressure before removing filter.

5. Loosen drain valve (4) on bottom of filter to relieve pressure and drain fuel. Dispose of waste properly.
 6. Disconnect water-in-fuel (WIF) sensor (5) connector.
- NOTE:** Additional fuel will remain in the primary fuel filter housing. Fuel may not reach the top of primary fuel filter.
7. Turn filter canister counterclockwise to remove.
 8. Once filter canister is removed, pull filter element down to remove from filter head.
 9. Inspect filter head and filter canister sealing surfaces. Clean as required.

10. Install water separator bowl (6) to new primary fuel filter.
11. Place new packing on filter canister.
12. Place thin film of fuel on filter packing.
13. Place filter element in canister with tangs on bottom going into canister.
14. Screw canister into filter head (7) and turn clockwise. Tighten until canister lip just mates with head lip, then tighten to specification:



Service Door



Primary and Final Fuel Filters

- | | |
|------------------------------|----------------------------|
| 1—Service Door | 6—Water Separator Bowl |
| 2—Primary Fuel Filter | 7—Primary Fuel Filter Head |
| 3—Drain Hose | 8—Final Fuel Filter Head |
| 4—Drain Valve | 9—Final Fuel Filter |
| 5—Water-In-Fuel (WIF) Sensor | |

Specification

Primary Fuel Filter Canister to Filter Head—Torque. 14 N·m
120 lb-in.

15. Connect WIF sensor connector.
16. Bleed fuel system after replacing one or both fuel filters. See *Bleed Fuel System*. (Section 4-1.)

NOTE: Both primary and final filters must be replaced at the same time.

Continued on next page

ER93822,0000003-19-12JAN12-1/2

Remove and Install Final Fuel Filter Element

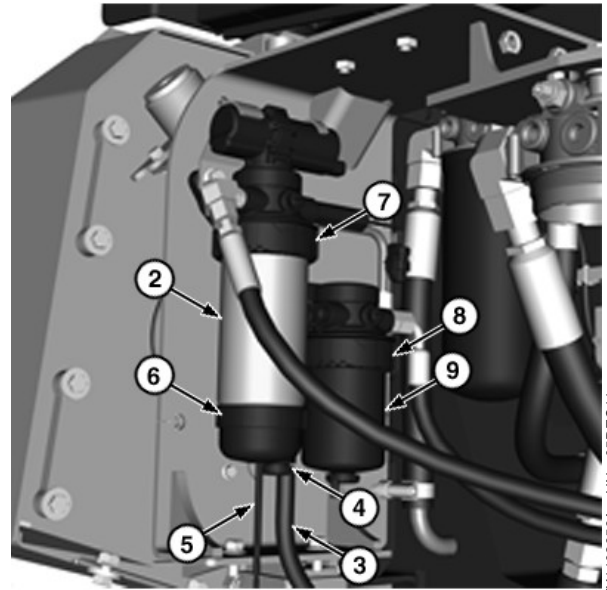
1. Thoroughly clean final fuel filter head (8) and surrounding area to keep from getting dirt and debris into fuel system.
2. Turn final fuel filter (9) counterclockwise to remove.
3. Inspect filter head sealing surfaces. Clean as required.
4. Install new fuel filter drain valve and tighten to specification.

Specification

Final Fuel Filter Drain Valve—Torque 3.4—4.0 N·m
30—35 lb-in.

5. Place new filter packing on filter.
6. Place a thin film of fuel on packing.
7. Screw fuel filter into fuel filter head, turning clockwise. Tighten until fuel filter snugly mates with fuel filter head.
8. Turn filter 1/2 to 3/4 turn further clockwise.
9. Bleed fuel system after replacing one or both fuel filters. See Bleed Fuel System. (Section 4-1.)

NOTE: Both primary and final filters must be replaced at the same time.



Primary and Final Fuel Filters

- | | |
|------------------------------|----------------------------|
| 2—Primary Fuel Filter | 6—Water Separator Bowl |
| 3—Drain Hose | 7—Primary Fuel Filter Head |
| 4—Drain Valve | 8—Final Fuel Filter Head |
| 5—Water-In-Fuel (WIF) Sensor | 9—Final Fuel Filter |

ER93822,0000003-19-12JAN12-2/2

Replace Auxiliary Fuel Filter and Water Separator—If Equipped

IMPORTANT: Do not prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

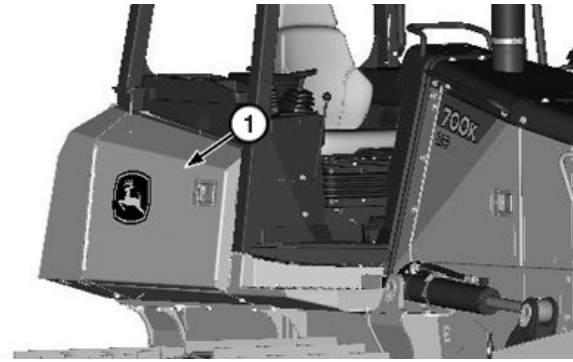
NOTE: Auxiliary fuel filter and water separator (2) comes equipped with a heater element (3). Heater element prevents fuel from solidifying in severe cold conditions.

Continued on next page

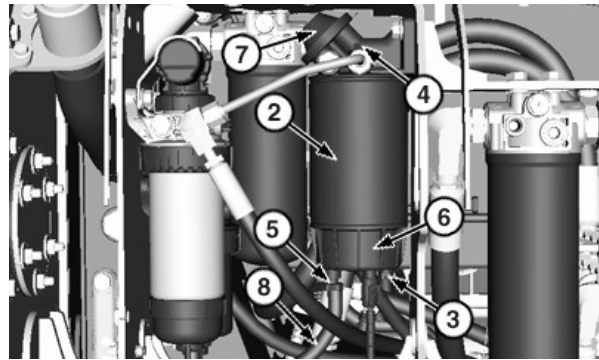
ER93822,0000003F-19-12JAN12-1/2

1. Open rear left service door (1) to access auxiliary fuel filter and water separator (2).
2. Place drain hose (8) in suitable container.
3. Open air vent (4) and drain valve (5) to remove fuel. Dispose of waste properly.
4. Remove water separator bowl (6).
5. Remove and replace auxiliary fuel filter and water separator.
6. Install water separator bowl.
7. Close drain valve.
8. Remove trapped air from fuel filter by using air vent and priming hand pump (7).
9. Start engine and let it run for 1 minute. Check for leaks.
10. If needed, tighten filter element and glass bowl only enough to stop leaks.

- | | |
|---|------------------------|
| 1—Service Door | 5—Drain Valve |
| 2—Auxiliary Fuel Filter and Water Separator | 6—Water Separator Bowl |
| 3—Heater Element | 7—Priming Hand Pump |
| 4—Air Vent | 8—Drain Hose |



Service Door



Auxiliary Fuel Filter

ER93822,000003F-19-12JAN12-2/2

Replace Winch Oil Filter—If Equipped

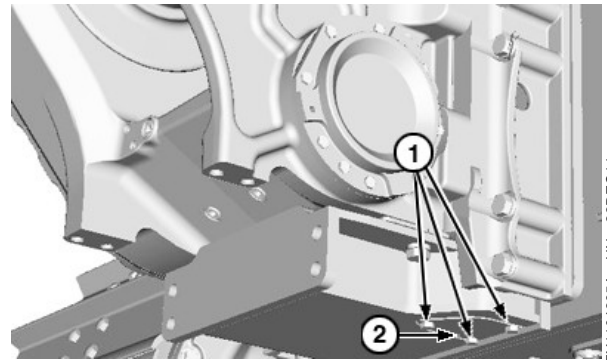
1. The winch oil filter is located on right side between winch and crawler.
2. Remove three cap screws (1) and winch oil filter access panel (2).

NOTE: The filter canister has a recessed 1/2 in. drive on bottom to assist removal of filter.

3. Remove oil filter access cover.
4. Remove filter (3) by turning counterclockwise.
5. Apply a thin film of oil to gasket of new filter.
6. Install new filter.
7. Install winch oil filter access panel with three cap screws.
8. Run engine at slow idle. Check oil level on dipstick. Oil must be between ADD and FILL marks on dipstick. Add oil through dipstick fill port (4) if necessary.
9. Check oil level again.

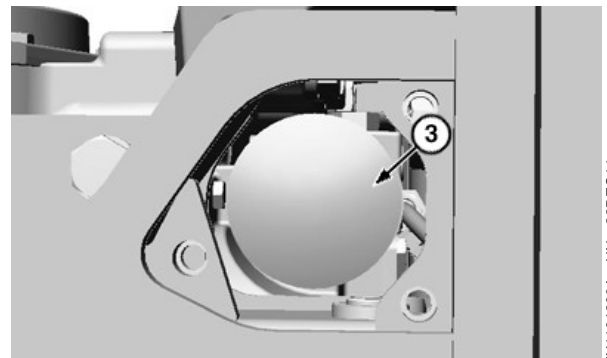
1—Cap Screw (3 used)
2—Winch Oil Filter Access
Panel

3—Winch Oil Filter
4—Winch Oil Dipstick Fill Port



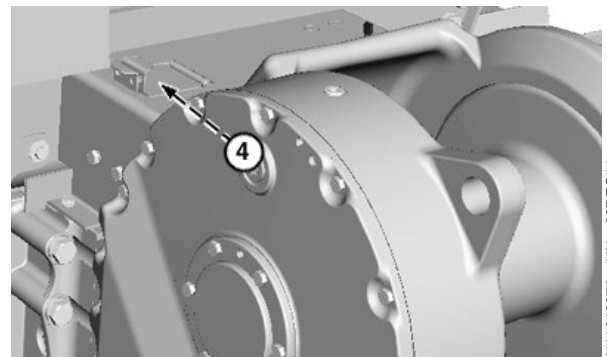
TX1104285A—UN—22DEC11

Winch Oil Filter Access Panel



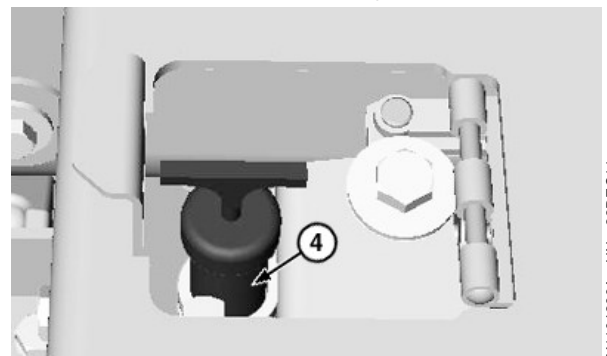
TX1104286A—UN—22DEC11

Winch Oil Filter



TX1104287A—UN—22DEC11

Location of Winch Oil Dipstick Port

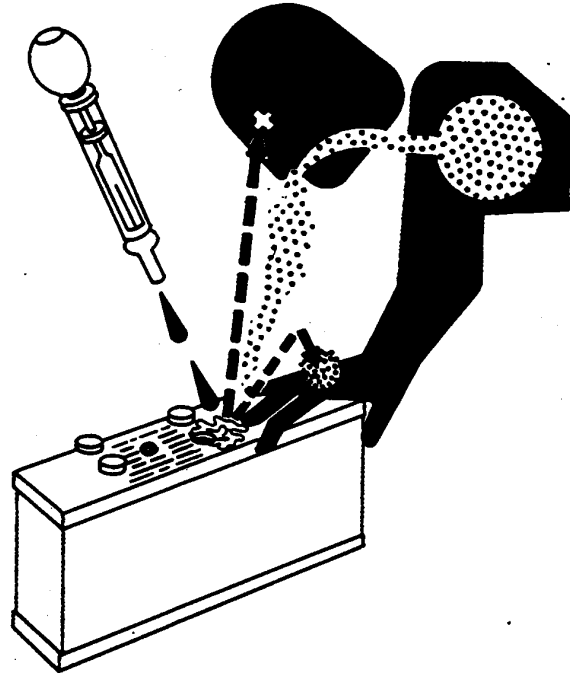


TX1104288A—UN—22DEC11

Winch Oil Dipstick Fill Port

ER93822,0000053-19-09JAN12-1/1

Check Battery Electrolyte Level; Clean and Tighten Terminals



TS203—UN—23AUG88

TX,70,RR,A7-19-09DEC10-1/4

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Using proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10—15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



TS204—UN—15APR13

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (—) battery clamp first and replace it last.

1. Remove hold-down clamps.

Continued on next page

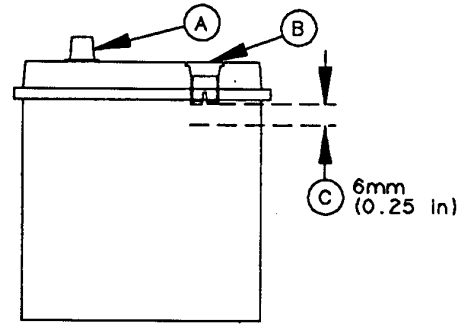
TX,70,RR,A7-19-09DEC10-2/4

IMPORTANT: Add water to batteries in freezing weather before you begin operating your machine for the day, or else charge the batteries.

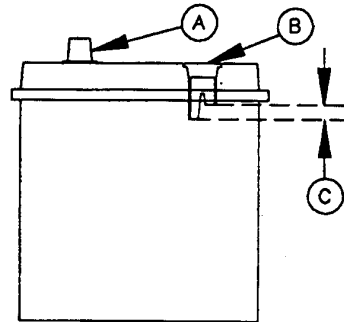
2. Fill each cell to within specified range (C) with distilled water. DO NOT overfill.

A—Battery Post
B—Fill Tube

C—Electrolyte Level Range



Single Level Fill Tube Application



Dual Level Fill Tube Application

TX,70,RR,A7-19-09DEC10-3/4

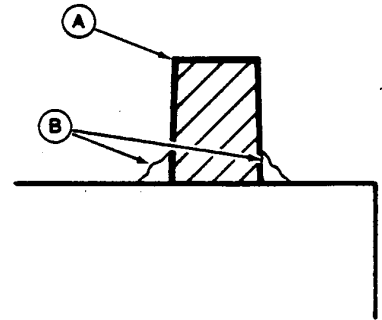
T6996DB—UN—10FEB89

T6996DA—UN—10FEB89

3. Disconnect battery clamps, grounded clamp first.
4. Clean battery terminals (A) and clamps with a stiff brush.
5. Apply lubricating grease (B) around battery terminal base only.
6. Install and tighten clamps, grounded clamp last.
7. Install hold-down clamps.

A—Battery Terminals

B—Lubricating Grease



TX,70,RR,A7-19-09DEC10-4/4

T6768AA—UN—21OCT88

Take Fluid Samples

See your authorized dealer for taking the following fluid samples:

- Hydraulic Oil

- Transmission Oil
- Final Drives Oil
- Coolant
- Diesel Fuel

ER93822,0000035-19-11JAN12-1/1

Maintenance—Every 1000 Hours

Check Coolant

See Check Coolant. (Section 3-3.)

OUT4001,0000365-19-28JUL14-1/1

Drain and Refill Final Drive Oil

1. Park machine on level surface.
2. Place suitable container(s) under drain plugs.
3. Remove drain plugs (2) and filler plugs (1) to drain oil.
4. Install and tighten drain plugs.
5. Dispose of drained oil properly.

IMPORTANT: Avoid overheating and damage to components. Do not overfill final drives. If specified fill volumes are not met, malfunction of final drive can occur.

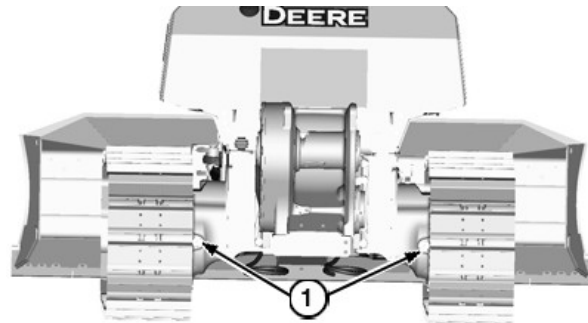
6. Fill final drives with oil according to specifications. See Final Drive Oil. (Section 3-1.) Fill housing with oil until oil flows from fill port.

For additional information concerning capacity of final drive housing, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)

7. Install and tighten filler plugs.

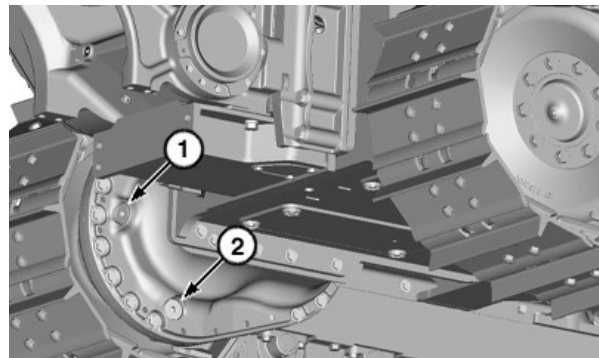
1—Filler Plug (2 used, 1 per side)

2—Drain Plug (2 used, 1 per side)



TX1101859A—UN—21NOV11

Filler Plugs



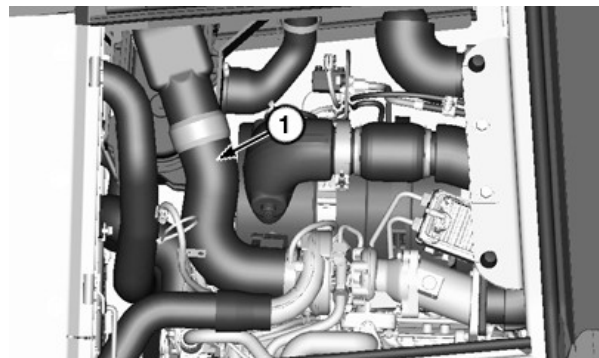
TX1102663A—UN—03DEC11

Final Drive Housing (Left Side Shown)

ER93822,0000036-19-11MAY16-1/1

Check Air Intake Hose

1. Check air intake hose (1) for cracks and replace as necessary.
2. Check for loose connections and tighten clamps as necessary.



TX1104341A—UN—03JAN12

Air Intake Hose

ER93822,0000059-19-09JAN12-1/1

Drain and Refill Winch Oil and Replace Filter—If Equipped

The winch oil filter (3) is located on right side between winch and crawler.

1. Remove cap screws (1) and winch oil filter access panel (2).

NOTE: The filter canister has a recessed 1/2 in. drive on bottom to assist removal of filter.

2. Remove filter by turning counterclockwise.
3. Place suitable container under drain plug (4).
4. Remove drain plug.
5. Allow oil to drain into container.
6. Install drain plug.
7. Dispose of waste properly.
8. Apply a thin film of oil to gasket of new filter.
9. Install new filter.
10. Fill winch oil reservoir through main winch oil fill port (5) per specification. Main winch oil port is located at top of winch. See Final Drive Oil and Winch Oil. (Section 3-1.)

Specification

Main Winch Oil Fill Port—Capacity. 34.0 L
9.0 gal.

11. Add additional winch oil through dipstick fill port (6) per specification.

Specification

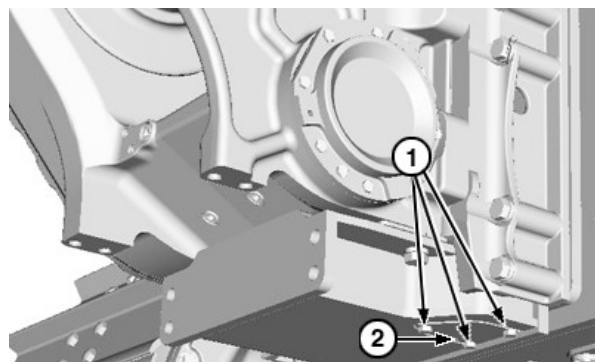
Winch Oil Dipstick Fill Port—Capacity. 4.0 L
1.0 gal.

12. Run engine at slow idle. Check oil level on dipstick. Oil must be between ADD and FULL marks on dipstick. Add oil if necessary. Check oil level again.

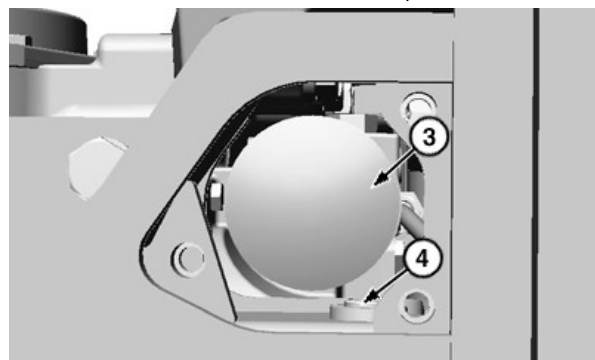
13. Install winch oil filter access cover and cap screws.

1—Cap Screw (3 used)
2—Winch Oil Filter Access
Panel
3—Winch Oil Filter

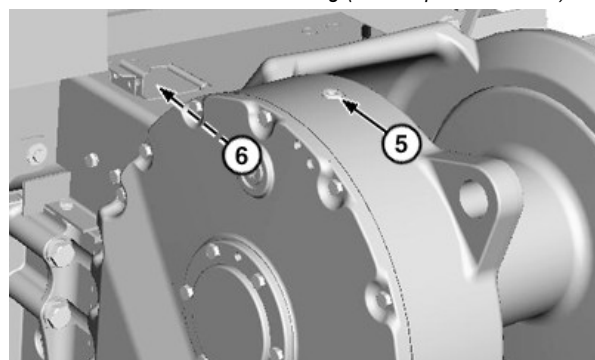
4—Drain Plug
5—Main Winch Oil Fill Port
6—Winch Oil Dipstick Fill Port



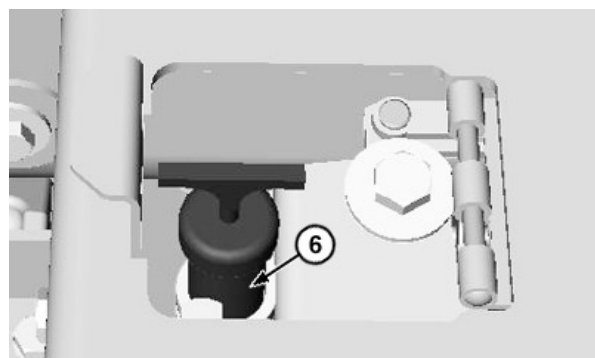
Winch Oil Filter Cover and Cap Screws



Winch Oil Filter and Drain Plug (Access panel removed)



Location of Fill Ports



Winch Oil Dipstick Fill Port

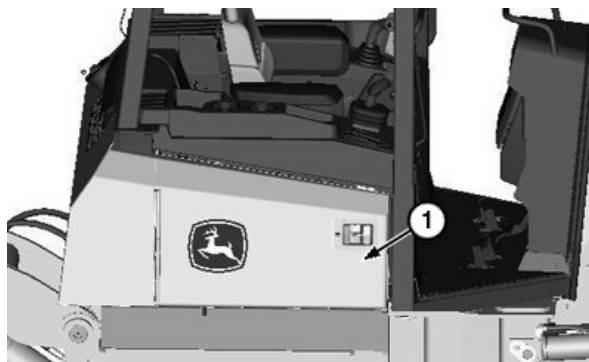
ER93822,0000055-19-12AUG15-1/1

Clean or Replace Winch Hydraulic Breather Filter—If Equipped

1. Open rear right service door (1).
2. Remove hose (2) from breather filter (3).
3. Using compressed air, clean filter. If filter can not be cleaned, replace filter.
4. Install hose end on filter making sure arrow points in same direction (toward reservoir).
5. Tighten clamp (4) with cap screw.
6. Close service door.

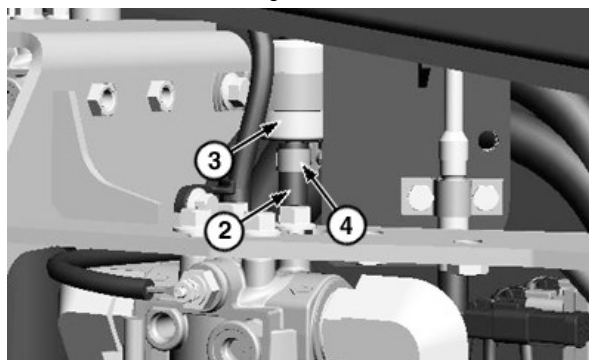
1—Service Door
2—Hose

3—Breather Filter
4—Clamp



TX1101514A—UN—17NOV11

Rear Right Service Door



TX1104307A—UN—22DEC11

Behind Transmission Filter

ER93822,0000056-19-09JAN12-1/1

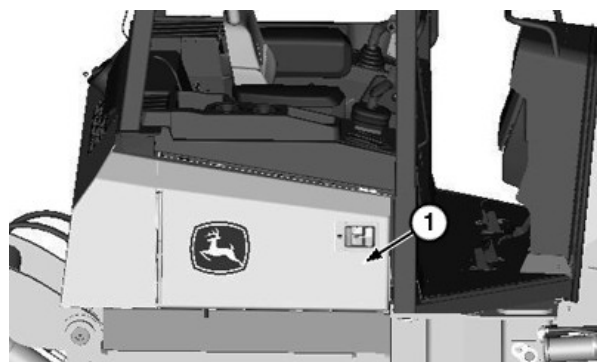
Maintenance—Every 2000 Hours

Drain and Refill Hydraulic System Oil and Replace Filter

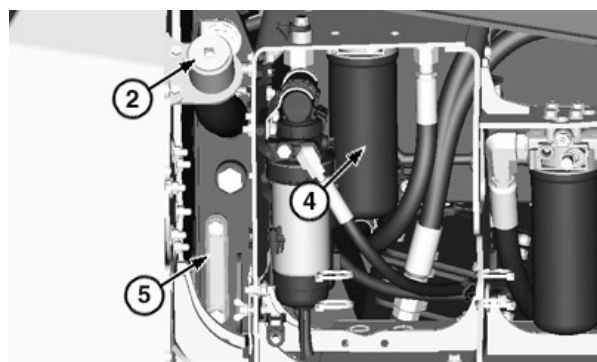
IMPORTANT: Avoid hydraulic system component damage. Replace filter before recommended service interval if hydraulic oil filter indicator stays on after oil is warm.

1. Open right rear service door (1).
 2. Loosen hydraulic oil filler plug (2) to relieve pressure.
 3. Remove hydraulic oil drain hose access panel (3).
 4. Place open end of hydraulic oil drain hose (6) into suitable container.
 5. Remove rear plate access panel.
 6. Turn hydraulic oil drain valve fitting (7) to drain oil.
 7. After hydraulic oil tank has been drained completely, turn hydraulic oil drain valve fitting to close hydraulic drain valve.
 8. Dispose of waste oil properly.
 9. Clean area around housing and remove hydraulic oil filter (4) by turning counterclockwise.
 10. Apply a film of oil to sealing ring on new filter. Install so gasket touches mounting surface and tighten an additional 3/4 to one turn with a suitable wrench.
 11. Fill reservoir with oil to specification and install plug.
- For additional information concerning capacity of hydraulic oil system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)
12. Move transmission control lever (TCL) to neutral (N). Start engine and run at slow idle for 5 minutes before operating machine. This will allow filter element to refill and air to be purged from charge circuit.
 13. Check for any leakage around element and tighten as necessary to stop leakage.
 14. Check oil level in hydraulic oil sight glass (5). Oil should be to midpoint.
 15. Close all service doors and install all access panels.

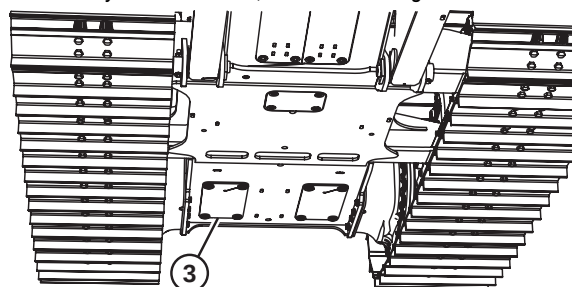
- | | |
|------------------------------------|-------------------------------------|
| 1—Right Rear Service Door | 5—Hydraulic Oil Sight Glass |
| 2—Hydraulic Oil Filler Plug | 6—Hydraulic Oil Drain Hose |
| 3—Hydraulic Oil Drain Access Panel | 7—Hydraulic Oil Drain Valve Fitting |
| 4—Hydraulic Oil Filter | |



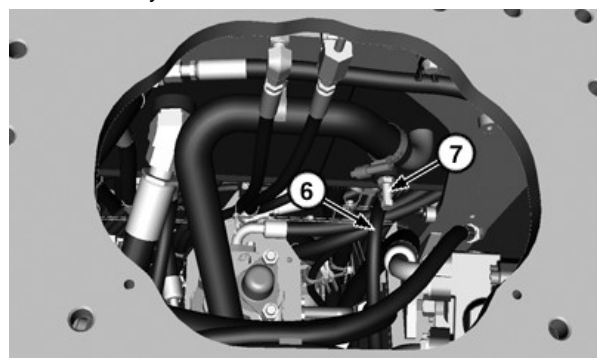
Service Door



Hydraulic Oil Filter, Fill Tube and Sight Glass



Hydraulic Oil Drain Hose Access Panel



Hydraulic Drain Valve Fitting and Hose (rear plate access panel removed)

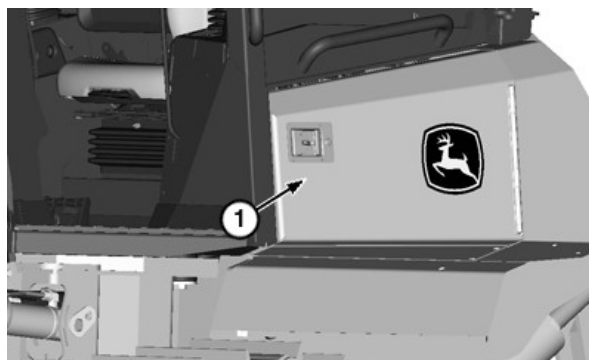
ER93822,0000037-19-12AUG15-1/1

Drain and Refill Hydrostatic Transmission Oil and Replace Filter

IMPORTANT: Avoid transmission component damage. Replace filter before recommended service interval if oil filter restriction warning indicator stays on after oil is warm.

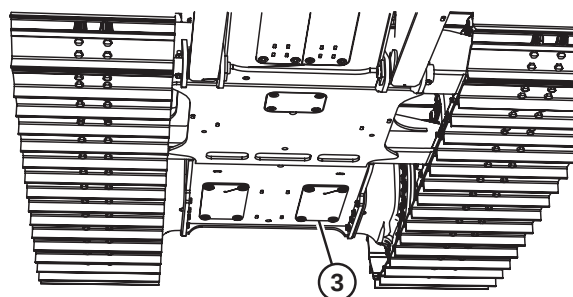
1. Open left rear service door (1).
2. Loosen transmission oil filler tube plug (2) to relieve pressure.
3. Remove transmission oil drain hose access panel (3).
4. Place open end of transmission oil drain hose (4) into suitable container.
5. Remove rear plate access panel.
6. Turn transmission oil drain valve fitting (5) to drain oil.
7. After transmission oil tank has been drained completely, turn transmission oil drain valve fitting to close transmission drain valve.
8. Dispose of waste oil properly.

- | | |
|--|--|
| 1—Left Rear Service Door | 4—Transmission Oil Drain Hose |
| 2—Transmission Oil Filler Tube Plug | 5—Transmission Oil Drain Valve Fitting |
| 3—Transmission Oil Drain Hose Access Panel | 8—Transmission Oil Sight Glass |



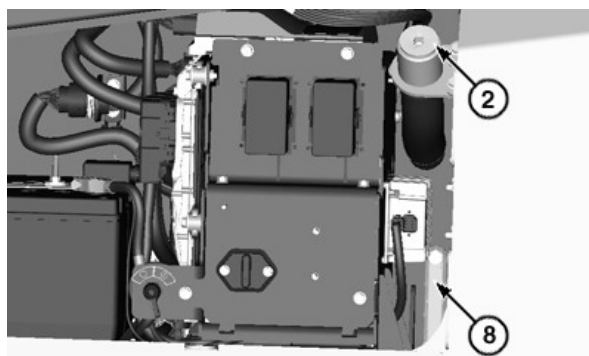
TX1101553A—UN—17NOV11

Left Rear Service Door



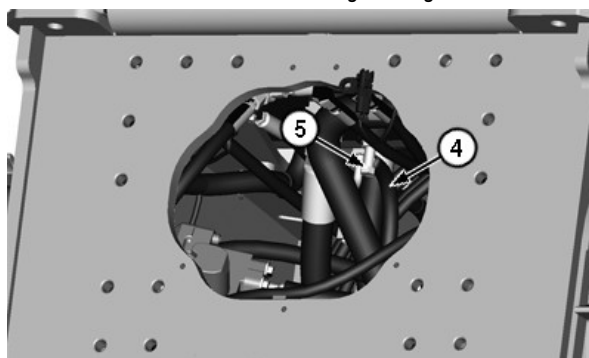
TX1102735—UN—06DEC11

Transmission Drain Hose Access Panel



TX1102774A—UN—06DEC11

Transmission Oil Filler Plug and Sight Glass



TX1102772A—UN—06DEC11

Hydraulic Oil Drain Hose and Valve (rear plate access panel removed)

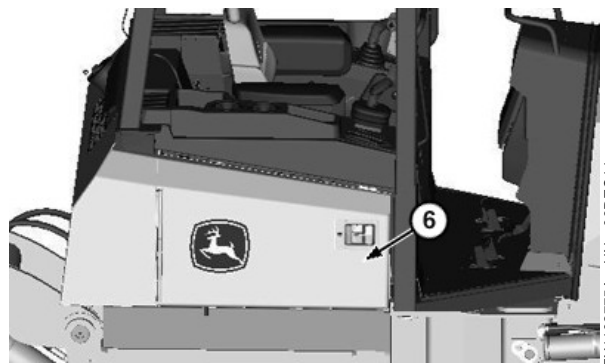
Continued on next page

ER93822,0000038-19-12AUG15-1/2

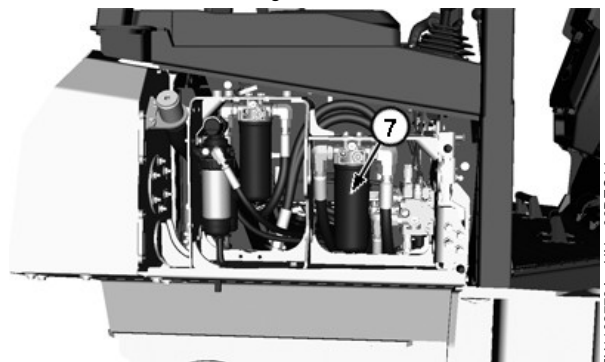
9. Open right rear service door (6).
10. Clean area around housing and remove transmission oil filter (7) by turning counterclockwise.
11. Apply a film of oil to sealing ring on new filter. Install so gasket touches mounting surface and tighten an additional 3/4 to one turn with a suitable wrench.
12. Fill reservoir with oil to specification and install plug.

For additional information concerning capacity of hydrostatic transmission oil system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)
13. Move transmission control lever (TCL) to neutral (N). Start engine and run at slow idle for 5 minutes before operating machine. This will allow filter element to refill and air to be purged from charge circuit.
14. Check for any leakage around element and tighten as necessary to stop leakage.
15. Check oil level in sight glass (8). Oil should be to midpoint.
16. Close all service doors and install all access panels.

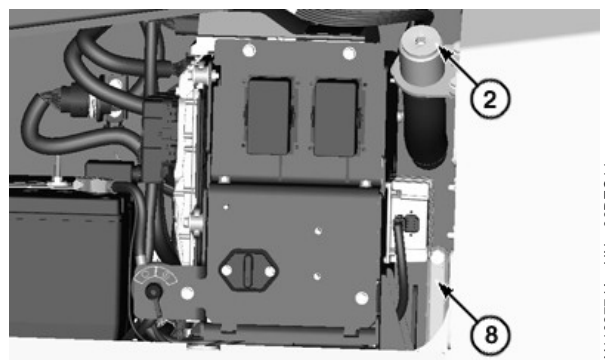
- | | |
|-------------------------------------|--------------------------------|
| 2—Transmission Oil Filler Tube Plug | 7—Transmission Oil Filter |
| 6—Right Rear Service Door | 8—Transmission Oil Sight Glass |



Rear Right Service Door



Transmission Oil Filter



Transmission Oil Filler Plug and Sight Glass

ER93822,0000038-19-12AUG15-2/2

Replace Open Crankcase Ventilation (OCV) Filter

See your authorized dealer.

ER79617,0000CAA-19-02DEC10-1/1

Maintenance—Every 3000 Hours

Check and Adjust Engine Valve Lash

See an authorized John Deere dealer.

CS33148,0000956-19-20MAY15-1/1

Maintenance—Every 6000 Hours

Drain and Refill Engine Cooling System

⚠ CAUTION: Prevent possible injury from hot spraying fluids. Shut off engine. Remove filler cap only when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

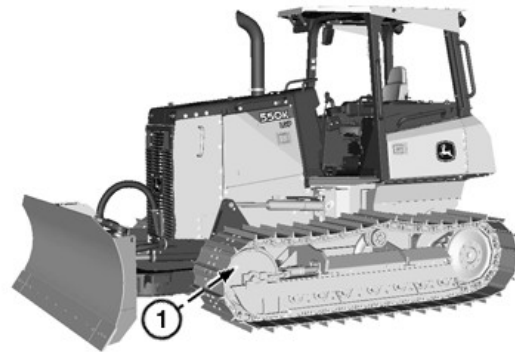
Drain and flush cooling system using clean water and refill with new coolant.

1. Remove radiator drain hose access panel (1) located on the bottom side of the machine.
2. Place open end of radiator drain hose (2) into suitable container.
3. Open radiator drain valve (3) and allow coolant to drain into suitable container.
4. Close radiator drain valve.
5. Dispose of waste properly.
6. Install access panel.

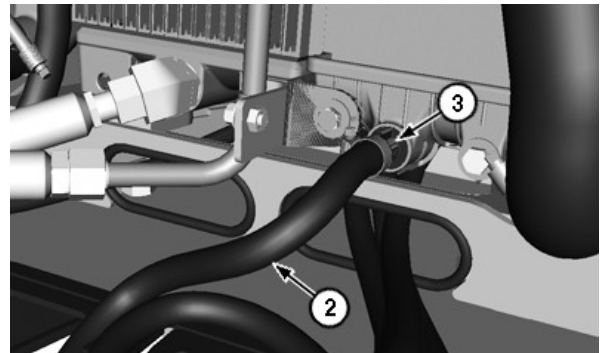
1—Radiator Drain Hose Access Panels
2—Radiator Drain Hose
3—Radiator Drain Valve



Service Cooling System Safely



Location of Coolant Drain Hose Access Panel



Radiator Drain Hose and Valve Fitting

Continued on next page

ER93822,0000006-19-12AUG15-1/2

TS281—UN—15APR13

TX1105260A—UN—11JAN12

TX1102852A—UN—07DEC11

7. Open right engine service door (4) and remove right engine service panel (5).
8. Drain engine block from left side drain plug (6) and allow coolant to drain into suitable container.
9. After coolant has drained, install drain plug.
10. Dispose of waste properly.

IMPORTANT: Use only permanent-type, low silicate, ethylene glycol base antifreeze in coolant solution. Other types of antifreeze can damage cylinder seals. If not using premixed coolant, use only distilled water when mixing with ethylene glycol concentrate. Premixed coolant provides winter freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your authorized John Deere dealer.

11. Open cooler surge tank service door and remove coolant surge tank cap (7).
12. Fill system with coolant to the MAX COLD mark on surge tank. See Diesel Engine Coolant (engine with wet sleeve cylinder liners). (Section 3-1.)

For additional information concerning capacity of cooling system, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)

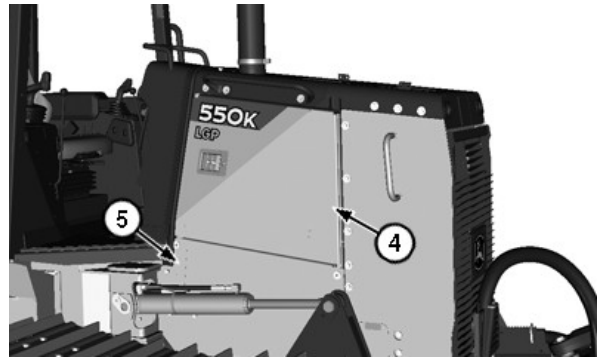
NOTE: Coolant level must be checked several times after draining and refilling to ensure that all air is out of the system to allow coolant level to stabilize.

Cooling system does not deaerate during normal operation. Several warm-up and cool-down cycles are required to remove trapped air.

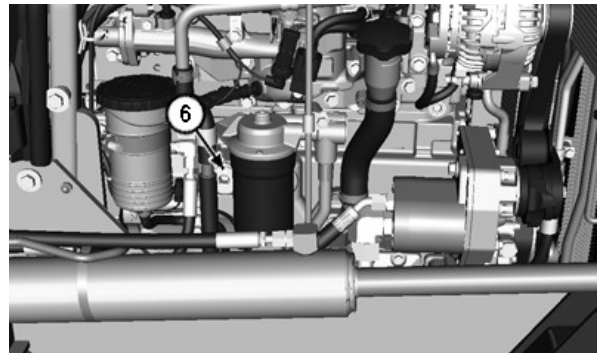
13. Deaerate cooling system as follows:

- Start and run engine until coolant is warm.
- Stop engine and allow coolant to cool.
- Check coolant level at surge tank. Add coolant as required.
- Repeat above steps until coolant level in surge tank stabilizes at the same level.

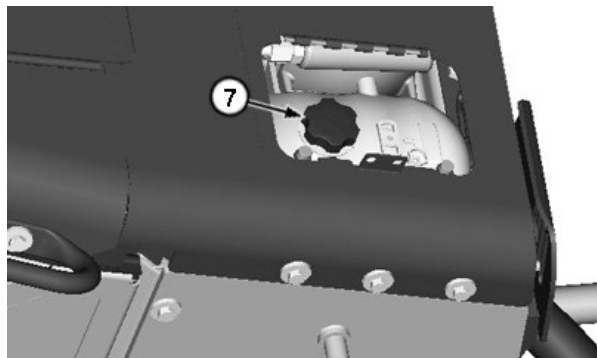
4—Right Engine Service Door 6—Left Side Drain Plug
5—Right Engine Service Panel 7—Coolant Surge Tank Cap



Right Engine Access Door and Panel



Drain Plug



Coolant Surge Tank Cap

ER93822,0000006-19-12AUG15-2/2

Miscellaneous—Machine

Welding On Machine

⚠ CAUTION: Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch. Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly.

When sanding or grinding painted surfaces, avoid breathing the dust. Wear an approved respirator. When using solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

IMPORTANT: Have only a qualified welder perform this job. Connect welder ground clamp close to each weld area so electrical current does not pass through any bearings, articulation joints, pivot points, or cylinders. Remove or protect all parts that can be damaged by heat or weld splatter.

1. Remove paint before welding or heating.
 - When sanding or grinding paint, avoid breathing the dust.
 - Wear an approved respirator. When using solvent or paint stripper, remove stripper with soap and water before welding.

- Remove solvent or paint stripper containers and other flammable material from area.
- Allow fumes to disperse at least 15 minutes before welding or heating.

IMPORTANT: Electrical current traveling from the welder through the machine electrical system may damage the machine electrical system, including batteries, control units, or other electrical components. Disconnect battery positive and negative cables before welding on machine.

2. Disconnect the negative (-) battery cables.
3. Disconnect the positive (+) battery cables.
4. Cover, protect, or move any wiring harness sections away from welding area.
5. For machine equipped with position sensing cylinders:
 - Disconnect all position sensors before welding.
 - Never connect welder ground clamp to piston rod or barrel.
 - Never weld on or near a cylinder with a sensor installed.

For any repairs, see an authorized John Deere dealer.

TX,WOM-19-28SEP23-1/1

Welding Near Electronic Control Units

IMPORTANT: Do not jump-start engines with arc welding equipment. Currents and voltages are too high and may cause permanent damage.

1. Disconnect the negative (-) battery cable(s).
2. Disconnect the positive (+) battery cable(s).
3. Connect the positive and negative cables together. Do not attach to vehicle frame.
4. Clear or move any wiring harness sections away from welding area.
5. Connect welder ground close to welding point and away from control units.
6. After welding, reverse Steps 1—5.



TS953—UN—15MAY90

DX,WW,ECU02-19-14AUG09-1/1

Keep Electronic Control Unit Connectors Clean

IMPORTANT: Do not open control unit and do not clean with a high-pressure spray. Moisture, dirt, and other contaminants may cause permanent damage.

1. Keep terminals clean and free of foreign debris. Moisture, dirt, and other contaminants may cause the terminals to erode over time and not make a good electrical connection.

2. If a connector is not in use, put on the proper dust cap or an appropriate seal to protect it from foreign debris and moisture.
3. Control units are not repairable.
4. Since control units are the components LEAST likely to fail, isolate failure before replacing by completing a diagnostic procedure. (See your John Deere dealer.)
5. The wiring harness terminals and connectors for electronic control units are repairable.

DX,WW,ECU04-19-11JUN09-1/1

Do Not Service or Adjust Injection Nozzles or Injection Pump

If injection nozzles are not working correctly or are dirty, the engine will not run normally. See your authorized dealer for service.

Changing the injection pump in any way not approved by

the manufacturer will end the warranty. See your copy of the John Deere warranty on this machine.

Do not service an injection pump that is not operating correctly. See your authorized injection pump service center.

TX,90,FF3116-19-03NOV08-1/1

Do Not Service Control Valves, Cylinders, Pumps, or Motors

Special tools and information are needed to service control valves, cylinders, pumps, or motors.

If these parts need service, see an authorized John Deere dealer.

TX,90,DH2537-19-13AUG20-1/1

Precautions for Alternator and Regulator

When batteries are connected, follow these rules:

1. Disconnect negative (-) battery cable when working on or near alternator or regulator.
2. DO NOT TRY TO POLARIZE ALTERNATOR OR REGULATOR.
3. Be sure that alternator wires are correctly connected BEFORE connecting batteries.
4. Do not ground alternator output terminal.
5. Do not disconnect or connect any alternator or regulator wires while batteries are connected or while the alternator is operating.
6. Connect batteries or a booster battery in the correct

polarity (positive [+] to positive [+] and negative [-] to negative [-]).

7. Do not disconnect the batteries when engine is running and alternator is charging.
8. Disconnect battery cables before connecting battery charger to the batteries. If machine has more than one battery, each battery must be charged separately.
9. Before washing machine, place a water repellent cover over the alternator.
10. To prevent component damage, the water jets need to be set at a 45-degree angle with reduced water pressure. Avoid direct contact with electrical and electronic connectors.

CED,OUO1021,185-19-04MAR20-1/1

Handling, Checking and Servicing Batteries Carefully

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 1.9 L (2 qt).
3. Get medical attention immediately.

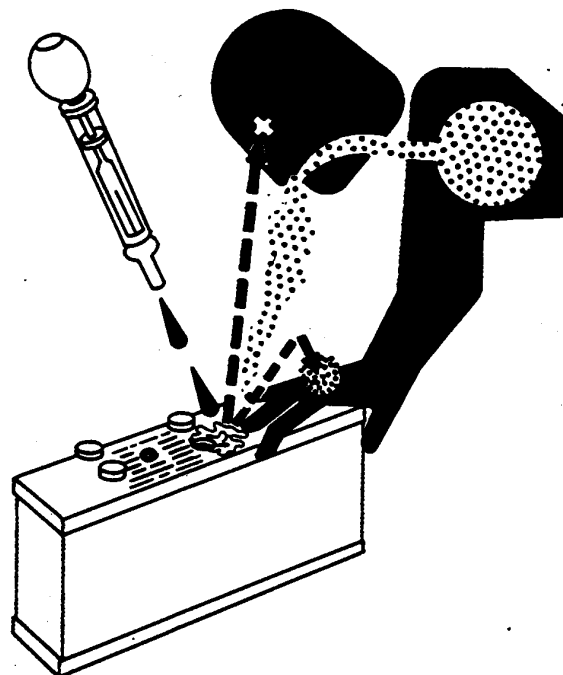
WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**

If electrolyte spills on the floor, use one of the following mixtures to neutralize the acid: 0.5 kg (1 lb) baking soda in 4 L (1 gal) water, or 0.47 L (1 pt) household ammonia in 4 L (1 gal) water.

IMPORTANT: Do not overfill the battery cells.



TS204—UN—15APR13



TS203—UN—23AUG88

Check the specific gravity of electrolyte in each battery cell.

Continued on next page

TX03679,0001788-19-29APR11-1/2

See your authorized dealer for JT05460 SERVICEGARD™ battery and coolant tester. Follow directions included with the tester.

A fully charged battery will have a corrected specific gravity reading of 1.260. If the reading is below 1.200, charge the battery.



T85402—UN—10NOV88

Battery And Coolant Tester

SERVICEGARD is a trademark of Deere & Company

TX03679,0001788-19-29APR11-2/2

Using Battery Charger

12-Volt System

CAUTION: Prevent possible injury from exploding battery. Do not charge a battery if ambient temperature is below 0°C (32°F). Warm battery to 16°C (60°F) before charging.

Turn off charger before connecting or disconnecting it.

IMPORTANT: Do not use battery charger as a booster if a battery has a 1.150 specific gravity reading or lower.

Disconnect battery ground (-) clamp before charging batteries in the machine to prevent damage to electrical components.

NOTE: Some battery chargers may also be used as a booster to start the engine. Follow battery charger manufacturer's operating instruction before boosting.

1. Turn the battery disconnect switch (if equipped) to the OFF position.
2. Ventilate the area where battery is being charged.
3. Connect positive (+) cable to the positive (+) terminal of machine battery.
4. Connect negative (-) cable to the negative (-) terminal of machine battery.

CAUTION: Prevent possible injury from exploding battery. Follow battery charger manufacturer's operating instructions before charging.

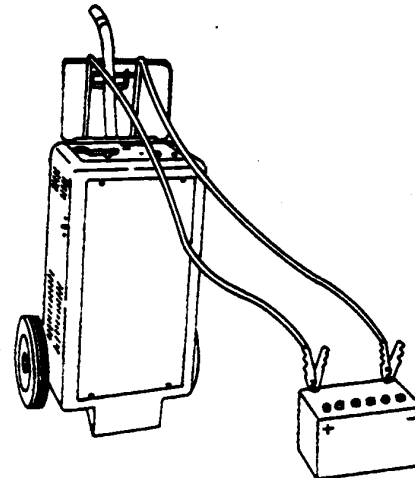
IMPORTANT: Prevent battery or machine damage from improper use of charger. Follow battery charger manufacturer's operation instruction before charging.

5. Stop or cut back charging rate if battery case becomes



Prevent Battery Explosions

TS204—UN—15APR13



Charger

N36890—UN—07OCT88

hot or is venting electrolyte. Battery temperature must not exceed 52°C (125°F).

6. Remove charger cables in reverse order of connection.

Continued on next page

OUT4001,0000239-19-15SEP21-1/2

24-Volt System

CAUTION: Prevent possible injury from exploding battery. Do not charge a battery if ambient temperature is below 0°C (32°F). Warm each battery to 16°C (60°F) before charging.

Turn off charger before connecting or disconnecting it.

IMPORTANT: Do not use battery charger as a booster if a battery has a 1.150 specific gravity reading or lower.

Disconnect battery ground (-) clamp before charging batteries in the machine to prevent damage to electrical components.

NOTE: Some battery chargers may also be used as a booster to start the engine. Follow battery charger manufacturer's operating instruction before boosting.

1. Turn the battery disconnect switch (if equipped) to the OFF position.
2. Ventilate the area where batteries are being charged.
3. Connect positive (+) cable to the positive (+) terminal of one machine battery.
4. Connect negative (-) cable to the negative (-) terminal of second machine battery.

CAUTION: Prevent possible injury from exploding battery. Follow battery charger manufacturer's operating instructions before charging.

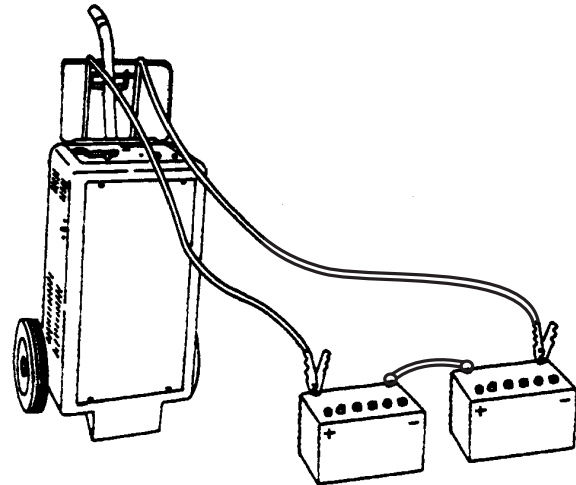
IMPORTANT: Prevent battery or machine damage from improper use of charger. Follow battery charger manufacturer's operation instruction before charging.

5. Stop or cut back charging rate if battery case becomes



Prevent Battery Explosions

TS204—UN—15APR13



Charger

TX1314241—UN—22JUN21

hot or is venting electrolyte. Battery temperature must not exceed 52°C (125°F).

6. Remove charger cables in reverse order of connection.

OUT4001,0000239-19-15SEP21-2/2

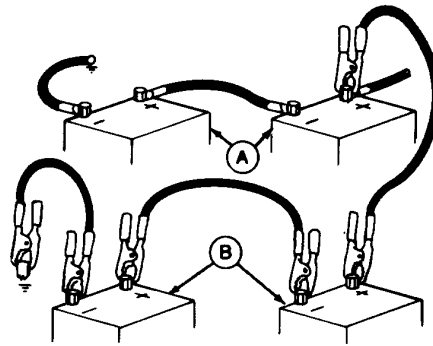
Using Booster Batteries—24-Volt System

Before boost starting, machine must be properly shut down to prevent unexpected machine movement when engine starts.

CAUTION: An explosive gas is produced while batteries are in use or being charged. Keep flames or sparks away from the battery area. Make sure the batteries are charged in a well-ventilated area.

IMPORTANT: The machine electrical system is a 24-volt negative (-) ground. Connect two 12-volt booster batteries together as shown for 24 volts.

1. Connect one end of the positive (+) cable to the positive (+) terminal of the machine batteries (A) and the other end to the positive (+) terminal of the booster batteries (B).
2. Connect one end of the negative (-) cable to the negative (-) terminal of the booster batteries. Connect the other end of the negative (-) cable to the machine frame as far away from the machine batteries as possible.
3. Start engine.
4. Immediately after starting engine, disconnect the end of



Booster Batteries, 2-Battery Application

A—Machine Battery (2 used) B—Booster Battery (2 used)

the negative (-) cable from the machine frame. Then disconnect the other end of the negative (-) cable from the negative (-) terminal of the booster batteries.

5. Disconnect positive (+) cable from booster batteries and machine batteries.

OUT4001,0000238-19-09MAR17-1/1

Replacing and Removing Batteries

CAUTION: Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing and cause blindness if splashed into eyes.

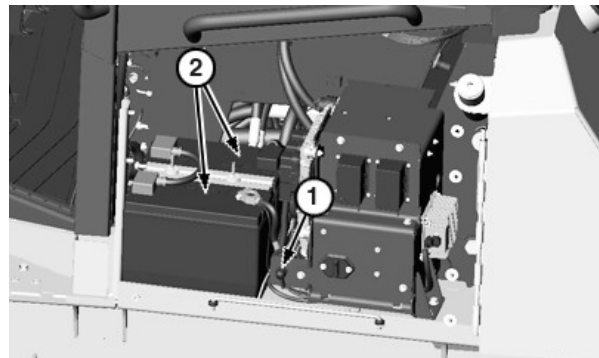
The machine is equipped with two 12-volt batteries (2) with negative (-) ground connected in series to provide 24 volts.

Use only batteries which meet the following specifications.

BATTERY SPECIFICATIONS		
BCI Group	Cold Cranking Amps 0°F (-18°C)	Reserve Capacity (440 Minutes of 25 Amp)
31	950	190

CAUTION: Prevent possible injury from exploding battery (2). Always remove grounded (-) battery clamp first and replace it last.

1. Turn battery disconnect switch (1) to OFF.
2. Disconnect negative (-) battery cables first, then positive (+) cables.
3. Remove nuts and hold-down frames. Lift batteries from machine.



Batteries and Battery Disconnect Switch

1—Battery Disconnect Switch 2—Battery (2 used)

4. Check cables and clamps for damage and wear. Verify the batteries (2) are fully charged.
5. Install batteries making sure they are level.
6. Install hold-down frames. Connect cables, positive then negative.
7. Turn battery disconnect switch to ON.

ER93822,0000073-19-10JAN12-1/1

Opening and Closing the Grille

Opening the Grille

1. Remove hose guard cap screws (1) and move hose guard (2) aside.

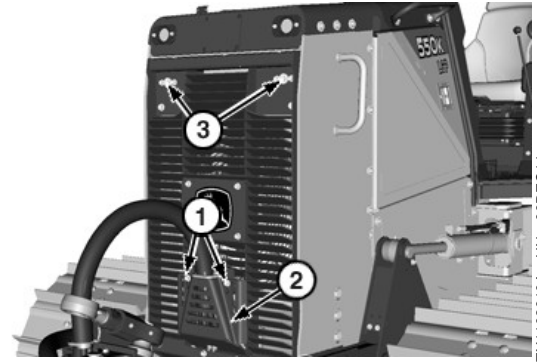
CAUTION: Prevent possible injury from falling object. Always inspect grille hinge points at bottom edge of grille before opening grille. If grille hinge points appear damaged, DO NOT remove grille cap screws. See your authorized dealer.

CAUTION: Prevent possible injury lifting heavy objects. The approximate weight of the standard grille is 42 kg (93 lb). The approximate weight of the heavy-duty grille is 61 kg (135 lb). Use adequate lifting device to move grille.

Grille — Specification

Standard —Weight.	42 kg 93 lb
Heavy-Duty —Weight.	61 kg 135 lb

2. Remove grille cap screws (3) and tilt the grille forward.



Standard Grille

- 1—Hose Guard Cap Screw (2 used)
2—Hose Guard
3—Grille Cap Screw (2 used)

Closing the Grille

1. Tilt the grille into place and install grille cap screws.
2. Move hose guard into position and install hose guard cap screw(s).

ER93822,0000001-19-09JAN12-1/1

Check Engine Speeds

1. Warm engine to normal operating temperature.
2. Check speeds using display monitor.

Specification

Slow Idle—Speed.	875—925 rpm
Fast Idle—Speed.	2250—2300 rpm

If adjustment is necessary, see your authorized dealer.

ER79617,0000D02-19-20DEC10-1/1

Replace Engine Air Filter Elements

1. On right side of machine hood, open engine air cleaner access cover (1).
2. Release latches (2) and remove engine air cleaner inlet cover (4).
3. Remove primary engine air filter element (3).
4. Using a damp cloth, wipe the inside area of the engine air cleaner compartment. Remove the rubber plug (5) and guide excess dirt through open hole at the bottom of the engine air cleaner compartment. Replace rubber plug.
5. Remove secondary engine air filter element (6).

IMPORTANT: Damaged or dirty engine air filter elements can cause engine damage. DO NOT clean engine air filter elements; replace engine air filter elements as required.

Install new primary engine air filter element:

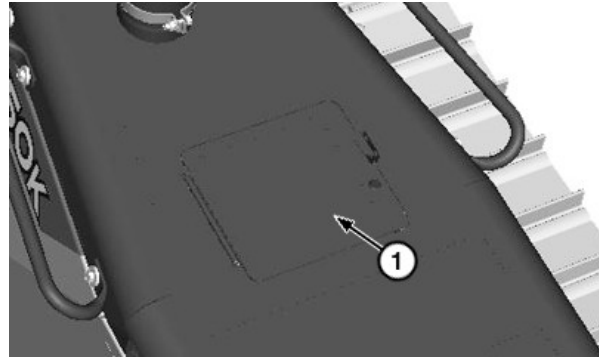
1. If primary engine air filter element shows damage.
2. If engine air filter restriction indicator illuminates.

Install new secondary engine air filter element:

1. With every third primary element change.
2. If secondary engine air filter element is visibly dirty.

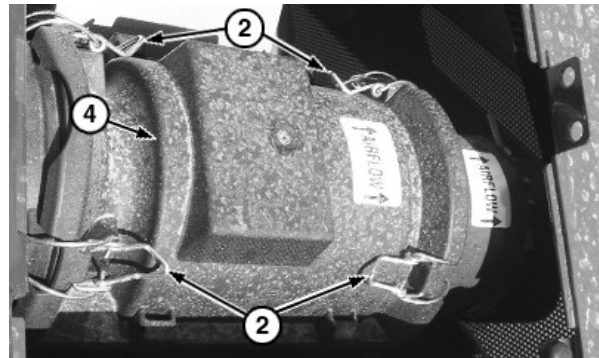
6. Inspect engine air filter elements for damage. Hold a bright light inside primary engine air filter element and check for holes.
 7. Engine air filter restriction indicator will not signal correctly if an element has a break or is not correctly sealed in engine air cleaner housing. Replace damaged engine air filter elements.
 8. Install secondary engine air filter element. Verify that secondary engine air filter element is centered and securely positioned.
 9. Install primary engine air filter element, press the element against the engine air cleaner housing for the seal to seat.
- IMPORTANT: Avoid damage to the engine, ensure the engine air cleaner inlet cover is installed correctly. The latches need to be secured in the closed position and remain closed.**
10. Install engine air cleaner inlet cover and secure latches.
 11. Close engine air cleaner access cover.

- | | |
|-------------------------------------|---------------------------------------|
| 1—Engine Air Cleaner Access Cover | 4—Engine Air Cleaner Inlet Cover |
| 2—Latch (4 used) | 5—Rubber Plug |
| 3—Primary Engine Air Filter Element | 6—Secondary Engine Air Filter Element |



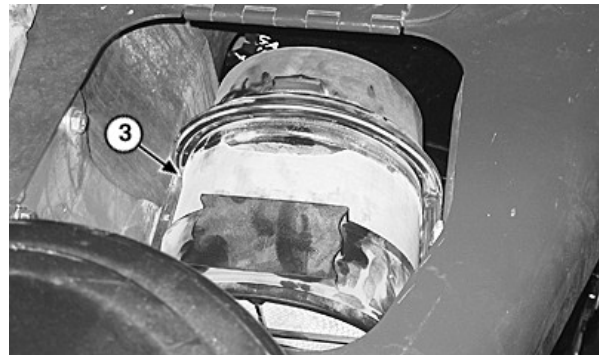
TX1105250A—UN—10JAN12

Engine Air Cleaner Access Cover



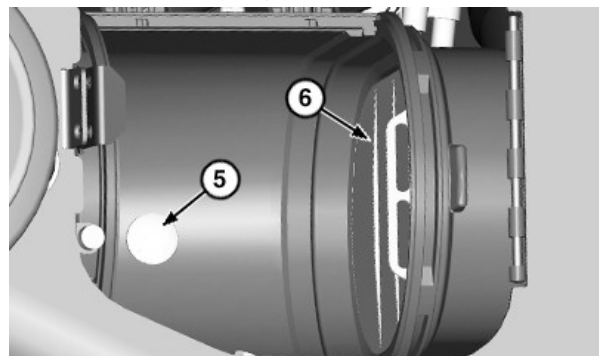
TX1111875A—UN—09APR12

Engine Air Cleaner Inlet Cover and Latches



TX1086043A—UN—17DEC10

Primary Engine Air Filter Element



TX1111715A—UN—04APR12

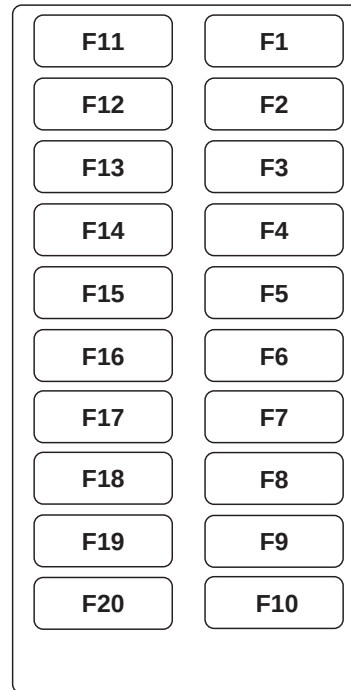
Secondary Engine Air Filter Element and Rubber Plug

ER93822,000011C-19-10APR12-1/1

Replacing Fuses

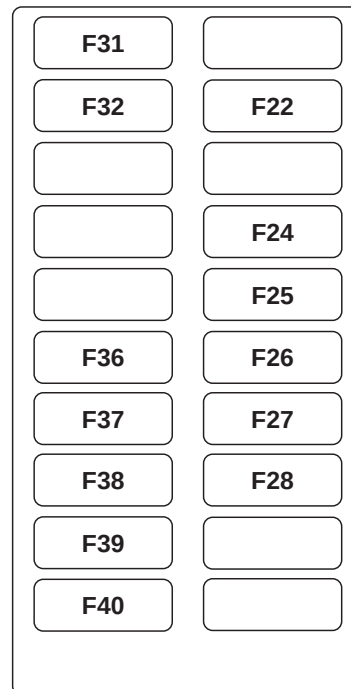
IMPORTANT: Install fuse with correct amperage rating to prevent electrical system damage from overload.

F1—SDM Unswitched Power 5 A Fuse	F18—Window Wipers 10 A Fuse
F2—ECU Unswitched Power 25 A Fuse	F19—JDLink™ Switched Power 5 A Fuse
F3—VCU Unswitched Power 10 A Fuse	F20—12-Volt Converter Switched Power 10 A Fuse
F4—12-Volt Converter Unswitched Power 10 A Fuse	F22—Fuel Filter Heater 10 A Fuse
F5—Service ADVISOR™ Unswitched Power 5 A Fuse	F24—Blade Control Lever 10 A Fuse (if equipped)
F6—JDLink™ Unswitched Power 5 A Fuse	F25—IGC Switched Power 15 A Fuse (IGC machines only)
F7—SSM Unswitched Power 5 A Fuse	F26—Spare 10 A Fuse
F8—IGC Unswitched Power 10 A Fuse 1 (IGC machines only)	F27—Spare 10 A Fuse
F9—IGC Unswitched Power 10 A Fuse 2 (IGC machines only)	F28—Spare
F10—IGC Unswitched Power 10 A Fuse 3 (IGC machines only)	F31—Engine Compartment Light 5 A Fuse
F11—SDM Switched Power 5 A Fuse	F32—Dosing Pump 15 A Fuse
F12—Transmission Switches 5 A Fuse	F36—Condenser Fan Motor 3 15 A Fuse
F13—ECU Switched Power 5 A Fuse	F37—Air Conditioner Compressor Clutch 5 A Fuse
F14—Dome Light/Backlight 5 A Fuse	F38—Condenser Fan Motor 1 15 A Fuse
F15—Under Seat Heater 15 A Fuse	F39—Condenser Fan Motor 2 15 A Fuse
F16—Blower Motor 15 A Fuse	F40—JDLink™ Ground 5 A Fuse
F17—Air Ride Seat 15 A Fuse	



TX1103182—UN—10JAN12

Fuse Box 1



TX1103183—UN—10JAN12

Fuse Box 2

Service ADVISOR is a trademark of Deere & Company
JDLink is a trademark of Deere & Company

ER93822,000003D-19-10JAN12-1/1

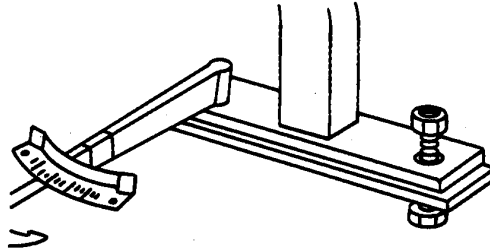
Keep ROPS Installed Properly

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.

The seat is part of the ROPS safety zone. Replace only with John Deere seat approved for your tractor.

Any alteration of the ROPS must be approved by the manufacturer.



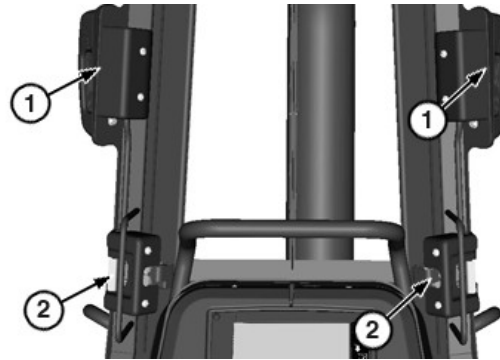
TS212—UN—23AUG88

DX,ROPS3-19-12OCT11-1/1

Lubricating Door Latches

Lubricate inner door latches (1) and outer door latches (2) with dry graphite when necessary.

1—Outer Door Latch (2 used) 2—Inner Door Latch (2 used)



Door Latches

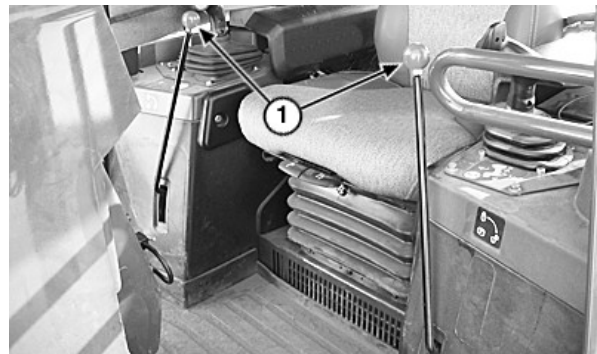
TX103213A—UN—12DEC11

ER93822,0000011-19-09JAN12-1/1

Checking Park Lock Start System

CAUTION: Avoid possible injury or death. Be sure all people are away from machine when park lock start checks are performed.

1. Place transmission control lever (TCL) in neutral (N) position.
2. Move park lock levers (1) to down (unlocked) position.
3. Press engine start switch once to energize ignition. Starter must not engage. If engine starts, return park lock levers to up (locked) position and see your John Deere dealer.
4. Move park lock levers to up (locked) position.
5. Press and hold engine start switch to start engine. Starter should engage, turning engine over. If engine does not turn over, see your John Deere dealer.



Park Lock Levers (locked position)

1—Park Lock Lever (2 used)

TX1084331A—UN—09NOV10

ER79617,0000CA1-19-17DEC10-1/1

Checking Transmission Start System

CAUTION: Avoid possible injury or death. Be sure all people are away from machine when park lock start checks are performed.

1. With engine running on a level surface, place park lock levers in up (locked) position.
2. Move transmission control lever (TCL) to forward (F) or reverse (R) position.
3. Set engine speed to 1500 rpm using engine speed control dial.
4. Move park lock levers to down (unlocked) position.
5. Return to neutral indicator will flash and machine should not move.
6. Move TCL to neutral (N) position and return to neutral indicator should turn off on monitor.

ER93822,0000072-19-12JAN12-1/1

JDLink Machine Monitoring System (MMS)—If Equipped

JDLink is an equipment monitoring and information delivery system. JDLink automatically collects and manages information about where and how construction and forestry

equipment is being used, as well as critical machine health data and service status.

For more information, see an authorized John Deere dealer or visit www.deere.com (browse to Construction, Services and Support, JDLink).

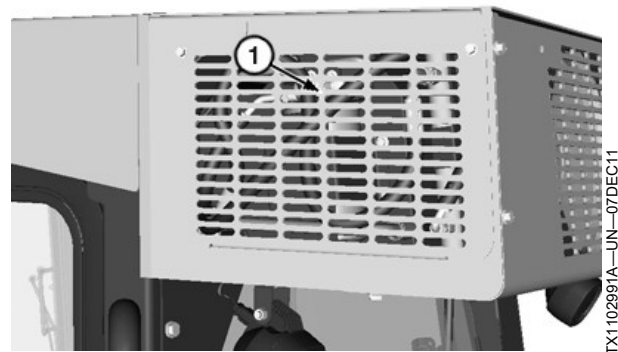
VD76477,0001541-19-02OCT23-1/1

Check Air Conditioner Refrigerant Level—If Equipped

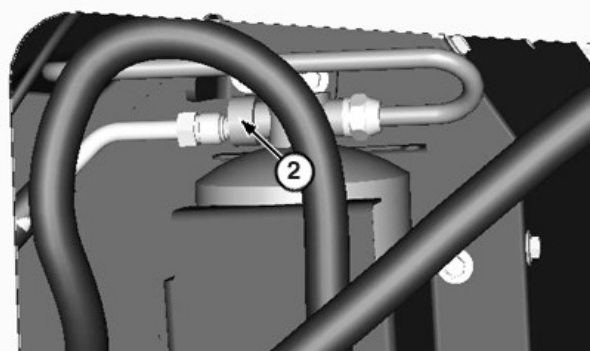
IMPORTANT: Prevent possible compressor damage. If receiver-dryer moisture eye color indicates "wet" (pink), dryer is saturated and should be changed within the next 100 machine hours to prevent further buildup of moisture in refrigerant.

1. Remove left air conditioning compartment service cover (1).
2. Using a mirror, check color of sight glass (2) to see if receiver-dryer is wet (pink) or dry (blue).
3. If wet (pink), see your authorized dealer within the next 100 machine hours to service receiver-dryer.
4. Install service cover.

1—Left Air Conditioning
Compartment Service Cover 2—Sight Glass



Left Air Conditioning Compartment Service Cover



Receiver/Dryer Sight Glass

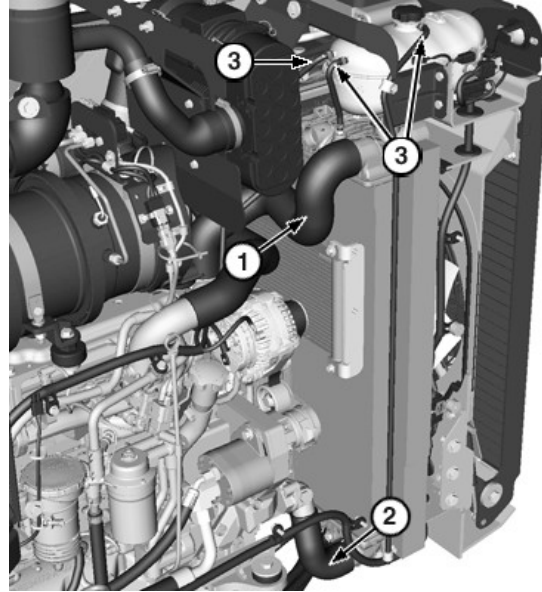
ER93822,000000B-19-10JAN12-1/1

Checking Coolant Hoses

1. Check hoses (1—3) for cracks and leaks.
2. Tighten clamps.
3. Check radiator and coolers for dirt, damage, leaks, and loose or broken mountings. Clean radiator and cooler fins.

1—Upper Radiator Hose
2—Lower Radiator Hose

3—Surge Vent Hose (3 used)



Coolant Hoses

ER93822,000000C-19-12JAN12-1/1

TX1103011A—UN—07DEC11

Fluid Sampling Test Ports

Transmission Oil and Hydraulic Oil Sample Ports

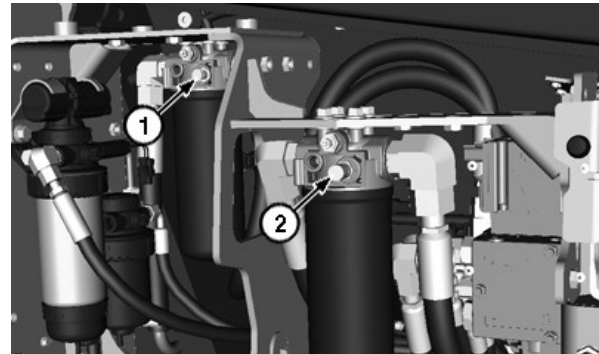
Open rear right service door to access hydraulic oil sample port (1) and transmission oil sample port (2).

Engine Coolant and Engine Oil Sample Ports

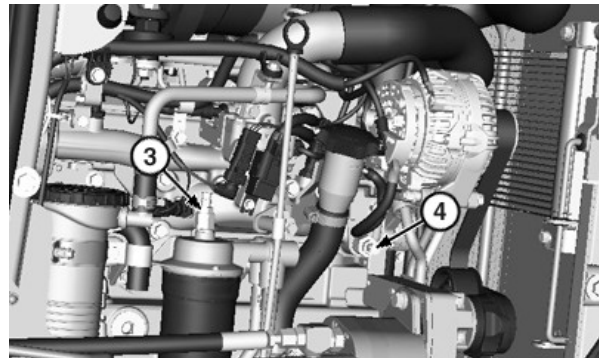
Open front right service door to access the engine oil sample port (3) and engine coolant sample port (4).

1—Hydraulic Oil Sample Port
2—Transmission Oil Sample Port

3—Engine Oil Sample Port
4—Engine Coolant Sample Port



Rear Right Service Door Test Ports



Front Right Service Door Test Ports

ER93822,000000D-19-09JAN12-1/1

TX1103040A—UN—09DEC11

TX1103039A—UN—09DEC11

Quick Service Connectors—If Equipped

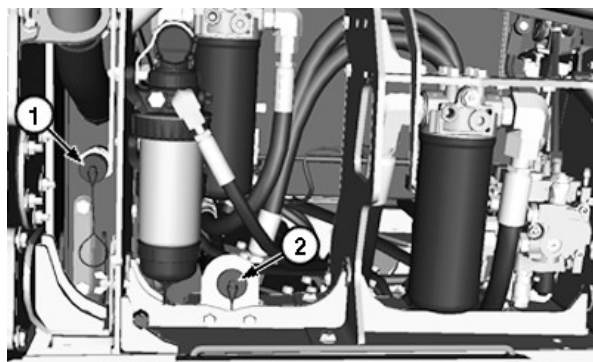
Open front right service door to access engine coolant service connection port (1) and engine oil service connection port (2).

Open rear right service door to access hydraulic oil service connection port (3).

Open rear left service door to access transmission oil service connection port (4).

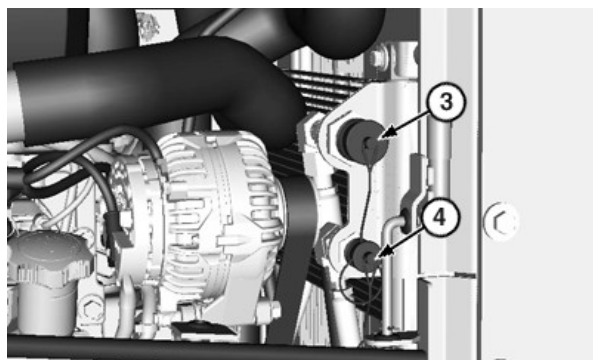
1—Hydraulic Oil Service
Connection Port
2—Transmission Oil Service
Connection Port

3—Engine Oil Service
Connection Port
4—Engine Coolant Service
Connection Port



TX1103127A—UN—13DEC11

Rear Quick Service Connectors



TX1103128A—UN—09DEC11

Front Quick Service Connectors

ER93822,000000E-19-12JAN12-1/1

Bleed Fuel System

IMPORTANT: DO NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

NOTE: This procedure should be performed after each fuel filter change or when the engine has run out of fuel.

Air can enter fuel system when changing fuel filters or when machine has run out of fuel. Air in the fuel system can prevent the engine from starting or cause rough idle. This machine is equipped with an electric priming pump. Prime fuel system and bleed air as follows:

1. Park machine on level surface and lower all equipment to ground.
2. Engage park brake.
3. Press engine stop switch.
4. Open right rear service door.
5. Verify fuel valve is open.
6. Press and release engine start switch to energize ignition system and fuel pump. Let pump run for 120 seconds.
7. Press engine stop switch to de-energize ignition system and reset the fuel pump.
8. Press and release engine start switch to energize ignition system and fuel pump. Let pump run for 120 seconds.
9. After 120 seconds, press engine start switch to start the engine.
10. Run engine for 5 minutes at slow idle.

ER79617,0000D03-19-17MAR23-1/1

Drain Fuel From Fuel Tank

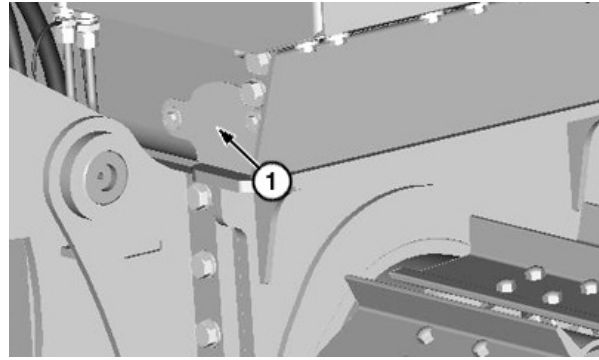
Drain fuel as required. Drain valve is located at bottom fuel tank. For additional information concerning capacity of fuel tank, see drain and refill capacities in Miscellaneous—Specifications. (Section 4-6.)

1. Remove fuel tank drain access cover (1) to access fuel tank drain fitting (2).
2. Route drain hose from fitting into a suitable container.

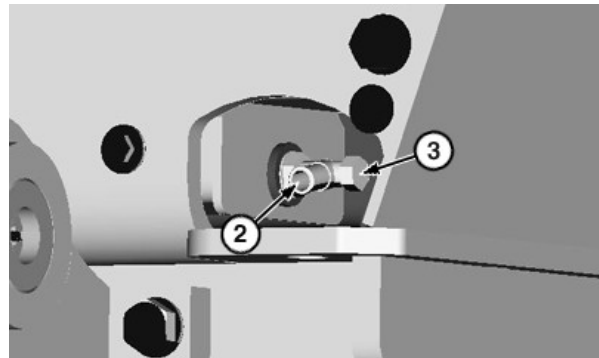
NOTE: *Drain waste into a container. Dispose of waste properly.*

3. Open fuel tank drain valve (3). Drain liquid into a container.
4. Close fuel tank drain valve.
5. Dispose of waste properly.
6. Install fuel tank drain access cover.

- | | |
|--------------------------------|-------------------------|
| 1—Fuel Tank Drain Access Cover | 3—Fuel Tank Drain Valve |
| 2—Fuel Tank Drain Fitting | |



Fuel Tank Drain Access Cover



Fuel Tank Drain Fitting and Valve

ER93822,0000010-19-12AUG15-1/1

TX1101414A—UN—16NOV11

TX1103381A—UN—12DEC11

Track Sag General Information

Properly adjusted tracks prolong chain life. To get the maximum life out of track bushings, keep the track sag properly adjusted. Improperly adjusted track wears at a more rapid rate.

A tight track causes higher loading which will increase wear on the pins, bushings, links, sprocket and front idler. The graph (A) shows how the loading on the track chain increases significantly when tracks are too tight. Also, a tight track requires more horsepower, increasing fuel consumption and decreasing productivity.

Periodically check track sag. In some applications, tracks may require adjustment several times during a working day. This is especially true when working in different conditions on the same job site, as moisture content of the soil changes.

Tracks should always be adjusted in the actual operating conditions. If material packs in the undercarriage, the tracks should be adjusted with the material packed in the components.

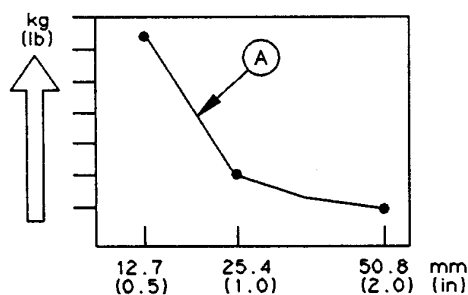
When packing occurs, track sag is taken up and must be loosened to extend wear life. The track spring will recoil and the machine will continue to operate with tight track. However, continued operation without loosening the tracks will result in excessive pin and bushing wear, sprocket popping, tooth tip wear, and excessive loads on the entire undercarriage and final drive system.

With sealed chain, internal pin and bushing wear creates sag which reduces the effects of packing. However, if a sealed chain is too tight, accelerated bushing wear occurs.

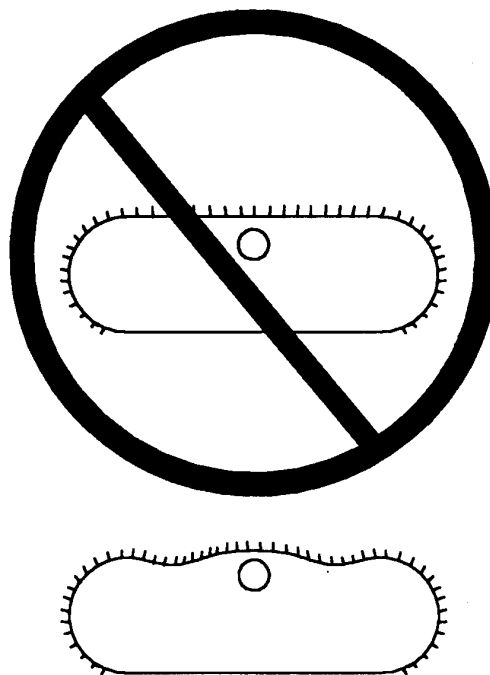
Lubricated chain is different due to the absence of internal pin and bushing wear. It is absolutely essential to keep sag adjusted to prevent accelerated bushing outside diameter wear.

Maintaining track sag is very important regardless of the type of track being used.

A—Graph



Track Tension kg (lb) vs. Track Sag mm (in.)



Proper Track Sag

TX,90,RR2516-19-12JAN12-1/1

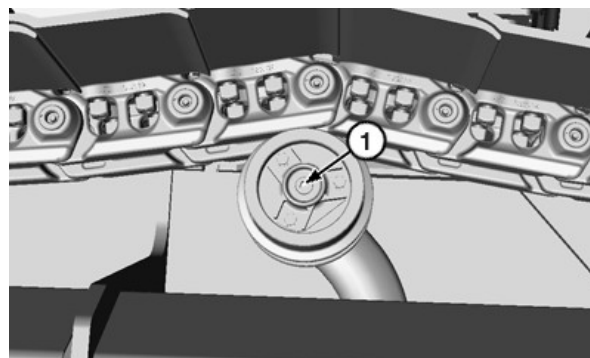
T7800AJ—UN—31JUL92

T7800AH—UN—31JUL92

Checking Carrier Roller Oil Level

1. Remove plug (1) from carrier roller. Oil must flow from hole.
2. Add oil as necessary. See Track Rollers, Front Idler, and Carrier Roller Oil. (Section 3-1.)
3. Install plug.

1—Plug



Carrier Roller

ER93822,0000012-19-31JUL17-1/1

TX1103293A—UN—09DEC11

Checking Idlers and Rollers for Oil Leakage

Check carrier rollers, front idlers, and track rollers for leaks.

If any leaks are found, see an authorized John Deere dealer.

AM40430,0000019-19-07NOV16-1/1

Checking Track Shoe Cap Screw Torque

Track shoe cap screw torque should be periodically checked. If the cap screws do not meet the minimum torque specifications, remove the shoes and clean the mating surfaces of the shoes and links before tightening the cap screws.

Specification

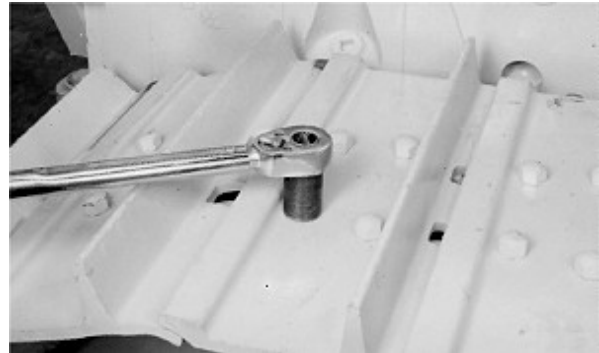
Track Shoe Cap Screw—Torque. 305 ± 14 N·m
 225 ± 10 lb·ft

If unit is operated with loose track shoes, the cap screw holes in the shoes and links will wallow out and it may be difficult to keep the track shoes tight. Loose shoes can also cause hardware failure and loss of track shoes.

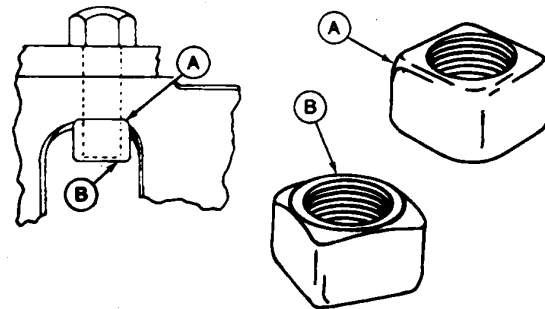
Install all track shoe nuts with rounded edges against the link and chamfered edges away from the link. Be sure nut is properly positioned in the link so there is full contact area between the nut and the link.

A—Rounded Edge

B—Chamfered Edge



Track Shoe Cap Screw



Track Shoe Cap Screw

ER93822,0000014-19-12JAN12-1/2

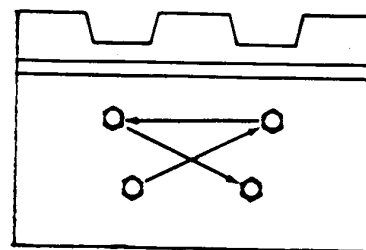
IMPORTANT: Tighten cap screws to torque specification using a criss-cross pattern. Then repeat torque pattern again.

Tighten cap screws using torque-turn torque method.

Track Shoes — Specification

Track Shoe Cap Screw (9/16 in.)—Torque. 88 N·m (65 lb·ft)
 Torque Turn. 1/3 (120°) turn

NOTE: Replacement hardware should be lubricated and tightened to above specification.



Track Shoe Cap Screws

ER93822,0000014-19-12JAN12-2/2

Checking Track Shoe Cap Screw Torque—Master Link

If cap screws check less than specification, remove shoe and clean paint or other foreign material from chain and shoe mating surfaces.

Lubricate cap screw threads and bearing surface of cap screw head using TY24811 John Deere NEVER-SEEZ® Lubricant or equivalent.

NEVER-SEEZ is a registered trademark of Emhart Chemical Group

IMPORTANT: DO NOT use impact wrench to start master shoe cap screws to avoid cross-threading.

Use only the torque turn method described below when assembling master track shoe. This method provides the optimum tightness level for this critical area.

Install master shoe on master links and start cap screws by hand to avoid cross-threading.

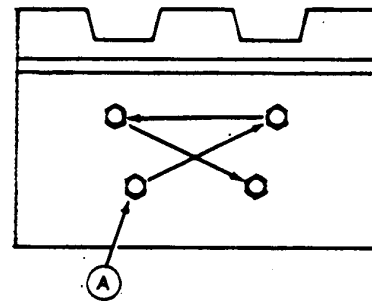
CS33148,0000959-19-09JAN12-1/2

Tighten master cap screws in a crisscross sequence (A). Repeat sequence a second time. Use same tightening sequence for additional turns.

Specification

Master Link 3/4 in. Cap	
Screw—Torque.	270 ± 30 N·m 200 ± 20 lb-ft
Torque Turn.	1/2 turn (180°)

A—Master Link Tightening Sequence



Master Link Cap Screw

CS33148,0000959-19-09JAN12-2/2

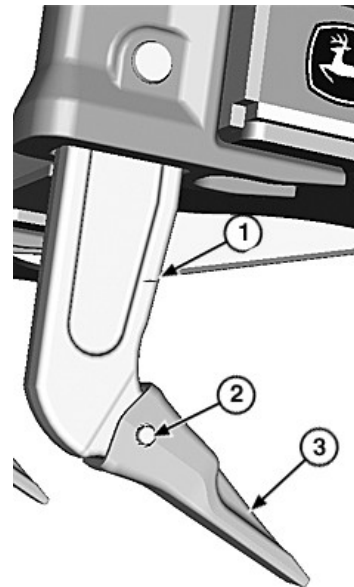
T96302—UN—01NOV88

Replacing Ripper Teeth—If Equipped

1. Drive out pin (2).
2. Drive tooth (3) from shank (1).
3. Install new tooth and pin.

1—Shank
2—Pin

3—Tooth



Replacing Ripper Tooth

LB82152,00005B5-19-17DEC10-1/1

TX1083055A—UN—13OCT10

Hardware Torque Specifications

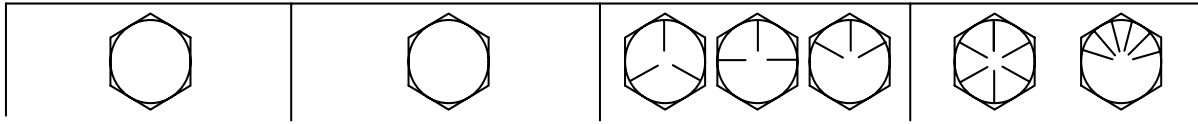
Check cap screws and nuts to be sure they are tight. If

hardware is loose, tighten to torque shown on the following charts unless a special torque is specified.

T82,SKMA,AT-19-01AUG94-1/1

Unified Inch Bolt and Screw Torque Values

TS1671—UN—01MAY03



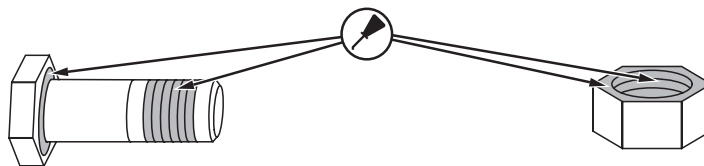
Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
1/4	3.1	27.3	3.2	28.4	5.1	45.5	5.3	47.3	7.9	70.2	8.3	73.1	11.2	99.2	11.6	103
5/16	6.1	54.1	6.5	57.7	10.2	90.2	10.9	96.2	15.7	139	16.8	149	22.2	16.4	23.7	17.5
3/8	10.5	93.6	11.5	102	17.6	156	19.2	170	27.3	20.1	29.7	21.9	38.5	28.4	41.9	30.9
7/16	16.7	148	18.4	163	27.8	20.5	30.6	22.6	43	31.7	47.3	34.9	60.6	44.7	66.8	49.3
1/2	25.9	19.1	28.2	20.8	43.1	31.8	47	34.7	66.6	49.1	72.8	53.7	94	69.3	103	75.8
9/16	36.7	27.1	40.5	29.9	61.1	45.1	67.5	49.8	94.6	69.8	104	77	134	98.5	148	109
5/8	51	37.6	55.9	41.2	85	62.7	93.1	68.7	131	96.9	144	106	186	137	203	150
3/4	89.5	66	98	72.3	149	110	164	121	230	170	252	186	325	240	357	263
7/8	144	106	157	116	144	106	157	116	370	273	405	299	522	385	572	422
1	216	159	236	174	216	159	236	174	556	410	609	449	785	579	860	634
1-1/8	305	225	335	247	305	225	335	247	685	505	751	554	1110	819	1218	898
1-1/4	427	315	469	346	427	315	469	346	957	706	1051	775	1552	1145	1703	1256
1-3/8	564	416	618	456	564	416	618	456	1264	932	1386	1022	2050	1512	2248	1658
1-1/2	743	548	815	601	743	548	815	601	1665	1228	1826	1347	2699	1991	2962	2185

The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.

TS1741—UN—22MAY18



^a Grade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

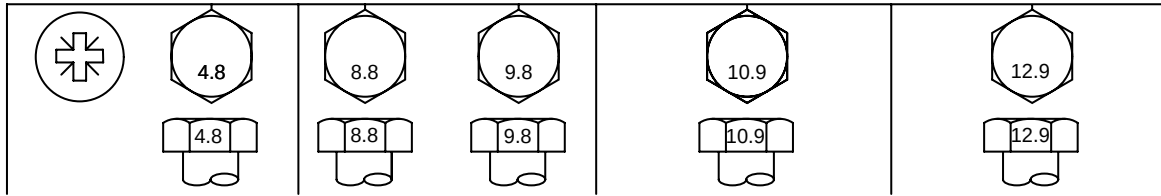
^b Grade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

^c Hex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^d Hex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ1-19-09MAY22-1/1

Metric Bolt and Screw Torque Values



TS1742—UN—31MAY18

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
									23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
M10	16.9	150	18.4	13.6	31.9	23.5	34.7	25.6	46.8	34.5	51	37.6	55	40.6	60	44.3
M12	—	—	—	—	55	40.6	61	45	81	59.7	89	65.6	95	70.1	105	77.4
M14	—	—	—	—	87	64.2	96	70.8	128	94.4	141	104	150	111	165	122
M16	—	—	—	—	135	99.6	149	110	198	146	219	162	232	171	257	190
M18	—	—	—	—	193	142	214	158	275	203	304	224	322	245	356	263
M20	—	—	—	—	272	201	301	222	387	285	428	316	453	334	501	370
M22	—	—	—	—	365	263	405	299	520	384	576	425	608	448	674	497
M24	—	—	—	—	468	345	518	382	666	491	738	544	780	575	864	637
M27	—	—	—	—	683	504	758	559	973	718	1080	797	1139	840	1263	932
M30	—	—	—	—	932	687	1029	759	1327	979	1466	1081	1553	1145	1715	1265
M33	—	—	—	—	1258	928	1398	1031	1788	1319	1986	1465	2092	1543	2324	1714
M36	—	—	—	—	1617	1193	1789	1319	2303	1699	2548	1879	2695	1988	2982	2199

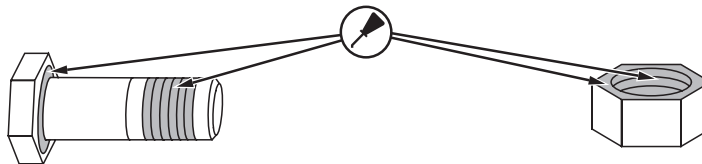
The nominal torque values listed are for general use only with the assumed wrenching accuracy of 20%, such as a manual torque wrench.
DO NOT use these values if a different torque value or tightening procedure is given for a specific application.

For lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application.

Replace fasteners with the same or higher property class. If higher property class fasteners are used, tighten these to the strength of the original.

- Make sure that fastener threads are clean.
- Apply a thin coat of Hy-Gard™ or equivalent oil under the head and on the threads of the fastener, as shown in the following image.
- Be conservative with the amount of oil to reduce the potential for hydraulic lockup in blind holes due to excessive oil.
- Properly start thread engagement.

TS1741—UN—22MAY18



^a Hex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^b Hex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2-19-09MAY22-1/1

Miscellaneous—Operational Checkout

Operational Checkout

Operational checkouts are accomplished in three conditions:

- Ignition OFF, Engine OFF
- Ignition ON, Engine OFF
- Ignition ON, Engine ON

Use this procedure to make a quick check of machine operation by doing a walk around inspection and performing specific checks from the operator seat.

Complete visual checks (oil levels, oil condition, external leaks, loose hardware, linkage, wiring, etc.) before performing checkout.

Most checks will require machine systems to be at normal operating temperature. You will need a level area with adequate space to operate machine. Some checks may require varied surfaces.

No special tools are necessary to perform the checkout.

If no problem is found, go to the next check. If a problem is indicated, an additional check or repair procedure will be suggested.

ER93822,000005E-19-10APR12-1/63

1 Diagnostic Trouble Code (DTC) Check

ER93822,000005E-19-10APR12-2/63

Display and Clear Trouble Codes

Always check for diagnostic trouble codes and correct them before performing the operational checkout.

Check for active and stored diagnostic trouble codes (DTCs).

Diagnostic trouble codes can be displayed by using one of the following methods:

- **Standard Display Monitor (SDM)**
 - To access and clear DTCs using the SDM, see Standard Display Monitor (SDM)—Main Menu—Codes. (Section 2-3.)
- **Service ADVISOR™ Diagnostic Application**
 - To access and clear DTCs using Service ADVISOR™ diagnostic application, see your authorized dealer.

nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;

LOOK: Are diagnostic trouble codes present?

YES: Correct all diagnostic trouble codes before proceeding.

NO: Go to next check.

Service ADVISOR is a trademark of Deere & Company

ER93822.000005E-19-10APR12-3/63

2 Operational Checks—Switched Power OFF, Engine OFF Checks

ER93822,000005E-19-10APR12-4/63

Grouser Wear, Bent Track Shoe, and Loose Hardware Checks

Inspect for worn grouzers, bent track shoes, and loose shoe hardware.

IMPORTANT: Hardware must be tight. Excessive grouser wear weakens track shoes and may result in track shoes bending.

LOOK: Are grouser bars in good condition, are track shoes straight, and is hardware tight?

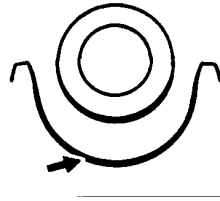
YES: Go to next check.

NO: If shoe hardware is loose, remove shoe and clean joint before tightening. If worn or bent, replace.

Continued on next page

ER93822.000005E-19-10APR12-5/63

Sprocket Wear Check



T6484AY—UN—19OCT88

Sprocket Wear

Inspect drive sprocket for excessive root wear.

NOTE: Do not evaluate sprocket by condition of tooth tip. Tooth tip wear does not affect sprocket operation if it does not extend into the bushing contact area. Reverse drive side wear is generally more than forward drive side wear.

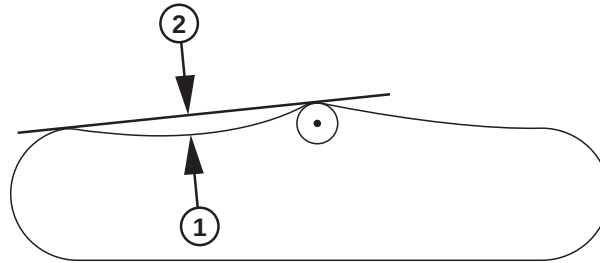
LOOK: Is sprocket in good condition?

YES: Go to next check.

NO: Replace sprocket.

ER93822,000005E-19-10APR12-6/63

Track Sag, Roller and Idler Leakage Checks



TX1005542—UN—28MAR06

Track Sag

- 1—Chain
- 2—Measuring Point

Rotate track until a track chain pin is located directly above front carrier roller.

Measure track sag between points (1) and (2).

Inspect rollers and front idler.

LOOK: Is track sag between 45—57 mm (1.75—2.25 in.)?

LOOK: Are rollers and idlers free of oil seepage?

YES: Go to next check.

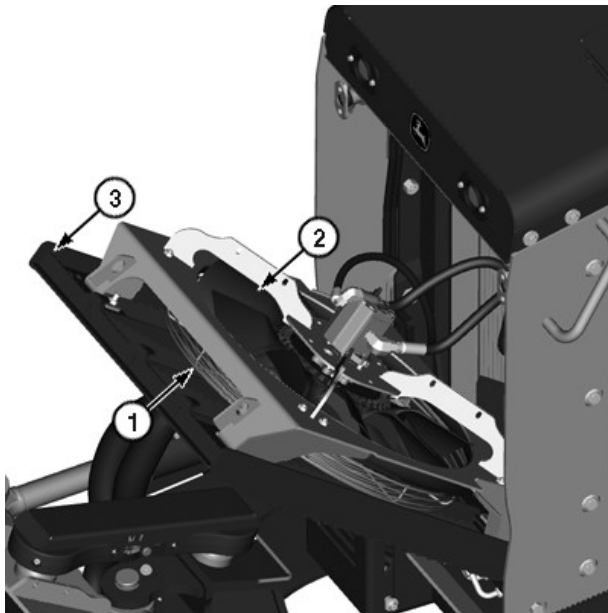
NO: Adjust track sag. See Adjust Track Sag. (Section 3-3.)

NO: Repair or replace roller or idler.

Continued on next page

ER93822,000005E-19-10APR12-7/63

Fan Check



TX1099737A—UN—25OCT11

Fan Guard

- 1—Fan Guard
- 2—Fan Blade (10 used)
- 3—Grille

Open front grille door.

Inspect fan blades (2) for damage.

LOOK: Are fan blades free of any nicks or bends?

Check fan for correct installation.

LOOK: Is cupped portion of fan blades toward grille (3)?

NOTE: If fan is installed backwards, about 50% of its cooling ability is lost.

YES: Go to next check.

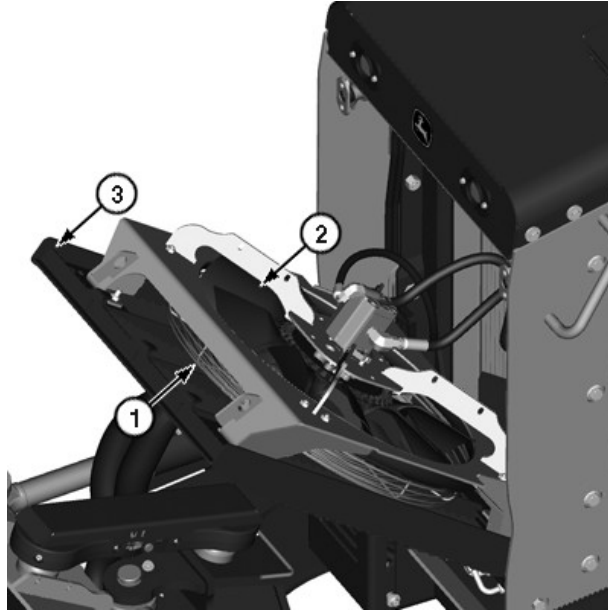
NO: If blades are bent, replace fan. If fan blades are nicked, repair.

NO: Remove fan and reinstall with cupped portion of fan blades toward grille.

Continued on next page

ER93822,000005E-19-10APR12-8/63

Fan Guard Check



TX1099737A—UN—25OCT11

Fan Guard

- 1—Fan Guard
- 2—Fan Blade (10 used)
- 3—Grille

Open front grille door and check clearance between fan blades (2) and fan guard (1).

Inspect rubber baffles sealing radiator shroud.

Inspect fan guard mounting hardware.

LOOK: Is the fan centered in fan guard?

LOOK/FEEL: Are fan guard and rubber baffles sealing radiator in good condition?

LOOK/FEEL: Is all fan guard mounting hardware tight?

YES: Go to next check.

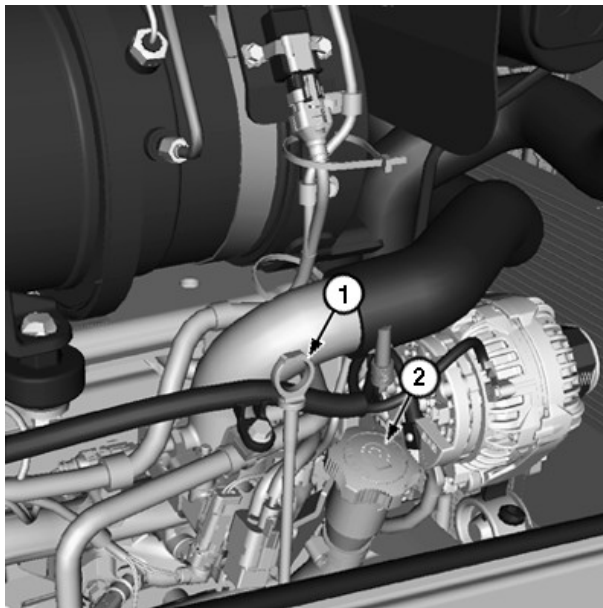
NO: Adjust fan motor mounting to center fan.

NO: Repair or replace guard or baffles. Tighten hardware.

Continued on next page

ER93822,000005E-19-10APR12-9/63

Engine Oil Level Check



TX1103897A—UN—17JAN12

Engine Oil Dipstick and Fill Port Cap

1—Dipstick

2—Fill Port Cap

Open right engine compartment door.

Remove dipstick (1) and check oil level and condition.

LOOK: Is engine oil below minimum mark?

SMELL: Does engine oil have fuel smell?

LOOK: Does engine oil appear milky or grainy?

LOOK: Is engine oil above maximum mark?

NOTE: If oil level is high, check for fuel or coolant in oil. If there is fuel in oil, oil will have a fuel smell. To check for coolant in oil, loosen drain plug and remove small amount of oil. Check sample for water (coolant) content. If oil level is low, check for oil leaks or oil seal problems in engine.

YES: Add oil. See Check Engine Oil Level. (Section 3-4.)

YES: Replace oil. See Drain and Refill Engine Oil and Replace Filter. (Section 3-7.)

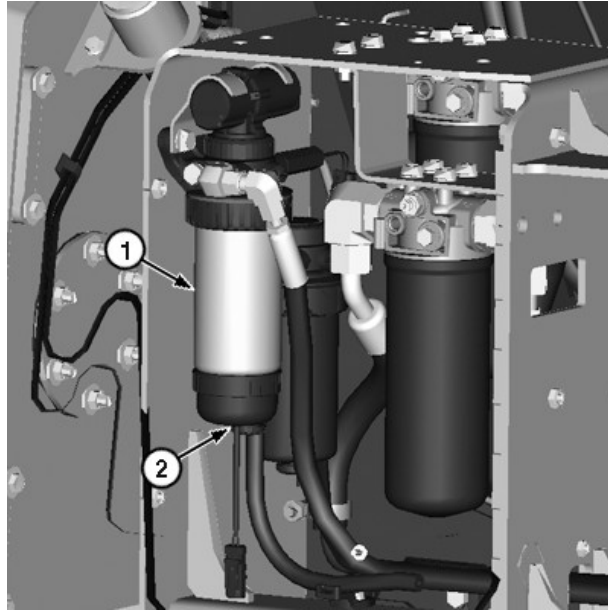
YES: Remove engine oil drain plug and drain oil to proper level.

NO: Go to next check.

Continued on next page

ER93822,000005E-19-10APR12-10/63

Primary Fuel Filter Check



TX1099739A—UN—04JAN12

Primary Fuel Filter

- 1—Primary Fuel Filter**
- 2—Drain Valve**

Open left engine compartment door.

Place drain hose from primary fuel filter (1) into container.

Open drain valve (2) on bowl and drain fuel for several seconds or until water and sediment are removed.

Close drain valve.

LOOK: Does fuel flow from drain valve?

FEEL/LOOK: Does drain valve seal when closed?

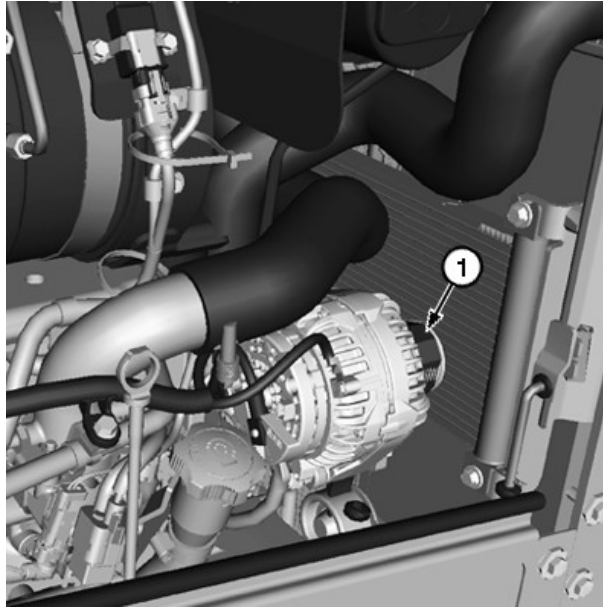
YES: Go to next check.

NO: Clean or replace drain valve.

Continued on next page

ER93822,000005E-19-10APR12-11/63

Belt Check



TX1103898A—UN—17JAN12

Belt Check

1—Belt

Inspect condition of belt (1).

FEEL/LOOK: Are belt and pulleys free of any oil or grease?

LOOK: Is inside surface of belt free of any cracks?

NOTE: If operator has been reporting squealing sound during engine shutdown, replace belt.

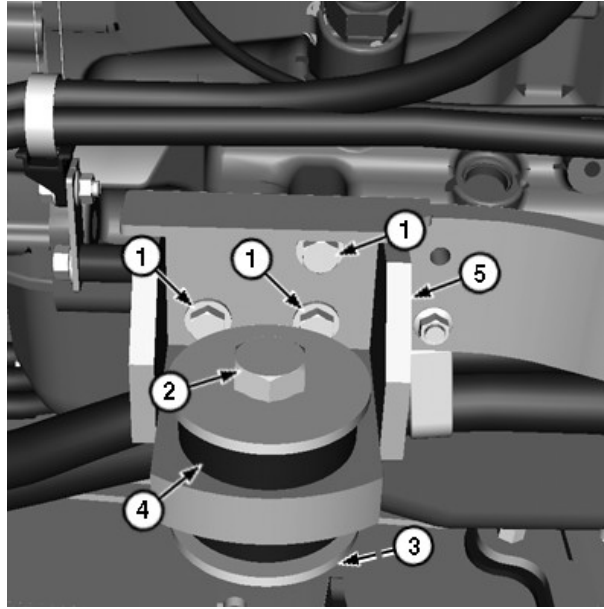
YES: Go to next check.

NO: Replace belt.

Continued on next page

ER93822,000005E-19-10APR12-12/63

Engine Mounts Check



TX1100089A—UN—28OCT11

Front Left Engine Mount

1—Mount-to-Engine Cap Screw (3 used)

2—Isolator Cap Screw

3—Isolator Nut

4—Rubber Isolator

5—Engine Mounting Bracket

Open both engine compartment doors.

Inspect all engine mounts for wear, fretting, or loose hardware.

LOOK: Are engine mounts in good condition?

FEEL: Are cap screws tight?

YES: Go to next check.

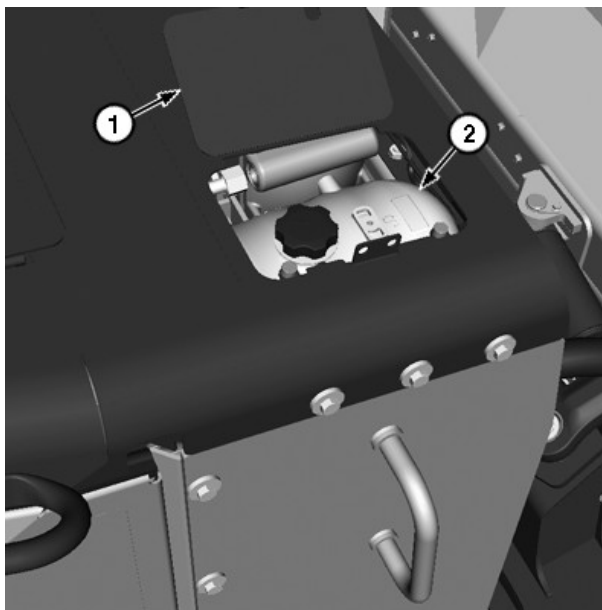
NO: Replace engine mounts or tighten cap screws.

Continued on next page

ER93822,000005E-19-10APR12-13/63

Coolant Level and Condition Check

IMPORTANT: Overfilling surge tank will cause aeration and coolant will be expelled from overflow hose when engine reaches operating temperature. Do not overfill surge tank; coolant must be between maximum cold and minimum cold marks on surge tank.



TX1103899A—UN—21DEC11

Surge Tank

- 1—Surge Tank Access Panel
- 2—Coolant Tank

Open surge tank access panel (1).

Inspect coolant level and coolant condition in coolant tank.

LOOK: Is coolant level visible in the tank?

LOOK: Is coolant clean, and not oily, foamy, or rusty?

YES: Go to next check.

NO: If coolant level is low, check for leak on filter hose before adding coolant.

If coolant is rusty, oily, or foamy; drain, flush and replace coolant. See Drain and Refill Engine Cooling System. (Section 3-11.)

ER93822.000005E-19-10APR12-14/63

Radiator/Heater Hoses and Clamps Check

Inspect all radiator and heater hoses for cracks or leaks.

Inspect all hose clamps.

LOOK: Are the radiator and heater hoses in good condition?

LOOK: Are hose clamps tight and perpendicular to the hose?

IMPORTANT: Crooked clamps can cause damage and leaks.

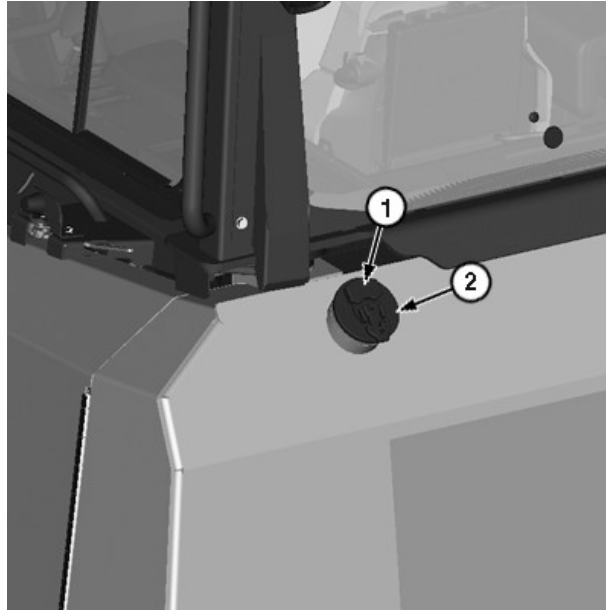
YES: Go to next check.

NO: Replace damaged hoses or straighten and tighten clamps.

Continued on next page

ER93822.000005E-19-10APR12-15/63

Fuel Cap Check



TX1099742A—UN—04JAN12

Fuel Cap

- 1—Vent Valve Assembly
- 2—Fuel Cap

Remove fuel cap (2).

NOTE: Air "hiss" from tank is normal when cap is removed.

Inspect fuel cap seal.

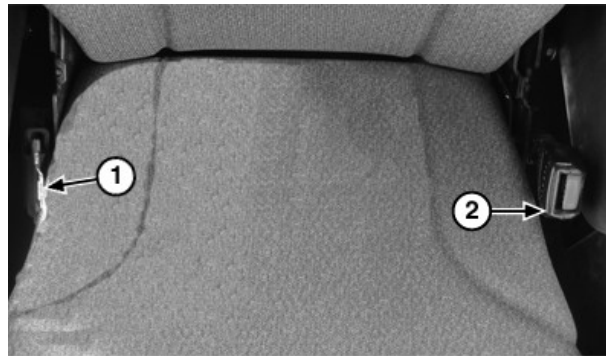
LOOK: Is seal on fuel cap in good condition and is vent valve assembly (1) open?

YES: Go to next check.

NO: Clean vent, replace seal, or replace fuel cap.

ER93822,000005E-19-10APR12-16/63

Seat Belt Check



TX1083766A—UN—27OCT10

Seat Belt

- 1—Seat Belt
- 2—Seat Belt Lock

Pull seat belt (1) all the way out and inspect seat belt for damage.

LOOK: Is seat belt in good condition, free of cuts?

Install seat belt in seat belt lock (2).

LOOK/FEEL: Does seat belt retract and lock in place?

YES: Go to next check.

NO: Replace seat belt.

NO: Replace seat belt lock.

Continued on next page

ER93822,000005E-19-10APR12-17/63

Cab Door and Window Seals Check

Open and close door and windows. Inspect seals.
LOOK: Do door and windows contact seals evenly?
LOOK: Are seals in position and in good condition?
LOOK: Are latches aligned with strikers?
FEEL/LOOK: Are door, window, and door hold-open latches easy to operate?

YES: Go to next check.
NO: Adjust door and windows to close against seals properly. Replace seals as necessary.
NO: Align latches with strikers.
NO: Adjust or replace latches as necessary.

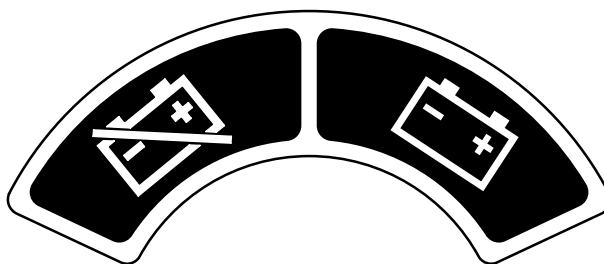
ER93822,000005E-19-10APR12-18/63

3 Operational Checks—Switched Power ON, Engine OFF

ER93822,000005E-19-10APR12-19/63

Battery Disconnect Switch Check

NOTE: Battery disconnect switch is located inside of the left rear service door.



TX1105187—UN—10JAN12

Battery Disconnect Switch Label

Turn battery disconnect switch off.
 Press engine start switch on SSM.
LOOK: Do monitor indicator lights illuminate?

YES: Switch is malfunctioning. Repair battery disconnect switch.
NO: Go to next check.

ER93822,000005E-19-10APR12-20/63

Battery Disconnect Switch Check (continued)

Turn battery disconnect switch on.
 Press engine start switch on SSM. Do not start engine.
LOOK: Do monitor indicator lights illuminate?

YES: Go to next check.
NO: Repair battery disconnect switch.

Continued on next page

ER93822,000005E-19-10APR12-21/63

Battery Check

Set SDM to display battery voltage.

LOOK: Do battery volts read a minimum of 24 volts?

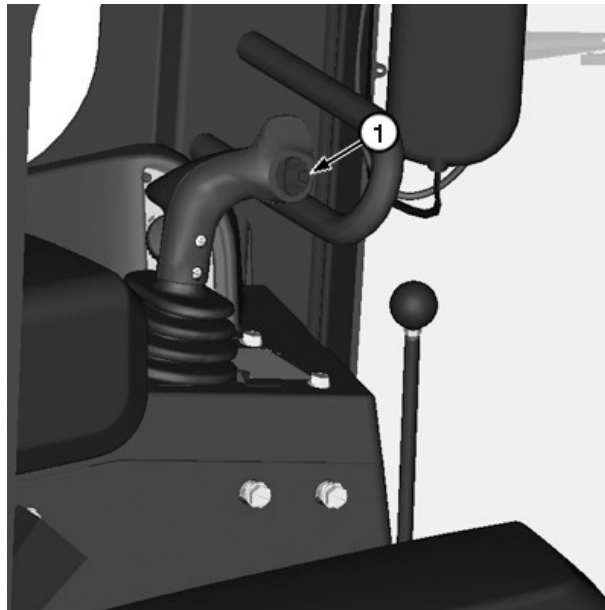
YES: Go to next check.

NO: Check for loose connection on battery terminals. If battery connection is OK, check and recharge batteries. See Check Battery Electrolyte Level; Clean and Tighten Terminals. (Section 3-7.) Check voltage on each battery before recharging.

NOTE: If one battery will not hold a charge, replace both batteries.

ER93822,000005E-19-10APR12-22/63

Horn Check



TX1099743A—UN—04JAN12

Horn Button

1—Horn Button

Press horn button (1).

LISTEN: Does horn sound?

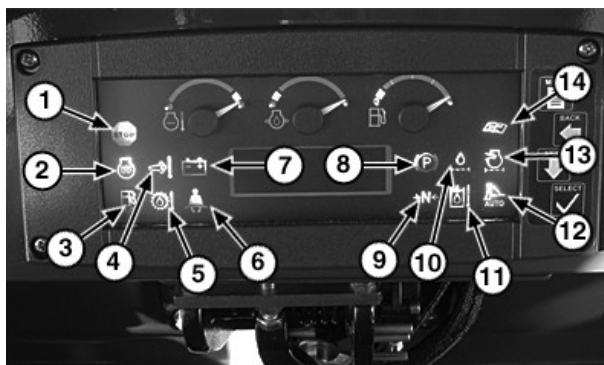
YES: Go to next check.

NO: Check horn circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-23/63

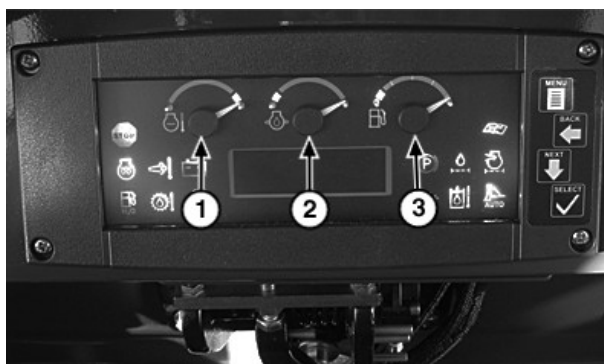
Indicator and Gauge Check



TX1083884A—UN—29OCT10

Indicators

- 1—Stop Indicator
- 2—Wait to Start Indicator
- 3—Water-in-Fuel Indicator
- 4—Exhaust Filter Cleaning Indicator
- 5—Transmission Oil Temperature Indicator
- 6—Fasten Seat Belt Indicator
- 7—Engine Alternator Voltage Indicator
- 8—Park Brake Indicator
- 9—Return to Neutral Indicator
- 10—Oil Filter Restriction Warning Indicator
- 11—Hydraulic Oil Temperature Indicator
- 12—Auto Blade Indicator
- 13—Engine Air Filter Restriction Indicator
- 14—Check Service Code Warning Indicator



TX1083885A—UN—29OCT10

Gauges

- 1—Engine Coolant Temperature Gauge
- 2—Engine Oil Pressure Gauge
- 3—Fuel Level Gauge

Place transmission control lever (TCL) in neutral position.

Pull park lock levers to full up (locked) position.

Press engine start switch on SSM.

LOOK: Do all indicators turn on for 3 seconds?

LOOK: Do all three gauges move to far right position, then move to center position?

LOOK: After 3 seconds, do gauges move to their normal run time positions?

YES: Go to next check.

NO: Check standard display monitor (SDM) circuit. See your authorized dealer.

Continued on next page

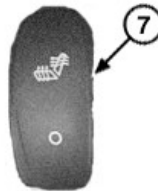
ER93822,000005E-19-10APR12-24/63

Seat Control Checks



TX1083892A—UN—29OCT10

Air Suspension Seat



TX1083894A—UN—29OCT10

Seat Heater Switch (if equipped)

- 1—Headrest
- 2—Lumbar Adjustment
- 3—Backrest Adjustment
- 4—Height Adjustment
- 5—Tilt Adjustment
- 6—Fore and Aft Adjustment
- 7—Seat Heater Switch (if equipped)

Operate all seat adjustments (1—6).

FEEL/LOOK: Do seat adjustments move seat to desired positions?

Operate the seat heater switch (7).

FEEL: Does the seat warm up?

YES: Go to next check.

NO: Inspect linkage and repair.

NO: Check seat heater circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-25/63



Drive Lights Switch

- 1—Drive Lights Switch
2—Left LED
3—Right LED

LOOK: Is the left LED (2) illuminated? Are only the front drive lights illuminated?

LOOK: Is the right LED (3) illuminated? Are only the rear drive lights illuminated?

LOOK: Are the left and right LEDs illuminated? Are both front and rear drive lights illuminated?

NO: Check drive lights circuit. See your authorized dealer.

ER93822,000005E-19-10APR12-26/63

Work Lights Check



TX1100050A—UN—28OCT11

Work Lights Switch

- 1—Work Lights Switch
- 2—Left LED
- 3—Right LED

Press work lights switch (1).

LOOK: Are the left and right LEDs (2 and 3) illuminated? Are the left and right work lights illuminated?

YES: Go to next check.

NO: Check work lights circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-27/63

Front Wiper Check



TX1100051A—UN—28OCT11

Front Wiper Switch

- 1—Front Wiper Switch**
2—LED

Press front wiper switch (1).

Observe wiper.

LOOK: Does wiper run at a constant speed?

LOOK: Does LED (2) illuminate?

Turn switch off.

LOOK: Does wiper return to park position?

YES: Go to next check.

NO: Check front wiper switch circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-28/63

Wiper Speed Check



TX1100052A—UN—28OCT11

Wiper Speed Switch

- 1—Wiper Speed Switch
- 2—Left LED
- 3—Middle LED
- 4—Right LED

Press wiper speed switch (1). One LED illuminated.

LOOK: Does wiper operate in intermittent speed mode?

Press wiper speed switch. Two LEDs illuminated.

LOOK: Does wiper operate in low speed mode?

Press wiper speed switch. Three LEDs illuminated.

LOOK: Does wiper operate in high speed mode?

YES: Go to next check.

NO: Check wiper speed switch circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-29/63

Rear Wiper Check



TX1100053A—UN—28OCT11

Rear Wiper Switch

- 1—Rear Wiper Switch
- 2—LED

Press rear wiper switch (1).

Observe wiper.

LOOK: Does wiper run at a constant speed?

LOOK: Does LED (2) illuminate?

Turn switch off.

LOOK: Does wiper return to park position?

YES: Go to next check.

NO: Check rear wiper switch circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-30/63

Front and Rear Washer Motor Check



TX1100054A—UN—28OCT11

Front and Rear Washer Motor Switch

1—Front and Rear Washer Motor Switch
2—LED

Press front and rear washer motor switch (1).

LOOK: Do front and rear washers operate?

LOOK: Does LED (2) illuminate?

LOOK: Do front and rear wipers continue to operate?

LOOK: Do front and rear wiper LEDs illuminate?

YES: Go to next check.

NO: Washer fluid reservoir may be empty. Check washer fluid.

Check wiper circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-31/63

Left and Right Door Wiper Check



TX1100055A—UN—28OCT11

Door Wiper Switch

- 1—Door Wiper Switch**
- 2—Left LED**
- 3—Right LED**

Press door wiper switch (1).

LOOK: Does left wiper run at a constant speed?

LOOK: Does left LED (2) illuminate?

Press door wiper switch again.

LOOK: Does right wiper run at a constant speed?

LOOK: Does right LED (3) illuminate?

Press door wiper switch again.

LOOK: Do left and right wipers run at a constant speed?

LOOK: Do left and right LEDs illuminate?

Press door wiper switch again.

LOOK: Do wipers return to park position?

YES: Go to next check.

NO: Check left and right door wiper circuits. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-32/63

Left and Right Door Washer Motor Check



TX1100056A—UN—28OCT11

Door Washer Switch

- 1—Door Washer Switch
- 2—LED

Press door washer switch (1) on SSM.

LOOK: Do left and right door washers operate?

LOOK: Does LED (2) illuminate?

LOOK: Do left and right door wipers continue to operate?

LOOK: Do left and right door wiper LEDs illuminate?

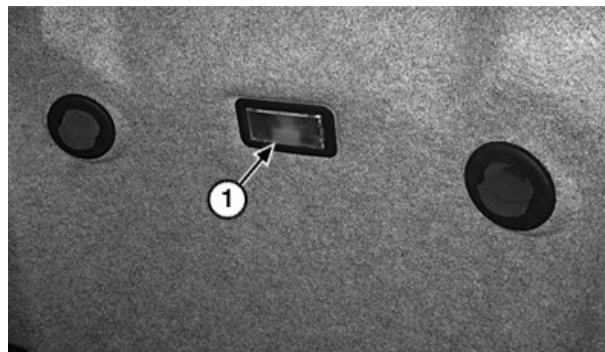
YES: Go to next check.

NO: Washer fluid reservoir may be empty. Check washer fluid.

Check wiper circuit. See your authorized dealer.

ER93822,000005E-19-10APR12-33/63

Cab Interior Light Check



TX1083995A—UN—02NOV10

Cab Interior Light

- 1—Cab Interior Light

Press on cab interior light (1), to turn on light.

LOOK: Does cab interior light turn on?

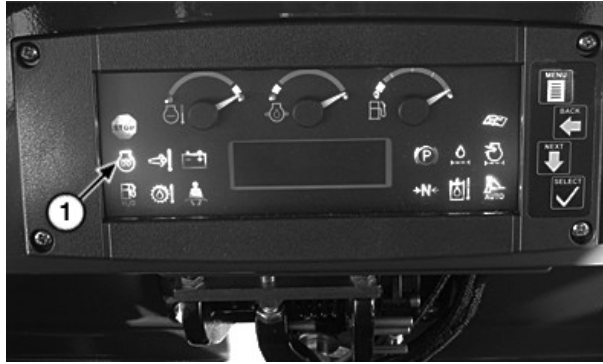
YES: Go to next check.

NO: Check cab interior light circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-34/63

Glow Plug Check



TX1084042A—UN—02NOV10

Wait to Start Indicator

1—Wait to Start Indicator

With ignition switch on, observe wait to start indicator (1).

LOOK: Does wait to start indicator come on, then go off when engine is ready to start?

YES: Go to next check.

NO: Check glow plugs. See your authorized dealer.

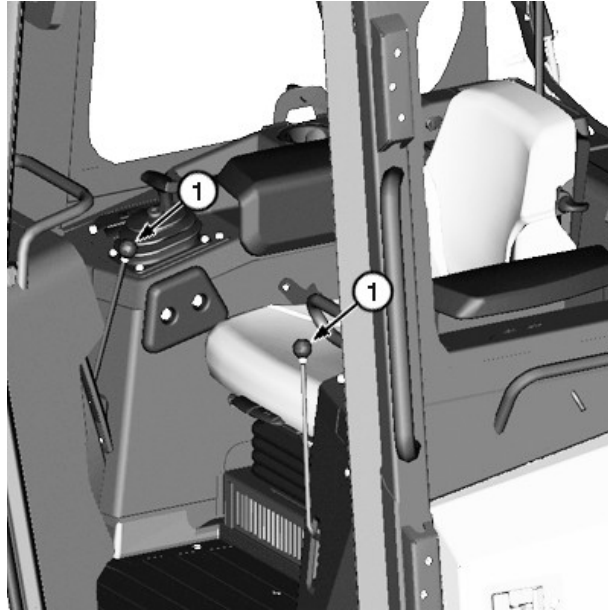
ER93822,000005E-19-10APR12-35/63

4 Operational Checks—Switched Power ON, Engine ON

Continued on next page

ER93822,000005E-19-10APR12-36/63

Start Circuit Check



TX1099749A—UN—27DEC11

Park Lock Levers



TX1100057A—UN—28OCT11

Engine Start Switch

- 1—Park Lock Lever (2 used)
- 2—Engine Start Switch
- 3—Left LED
- 4—Right LED

Move park lock levers (1) to down (unlocked) position.

Press and release engine start switch (2) to energize ignition. The left LED (3) will illuminate.

After display monitor has initialized, press and hold engine start switch.

LISTEN/FEEL: Did starter motor fail to engage?

LOOK: Did right LED (4) fail to illuminate?

Move park lock levers to full up (locked) position and press engine start switch to start.

YES: Go to next check.

NO: If starter engages, start circuit is shorted. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-37/63

LISTEN/FEEL: Does starter motor still fail to engage?

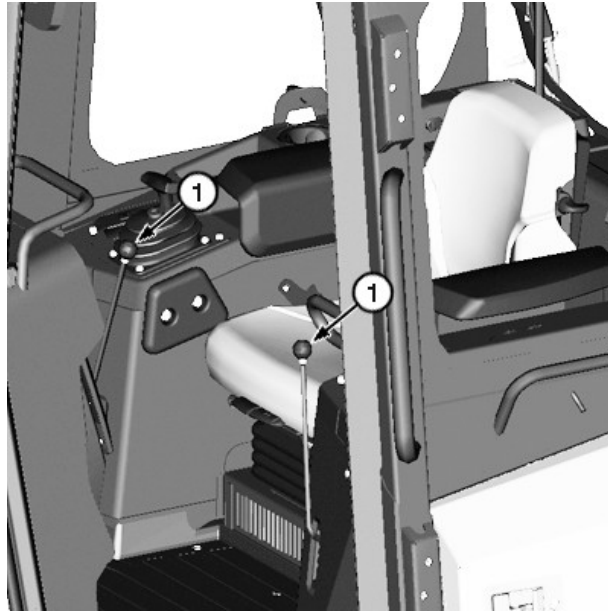
LOOK: Does right LED still fail to illuminate?

Continued on next page

ER93822.000005E-19-10APR12-38/63

**Start Circuit Check
(continued)**

NOTE: If engine start switch (2) is pressed twice with a park lock lever (1) in the down (unlocked) position, the engine start switch will have to be cycled to off after both levers are raised, before starter will engage.



TX1099749A—UN—27DEC11

Park Lock Levers



TX1100057A—UN—28OCT11

Engine Start Switch

- 1—Park Lock Lever (2 used)
- 2—Engine Start Switch
- 3—Left LED
- 4—Right LED

Move park lock levers (1) to up (locked) position.

Press and release engine start switch (2) to energize ignition. The left LED (3) will illuminate.

After display monitor has initialized, press and hold ignition start switch.

LOOK: Does engine start?

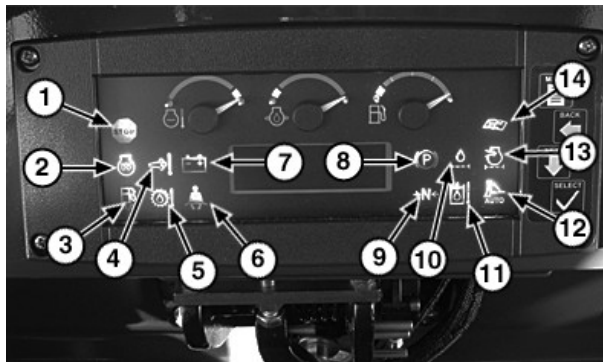
YES: Go to next check.

NO: If engine does not start, diagnose cause of malfunction. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-39/63

Monitor Status After Indicator Check



TX1083884A—UN—29OCT10

Indicators

- 1—Stop Indicator
- 2—Wait to Start Indicator
- 3—Water-in-Fuel Indicator
- 4—Exhaust Filter Cleaning Indicator
- 5—Transmission Oil Temperature Indicator
- 6—Fasten Seat Belt Indicator
- 7—Engine Alternator Voltage Indicator
- 8—Park Brake Indicator
- 9—Return to Neutral Indicator
- 10—Oil Filter Restriction Warning Indicator
- 11—Hydraulic Oil Temperature Indicator
- 12—Auto Blade Indicator
- 13—Engine Air Filter Restriction Indicator
- 14—Check Service Code Warning Indicator

After bulb check with engine running, check the following:

NOTE: Park brake indicator (8) will stay illuminated, due to machine being in park.

LOOK: Do all indicators except park brake indicator (8) turn off?

LOOK: Does display show engine speed?

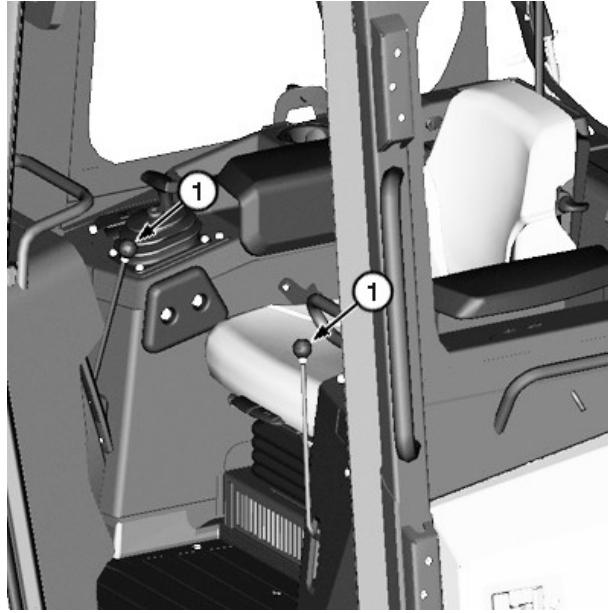
YES: Go to next check.

NO: Check standard display monitor (SDM) circuit. See your authorized dealer.

Continued on next page

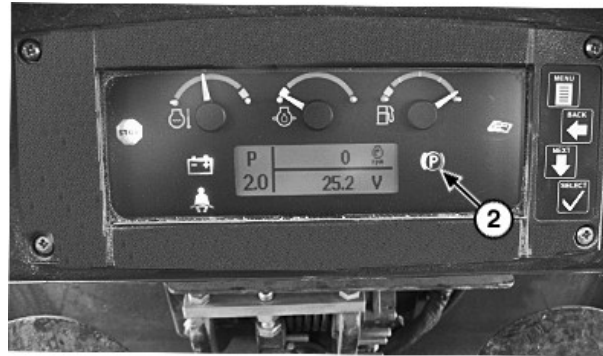
ER93822,000005E-19-10APR12-40/63

Park Lock Lever Switch Check



TX1099749A—UN—27DEC11

Park Lock Levers



TX1083890A—UN—29OCT10

Park Brake Indicator

- 1—Park Lock Lever (2 used)
- 2—Park Brake Indicator

Move transmission control lever (TCL) to neutral.

CAUTION: Avoid possible injury from unexpected machine movement. Machine may move when park brake is released.

Observe park brake indicator (2) on standard display monitor (SDM) as park lock levers (1) are moved to down (unlocked) position.

LOOK: Does park brake indicator go off when park lock levers are in the down position?

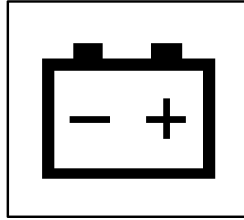
YES: Go to next check.

NO: If park brake indicator remains on, see your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-41/63

Alternator Output Check



TX1000662—UN—23NOV05

Voltage Indicator

Run engine at slow idle.

LOOK: Is engine alternator voltage indicator off?

YES: Go to next check.

NO: Increase engine speed to fast idle; if light still on, check and charge batteries.

Check alternator wiring and output; repair as required. See your authorized dealer.

ER93822.000005E-19-10APR12-42/63

Engine Speed Control Switch Check



TX1099745A—UN—04JAN12

Engine Speed Control

- 1—Transmission Control Lever (TCL)
- 2—Speed-in-Grip (SIG) Button (increase)
- 3—Speed-in-Grip (SIG) Button (decrease)
- 4—Engine Speed Control

Run engine and turn engine speed control (4) to minimum slow idle position.

LOOK: Is engine speed at approximately 900 rpm?

Slowly turn engine speed control to maximum fast idle position.

LOOK: Is engine speed at approximately 2275 rpm?

LISTEN: Does engine speed change proportionally to switch movement?

YES: Go to next check.

NO: Check engine speed control circuit. See your authorized dealer.

Continued on next page

ER93822.000005E-19-10APR12-43/63

Engine Air Filter Restriction Check



TX1000024—UN—04NOV05

Engine Air Filter Restriction Indicator

Run engine at fast idle with park lock levers in full up (locked) position.

LOOK: Is engine air filter restriction indicator off?

YES: Go to next check.

NO: Replace engine air filter elements. See Replace Engine Air Filter Elements. (Section 4-1.)

ER93822,000005E-19-10APR12-44/63

Cooling Fan Circuit Check

NOTE: This check will not work if engine or hydraulic oil temperature is above 52°C (125°F). Change in fan speed may be hard to detect.

Run engine at slow idle.

Move park lock levers to full up (locked) position.

Open right engine door and disconnect engine coolant temperature sensor (B5208). See your authorized dealer.

LISTEN/LOOK: Does fan speed increase when sensor is disconnected?

NOTE: If fan circuit is malfunctioning, the cooling fan will default to high speed.

Connect temperature sensor.

LISTEN/LOOK: Does fan speed decrease when sensor is connected?

YES: Go to next check.

NO: Check coolant temperature sensor wiring. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-45/63

**Reversing Fan Circuit
Check—If Equipped**



TX1100058A—UN—28OCT11

Reversing Fan Switch (if equipped)

1—Reversing Fan Switch (if equipped)

2—LED

Run engine at slow idle.

Press reversing fan switch (1).

LISTEN/LOOK: Does hydraulic cooling fan reverse direction?

LOOK: Does LED (2) come on?

YES: Go to next check.

NO: Check reversing fan circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-46/63

**Hydraulic Enable
Solenoid Check—IGC
Option**



TX1085746A—UN—10DEC10

Hydraulic Enable Switch

- 1—Hydraulic Enable Switch**
2—LED

Press hydraulic enable switch (1) to locked (LED (2) off).

Run engine at slow idle.

Move blade control lever to each function position.

LOOK: Do all hydraulic functions fail to operate?

Press hydraulic enable switch to unlocked (LED on).

Move blade control lever to operate each function.

LOOK: Do all hydraulic functions operate correctly?

YES: Go to next check.

NO: Check hydraulic enable solenoid valve and blade control lever circuit. See your authorized dealer.

ER93822,000005E-19-10APR12-47/63

Park Brake Circuit Check



CAUTION: Avoid possible injury from unexpected machine movement. Moving park lock levers will stop machine abruptly. Wear seat belt at all times when operating machine.

Fasten seat belt.

Run machine at slow idle in forward.

Move park lock levers to full up (locked) position.

LOOK/FEEL: Does machine stop and park brake indicator illuminate immediately?

Move control lever back to neutral and move park lock levers to full down (unlocked) position.

Run machine slowly in forward.

Return transmission control lever (TCL) to neutral and measure time it takes for park brake indicator to illuminate.

LOOK/FEEL: Does machine stop and park brake indicator illuminate after approximately 7 seconds?

YES: Go to next check.

NO: Check park brake circuit.

See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-48/63

Park Brake Valve Leakage Check

Warm up hydrostatic oil. See your authorized dealer.

Adjust engine speed control to slow idle with park lock levers in the full up (locked) position.

Observe charge pressure reading on SDM. See Standard Display Monitor (SDM)—Main Menu—Diagnostics—Live Values—Pressures. (Section 2-3.)

LOOK: Does pressure drop as park lock levers are moved to down (unlocked) position, then return to original value?

Fully depress decelerator/brake pedal, then release.

LOOK: Does pressure drop as decelerator/brake pedal is released, then return to original value?

LOOK: Do tracks creep or move?

YES: Pressure value does not return to original value. Isolate park brakes and brake valve to locate leakage. See your authorized dealer.

YES: Tracks move in neutral. Inspect park brake valve. See your authorized dealer.

NO: Go to next check.

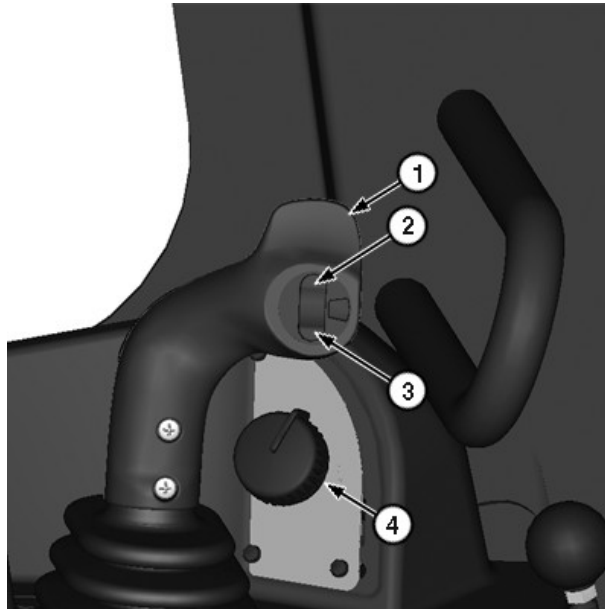
ER93822,000005E-19-10APR12-49/63

Transmission Control Lever (TCL) Check

CAUTION: Prevent possible injury from machine movement. Make sure there is adequate room and be aware of bystanders.

Operate engine at 1500 rpm.

Set transmission speed to 2.0.



TX1099745A—UN—04JAN12

Engine Speed Control

1—Transmission Control Lever (TCL)

2—Speed-in-Grip (SIG) Button (increase)

3—Speed-in-Grip (SIG) Button (decrease)

4—Engine Speed Control

Move transmission control lever (TCL) (1) from neutral to forward, neutral to reverse, and then forward to reverse.

Specification

Engine—Speed. 1500 rpm

LOOK: Does machine operate smoothly in forward and reverse?

NOTE: Transmission control lever shift rate can be set to operator preference. Low has a slower reaction time and high has a quicker reaction time. See your authorized dealer.

YES: Go to next check.

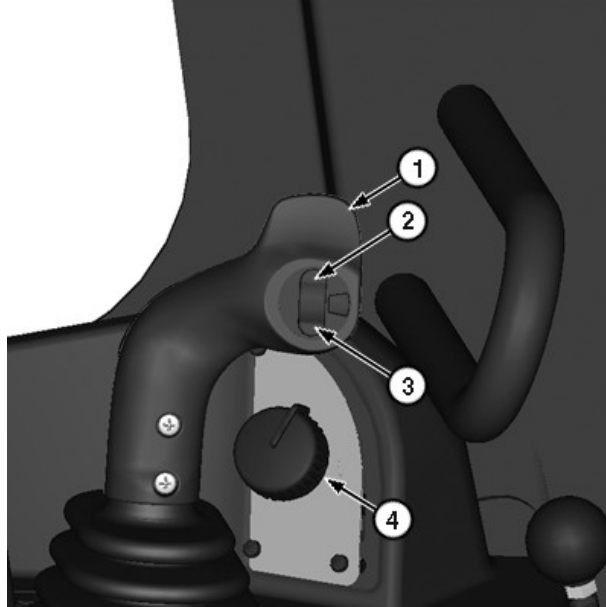
NO: Adjust transmission control lever. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-50/63

**Transmission Control
Lever (TCL) Speed
Change Check**

CAUTION: Prevent possible injury from machine movement. Make sure there is adequate room and be aware of bystanders.



TX1099745A—UN—04JAN12

Engine Speed Control

- 1—Transmission Control Lever (TCL)
- 2—Speed-in-Grip (SIG) Button (increase)
- 3—Speed-in-Grip (SIG) Button (decrease)
- 4—Engine Speed Control

Run engine at fast idle with blade raised.

Move park lock levers to full down (unlocked) position.

Move transmission control lever (TCL) (1) to forward and drive machine.

Press speed-in-grip (SIG) button (2) to increase speed.

Press speed-in-grip (SIG) button (3) to decrease speed.

Move TCL to neutral.

Move TCL to reverse and drive machine.

Move SIG buttons to increase and decrease speed.

Move TCL to neutral.

LOOK/FEEL: Does TCL stay in selected position in forward, neutral, and reverse?

LOOK/FEEL: Does machine move faster or slower when SIG buttons are pressed?

YES: Go to next check.

NO: Check adjustment of TCL. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-51/63

**Decelerator/Brake Pedal
and Park Brake Check**



CAUTION: Prevent possible injury from machine movement. Perform this check in an open area away from other people and machinery.

Operate engine at slow idle.



CAUTION: Prevent possible injury from sudden machine stops. Wear seat belt while operating machine.

Fasten seat belt.

Move park lock levers to full down (unlocked) position.

Operate machine slowly in forward. Fully depress decelerator/brake pedal and then release.

LOOK: Does machine stop when pedal is depressed and move when pedal is released?

Depress decelerator/brake pedal until spring resistance is felt.

Adjust engine speed to fast idle and transmission speed to 3.0.

Move transmission control lever to forward position.

Release decelerator/brake pedal.

LOOK: Does machine accelerate smoothly to maximum speed?

NOTE: Decelerator/brake response time can be set to operator preference. See your authorized dealer.

YES: Go to next check.

NO: Inspect park brake valve. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-52/63



Decelerator Mode Switch

1—Decelerator Mode Switch

2—LED

Engine Mode

Run engine at slow idle.

Move park lock levers to full down (unlocked) position.

Press decelerator mode switch (1) until LED (2) is OFF.

Push transmission control lever (TCL) to forward.

Increase engine to fast idle.

CAUTION: Prevent possible injury from unexpected machine movement. Pushing decelerator/brake pedal beyond a point of increased resistance will apply brakes and stop machine abruptly.

Slowly depress decelerator/brake pedal.

LOOK: Does engine speed decrease as machine speed decreases?

LOOK: Is LED (2) OFF?

Transmission Mode

Run engine at slow idle.

Move park lock levers to full down (unlocked) position.

Press decelerator mode switch (1) until LED (2) is ON.

Push transmission control lever (TCL) to forward.

Increase engine to fast idle.

CAUTION: Prevent possible injury from unexpected machine movement. Pushing decelerator/brake pedal beyond a point of increased resistance will apply brakes and stop machine abruptly.

Slowly depress decelerator/brake pedal.

LOOK: Does engine speed remain the same as machine speed decreases?

LOOK: Does LED illuminate?

YES: Go to next check.

NO: Adjust decelerator/brake pedal. See your authorized dealer.

ER93822.000005E-19-10APR12-53/63

Tracking and Maximum Speed Check

NOTE: Track sag must be at specification and machine must be driven on a level surface for all tracking checks.



TX1100059A—UN—28OCT11

Decelerator Mode Switch

1—Decelerator Mode Switch

2—LED

Activate Engine Mode by pressing decelerator mode switch (1) until LED (2) is OFF.

Operate engine at fast idle.

Set transmission speed to 3.0.

Move park lock levers to full down (unlocked) position.

Depress decelerator/brake pedal fully to stop.

Move TCL to forward.

Slowly increase engine speed from slow to fast idle by slowly raising the decelerator/brake pedal.

Depress decelerator/brake pedal fully to stop.

Move TCL to reverse.

Slowly increase engine speed from slow to fast idle by slowly raising the decelerator/brake pedal.

LOOK: Does machine speed increase as engine speed increases?

YES: Check complete.

NO: Calibrate machine. See your authorized dealer.

NO: Diagnose cause of full speed malfunction. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-54/63

Tracking Check

CAUTION: Prevent possible injury from machine movement. Make sure there is adequate room and be aware of bystanders.

NOTE: Track sag must be at specification and machine must be driven on a level surface for all tracking checks.

With engine speed at fast idle, slowly move transmission lever to maximum forward travel.

Drive machine forward on a level surface, in a straight line.

With engine speed at fast idle, slowly move transmission lever to maximum reverse travel.

Drive machine reverse on a level surface, in a straight line.

LOOK: Does machine track in a straight line in forward and reverse? Is tracking straight at all speeds?

LOOK/FEEL: Does machine smoothly change direction and follow the same track imprint?

YES: Go to next check.

NO: Diagnose cause of mistracking. See your authorized dealer.

NO: Check adjustment of TCL. See your authorized dealer.

ER93822,000005E-19-10APR12-55/63

Reverse Ratio Check



TX1100060A—UN—28OCT11

Reverse Ratio Switch

1—Reverse Ratio Switch

2—Left LED

3—Middle LED

4—Right LED

Run engine at fast idle.

NOTE: The reverse ratio has three default settings. The left LED (2) is 100%, the left and middle LEDs (3) together are 115%, and the left, middle, and right LEDs (4) together are 130%.

Press reverse ratio switch (1) until left LED (2) and middle LED (3) illuminate.

Push transmission control lever (TCL) to forward.

Pull TCL to reverse.

LOOK/FEEL: Does machine operate faster in reverse than forward?

LOOK: Does left LED (2) and middle LED (3) illuminate?

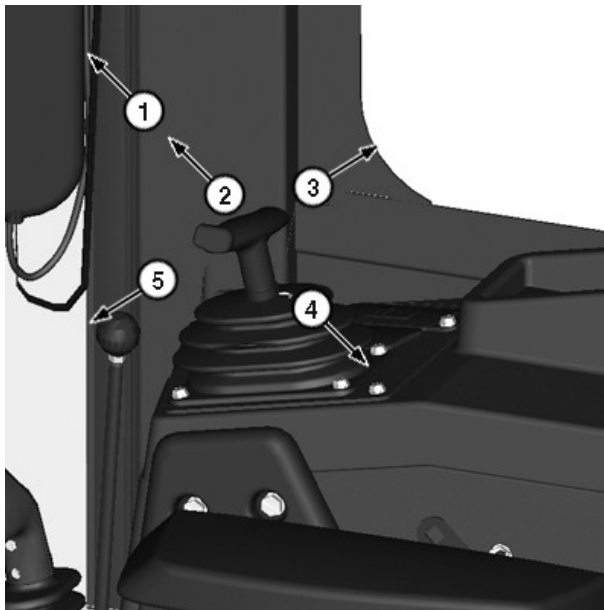
YES: Go to next check.

NO: Calibrate vehicle control unit (VCU). See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-56/63

Blade Control Lever Check



TX1099746A—UN—04JAN12

Blade Control Lever (BCL) Functions

- 1—Blade Float
- 2—Blade Down
- 3—Blade Tilt Right
- 4—Blade Lift
- 5—Blade Tilt Left

Move blade control lever to positions (2—5) and release.

Move blade control lever to position (1).

LOOK/FEEL: Does blade control lever move to all positions (2—5) easily and return to neutral when released?

YES: Go to next check.

NO: If blade control lever does not operate smoothly, repair or replace blade control lever. See your authorized dealer.

ER93822,000005E-19-10APR12-57/63

Hydraulic Controls Check

Operate engine at slow idle.

NOTE: For machines equipped with IGC, put blade control in manual mode by pushing the IGC on/off button located on the joystick handle. The blade control is in manual mode when the auto blade indicator on the SDM is off.

Slowly move blade control lever to all positions except blade float detent.

For machines equipped with IGC, push blade angle buttons on control lever handle to rotate blade in both directions.

LOOK/FEEL: Do all blade functions operate smoothly, without hesitation?

YES: Go to next check.

NO: Diagnose hydraulic system malfunctions. See your authorized dealer.

ER93822,000005E-19-10APR12-58/63

Blade Float Check

Operate engine at slow idle.

Raise front of machine off ground by fully lowering and tilting blade.

Push blade control lever into float detent position.

NOTE: Blade control lever does not lock into float position with IGC controls.

LOOK/FEEL: Does blade control lever lock into blade float position (1)?

LOOK: Does front of crawler lower to ground?

YES: Go to next check.

NO: Check blade float detent coil and hydraulic enable circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-59/63

Cycle Time Check

NOTE: Perform procedure on level surface.

Use the SDM or Service ADVISOR™ diagnostic application to read engine speed and hydraulic oil temperature.

Specification

Hydraulic Oil—Temperature.	57—66°C 135—150°F
Engine—Speed.	Fast Idle
Blade Raise—Cycle Time.	2.3 seconds
Blade Power Down—Cycle Time.	1.6 seconds
Blade Tilt Left—Cycle Time.	1.1 seconds
Blade Tilt Right—Cycle Time.	1.2 seconds
Blade Angle (IGC)—Left —Cycle Time.	3.8 seconds
Blade Angle (IGC)—Right—Cycle Time.	4.0 seconds

Are cycle times at or below specifications?

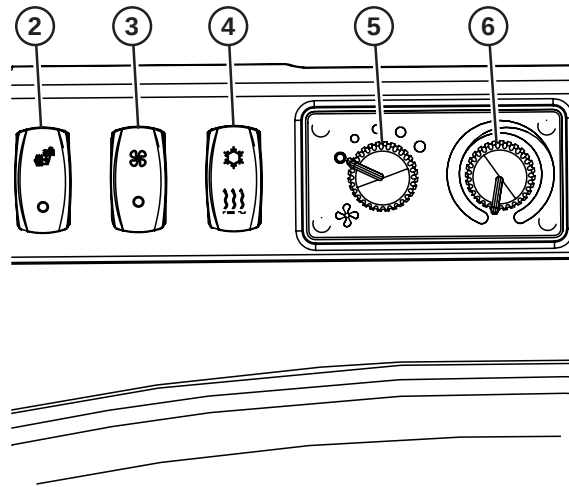
YES: Go to next check.

NO: Check hydraulic pump.
See your authorized dealer.

Service ADVISOR is a trademark of Deere & Company

ER93822,000005E-19-10APR12-60/63

Air Conditioner Check—If Equipped



TX1084695—UN—29NOV10

Temperature Controls

- 2—Seat Heater Switch (if equipped)
- 3—Under Seat Heater Switch (if equipped)
- 4—Air Conditioner Switch
- 5—Blower Control Dial
- 6—Temperature Control Dial

Operate engine at fast idle.

Move air conditioner switch (4) to ON (snowflake) position. Position down is not used for this test.

Turn blower control dial (5) to fourth position and temperature control dial (6) to cold position.

Wait for any warm air in duct system to dissipate.

FEEL: Is air from ducts cool?

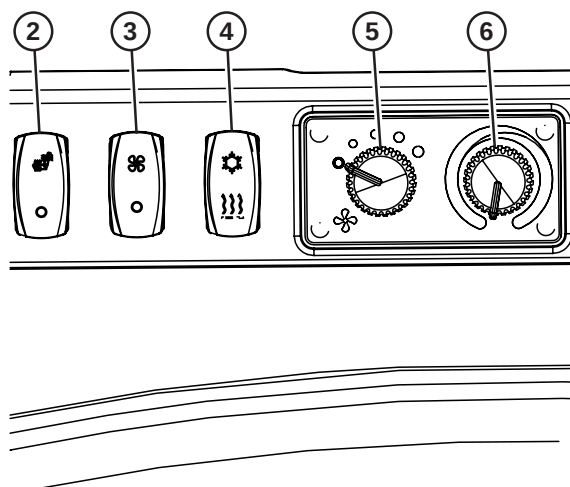
YES: Go to next check.

NO: Diagnose air conditioner malfunctions. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-61/63

Heater Blower Motor Check



TX1084695—UN—29NOV10

Temperature Controls

- 2—Seat Heater Switch (if equipped)
- 3—Under Seat Heater Switch (if equipped)
- 4—Air Conditioner Switch
- 5—Blower Control Dial
- 6—Temperature Control Dial

Turn blower control dial (5) to fourth position and temperature control dial (6) to hot position.

FEEL: Is air from ducts warm?

FEEL: Does air exit all ducts from roof?

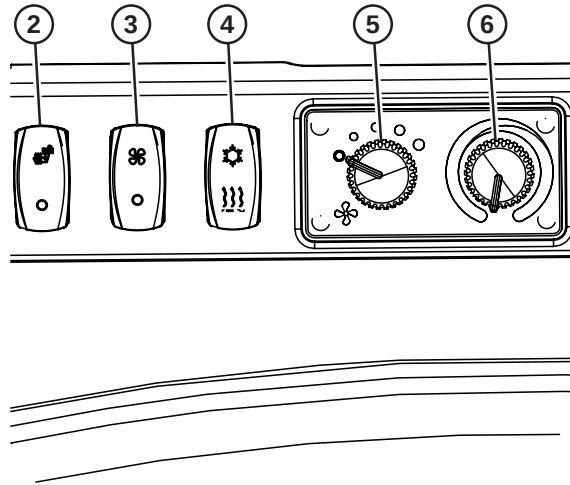
YES: Go to next check.

NO: Check heater blower circuit. See your authorized dealer.

Continued on next page

ER93822,000005E-19-10APR12-62/63

**Under Seat Heater Check
—If Equipped**



TX1084695—UN—29NOV10

Temperature Controls

- 2—Seat Heater Switch (if equipped)
- 3—Under Seat Heater Switch (if equipped)
- 4—Air Conditioner Switch
- 5—Blower Control Dial
- 6—Temperature Control Dial

Press under seat heater switch (3) to on position.

FEEL: Does warm air exit from under seat heater?

YES: Operational checkout is complete.

NO: Check under seat heater blower circuit. See your authorized dealer.

ER93822,000005E-19-10APR12-63/63

Miscellaneous—Troubleshooting

Troubleshooting Procedure

NOTE: Troubleshooting charts are arranged from the simplest to verify, to least likely, more difficult to verify. When diagnosing a problem, use all possible means to isolate the problem to a single component or system. Use the following steps to diagnose problems:

Step 1. Operational Checkout Procedure

Step 2. Troubleshooting Charts

Step 3. Adjustments

Step 4. See your authorized John Deere dealer.

TX, TROUBLESHOOT-19-20JAN11-1/1

Engine

Symptom	Problem	Solution
Engine Will Not Start or Starts Hard	Battery disconnect switch off	Turn switch on.
	Fuel shut off	Open fuel shut-off valve.
	Fuel tank empty	Check fuel quantity.
	Fuel tank vent plugged	Remove cap and listen to sound of air entering tank. Replace cap.
	Water in fuel or water frozen in fuel line	Drain water from fuel filter(s). Change filter(s). Inspect fuel filter(s) for water.
	Debris in fuel or wrong grade of fuel	Check fuel/water separator for debris. Check fuel grade.
	Air leak on suction side of fuel system	Check for bubbles in fuel filter and tighten connections. Inspect fuel lines for damage. See your authorized dealer.
	Fuel transfer pump diaphragm leaking	Check engine oil for fuel dilution.
	Slow cranking speed	Check battery and connections.
	Restricted engine air filter elements	Check engine air filter restriction indicator light and engine air filter elements.
	Fuel tank shutoff not fully open	Open fuel tank shutoff.
	Valve clearance	Check and adjust valves.
Engine Surges or Stalls Frequently	Air in fuel	Inspect filter for evidence of air in fuel. Tighten connections and bleed fuel system.
	Fuel partially shut off	Open fuel shutoff valve.
	Fuel tank vent plugged	Remove cap and listen to sound of air entering tank. Replace cap.
	Debris in fuel or wrong grade of fuel	Check fuel/water separator for debris. Check fuel grade.
	Water in fuel	Drain water from fuel filter(s). Change filter(s).
	Fuel filter plugged	Replace filter(s).
Engine Misses	Air in fuel	Check for evidence of air in filter. Tighten connections and bleed fuel system.
	Fuel partially shut off	Open fuel shutoff valve.

Continued on next page

ER93822,0000040-19-10APR12-1/3

Symptom	Problem	Solution
	Debris in fuel or wrong fuel grade	Check fuel filter(s) for debris. Clean. Check grade of fuel.
Engine Does Not Develop Full Power	Fuel partially shut off	Open fuel shutoff valve.
	Fuel filter clogged	Replace fuel filter(s).
	Wrong grade of fuel	Drain and add correct fuel.
	Engine air system restricted	Check engine air filter restriction indicator and engine air filter elements.
Engine Emits Excessive Black or Gray Exhaust Smoke	Restricted engine air filter elements	Check engine air filter restriction indicator and engine air filter elements. Replace.
	Incorrect grade of fuel	Use correct grade of fuel.
Engine Emits Excessive Blue or White Smoke	Cranking speed too slow	Check batteries and connections.
	Incorrect grade of fuel	Use correct grade of fuel.
	Engine running too cold	Check thermostat operation. See your authorized dealer.
Slow Acceleration	Improper fuel	Use correct grade of fuel.
Abnormal Engine Noise	Low or incorrect engine oil	Add correct oil to proper level.
	Loose or worn hydraulic pump	Inspect. See your authorized dealer.
	Engine oil diluted	Inspect engine oil. Determine cause.
Low Oil Pressure (Engine Oil Pressure Gauge Red Light On, Red STOP Indicator Flashing)	Low oil level	Add oil to proper level. Inspect engine oil.
	Wrong viscosity oil/oil diluted with diesel fuel	Change oil.
Engine Overheats (Engine Coolant Temperature Gauge Red Light On, Red STOP Indicator Flashing)	Low coolant level	Fill cooling system and check for leaks.
	Low engine oil level	Add oil.
	Loose or broken fan belt	Tighten or replace belt.
	Fan on backwards	Check for correct fan installation.
	Radiator dirty or plugged	Check air flow. Clean radiator.
	Radiator shroud missing or damaged	Inspect. Repair or replace.
	Engine overloaded	Reduce load.
	Wrong fuel	Use correct grade of fuel.

Continued on next page

ER93822,0000040-19-10APR12-2/3

Symptom	Problem	Solution
Excessive Fuel Consumption	Radiator cap	Replace cap.
	Thermostat missing, cooling system coated with lime deposits	Flush cooling system. See your authorized dealer.
	Engine air system restricted	Check engine air filter restriction indicator and engine air filter elements. Replace.
	Leakage in fuel system	Inspect. Repair.
	Incorrect grade of fuel	Drain and fill with correct fuel.
	Operator holding hydraulics in relief mode	Return control levers to neutral position.

ER93822,0000040-19-10APR12-3/3

Electrical System

Symptom	Problem	Solution
Starter Will Not Crank Engine	Battery disconnect switch turned off	Turn switch on.
	Starter	Listen for click from starter solenoid. If click is heard, the starter control circuit is functioning. If click is not heard, see your authorized dealer.
Starter Solenoid Chatters	Poor or corroded connections at battery, battery ground strap, or starter	Inspect, clean, and tighten if necessary.
Engine Cranks Slowly	Loose or corroded battery cables	Inspect and clean or tighten.
	Loose battery ground cable	Open battery cover and inspect and tighten battery ground cable.
	Excessive engine load	Change engine oil to proper grade for temperature.
Starter Continues to Run	Starter solenoid stuck	Shut engine off. See your authorized dealer.
	Starter relay stuck on	Shut engine off. See your authorized dealer.
Battery Uses Too Much Water	Cracked battery case	Replace battery.
	High ambient temperature	Fill with distilled water.
Cracked Battery Case	No battery hold down clamp	Replace battery and install hold down clamp.
	Loose battery hold down clamp	Replace battery and install hold down clamp.
	Battery hold down clamp too tight	Replace battery and install battery hold down clamp correctly.
	Frozen battery	Keep battery fully charged in cold weather.
Low Battery Output	Low water level	Add distilled water.
	Dirty or wet battery top causing discharge	Clean and wipe battery top dry.
	Corroded or loose battery cables	Clean and tighten battery cables.
	Broken battery post	Wiggle battery post by hand. If post wiggles or turns, replace battery.
Engine Alternator Voltage Indicator and Engine Oil Pressure Indicator Stays On with Engine Switched Off	Broken ground wire to alternator	Inspect and repair.
	Worn alternator	Repair or replace alternator.

Continued on next page

ER93822,0000041-19-12JAN12-1/2

Symptom	Problem	Solution
Engine Alternator Voltage Indicator Light (Remains On with Engine Running)	Loose or glazed belt. Engine speed low	Check belt. Replace if glazed. Raise engine speed above 1200 rpm. If indicator remains on, see your authorized dealer.
	Loose or corroded electrical connections on battery, ground strap, starter, or alternator	Inspect, clean, or tighten electrical connections.
	Alternator Malfunction	Increase engine speed to fast idle. If indicator goes out or gets dim, it indicates a possible alternator malfunction. See your authorized dealer.
Engine Alternator Voltage Indicator Out, but Low Charging System Voltage	Indicator light bulb	Inspect and replace.
	Loose wiring connector	Inspect and repair.
Noisy Alternator	Worn or defective bearings in alternator	Remove belt and feel for rough bearing while turning alternator pulley.
	Drive belt	Inspect and replace if necessary.
	Pulley not aligned	Inspect.

ER93822,0000041-19-12JAN12-2/2

Hydraulic System

Symptom	Problem	Solution
Blade Lifts and/or Blade Tilts Too Slowly	Cold oil	Allow oil to warm up.
	Oil viscosity too high (too thick)	Use correct oil.
	Control valve linkage	Inspect linkage. Repair or adjust. See your authorized dealer.
	Worn hydraulic pump	Check blade raise cycle time.
Blade Fails to Lift and Blade Fails to Tilt	Low hydraulic oil level	Check. Add hydraulic oil.
Blade Hard to Control	Front idler vertical movement excessive	Adjust front idler to side frame clearance.
Pump Excessively Noisy	Cold oil	Allow unit to warm up.
	Low oil level	Check, add oil.
	Oil viscosity too high (oil too thick)	Change oil to correct viscosity oil.
Hydraulic Oil Overheats	Operator holding blade functions over relief (system relief valve opening), causing excessive heat in hydraulic system.	Instruct operator on correct operation of machine.
	Oil viscosity too high (oil too thick)	Change oil to correct viscosity.
Hydraulic Oil Foams	Water in oil	Inspect oil. Change oil if necessary.
	Using wrong oil	Inspect oil. Change oil if necessary.

ER93822,0000081-19-12JAN12-1/1

Hydrostatic Transmission

Symptom	Problem	Solution
Oil Filter Restriction Warning Indicator Light Remains On with the Unit at Operating Temperature	Plugged filter	Change filter.
	Switch wire grounded	Disconnect wire to oil filter restriction switch.. If indicator remains on, circuit is grounded. See your authorized dealer.
Transmission Oil Overheats	Low oil level	Check and add transmission oil.
	Oil cooler core restricted with debris or fins damaged	Clean core. Add sand screen to protect core.
		Check oil temperature sensor.
Low Transmission Oil Pressure (Oil Filter Restriction Warning Indicator May or May Not Be On)	Low oil level	Check. Add oil.
	Wrong oil viscosity	Drain and fill with correct oil.
	Oil overheated	Check temperature sensor. See your authorized dealer.
		Check pressure sensor.
Machine Will Not Move	Park lock lever switches	Check diagnostic trouble codes. See your authorized dealer.
	Transmission system malfunction	Check diagnostic trouble codes. See your authorized dealer.
Crawler Mistracks	Air in transmission control circuit	See your authorized dealer.
	Misadjusted hydrostatic motor	Check diagnostic trouble codes. See your authorized dealer.
	TCL sticks or does not return to non-steer position	Check TCL boot. See your authorized dealer.
	Left and right track sag not adjusted the same	Adjust track sag to specifications.

ER93822,000007D-19-12JAN12-1/1

Air Conditioning

Symptom	Problem	Solution
Air Conditioning System Does Not Operate	Fuse	Check blower motor and air conditioner compressor clutch fuses. Replace fuse if necessary.
	Air conditioning system malfunction	See your authorized dealer.

ER93822,0000082-19-12JAN12-1/1

Integrated Grade Control (IGC) System—If Equipped

NOTE: For diagnosing general hydraulic symptoms, see Hydraulic System in this section.

Symptom	Problem	Solution
All Blade Functions Do Not Operate in Manual or Auto Modes	Blown fuse	Check fuses F8, F9, F10, and F25. Replace if necessary.
	Hydraulic enable switch malfunction	See your authorized dealer.
	Wiring is disconnected or shorted	See your authorized dealer.
	Hydraulic malfunction	See Hydraulic System in this section.
	Electrohydraulic controller (EHC) malfunction	See your authorized dealer.
All Blade Functions Operate Normally in Manual Mode, But Not in Auto Mode	Poor reception from satellite or from other guidance equipment	Consult documentation of supplier's grade control equipment. If problem cannot be resolved, see your authorized dealer.
	Blown fuse	Check fuses F8, F9, F10, and F25. Replace if necessary.
	Wiring disconnected or shorted	See your authorized dealer.
	IGC on/off switch malfunction	See your authorized dealer.
	CAN termination resistor missing or malfunctioning	See your authorized dealer.
	Grade control supplier's equipment malfunctioning	See your authorized dealer.
	Electrohydraulic controller (EHC) malfunction	See your authorized dealer.
All Blade Functions Operate Normally in Auto Mode, But Not in Manual Mode	IGC on/off switch malfunction	See your authorized dealer.
	Electrohydraulic controller (EHC) malfunction	See your authorized dealer.
Blade Lift and Tilt Operate Normally in Auto Mode, But Not in Manual Mode	CAN joystick module malfunction	See your authorized dealer.
	Electrohydraulic controller (EHC) malfunction	See your authorized dealer.
Blade Lift and Tilt Operate Normally, But Blade Angle Does Not	Wiring disconnected or shorted	See your authorized dealer.
	Blade angle switch malfunction	See your authorized dealer.
	Hydraulic malfunction	See Hydraulic System in this section.
	Blade angle actuator malfunction	See your authorized dealer.

Continued on next page

ER93822,0000083-19-12AUG15-1/3

Symptom	Problem	Solution
	Electrohydraulic controller (EHC) malfunction	See your authorized dealer.
Blade Response is Not Smooth	Valve calibration or valve offset and gain not set correctly (auto mode only)	Perform valve calibration procedure or adjust valve offset and gain procedures per grade control supplier's instructions. If problem cannot be resolved, see your authorized dealer.
	Low hydraulic oil level	Check hydraulic oil level and add oil if necessary. See Hydraulic and Hydrostatic Oil. (Section 3-1._
	Wiring to affected electrohydraulic actuator has intermittent connection	See your authorized dealer.
All Blade Functions Are Slow or Sluggish	Actuator spool sticking or actuator solenoid malfunctioning	See your authorized dealer.
	Valve calibration or valve offset and gain not set correctly (auto mode only)	Perform valve calibration procedure or adjust valve offset and gain procedures per grade control supplier's instructions. If problem cannot be resolved, see your authorized dealer.
		See Hydraulic System in this section.
Blade Response is Too Fast	Valve calibration or valve offset and gain not set correctly (auto mode only)	Perform valve calibration procedure or adjust valve offset and gain procedures per grade control supplier's instructions. If problem cannot be resolved, see your authorized dealer.
Blade Moves Quickly (Jumps) to One Side, Then Slowly Comes Back on Grade	Valve calibration or valve offset and gain not set correctly (auto mode only)	Perform valve calibration procedure or adjust valve offset and gain procedures per grade control supplier's instructions. If problem cannot be resolved, see your authorized dealer.
	Wiring to affected electrohydraulic actuator has intermittent connection	See your authorized dealer.
	Actuator spool sticking or actuator solenoid malfunctioning	See your authorized dealer.
Waves in Graded Surface	Poor reception from satellite or from other guidance equipment (auto mode only)	Consult documentation provided by the grade control supplier. If problem cannot be resolved, see your authorized dealer.
	Valve calibration or valve offset and gain not set correctly (auto mode only)	Perform valve calibration procedure or adjust valve offset and gain procedures per grade control supplier's instructions. If problem cannot be resolved, see your authorized dealer.

Continued on next page

ER93822,0000083-19-12AUG15-2/3

Symptom	Problem	Solution
	Grade control supplier's equipment malfunctioning (auto mode only)	Consult documentation provided by the grade control supplier. If problem cannot be resolved, see your authorized dealer.
	Wiring to affected electrohydraulic actuator has intermittent connection	See your authorized dealer.
	Actuator spool sticking or actuator solenoid malfunctioning	See your authorized dealer.

ER93822,0000083-19-12AUG15-3/3

Software Update

Symptom	Problem	Solution
Service ADVISOR™ Remote (SAR) Updates Not Operating Properly	Software updates not operating properly	Follow screen instructions on the display monitor. If problem persists, see an authorized John Deere dealer.

Service ADVISOR is a trademark of Deere & Company

OUT4001,00006CA-19-19MAY15-1/1

Miscellaneous—Storage

Prepare Machine for Storage

IMPORTANT: Avoid machine damage, do not use biodiesel during machine storage. When using biodiesel blends, switch to petroleum diesel for long term storage.

1. Before storage, operate engine on at least one complete tank of petroleum diesel fuel to purge the fuel system. Ensure that the fuel tank is full during storage to prevent water build up due to condensation.

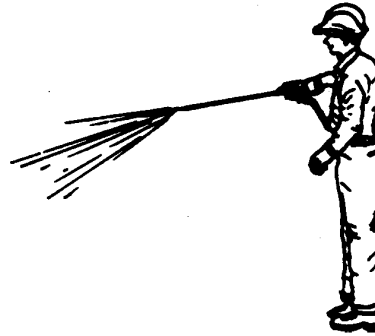
NOTE: For up to and including B20, it is recommended that biodiesel be used within three months of its manufacture. For blends greater than B20, it is recommended that the biodiesel be used within 45 days. The poor oxidation stability characteristic of biodiesel can result in long-term storage problems. John Deere does not recommend using biodiesel in engines powering standby applications or vehicles operating on a seasonal basis. Consult your John Deere dealer or fuel supplier for additives to improve fuel storage and performance of biodiesel fuels. These additives must be added to the biodiesel close to its time of production for them to be effective.

2. Repair worn or damaged parts. Install new parts, if necessary, to avoid needless delays later.
3. Replace primary engine air filter element.

IMPORTANT: High pressure washing greater than 1379 kPa (13.8 bar) (200 psi) can damage freshly painted finishes. Paint should be allowed to air dry for 30 days minimum after receipt of machine before cleaning parts or machines with high pressure. Use low pressure wash operations until 30 days have elapsed.

4. Wash the machine. Use low pressure wash operations (less than 1379 kPa (13.8 bar) (200 psi) until 30 days

LPS is a trademark of the Holt Lloyd Corporation.



T5813AM—UN—09FEB89

after receipt of machine have elapsed. Paint areas to prevent rust. Replace decals, where needed.

5. Apply waste oil to track chains. Run machine back and forth several times. Park machine on a hard surface to prevent tracks from freezing to ground.
6. Store machine in a dry, protected place. If stored outside, cover with a waterproof material.

IMPORTANT: LPS 3 Rust Inhibitor can destroy painted finish. DO NOT spray LPS 3 Rust Inhibitor on painted areas.

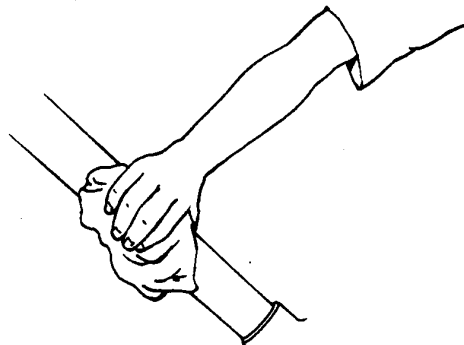
7. Retract all hydraulic cylinders, if possible. If not, coat exposed cylinder rods with LPS® 3 Rust Inhibitor.
8. Place a "DO NOT OPERATE" tag on the right control lever.
9. Lubricate all grease points.
10. Remove batteries.
11. Remove seat cushion and other perishable items.
12. Lock all covers and doors.

ER93822,000009A-19-05APR12-1/1

Monthly Storage Procedure

CAUTION: Prevent possible injury or death from asphyxiation. Engine exhaust fumes can cause sickness or death. Start engine ONLY in a well-ventilated area.

1. Drain water and sediment from fuel tank when air temperature is above freezing.
2. Remove LPS 3® Rust Inhibitor from cylinder rods with a cleaning solvent.



T6191AA—UN—18OCT88

LPS 3 Rust Inhibitor is manufactured by Holt Lloyd Corporation.

Continued on next page

TX, STORAGE, SSM-19-20JAN11-1/2

IMPORTANT: Prevent possible engine damage. During cold temperatures, check fluidity of engine oil on dipstick. If the oil appears waxy or jelly-like rather than liquid, DO NOT attempt to start engine. Use external heat source to warm the crankcase until oil appears fluid.

3. Check all fluid levels. If low, check for leaks and add oil as required.
4. Check belts.
5. Check condition of all hoses and connections.
6. Check battery electrolyte level. Charge and install battery.

7. For machines with **tires**, check condition of tires and tire pressure.

For machines with **tracks**, check condition of tracks and track sag.

On crawler machines with non-sealed and non-lubricated track chains, apply oil to the pin-to-bushing joints. Run machine back and forth several times.

8. Park machine on a hard surface to prevent tracks from freezing to ground.
9. Fill fuel tank.
10. Pre-lubricate turbocharger bearings, if equipped:
 - a. Disconnect fuel shutoff fuse.
 - b. Crank engine for 10 seconds.
 - c. Connect fuel shutoff fuse.
11. Inspect engine compartment, and remove any foreign material that may have accumulated. Start engine and



T6181AU—UN—18OCT88

run until it reaches operating temperature. Run at 1/2 speed for 5 minutes. Do not run at fast or slow idle.

- If engine fails to start or runs poorly after starting, change fuel filter(s). Bleed fuel system.

12. Operate all controls, levers, seat adjustments, and others.

CAUTION: Prevent possible injury from unexpected machine movement. Clear the area of all persons before running machine through the operation procedure.

13. Make sure that the area is clear to allow for movement. Cycle all hydraulic functions several times. Check condition of all hoses and connections.
14. Park the machine with cylinder rods retracted, if possible. Press engine stop switch.
15. Apply LPS 3 Rust Inhibitor to exposed cylinder rod areas.

TX, STORAGE, SSM-19-20JAN11-2/2

Miscellaneous—Machine Numbers

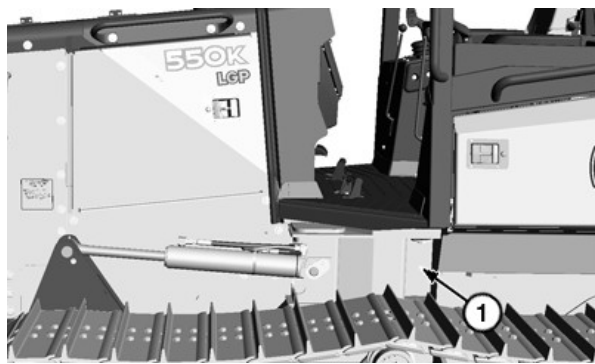
Record Product Identification Number (PIN)

Purchase Date _____

Product Identification Number (PIN) (1) _____

NOTE: Record all 17 characters of Product Identification Number.

1—Product Identification Number (PIN) Tag Location



PIN Tag Location (550K shown)

ER93822,0000078-19-11JAN12-1/1

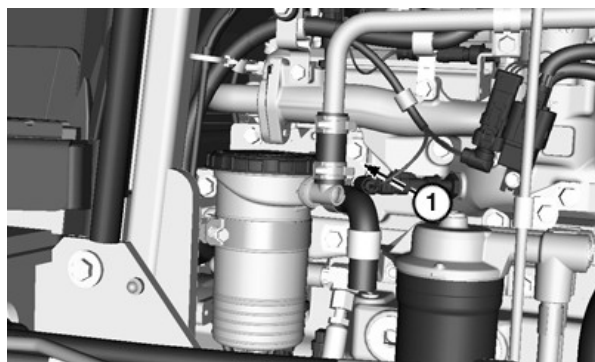
Record Engine Serial Number

The engine serial number plate is located on right side of engine.

Engine Serial Number _____

NOTE: Record all 13 characters of engine serial number.

1—Engine Serial Number Plate



Location of Engine Serial Number Plate

ER93822,000007F-19-12JAN12-1/1

Keep Proof of Ownership

1. Maintain in a secure location an up-to-date inventory of all product and component serial numbers.
2. Regularly verify that identification plates have not been removed. Report any evidence of tampering to law enforcement agencies and order duplicate plates.

3. Other steps that can be taken:

- Mark machine with unique numbering system.
- Take color photographs from several angles of each machine.

OUT4001,000063E-19-17JAN19-1/1

Keep Machines Secure

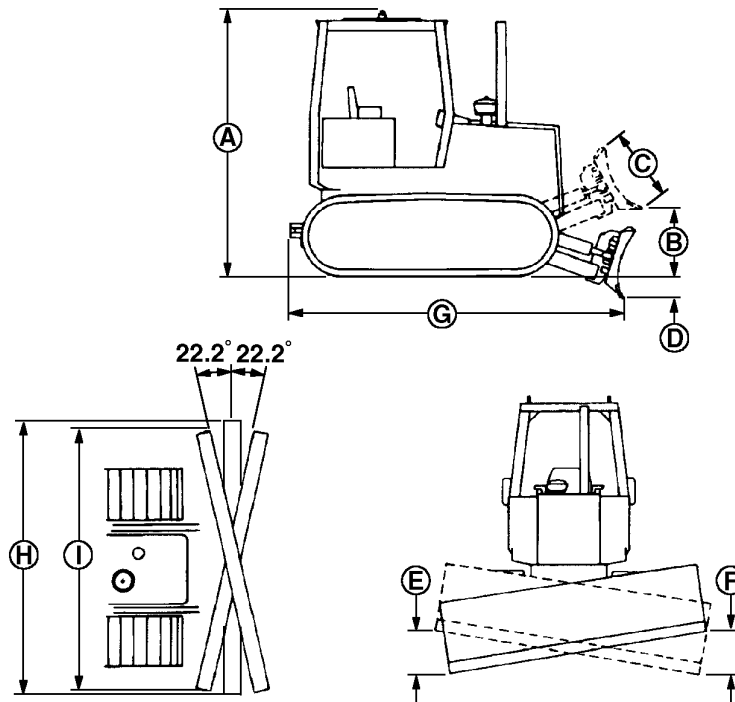
1. Install vandal-proof devices.
2. When machine is in storage:
 - Lower equipment to the ground
 - Set wheels to widest position to make loading more difficult
 - Remove batteries

3. When parking indoors, put large equipment in front of exits and lock storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify an authorized John Deere dealer of any losses.

OUT4001,000063D-19-27JAN16-1/1

Miscellaneous—Specifications

550K-XLT Crawler Dozer Dimensions



TX1100629

Dozer

NOTE: Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with ISO and SAE standards. Except where otherwise noted, these specifications are based on a unit with roll-over protective structure (ROPS), full fuel tank, 80 kg (175 lb) operator, 2667 mm (105 in.) blade, and standard equipment.

Item	Measurement	Specification
A—Overall Height—ROPS or Cab	Height	2747 mm 9 ft
B—Blade	Height	955 mm 3 ft 2 in.
C—Blade Lift	Height	772 mm 2 ft 6.4 in.
D—Digging	Depth	523 mm 1 ft 9 in.
E—Blade Tilt		
105 inch Blade (Right Side)	Distance	363 mm 1 ft 2.3 in.
115 inch Blade (Right Side)	Distance	399 mm 1 ft 3.7 in.
F—Blade Tilt		
105 inch Blade (Left Side)	Distance	363 mm 1 ft 2.3 in.

Continued on next page

ER93822,000003E-19-01DEC11-1/2

TX1100629—UN—10NOV11

Miscellaneous—Specifications

Item	Measurement	Specification
115 inch Blade (Left Side)	Distance	399 mm 1 ft 3.7 in.
G—Overall		
Without Winch	Length	4128 mm 13 ft 7 in.
With Winch	Length	4807 mm 15 ft 9 in.
H—Blade Width		
105 inch Blade	Width	2667 mm 8 ft 9 in.
115 inch Blade	Width	2921 mm 9 ft 7 in.
I—Blade Angle		
105 inch Blade	Width	2469 mm 8 ft 1 in.
115 inch Blade	Width	2705 mm 8 ft 10.5 in.
Blade Capacity		
105 inch Blade	Capacity	1.80 cu m 2.35 cu yd
115 inch Blade	Capacity	2.0 cu m 2.62 cu yd

ER93822,000003E-19-01DEC11-2/2

550K-XLT Crawler Dozer Specifications

Item	Measurement	Specification
John Deere POWERTECH™ PWX 4045		
Engine	Type	Turbocharged
Rated Power at 2200 rpm	Power	69 kW (92 hp) SAE net horsepower
Piston	Displacement	4.5 L 276 cu in.
Maximum Net Torque at 1200 rpm	Torque Rise	375 N·m 276 lb-ft
Oil Pan Size	Capacity	0.22 L/kW
Batteries	Voltage	12-volt
Alternator—ROPS	Amperage	100 amp
Alternator—Cab with Air Conditioning	Amperage	100 amp
Transmission	Speed	0—8 km/h 0—5 mph
Hydraulic System	Pressure	20 684 kPa 3000 psi
	Flow Rate	57 L/min (15 gpm) @ 2200 rpm
Undercarriage		
Track Shoes (Each Side)	Quantity	42 (standard) 39 (maximum life)
Ground Contact Area (with 18 in. Shoes)	Area	21 479 sq cm 3329 sq in.
Track	Pitch	160 mm (standard) 6.3 in. (standard) 171 mm (maximum life) 6.7 in. (maximum life)
	Gauge	1549 mm 61 in.
Minimum Ground (with Single Bar Grouser)	Clearance	345 cm 13.6 in.
Ground Pressure	Pressure	39.9 kPa 0.4 bar 5.8 psi
Standard Grouser	Width	457 mm 18 in.

POWERTECH is a trademark of Deere & Company

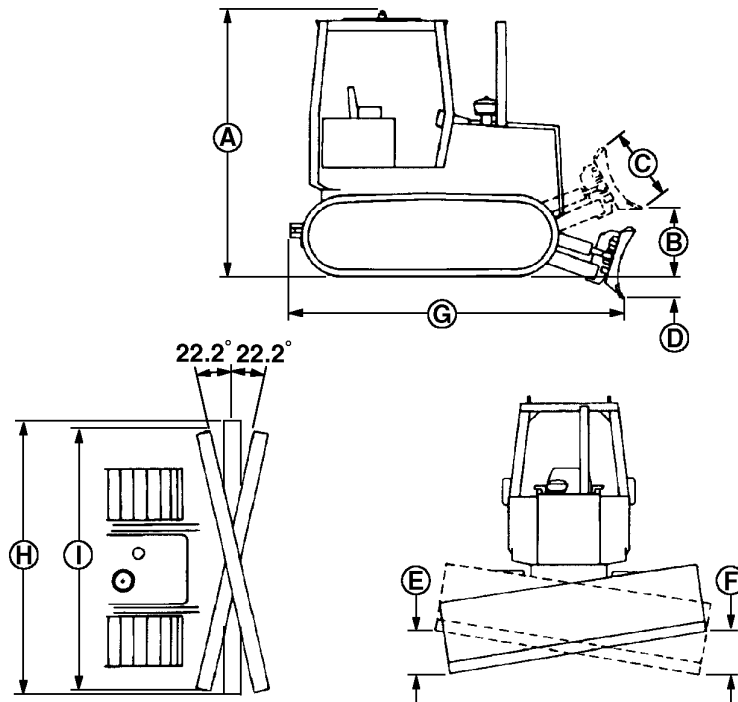
ER93822,000003F-19-05FEB14-1/1

550K-XLT Crawler Dozer Weights

Item	Measurement	Specification
SAE Operating Weight	Weight	8750 kg 19 290 lb
Optional Equipment		
Rock Guards (4)	Weight	128 kg 282 lb
Deluxe Seat (add)	Weight	9 kg 20 lb
Cab with Heater (add)	Weight	268 kg 590 lb
Cab with Air Conditioning (add)	Weight	306 kg 675 lb
ROPS Heater	Weight	39 kg 85 lb
High Intensity Lights	Weight	4 kg 9 lb
Retrieval Hitch	Weight	23 kg 50 lb
Extended Draw Bar	Weight	33 kg 72 lb
4000S Winch	Weight	652 kg 1437 lb
Winch Fairlead, Four Roller	Weight	85 kg 187 lb
Parallelogram Ripper	Weight	981 kg 2163 lb

ER93822,0000040-19-08NOV11-1/1

550K-LGP Crawler Dozer Dimensions



TX1100629

TX1100629—UN—10NOV11

NOTE: Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with ISO and SAE standards. Except where otherwise noted, these specifications are based on a unit with roll-over protective structure, full fuel tank, 80 kg (175 lb) operator, 610 mm (24 in.) shoes, 3150 mm (124 in.) blade, and standard equipment.

Item	Measurement	Specification
A—Overall Height—ROPS or Cab	Height	2747 mm 9 ft
B—Blade		
115 inch Blade	Height	955 mm 3 ft 2 in.
124 inch Blade	Height	894 mm 2 ft 11 in.
C—Blade Lift	Height	772 mm 2 ft 6.4 in.
D—Digging	Depth	523 mm 1 ft 8.6 in.
E—Blade Tilt		
115 inch Blade (Right Side)	Distance	399 mm 1 ft 3.7 in.
124 inch Blade (Right Side)	Distance	429 mm 1 ft 4.9 in.
F—Blade Tilt		

Continued on next page

ER93822,0000041-19-01DEC11-1/2

Miscellaneous—Specifications

Item	Measurement	Specification
115 inch Blade (Left Side)	Distance	399 mm 1 ft 3.7 in.
124 inch Blade (Left Side)	Distance	429 mm 1 ft 4.9 in.
G—Overall (Without Winch)	Length	4128 mm 13 ft 6.5 in.
G—Overall (With Winch)	Length	4807 mm 15 ft 9 in.
H—Blade Width		
115 inch Blade	Width	2921 mm 9 ft 7 in.
124 inch Blade	Width	3150 mm 10 ft 4 in.
I—Blade Angle		
115 inch Blade	Width	2705 mm 8 ft 10.5 in.
124 inch Blade	Width	2916 mm 9 ft 7 in.
Blade Capacity		
115 inch Blade	Capacity	2.0 cu m 2.62 cu yd
124 inch Blade	Capacity	1.9 cu m 2.49 cu yd

ER93822,0000041-19-01DEC11-2/2

550K-LGP Crawler Dozer Specifications

Item	Measurement	Specification
John Deere POWERTECH™ PWX 4045		
Engine	Type	Turbocharged
Rated Power at 2200 rpm	Power	69 kW (92 hp) SAE net horsepower
Piston	Displacement	4.52 L 276 cu in.
Maximum Net Torque at 1200 rpm	Torque Rise	375 N·m 276 lb-ft
Oil Pan Size	Capacity	0.22 L/kW
Batteries	Voltage	12-volt
Alternator—ROPS	Amperage	100 amp
Alternator—Cab with Air Conditioning	Amperage	100 amp
Transmission	Speed	0—8 km/h 0—5 mph
Hydraulic System	Pressure	20 684 kPa 3000 psi
	Flow Rate	57 L/min (15 gpm) @ 2200 rpm
Undercarriage		
Track Shoes (Each Side)	Quantity	42 (standard) 39 (maximum life)
Ground Contact Area (with 24 in. Shoes)	Area	21 479 sq cm 3329 sq in.
Track	Pitch	160 mm 6.3 in.
	Gauge	1753 mm 69 in.
Ground Pressure	Pressure	31.5 kPa 0.32 bar 4.57 psi

POWERTECH is a trademark of Deere & Company

ER93822,0000042-19-05FEB14-1/1

550K-LGP Crawler Dozer Weights

Item	Measurement	Specification
SAE Operating Weight	Weight	9195 kg 20 272 lb
Optional Equipment		
Rock Guards (4)	Weight	128 kg 282 lb
Deluxe Seat (add)	Weight	9 kg 20 lb
Cab	Weight	306 kg 675 lb
ROPS Heater	Weight	39 kg 85 lb
High Intensity Lights	Weight	4 kg 9 lb
Front Tow Hook	Weight	15 kg 33 lb
Retrieval Hitch	Weight	23 kg 50 lb
Extended Draw Bar	Weight	33 kg 72 lb
4000S Winch	Weight	652 kg 1437 lb
Winch Fairlead, Four Roller	Weight	85 kg 187 lb
Parallelogram Ripper	Weight	981 kg 2163 lb

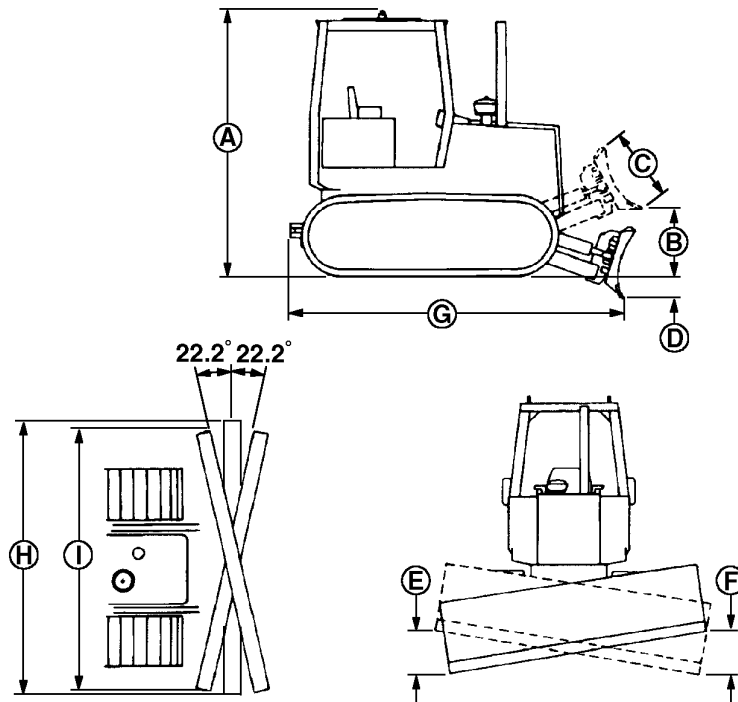
ER93822,0000043-19-08NOV11-1/1

550K-XLT and 550K-LGP Crawler Dozer Drain and Refill Capacities

Item	Measurement	Specification
Drain and Refill Capacities		
Cooling System with Recovery Tank	Capacity	22.6 L 6.0 gal
Fuel Tank	Capacity	237.0 L 62.5 gal
Engine Oil (Including Filter)	Capacity	15.4 L 4.1 gal
Final Drive	Capacity	8.5 L 2.3 gal
Hydraulic Reservoir (Including Filter)	Capacity	34.0 L 9.0 gal
Transmission Reservoir (Including Filter)	Capacity	55.6 L 14.7 gal

ER93822,0000044-19-19OCT17-1/1

650K-XLT Crawler Dozer Dimensions



TX1100629

TX1100629—UN—10NOV11

NOTE: Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with ISO and SAE standards. Except where otherwise noted, these specifications are based on a unit with roll-over protective structure, full fuel tank, 80 kg (175 lb) operator, and standard equipment.

Item	Measurement	Specification
A—Overall Height—ROPS or Cab	Height	2758 mm 9 ft 1 in.
Blade Height		
105 inch Blade	Height	1067 mm 3 ft 6 in.
115 inch Blade	Height	955 mm 3 ft 1.6 in.
124 inch Blade	Height	894 mm 2 ft 11.2 in.
C—Blade Lift	Height	818 mm 2 ft 8.2 in.
D—Digging	Depth	500 mm 1 ft 7.7 in.
E—Blade Tilt		
105 inch Blade (Right Side)	Distance	363 mm 1 ft 2.3 in.
115 inch Blade (Right Side)	Distance	399 mm 1 ft 3.7 in.

Continued on next page

ER93822,0000048-19-01DEC11-1/2

Item	Measurement	Specification
124 inch Blade (Right Side)	Distance	429 mm 1 ft 4.9 in.
F—Blade Tilt		
105 inch Blade (Left Side)	Distance	363 mm 1 ft 2.3 in.
115 inch Blade (Left Side)	Distance	399 mm 1 ft 3.7 in.
124 inch Blade (Left Side)	Distance	429 mm 1 ft 4.9 in.
G—Overall Length		
Without Winch	Length	4179 mm 13 ft 8 in.
With Winch	Length	4807 mm 15 ft 9 in.
H—Blade Width		
105 inch Blade	Width	2667 mm 8 ft 9 in.
115 inch Blade	Width	2921 mm 9 ft 7 in.
124 inch Blade	Width	3150 mm 10 ft 4 in.
I—Blade Angle		
105 inch Blade	Width	2469 mm 8 ft 1.2 in.
115 inch Blade	Width	2705 mm 8 ft 10.5 in.
124 inch Blade	Width	2916 mm 9 ft 6.8 in.
Blade Capacity		
105 inch Blade	Capacity	2.2 cu m 2.9 cu yd
115 inch Blade	Capacity	2.0 cu m 2.6 cu yd
124 inch Blade	Capacity	1.9 cu m 2.5 cu yd

ER93822,0000048-19-01DEC11-2/2

650K-XLT Crawler Dozer Specifications

Item	Measurement	Specification
John Deere POWERTECH™ PWX 4045		
Engine	Type	Turbocharged
Rated Power at 2200 rpm	Power	78 kW (104 hp)
Piston	Displacement	4.5 L 276 cu in.
Maximum Net Torque at 1200 rpm	Torque Rise	448 N·m 330 lb-ft
Batteries	Voltage	12-volt
Alternator—ROPS	Amperage	100 amp
Transmission	Speed	0—8 km/h 0—5 mph
Hydraulic System	Pressure	20 684 kPa 3000 psi
	Flow Rate	57 L/min (15 gpm) @ 2200 rpm
Undercarriage		
Track Shoes (Each Side)	Quantity	40
Ground Contact Area (with 18 in. Shoes)	Area	21 479 sq cm 3312 sq in.
Track	Pitch	171 mm 6.73 in.
	Gauge	1550 mm 61 in.
Minimum Ground (with Single Bar Grouser)	Clearance	363 mm 14.3 in.
Ground Pressure	Pressure	40.6 kPa 0.41 bar 5.89 psi
Standard Grouser	Width	457 mm 18 in.

POWERTECH is a trademark of Deere & Company

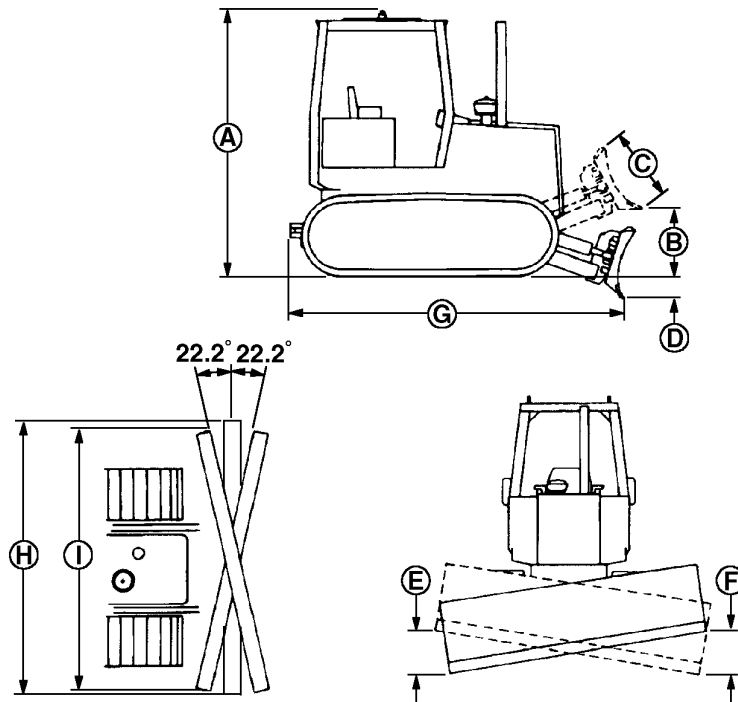
ER93822,0000049-19-05FEB14-1/1

650K-XLT Crawler Dozer Weights

Item	Measurement	Specification
SAE Operating Weight	Weight	8890 kg 19 599 lb
Optional Equipment		
Rock Guards (4)	Weight	98 kg 216 lb
Deluxe Seat (add)	Weight	9 kg 20 lb
Cab	Weight	306 kg 675 lb
ROPS Heater	Weight	39 kg 85 lb
High Intensity Lights	Weight	4 kg 9 lb
Retrieval Hitch	Weight	23 kg 50 lb
Extended Draw Bar	Weight	33 kg 72 lb
4000S Winch	Weight	652 kg 1437 lb
Winch Fairlead, Four Roller	Weight	85 kg 187 lb
Parallelogram Ripper	Weight	981 kg 2163 lb

ER93822,000004A-19-08NOV11-1/1

650K-LGP Crawler Dozer Dimensions



TX1100629

TX1100629—UN—10NOV11

NOTE: Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with ISO and SAE standards. Except where otherwise noted, these specifications are based on a unit with roll-over protective structure, full fuel tank, 80 kg (175 lb) operator, 3251 mm (128 in.) blade, 711 mm (28 in) track shoes and standard equipment.

Item	Measurement	Specification
A—Overall Height—ROPS or Cab	Height	2758 mm 9 ft 1 in.
B—Blade	Height	955 mm 3 ft 2 in.
C—Blade Lift	Height	818 mm 2 ft 8.2 in.
D—Digging	Depth	500 mm 1 ft 7.7 in.
E—Blade Tilt		
115 inch Blade (Right Side)	Distance	399 mm 1 ft 3.7 in.
124 inch Blade (Right Side)	Distance	429 mm 1 ft 4.9 in.
128 inch Blade (Right Side)	Distance	444 mm 1 ft 5.5 in.
F—Blade Tilt		

Continued on next page

ER93822,0000045-19-01DEC11-1/2

Item	Measurement	Specification
115 inch Blade (Left Side)	Distance	399 mm 1 ft 337 in.
124 inch Blade (Left Side)	Distance	429 mm 1 ft 4.9 in.
128 inch Blade (Left Side)	Distance	444 mm 1 ft 5.5 in.
G—Overall Length		
Without Winch	Length	4179 mm 13 ft 8 in.
With Winch	Length	4807 mm 15 ft 9 in.
H—Blade Width		
115 inch Blade	Width	2921 mm 9 ft 7 in.
124 inch Blade	Width	3150 mm 10 ft 4 in.
128 inch Blade	Width	3251 mm 10 ft 8 in.
I—Blade Angle		
115 inch Blade	Width	2705 mm 8 ft 11 in.
124 inch Blade	Width	2916 mm 9 ft 7 in.
128 inch Blade	Width	3010 mm 9 ft 11 in.
Blade Capacity		
115 inch Blade	Capacity	2.0 cu m 2.62 cu yd
124 inch Blade	Capacity	1.9 cu m 2.49 cu yd
128 inch Blade	Capacity	2.2 cu m 2.88 cu yd

ER93822,0000045-19-01DEC11-2/2

650K-LGP Crawler Dozer Specifications

Item	Measurement	Specification
John Deere POWERTECH™ PWX 4045		
Engine	Type	Turbocharged
Rated Power at 2200 rpm	Power	78 kW (104 hp) SAE net horsepower
Piston	Displacement	4.52 L 276 cu in.
Maximum Net Torque at 1200 rpm	Torque Rise	448 N·m 330 lb-ft
Oil Pan Size	Capacity	0.18 L/kW
Batteries	Voltage	12-volt
Alternator—ROPS	Amperage	100 amp
Transmission	Speed	0—8 km/h 0—5 mph
Hydraulic System	Pressure	20 684 kPa 3000 psi
	Flow Rate	57 L/min (15 gpm) @ 2200 rpm
Undercarriage		
Track Shoes (Each Side)	Quantity	40
Ground Contact Area (with 28 in. Shoes)	Area	33 412 sq cm 5179 sq in.
Track	Pitch	171 mm 6.73 in.
	Gauge	1750 mm (69 in.)
Minimum Ground (with Single Bar Grouser)	Clearance	363 mm 14.3 in.
Ground Pressure	Pressure	27.5 kPa 0.28 bar 4.0 psi

POWERTECH is a trademark of Deere & Company

ER93822,0000046-19-05FEB14-1/1

650K-LGP Crawler Dozer Weights

Item	Measurement	Specification
SAE Operating Weight	Weight	9355 kg 20 624 lb
Optional Equipment		
Rock Guards (4)	Weight	98 kg 216 lb
Swamp Shoe	Weight	72 kg 158 lb
Deluxe Seat (add)	Weight	9 kg 20 lb
Cab	Weight	306 kg 675 lb
ROPS Heater	Weight	39 kg 85 lb
High Intensity Lights	Weight	4 kg 9 lb
Front Tow Hook	Weight	15 kg 33 lb
Retrieval Hitch	Weight	23 kg 50 lb
Extended Draw Bar	Weight	33 kg 72 lb
4000S Winch	Weight	652 kg 1437 lb
Winch Fairlead, Four Roller	Weight	85 kg 187 lb
Parallelogram Ripper	Weight	981 kg 2163 lb

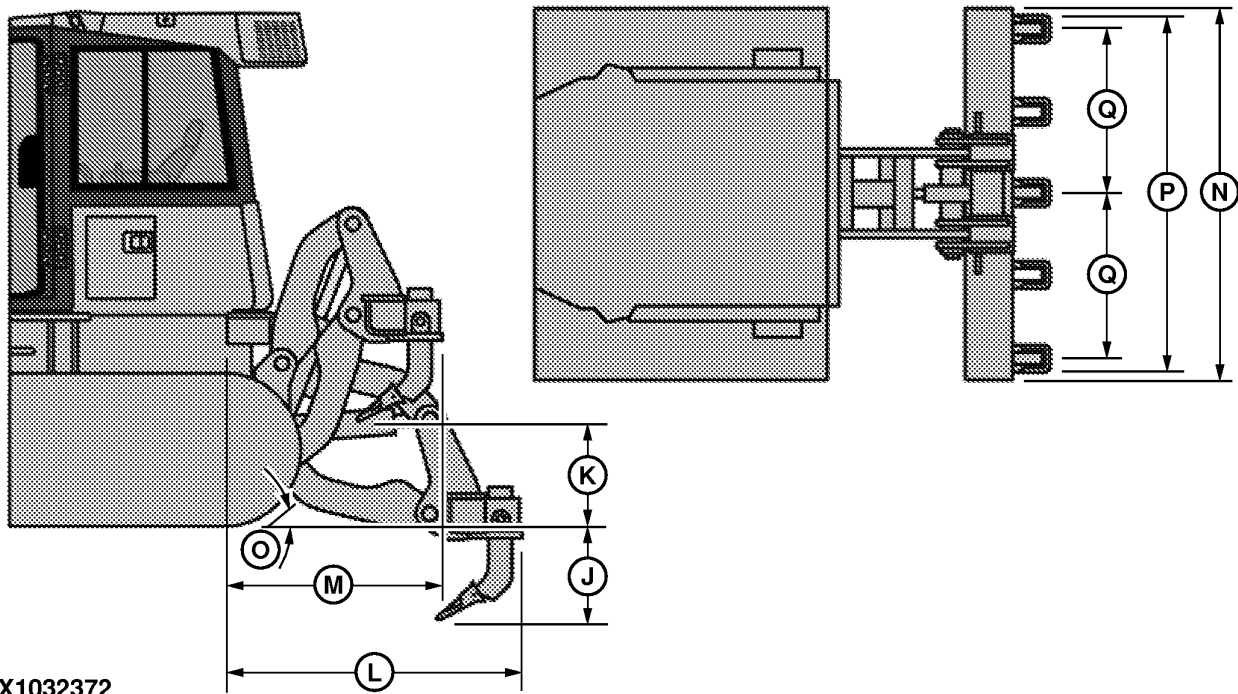
ER93822,0000047-19-08NOV11-1/1

650K-XLT and 650K-LGP Crawler Dozer Drain and Refill Capacities

Item	Measurement	Specification
Drain and Refill Capacities		
Cooling System	Capacity	22.6 L 6.0 gal
Fuel Tank	Capacity	237.0 L 62.5 gal
Engine Oil (Including Filter)	Capacity	19.0 L 5 gal
Final Drive	Capacity	8.5 L 2.3 gal
Hydraulic Reservoir (Including Filter)	Capacity	34.0 L 9.0 gal
Transmission Reservoir (Including Filter)	Capacity	55.6 L 14.7 gal
Winch—If Equipped	Capacity	38.0 L 10.0 gal

ER93822,000004B-19-15AUG13-1/1

Parallelogram Ripper



Parallelogram Ripper

Parallelogram linkage with manual valve control and hydraulic float, tool bar, five ripper shanks.

Item	Measurement	Specification
J—Ripping Depth	Maximum Depth	508 mm 1 ft. 8 in.
K—Clearance	Maximum Clearance Under Tip	508 mm 1 ft. 8 in.
L—Overall Length, Attachment Lowered	Length	1450 mm 4 ft. 9 in.
M—Overall Length, Attachment Raised	Length	1015 mm 3 ft. 4 in.
N—Overall Beam Width	Width	1830 mm 6 ft.
O—Slope Angle (full raise)	Degrees	40°
P—Ripping Width	Width	1670 mm 5 ft. 6 in.
Q—Distance Between Shanks (three installed)	Distance	806 mm 2 ft. 8 in.
Parallelogram Ripper	Weight	981 kg 2163 lb

ER93822,000004C-19-12JAN12-1/1

TX1032372—UN—27NOV07

4000S Winch

Maximum Cable Capacities	
Cable Size	Winch Capacity
15.88 mm (0.625 in.)	77.4 m (254 ft)
19.05 mm (0.75 in.)	54.6 m (179 ft)
22.23 mm (0.875 in.)	39.3 m (129 ft)

ER93822,00000D8-19-14JAN08-1/1

Eurasian Economic Union

This information applies only to products which bear the EAC conformity mark of the Eurasian Economic Union member states.

Manufacturer:

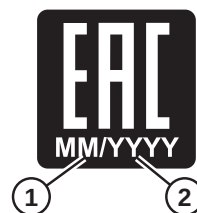
Deere & Company, Moline, Illinois U.S.A.

Name of the authorized representative in the Eurasian Economic Union:

Limited Liability Company
"John Deere Rus"

Address of the authorized representative:

142050, Russia, Moscow region, Domodedovo district,
Domodedovo, Belye Stolbi micro district, vladenye
"Warehouse 104", Building 2



EAC Marking

1—Month of Manufacture

2—Year of Manufacture

TX1333032—UN—10NOV22

For technical support, contact an authorized John Deere dealer.

Date of manufacture is denoted by the product marking on or near the serial number plate.

MB60223,0005008-19-10NOV22-1/1

Machine Design Life

This machine is designed and manufactured to provide a long life of productive operation, however actual attainable life depends on a number of factors including the severity of working conditions and completion of recommended maintenance. (See the Service section of this manual.)

Periodically inspect and review the machine in conjunction with your John Deere dealer. The review may result in recommendations for service, component repair,

remanufacture or replacement, or, if at the end of life, that the machine be removed from operation. (See separate decommissioning section of this manual for information on disposal and recycling of machine components.)

No machine should be operated if safety-related components are missing or in need of service. All missing or damaged safety-related components, including safety signs, should be repaired or replaced before operating.

DX,MACH,DESIGN,LIFE-19-14SEP15-1/1

Index

	Page		Page
A			
Adjustment		Control lever check	4-2-39
Blade pivot shim	3-6-2	Float check.....	4-2-39
Track sag.....	3-3-5	Hydraulic controls check	4-2-39
Winch free spool drag	2-2-27	lever	2-2-16
Air		Operation.....	2-2-13
Conditioning troubleshooting.....	4-3-8	Pitch operation	2-2-15
Intake hose	3-8-1	Tilt.....	2-2-14
Restriction indicator.....	3-3-3	Blade pivot shim adjustment.....	3-6-2
Air conditioner		Bleed fuel system	4-1-13
Refrigerant level, check	4-1-11	Bolt and screw torque values	
Air conditioner check.....	4-2-40	Metric	4-1-19
Air filter		Unified inch	4-1-18
Replace elements		Boost starting	4-1-6
.....	4-1-8	Brake	
Air filter restriction		Releasing park brake to tow the machine	2-2-19
Operational check.....	4-2-30	Brake mode menu	2-3-12
Alternator		Brake pedal check	4-2-35
Operational check.....	4-2-29	Break-In Plus engine oil.....	3-1-11
Precautions	4-1-2	Breather filter	
Antifreeze		Winch	3-8-3
Level.....	3-4-1	C	
Attachments		Cab door	
Adding safely	1-3-4	Operational check.....	4-2-11
Operating safely.....	1-3-4	Cab filter, air recirculation	3-3-3
Auxiliary fuel filter and water separator		Cab filter, fresh air	3-3-3
Check.....	3-4-4	Cab interior light	
Replace	3-7-3	Operational check.....	4-2-22
Auxiliary power outlet	2-1-8	Cable specifications, winch	4-6-18
Auxiliary power switch	2-1-5	Cable, winch	2-2-24
B		Capacities	
Backover Accidents	1-3-3	Drain and refill	
Batteries		550K-LGP.....	4-6-8
Using battery charger.....	4-1-4	550K-XLT	4-6-8
Battery		650K-LGP crawler dozer.....	4-6-16
Booster batteries	4-1-6	650K-XLT crawler dozer.....	4-6-16
Check terminals	3-7-6	Carrier roller	
Disconnect switch.....	2-2-3	Check oil level	4-1-15
Electrolyte level.....	3-7-6	CE Mark	
Handling, checking, servicing.....	4-1-3	Location	1-2-1
Removal.....	4-1-6	Check primary fuel filter'.....	3-4-3
Replace	4-1-6	Clean	
Battery check	4-2-12	Winch hydraulic breather filter.....	3-8-3
Battery disconnect switch check	4-2-11	Conditioner, radiator	3-3-1
Belt		Control valves	
Inspect.....	3-3-2	Do not service	4-1-2
Operational check.....	4-2-7	Controller info menu	2-3-13
Blade		Coolant	
Adjustment.....	3-6-2	Add coolant extender.....	3-8-1
Angling	2-2-14	Additional information.....	3-1-15
		Check.....	3-8-1
		Conditioner.....	3-3-1

Continued on next page

	Page		Page
Diesel engine		650K-XLT crawler dozer	4-6-9
Engine with wet sleeve cylinder liners	3-1-13	Display window	2-1-1, 2-3-1
Disposing.....	3-1-16	Door latches	
Heater	2-2-5	Lubricating	4-1-10
Hose	4-1-12	Door washer	
John deere COOL-GARD II coolant extender ..	3-1-14	Operational check.....	4-2-22
Level.....	3-4-1	Door wiper	
Sample	3-7-7	Operational check.....	4-2-21
Supplemental additives.....	3-1-14	Dozer linkage, lubricate	3-4-5
Test	3-8-1	Drain and refill	
Testing.....	3-1-16	Hydraulic oil.....	3-9-1, 3-9-2
Warm temperature climates.....	3-1-15	Drain Intervals for Diesel Engine Coolant	
Coolant condition		Diesel Engine Coolant, Drain Intervals.....	3-1-14
Operational check.....	4-2-9	Drain primary fuel filter	3-4-3
Coolant level		Drive lights	
Operational check.....	4-2-9	Operational check.....	4-2-15
Cooling fan		Driving the machine.....	2-2-6
Operational check.....	4-2-3, 4-2-30, 4-2-31		
Cooling fan guard		E	
Operational check.....	4-2-4	EAC Marking.....	1-2-1
Cooling system	3-11-1	Electrical	
Service safely.....	1-4-1	Troubleshooting	4-3-5
Crankcase vent filter.....	3-9-3	Engine	
Cycle time check	4-2-40	Break-in	2-2-3
Cylinders		Cold weather warmup	2-2-6
Do not service	4-1-2	Coolant level.....	3-4-1
		Crankcase vent filter.....	3-9-3
D		Damage	2-2-17
Daily machine check.....	2-2-1	Gauges and indicators	2-1-1
Decelerator mode		Oil change	3-7-1
Operational check.....	4-2-36	Oil level.....	3-4-2
Switch	2-2-8	Oil specification	
Decelerator mode switch	2-1-5	Break-In Plus	3-1-11
Decelerator/brake pedal	2-2-8	Speed.....	4-1-7
Decelerator/brake pedal check	4-2-35	Speed control lever	2-2-7
Diagnose malfunctions		Starting	2-2-4
Troubleshooting procedure.....	4-3-1	Troubleshooting	4-3-2
Diagnostic trouble codes		Valve clearance, check and adjust.....	3-10-1
Access.....	2-3-3	Warm-up	2-2-5
Active codes	2-3-3	Engine coolant	
Stored codes	2-3-4	Disposing of	3-1-16
Diagnostics menu	2-3-19	Engine fan	
Diesel fuel	3-1-6, 3-1-8	Operational check.....	4-2-30, 4-2-31
Sample	3-7-7	Engine mounts	
Diesel fuel		Operational check.....	4-2-8
Specifications	3-1-6	Engine oil	
Diesel fuel specifications	3-1-6	Operational check.....	4-2-5
Diesel fuel, testing	3-1-9	Sample	3-6-1
Dimensions		Engine oil and filter service intervals	
550K-LGP crawler dozer	4-6-5	Interim tier 4, final tier 4, stage IIIB, stage IV, and stage V	
550K-XLT crawler dozer	4-6-1	0.12 L/KW or greater oil pan.....	3-1-12
650K-LGP crawler dozer	4-6-13		

Continued on next page

	Page		Page
Engine serial number		Final drives	
Record.....	4-5-1	Oil	
Engine speed control switch		Specifications.....	3-1-3, 3-1-4
Operational check.....	4-2-29	Fire prevention.....	1-2-5
Engine start switch.....	2-1-5	Fluid analysis test kit.....	3-2-3
Engine stop switch.....	2-1-5	Fluid sampling test ports.....	4-1-12
Enginel		FNR	
Oil specification		Steer lever	
IT4 and Stage III B.....	3-1-11	Speed-In-Grip.....	2-2-7
Eurasian economic union.....	4-6-18	FNR joystick	
European Union Directives Compliance.....	1-2-1	Operational check.....	4-2-34
Exhaust filter.....	1-2-7	Front idler	
Ash removal.....	2-2-10, 3-3-8	Oil specification.....	3-1-3
Auto cleaning.....	2-2-9	Front washer motor	
Auto cleaning		Operational checkout.....	4-2-20
Activation.....	2-3-6	Front wiper	
Disable.....	2-3-6	Operational checkout.....	4-2-17
Cleaning types.....	2-2-9	Fuel	
Information.....	2-2-9	Diesel.....	3-1-6, 3-1-8
Natural/passive cleaning.....	2-2-9	Filter change.....	3-7-2
Parked cleaning.....	2-2-9	Handling and storing.....	3-1-7
Activation.....	2-3-7	Lubricity.....	3-1-7
Restriction levels.....	2-2-9	Fuel cap	
Scheduled maintenance.....	3-3-8	Operational check.....	4-2-10
Standard display monitor, main menu.....	2-3-5	Fuel drain.....	4-1-14
Exhaust Filter, Safety		Fuel filter	
Safety, Exhaust Filter.....	1-4-3	Change.....	3-7-2
		Primary	
F		Check/drain.....	3-4-3
Fan		Fuel filter, auxiliary	
Operational check.....	4-2-3	Check.....	3-4-4
Fan guard		Fuel system, bleed.....	4-1-13
Operational check.....	4-2-4	Fuel tank	
Fan reverse switch.....	2-1-5	Capacity.....	3-2-3
Filter		Drain.....	3-3-8
Air recirculation.....	3-3-3	Fuel water separator	
Air, cab.....	3-3-3	Operational check.....	4-2-6
Engine.....	3-7-1	Fuel/water separator	
Fuel.....	3-7-2	Filter drain sediment.....	3-4-3
Fuel/water separator.....	3-4-3	Functions	
Hydraulic.....	3-9-1	Sealed switch module (SSM)	
Transmission oil.....	3-9-2	Auxiliary power.....	2-1-5
Winch breather		Cab work light.....	2-1-5
Clean or replace.....	3-8-3	Decelerator mode.....	2-1-5
Winch oil		Drive and marker lights.....	2-1-5
Replace.....	3-8-2	Engine start.....	2-1-5
Filter, winch, replace.....	3-7-5	Engine stop.....	2-1-5
Final drive		Fan reverse.....	2-1-5
Oil change.....	3-8-1	Hydraulic enable.....	2-1-5
Oil level.....	3-6-1	Reverse ratio.....	2-1-5
		Window washer	
		Door.....	2-1-5
		Front and rear.....	2-1-5

Continued on next page

	Page		Page
Window wiper		Hydraulics menu.....	2-3-11
Door	2-1-5	Hydrostatic system	
Front.....	2-1-5	Releasing park brake to tow the machine	2-2-19
Rear	2-1-5	Hydrostatic transmission	
Speed	2-1-5	Oil level.....	3-4-4
Fuse			
Location	4-1-9	I	
Specifications	4-1-9	Idler	
G		Front, oil specification	3-1-3
Gauges	2-1-1	Idler and rollers	
Glow plug		Check.....	4-1-16
Operational check.....	4-2-23	IGC system troubleshooting	
Grease.....	3-1-4	IGC system if equipped	4-3-9
Grease dozer linkage	3-4-5	Ignition off, engine off	
Grille		Operational check.....	4-2-1
Opening and closing	4-1-7	Indicator	
Grouser wear		Engine air filter restriction	3-3-3
Operational check.....	4-2-1	Indicator light	
H		Operational check.....	4-2-13, 4-2-27
Hardware		Indicators	2-1-1
Torque specifications	4-1-17	Injection	
Hardware torque values		Nozzle	4-1-2
Metric	4-1-19	Pump	4-1-2
Unified inch	4-1-18	Instrument	
Heater		Check before starting.....	2-2-2
Coolant	2-2-5	Interior light	
Engine block.....	2-2-5	Operational check.....	4-2-22
Heater blower motor check	4-2-41, 4-2-42	J	
Heater hoses and clamps		JDLINK	4-1-11
Operational check.....	4-2-9	JDLINK™ system menu	2-3-22
Heater valve	3-11-1	Job timer menu.....	2-3-13
Horn.....	2-1-8	Jump starting	4-1-6
Horn check.....	4-2-12	L	
Hose		Left and right door washer	
Air intake	3-8-1	Operational check.....	4-2-22
Coolant	4-1-12	Left and right door wiper	
Hour meter	2-1-1, 3-2-1	Operational check.....	4-2-21
Hydraulic		Left console switch	
Oil filter restriction indicator	2-1-1	Functions.....	2-1-6
Oil level.....	3-4-3	Lever	
Troubleshooting	4-3-7	blade.....	2-2-16
Hydraulic breather filter, winch		Engine speed control	2-2-7
Clean or replace	3-8-3	FNR	
Hydraulic control lever check	4-2-39	Speed-In-Grip	2-2-7
Hydraulic controls check	4-2-39	Ripper control.....	2-2-13
Hydraulic enable solenoid		TCL	2-2-6
Operational check.....	4-2-32	Levers	
Hydraulic enable switch	2-1-5	Park brake	2-1-7
Hydraulic oil.....	3-1-2		

Continued on next page

	Page		Page
Lifting		O	
Machine	2-2-19	Oil	
Light switch	2-1-5	Change final drive.....	3-8-1
Lights, drive		Change hydraulic oil and filter.....	3-9-1
Operational check.....	4-2-15	Change transmission	3-9-2
Lights, work		Engine sample.....	3-6-1
Operational check.....	4-2-16	Final drive oil	
Live values menu.....	2-3-20	Specifications.....	3-1-3, 3-1-4
Loading		Final drives sample	3-7-7
Machine on a trailer.....	2-2-18	Hydraulic	3-1-2
Lubricant		Hydraulic sample.....	3-7-7
Mixing.....	3-1-5	Specification carrier roller	3-1-3
Lubricant Storage		Specification front idler	3-1-3
Storage, Lubricant	3-1-5	Specification track roller.....	3-1-3
Lubricants		Transmission sample	3-7-7
Specifications		Winch	
Oil, final drives	3-1-3, 3-1-4	Drain and refill.....	3-8-2
Lubricants, safety.....	3-1-1	Winch oil sample	3-7-7
Lubricate		Oil change	
Door latches	4-1-10	Engine	3-7-1
Fittings, dozer linkage	3-4-5	Oil level	
Ripper	3-5-1	Engine	3-4-2
Lubricity of diesel fuel.....	3-1-7	Final drive	3-6-1
		Hydraulic	3-4-3
M		Hydrostatic transmission	3-4-4
Machine		Oil, engine	
Lifting	2-2-19	IT4 and Stage III B.....	3-1-11
Welding.....	4-1-1	Oil, winch	
Machine design life	4-6-18	Check.....	3-4-6
Machine modifications		Operating in water and mud	2-2-12
Avoid.....	1-2-3	Operating on steep hills	2-2-17
Machine serial number	4-5-1	Operating tips	
Machine settings menu	2-3-9	Operating in water and mud	2-2-12
Machine,inspect	1-2-4	Operation qualification	1-2-3
Maintenance		Operational checkout	4-2-1
Prepare machine	3-2-2	Operational checks	
Required parts.....	3-2-5	Diagnostic trouble code (DTC) check	4-2-1
Service intervals.....	3-2-4	Ignition on, engine off.....	4-2-11
Metric bolt and screw torque values	4-1-19	Ignition on, engine on	4-2-23
Mixing lubricants.....	3-1-5	Outlet	
Monitor configuration.....	2-3-23	Auxiliary power	2-1-8
Monitor menu	2-3-22		
Motors		P	
Do not service	4-1-2	Park and Prepare for Service Safely	
		Park and prepare for service safely	1-4-1
N		Park brake	
Neutral start check	4-1-10	Operation.....	2-1-7
		Park brake check.....	4-2-35
		Park brake circuit	
		Operational check.....	4-2-32
		Park brake valve leakage check	4-2-33

Continued on next page

	Page		Page
Park lock lever switch		Reverse ratio	
Operational check.....	4-2-28	Operational checkout.....	4-2-38
Parking machine.....	2-2-12	Reverse ratio switch.....	2-1-5
Parts, moving		Reverse Speed	
Stay clear.....	1-2-4	Switch.....	2-2-6
Parts, required.....	3-2-5	Reversing fan menu.....	2-3-12
Password delay menu.....	2-3-19	Right door washer	
Pedal		Operational check.....	4-2-22
Brake.....	2-2-8	Right door wiper	
Decelerator.....	2-2-8	Operational check.....	4-2-21
Personal identification number (PIN)		Ripper	
Operator		Control lever.....	2-2-13
Modify.....	2-3-17	Lubricate.....	3-5-1
Owner		Tooth replace.....	4-1-17
Modify.....	2-3-16	Ripper, parallelogram	
Transport		Specifications.....	4-6-17
Modify.....	2-3-18	ROPS	
Pins, metal		Inspect.....	1-3-4
Drive safely.....	1-4-2	Maintain.....	1-3-4
PowerTech engine			
Adjust valve clearance.....	3-10-1	S	
Pre-start inspection.....	2-2-1	Safety	
Pressures menu.....	2-3-21	Add cab guarding for special uses.....	1-2-3, 1-2-8
Product Identification Number		Avoid machine tip over.....	1-3-4
Location.....	1-2-1	Clean debris from machine.....	1-2-8
Product identification number (PIN).....	4-5-1	Keep riders off machine.....	1-3-3
Pumps		Operator's seat.....	1-3-1
Do not service.....	4-1-2	Prevent unintended machine movement.....	1-3-2
		Protective equipment.....	1-2-3
Q		Signs	
Quick service		750J/850J crawler loaders.....	1-5-1
Connectors.....	4-1-13	Safety, information	
		Recognize.....	1-2-2
R		Safety, lubricants.....	3-1-1
Radiator		Safety, ROPS	
Coolant conditioner.....	3-3-1	ROPS, Keep Installed Properly.....	4-1-10
Coolant level.....	3-4-1	Sag, track	
Radiator hoses and clamps		General information.....	4-1-15
Operational check.....	4-2-9	Sag, track check.....	3-3-5
Rear washer motor		SDM navigation buttons.....	2-3-1
Operational checkout.....	4-2-20	Sealed switch module (SSM).....	2-1-4
Rear wiper		Seat	
Operational check.....	4-2-19	Adjustment.....	2-1-10
Recognize		Air suspension.....	2-1-10
Safety, information.....	1-2-2	Seat belt.....	2-1-10
Recovery tank coolant level.....	3-4-1	Operational check.....	4-2-10
Regulator		Seat control	
Precautions.....	4-1-2	Operational check.....	4-2-14
Replace		Secondary exits.....	2-1-9
Winch hydraulic breather filter'.....	3-8-3	Security menu.....	2-3-15
Required parts.....	3-2-5	Select button	
		Location.....	2-1-1

Continued on next page

	Page		Page
Serial numbers		Standard display monitor	2-1-1, 2-3-1
Engine		Main menu	2-3-2
Record	4-5-1	Codes	2-3-3
Serpentine belt		Active	2-3-3
Operational check	4-2-7	Stored	2-3-4
Service		Diagnostics	2-3-19
Status	2-3-8	Live values	2-3-20
Service ADVISOR Remote		Live values, JDLINK™ system	2-3-22
Overview	2-2-22	Live values, pressures	2-3-21
Reprogramming	2-2-22	Live values, speeds	2-3-21
Service connectors		Live values, temperatures	2-3-20
Quick	4-1-13	Exhaust filter	2-3-5
Service hour meter	3-2-1	Auto cleaning	2-3-6
Service intervals	3-2-1, 3-2-4	Parked cleaning	2-3-7
Setting travel speed		Machine settings	2-3-9
Transmission control lever		Brake mode	2-3-12
Speed-in-grip button	2-2-8	Controller info	2-3-13
Shim		Hydraulics	2-3-11
Blade pivot		Job timer	2-3-13
Adjustment	3-6-2	Reversing fan	2-3-12
Software delivery	2-3-24	Security	2-3-15
Software update		Security, operator PIN	2-3-17
Download and installation	2-3-25	Security, owner PIN	2-3-16
Troubleshooting	4-3-11	Security, password delay	2-3-19
Specification		Security, transport PIN	2-3-18
Carrier roller oil	3-1-3	Track info	2-3-14
Front idler oil	3-1-3	Transmission	2-3-10
Track roller oil	3-1-3	Monitor	2-3-22
Specifications		Contrast	2-3-23
550K-LGP crawler dozer	4-6-7	Units of Measurements	2-3-23
550K-XLT crawler dozer	4-6-3	Service	2-3-8
650K-LGP crawler dozer	4-6-15	Software delivery	2-3-24
650K-XLT crawler dozer	4-6-11	Software update	2-3-25
Fuse	4-1-9	Runtime display	2-1-3
Hardware torque	4-1-17	Start circuit	
Oil		Operational check	4-2-24
Final drives	3-1-3, 3-1-4	Starting	
Parallelogram ripper	4-6-17	Engine	2-2-4
Sound	1-2-1	Steep hills	
Vibration	1-2-1	Operating	2-2-17
Speed		Steering	2-2-7
Engine	4-1-7	Steps	
Speed in grip controls	2-1-7	Use correctly	
Speed-In-Grip		Handholds	1-3-1
FNR lever	2-2-7	Stopping	
Speed-in-grip button		Machine	2-2-11
Setting travel speed	2-2-8	Storage	
Speeds menu	2-3-21	Machine	4-4-1
Sprocket wear		Monthly	4-4-1
Operational check	4-2-2	Storing fuel	3-1-7
SSM	2-1-4	Switch	
		Auxiliary Power	2-1-5
		Cab work light	2-1-5

Continued on next page

	Page		Page
Decelerator mode	2-1-5	Track shoe torque	4-1-16
Drive and marker lights	2-1-5	Master link	4-1-17
Engine start	2-1-5	Tracking and maximum speed check	4-2-37
Engine stop	2-1-5	Tracks	
Fan reverse	2-1-5	Sag, general information	4-1-15
Hydraulic enable	2-1-5	Trailer loading	2-2-18
Reverse ratio	2-1-5	Transmission	
Window washer		Damage	2-2-17
Door	2-1-5	Indicators	2-1-1
Front and rear	2-1-5	Oil and filter change	3-9-2
Window wiper		Troubleshooting	4-3-8
Door	2-1-5	Transmission control lever (TCL)	
Front	2-1-5	Operational check	4-2-38
Rear	2-1-5	Speed	2-2-8
Speed	2-1-5	Transmission control lever (TCL) check	4-2-33
Switch module	2-1-4	Transmission control lever (TCL) speed change	
Switch, battery disconnect	2-2-3	Operational check	4-2-34
		Transmission menu	2-3-10
T		Transmission start system	
TCL		Check	4-1-11
Forward Speed		Troubleshooting	
Switch	2-2-6	Air conditioning	4-3-8
Lever	2-2-6	Electrical	4-3-5
TCL with speed in grip	2-1-7	Engine	4-3-2
Temperatures menu	2-3-20	Hydraulic	4-3-7
Test ports		IGC system if equipped	4-3-9
Fluid sampling	4-1-12	Software update	4-3-11
Testing diesel fuel	3-1-9	Transmission	4-3-8
Tests		Troubleshooting procedure	4-3-1
Releasing park brake to tow the machine	2-2-19		
Torque charts		U	
Metric	4-1-19	undefined	
Unified inch	4-1-18	Ash handling and disposal	1-2-7
Torque specifications		undefined	
Hardware	4-1-17	undefined	
Towing		Use correctly	1-3-1
Releasing park brake to tow the machine	2-2-19	Undercarriage	
Track		Track sag, general information	4-1-15
Avoid damage	2-2-18	Unified inch bolt and screw torque values	4-1-18
Roller oil specification	3-1-3	Units of measurement	
Sag, check	3-3-5	Display	
Track idler leakage		English standard	2-3-23
Operational check	4-2-2	Metric	2-3-23
Track info menu	2-3-14		
Track roller		V	
Operational check	4-2-2		
Track sag		Valve lash adjustment	3-10-1
Adjust	3-3-5	Valve, heater, draining	3-11-1
Operational check	4-2-2		
Track shoe		W	
Operational check	4-2-1		
		Warming engine	2-2-5

Continued on next page

Index

	Page		Page
Washer		Winch breather filter	
Operational check.....	4-2-22	Clean or replace	3-8-3
Washer motor		Winch cable specifications	4-6-18
Operational checkout	4-2-20	Winch filter	
Water separator	3-4-3	Replace	3-7-5
Operational check.....	4-2-6	Winch oil	
Weights		Check.....	3-4-6
550K-LGP crawler dozer	4-6-8	Window	
550K-XLT crawler dozer	4-6-4	Secondary exits	2-1-9
650K-LGP crawler dozer	4-6-16	Window seal	
650K-XLT crawler dozer	4-6-12	Operational check.....	4-2-11
Welding repairs.....	1-4-2	Window washer switch	2-1-5
Winch		Window wiper switch.....	2-1-5
Cable	2-2-24	Wiper	
Drag adjustment.....	2-2-27	Operational check.....	4-2-17, 4-2-19, 4-2-21
Oil		Wiper speed	
Drain and refill.....	3-8-2	Operational check.....	4-2-18
Operation.....	2-2-23	Work lights	
		Operational check.....	4-2-16

