

250GLC Excavator

(PIN: 1FF250GX_ _F608713—)



OPERATOR'S MANUAL

250GLC Excavator
(PIN: 1FF250GX_ _F608713—)

OMT351369X19 ISSUE D2 (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.

Additional Proposition 65 Warnings can be found in this manual.

**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 -19-30APR20-1/1

Manual Identification—READ THIS FIRST!

IMPORTANT: Use only supporting manuals designated for each specific machine. If incorrect manual is chosen, improper service may occur. Verify product identification number (PIN) when choosing the correct manual.

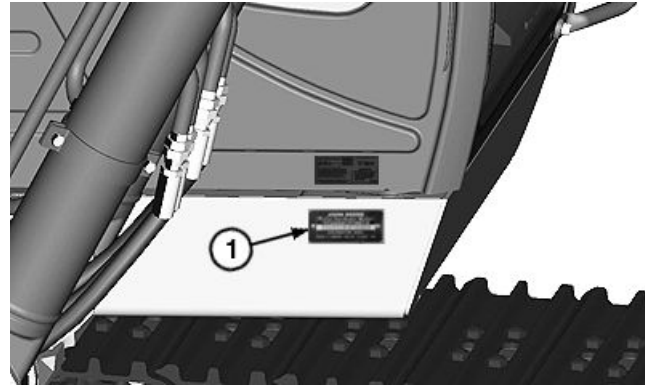
Choosing the Correct Supporting Manuals

John Deere machines are available in different machine configurations based on the various markets into which they are sold. Different supporting manuals exist for different machine configurations.

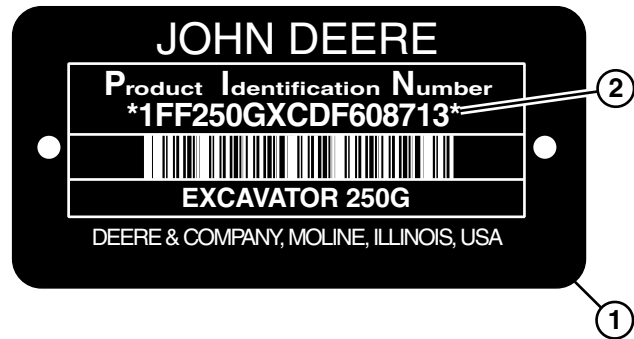
When necessary, product identification numbers (PINs) are listed on the front covers of the manuals. These numbers are used to identify the correct supporting manual for the machine.

Product Identification Number

The product identification number (PIN) plate (1) is located under the right front platform. Each machine has a 17-character PIN (2) shown on PIN plate.



PIN Plate Location



Example of PIN Plate

1— PIN Plate

2— 17-Character PIN

TX1156411 —UN—27MAR14

TX1156848 —UN—28MAR14

The PIN identifies the producing factory, machine model number, machine option, year of manufacture, engine emission level, and machine serial number.

The following is an example for a machine that meets Final Tier 4 and Stage IV emission levels:

17-Character PIN Example																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	F	F	2	5	0	G	X	—	—	F	6	0	8	7	1	3

- **(1—3) World Code:** Identifies location where machine is manufactured.

1FF **World Code** (manufacturing location)

1DW Davenport Works

1T8 Thibodaux Works

1T0 Dubuque Works

1FF John Deere (Kernersville, NC, USA)

1F9 John Deere (Indaiatuba, São Paulo, Brazil)

1BZ Brazil Works (Indaiatuba, São Paulo, Brazil)

- **(4—8) Machine Model and Series Identifier:** Identifies model number and series.

250G **Machine Model and Series Identifier**

NOTE: Characters 7—8 identify series and major machine configuration options. These characters change from one machine to another.

X **Machine Option Code** (variable)

X Base Machine

R HYEX Military Excavators

- **(9) Check Letter:** This is a random character assigned by the factory. This is not used in machine identification.

— **Check Letter** (variable)

- **(10) Manufacturing Year Code:** Identifies year of machine manufacture.

— **Manufacturing Year Code** (variable)

J 2018

K 2019

L 2020

M 2021

- **(11) Engine Emission Code:** Represents engine emission certification.

F **Engine Emission Code**

C Tier 2 and Stage II

D Tier 3 and Stage III A

E Interim Tier 4 and Stage III B

F Final Tier 4 and Stage IV

G Interim Tier 4 and Stage III A (19-56 kW)

H Final Tier 4 and Stage III A (19-37 kW)

J Final Tier 4 and Stage III B (37-56 kW)

K Final Tier 4 (8-19 kW)

L Final Tier 4 and Stage V

- **(12—17) Machine Serial Number:** Identifies machine serial number. These characters change from one machine to another.

608713 **Machine Serial Number**

CN93077.0000236 -19-01APR22-2/2

Serial Number Listing Information

Serial number information provided indicates to which products the specified service information applies. For example:

No serial number break > The information pertains to all indicated products.

(S.N. 000000—) > The information pertains to products beginning with the serial number listed.

(S.N. —000000) > The information pertains to products up to and including the serial number listed.

(S.N. 000000—000000) > The information pertains to products between and including the serial number listed.

When XXXXXX is listed in place of a serial number, a serial number change was made, but the exact serial number was not available at the time of publication.

TX,SERIALNUM -19-08AUG18-1/1

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

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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.

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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

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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.

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

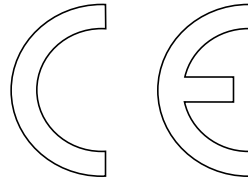
Please include name of the product and the version number of the software in the request letter. This offer is valid to anyone in receipt of this information.

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.

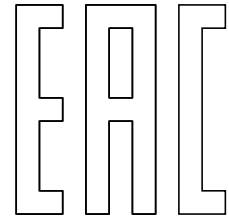
To validate conformance of a particular machine for sale into the EU or EAEU markets, check for the applicable marking on the machine, or see an authorized John Deere dealer.

TX1219407 —UN—18JUL16



European Union (EU)

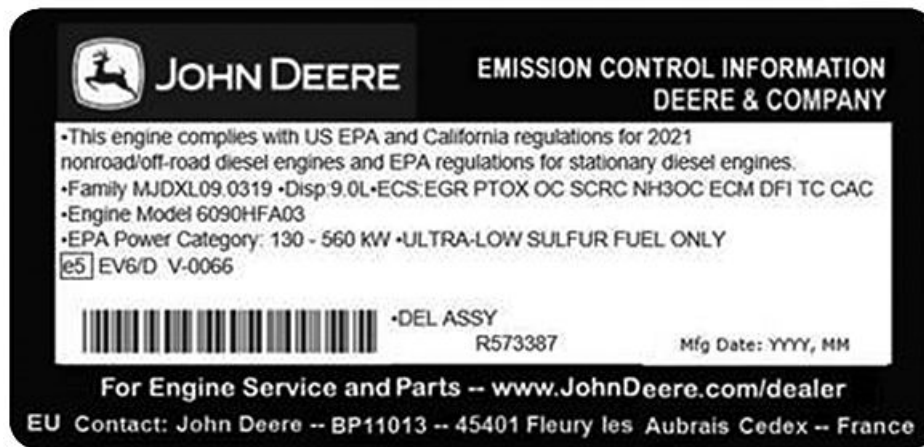
TX1219405 —UN—18JUL16



Eurasian Economic Union (EAEU)

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

Emissions Control System Certification Label



Engine Emissions Label

CAUTION: Statutes providing severe penalties for tampering with emissions controls may apply to the user or dealer.

The emissions warranty applies to those engines marketed by John Deere that have been certified by the United States Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB); and used in the United States and Canada in Non-road equipment. The presence of an emissions label like the one shown signifies that the engine has been certified with the EPA and/or CARB. The EPA and CARB warranties only apply to new engines having the certification label affixed to the engine and sold as stated above in the geographic areas. The presence of an EU number signifies that the engine has been certified with the European Union countries per Regulation (EU) 2016/1628 and supplementing legislation. The EPA and/or CARB emissions warranties do not apply to the EU countries.

The emissions label has applicable US EPA and/or CARB regulatory year. The regulatory year determines which warranty statement is applicable to engine. See "EPA Non-road Emissions Control Warranty Statement—Compression Ignition" and "CARB Non-road Emissions Control Warranty Statement—Compression Ignition". For additional regulatory year warranty statements, see www.JohnDeere.com or contact the nearest John Deere service dealer for assistance.

Emission Control System(s) Laws

The U.S. EPA and California ARB prohibit the removal or rendering inoperative of any device or element of design installed on or in engines/equipment in compliance with applicable emission regulations prior to or after the sale and delivery of the engines/equipment to the ultimate purchaser.

DX,EMISSIONS,LABEL -19-05FEB21-1/1

RG33429 —UN—04FEB21

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.

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Emission_CI_EPA (18Dec09)

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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	Aftertreatment Devices
Fuel System	Crankcase Ventilation Valves
Ignition System	Sensors
Exhaust Gas Recirculation Systems	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)

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

TS1721 —UN—15JUL13

CARB Non-road Emissions Control Warranty Statement—Compression Ignition

Emissions Control Warranty Statement 2019 through 2021

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 CARB regulations for nonroad 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 2019 through 2021 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.

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DX,EMISSIONS,CARB -19-26AUG20-1/8

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

Emission_CI_CARB (01Feb17)

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DX,EMISSIONS,CARB -19-26AUG20-2/8

Emissions Control Warranty Statement 2019 through 2021

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 CARB regulations for nonroad 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 2019 through 2021 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.

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DX,EMISSIONS,CARB -19-26AUG20-3/8

RG29280 —UN—02FEB17

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 (01Feb17)

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DX,EMISSIONS,CARB -19-26AUG20-4/8

RG29281 —UN—27FEB17

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.

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DX,EMISSIONS,CARB -19-26AUG20-5/8

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

Emission_CI_CARB (14Apr20)

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DX,EMISSIONS,CARB -19-26AUG20-6/8

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.

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DX,EMISSIONS,CARB -19-26AUG20-7/8

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

Emission_CI_CARB (14Apr20)

DX,EMISSIONS,CARB -19-26AUG20-8/8

RG32759 —UN—19AUG20

Emissions Performance and Tampering**Operation and Maintenance**

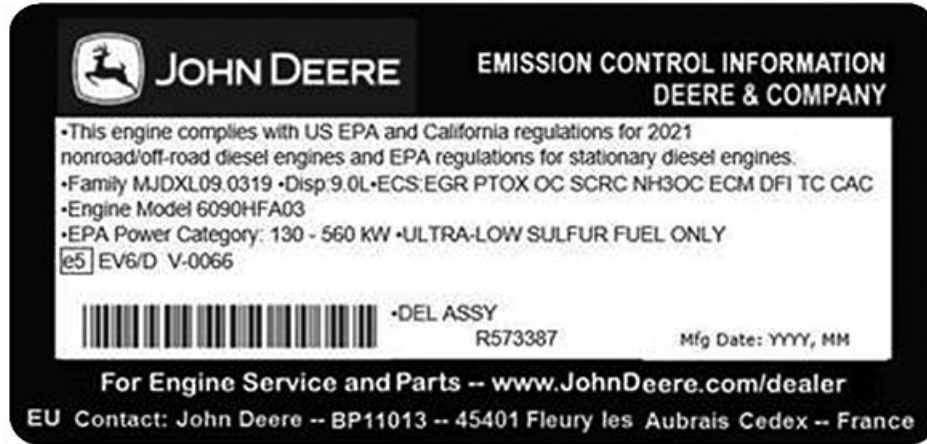
The engine, including the emissions control system, shall be operated, used, and maintained in accordance with the instructions provided in this manual to maintain the emissions performance of the engine within the requirements applicable to the engine's category/certification.

Tampering

No deliberate tampering with or misuse of the engine emissions control system shall take place; in particular with regard to deactivating or not maintaining an exhaust gas recirculation (EGR) or a DEF dosing system. Tampering with an engine's emissions control system will void the European Union (EU) type approval and applicable emissions-related warranties.

DX,EMISSIONS,PERFORM -19-12JAN18-1/1

Carbon Dioxide Emissions (CO₂)



SAMPLE - Engine Emissions Label

To identify the carbon dioxide (CO₂) output, locate the engine emissions label. Find the appropriate family on the emissions label and reference the chart.

NOTE: The first letter of the family number is not utilized for family identification on the chart.

Emissions Label Family	CO ₂ Result
_JDXL02.9323	952 g/kW-hr
_JDXL02.9327	784 g/kW-hr
_JDXL04.5337	819 g/kW-hr
_JDXL04.5338	682 g/kW-hr
_JDXL04.5304	1004 g/kW-hr
_JDXN04.5174	792 g/kW-hr
_JDXL06.8324	720 g/kW-hr
_JDXL06.8328	683 g/kW-hr
_JDXL06.8336	701 g/kW-hr
_JDXN06.8175	771 g/kW-hr
_JDXL09.0319	646 g/kW-hr
_JDXL09.0325	695 g/kW-hr
_JDXL09.0329	657 g/kW-hr
_JDXL09.0333	650 g/kW-hr
_JDXL13.5326	684 g/kW-hr
_JDXL13.6320	651 g/kW-hr
_JDXL13.5340	632 g/kW-hr
_JDXL18.0341	683 g/kW-hr
F28	870 g/kW-hr
F32	710 g/kW-hr
F33	677 g/kW-hr

This CO₂ measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family) and shall not imply or express any guarantee of the performance of a particular engine.

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").

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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
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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 .

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

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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.



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

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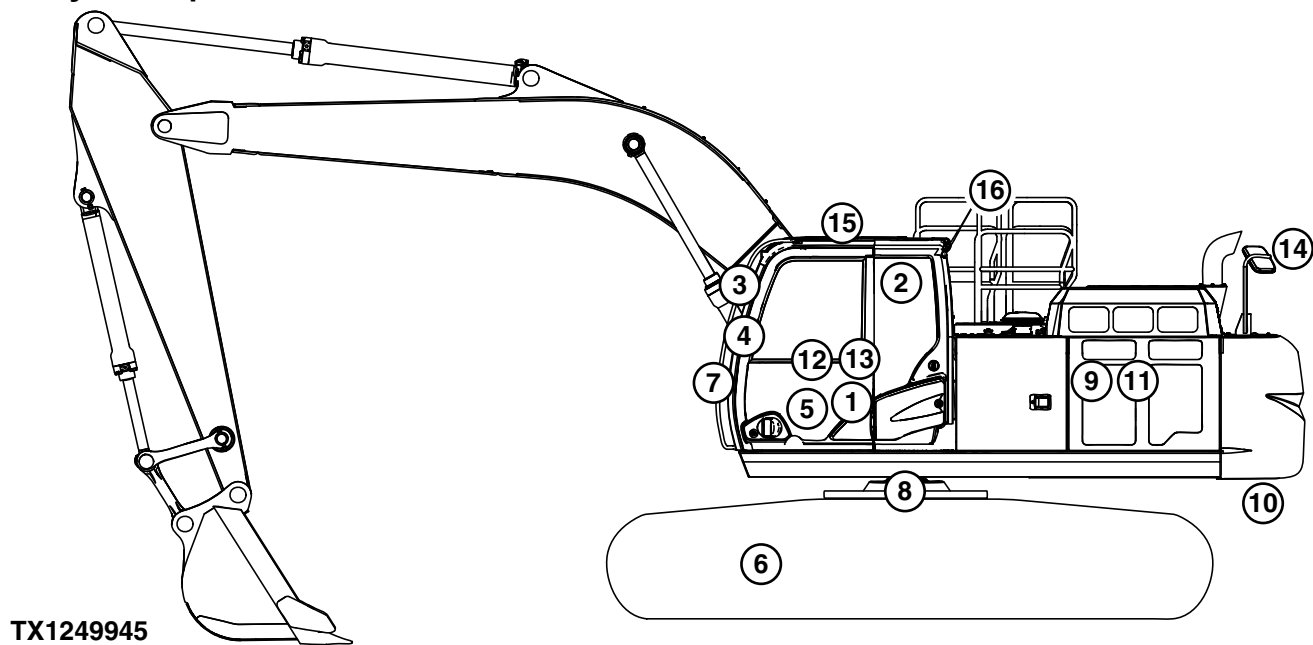
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Safety—Safety and Operator Conveniences

Safety and Operator Convenience Features



TX1249945

Excavator Safety and Operator Convenience Features

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

1. Seat Belt With Retractors. Seat belt retractors help keep belts clean and convenient to use.

2. Window Guarding. The stationary window with bars prevent contact with a moving boom.

3. Rear View Mirrors. Rear view mirrors offer the operator a view of activity along side of the excavator.

4. Alternative Exits. If the cab door is blocked in an emergency situation, the front window provides a large exit path. The rear window is an alternative exit; an alternative exit tool is also provided.

5. Pilot Shutoff Lever. A lever near the cab exit reminds the operator to deactivate hydraulic functions before leaving the machine.

6. Steps. Wide, slip-resistant steps make entry and exit easier. Steps also provide a place to clean shoes.

7. Handholds. Large, conveniently placed handholds make it easy to enter or exit the operator's station or service area.

8. Swing Brake. Swing brake engages automatically when the swing is not operated. Swing brake helps secure upperstructure when transporting the machine.

9. Bypass Start Protection. Shielding over the starter helps prevent dangerous bypass starting.

10. Travel Alarm. Travel alarm alerts bystanders of forward or reverse machine movement.

11. Engine Fan Guard. A fan guard inside the engine compartment helps prevent contact with the engine cooling fan.

12. Horn. Standard horn is useful when driving or signaling coworkers.

13. Cab With Heater, Defroster, and Air Conditioner. Ventilation system circulates both outside and inside air through filters for a clean working environment. Built in defroster vents direct air flow for effective window defogging/deicing. Air conditioner provides a comfortable, temperature-controlled working environment.

14. Counterweight Mirror. The counterweight mirror offers the operator a view directly behind the excavator.

15. ROPS and FOPS. Integrated rollover protective structure (ROPS) and falling object protective structure (FOPS) are designed to protect the operator. The enclosed lockable cabin also provides protection from the weather and reduces vandalism.

16. Handrails. Conveniently placed handrails are designed for stability and protection.

CN93077,0000268 -19-10JAN18-1/1

TX1249945 —UN—09JAN18

Safety—General Precautions

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

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

T133555 —UN—15APR13

T133588 —19—28AUG00

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 from 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.

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

TS201 —UN—15APR13

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

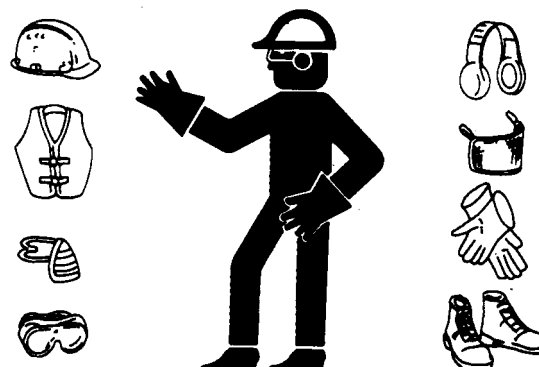
Wear Protective Equipment

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 safely 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 -19-16JUN21-1/1

Protect Against Noise

There are many variables that affect the sound level range, including machine configuration, condition and maintenance level of the machine, ground surface, operating environmental, duty cycles, ambient noise, and attachments.

Exposure to loud noise can cause impairment or loss of hearing.

Always wear hearing protection. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



TS207—UN—23AUG88

DX,NOISE -19-03OCT17-1/1

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 malfunctions resulting from their use, are not covered by any John Deere warranty.

Modifications to 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 that 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.

TX,AVOID,MACH,MODS -19-24FEB20-1/1

Control Pattern

The control functions are described as they are arranged when the machine leaves the factory. Some control

functions can be changed to suit particular operating situations. Ensure that the operator is aware of all of the functions before operating any of the controls.

TX,CTRL,PAT -19-24FEB20-1/1

Control Pattern Selector—If Equipped

This machine may be equipped with a control pattern selector valve. Ensure all bystanders are clear of machine

and area is large enough to operate machine functions. Verify the machine response to each control movement.

TX,CTRL,PAT,IFEQUIP -19-24FEB20-1/1

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

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

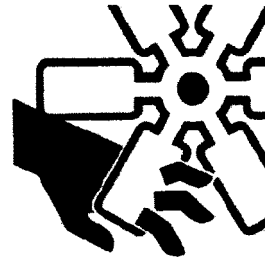
TX,INSPECT -19-08SEP10-1/1

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

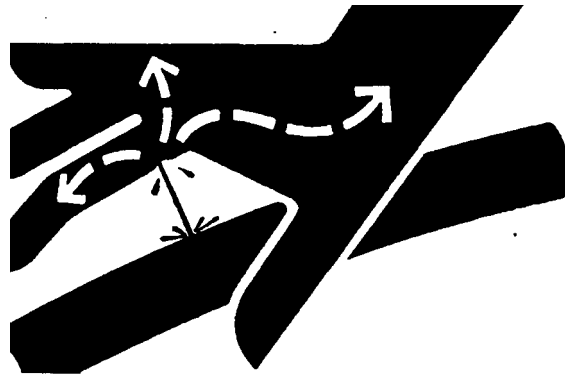
Avoid High-Pressure Fluids

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

If an accident occurs, seek medical assistance immediately.



X9811 —UN—23AUG88

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

Avoid High-Pressure Oils

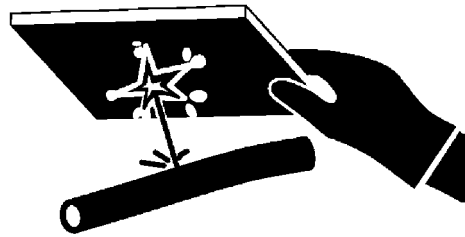
This machine uses a high-pressure hydraulic system. Escaping oil under pressure can penetrate the skin causing serious injury.

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



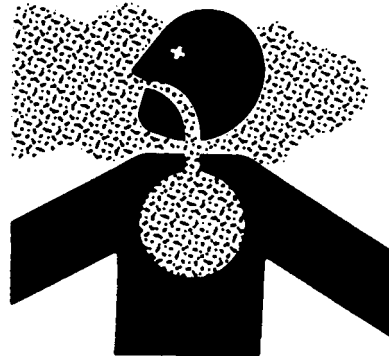
T133840 —UN—20SEP00

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

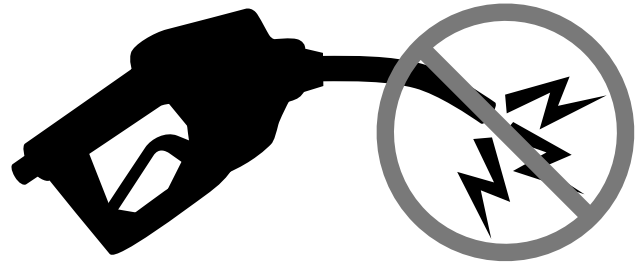
Avoid Static Electricity Risk When Refueling

The removal of sulfur and other compounds in Ultra-Low Sulfur Diesel (ULSD) fuel decreases its conductivity and increases its ability to store a static charge.

Refineries may have treated the fuel with a static dissipating additive. However, there are many factors that can reduce the effectiveness of the additive over time.

Static charges can build up in ULSD fuel while it is flowing through fuel delivery systems. Static electricity discharge when combustible vapors are present could result in a fire or explosion.

Therefore, it is important to ensure that the entire system used to refuel your machine (fuel supply tank, transfer pump, transfer hose, nozzle, and others) is properly grounded and bonded. Consult with your fuel or fuel system supplier to ensure that the delivery system is in compliance with fueling standards for proper grounding and bonding practices.



RG22142 —UN—17MAR14

RG21992 —UN—21AUG13

DX,FUEL,STATIC,ELEC -19-12JUL13-1/1

High Debris Applications

Many operations create flammable debris such as mulching, shredding, recycling, and agricultural applications. Operating in such environments may require frequent cleaning of the machine and attachments. Frequency of cleaning will vary depending on a number of factors, including operating conditions and weather.



Flammable Debris

T133552 —UN—15APR13

TX,HIGH,DEBRIS,APP -19-06MAR22-1/1

Prevent Fires

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: Keep flammable debris (trash, leaves, twigs, straw, and other debris) and grease and oil from accumulating in engine compartment and away from fuel lines, hydraulic lines, exhaust components, and electrical wiring. Never store oily rags or flammable materials inside a machine compartment.

Maintain Hoses, Tubes, and Wiring: Replace hoses and tubes immediately if they begin to leak. 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: Airborne debris may contain sparks or embers. Do not operate near any flame.

Lithium-Ion Battery Safety:

- To reduce the risk of fire or burns, do not attempt to open, disassemble, or service the display unit. Servicing of this unit is to be performed only by an authorized dealer. There are no user-serviceable parts inside the display unit. Accessing the inside of the equipment will void the warranty.
- Do not remove or handle a damaged or leaking Lithium-Ion Polymer battery.
- Do not crush or puncture battery, short battery contacts, or dispose of battery in fire or water.
- Do not expose to temperatures above 60°C (140°F).



Handle Fuel Safely

T133553 —UN—07SEP00



Clean Machine Regularly

T133554 —UN—07SEP00



Carry a Fire Extinguisher



Caution

TX,PREVENT,FIRE -19-28APR20-1/1

T133552 —UN—15APR13

T133555 —UN—15APR13

In Case of Machine Fire

CAUTION: Avoid personal injury from exposed flames. Maintain safe distance.

- Turn the engine off.
- Turn the battery disconnect switch to the OFF position (if equipped).
- If possible, fight the fire using the portable fire extinguisher or other fire suppression equipment (if equipped).
- Ensure that the fire does not spread to the surrounding area. Do not risk injury. If a fire is too far advanced, do not try to extinguish fire.
- Call for help.



In Case of Machine Fire

TX,MACH,FIRE -19-24FEB20-1/1

TS227 —UN—15APR13

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 voltmeter or hydrometer.

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

Keep battery electrolyte levels properly maintained.



Battery Explosions

TX,PREVENT,BATT -19-24FEB20-1/1

TS204 —UN—15APR13

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.)



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

TS1132 —UN—15APR13

Handle Starting Fluid Safely

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.

Do not use starting fluid on an engine equipped with glow plugs or an air intake heater.



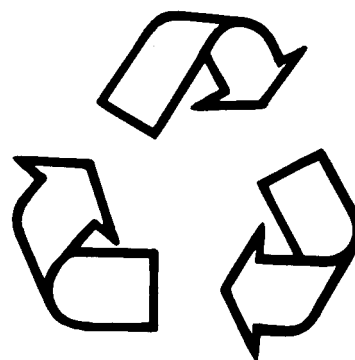
DX,FIRE3 -19-14MAR14-1/1

TS1356 —UN—18MAR92

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.

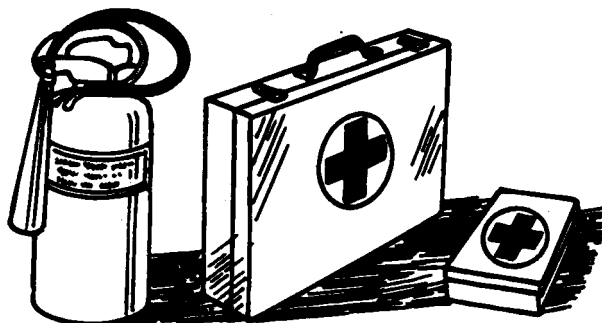
TX,ASH,DISP -19-31MAR22-1/1

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

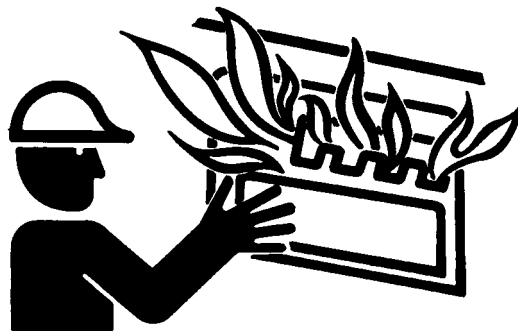
Clean Debris from Machine

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

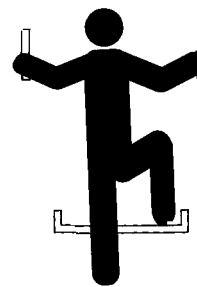
TX,DEBRIS -19-20JAN11-1/1

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.



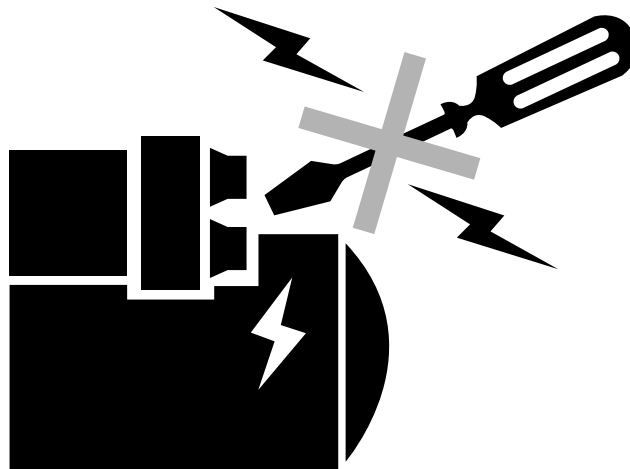
T133488 —UN—15APR13

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

Heated and Ventilated Operator's Seat

An overheated seat heater can cause a burn injury or damage to the seat. To reduce the risk of burns, use caution when using the seat heater for extended periods of time, especially if the operator cannot feel temperature change or pain to the skin. Do not place objects on the seat, such as a blanket, cushion, cover, or similar item, which can cause the seat heater to overheat.



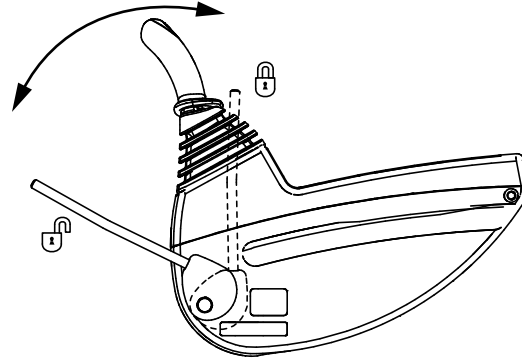
H124189 —UN—11MAY18

DX,SEATHEATER -19-20NOV18-1/1

Prevent Unintended Machine Movement

Be careful not to accidentally actuate control levers when coworkers are present. Pull pilot shutoff lever to locked (UP) position during work interruptions. Pull pilot shutoff lever to locked (UP) position and stop engine before allowing anyone to approach machine.

Always lower work equipment to the ground and pull pilot shutoff lever to locked (UP) position before standing up or leaving the operator's seat. Stop engine before exiting.



T216779 —UN—22NOV05

VD76477,000036D -19-19APR11-1/1

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 digging.

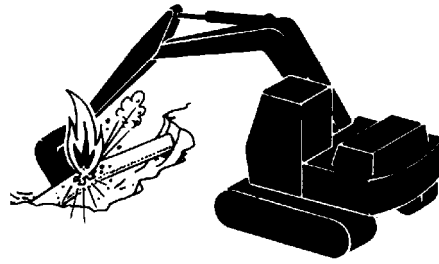
Prepare work site properly. Avoid operating near structures or objects that could fall onto the machine. Clear away debris that could move unexpectedly if run over.

Avoid boom or arm contact with overhead obstacles or overhead electrical lines. Never move any part of machine or load 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 bystanders. 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. When working close to an excavation, position travel motors away from the hole.

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



Work Site Hazards



Work Site Hazards

TX03679,0001748 -19-08JUL15-1/1

T134986 —UN—31OCT00

T133650 —UN—27SEP00

T133549 —UN—24AUG00

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,EXC -19-23APR20-1/1

TX1094208 —UN—27JUN13

Avoid Backover Accidents

Before moving the machine, ensure that all persons are clear of the machine path. Use mirrors and cameras, if equipped, to assist in checking all around. Keep windows, mirrors and lenses clean, adjusted, and in good repair.

Verify reverse/travel 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 solely on visibility aids (mirrors, rear camera, radar object detection system etc.), if equipped, as the only means of collision awareness.

Visibility aids may have limitations due to maintenance practices, environmental conditions, and operating range.



Avoid Backover Accidents

PC10857XW —UN—15APR13

TX,BACKOVER1 -19-20DEC21-1/1

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

Avoid Machine Tip Over and Machine Damage

Use seat belt at all times.

Do not jump if the machine tips. Operator is unlikely to jump clear and the machine may crush the operator.

Load and unload from trucks or trailers carefully. Be sure that truck is wide enough and 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. Machine may slip sideways in these conditions. When traveling up or down slopes, keep the bucket on uphill side and just above ground level.

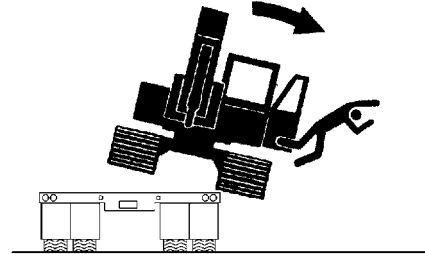
Be careful with heavy loads. Using oversize buckets or lifting heavy objects reduces machine stability. Extending a heavy load or swinging it over side of undercarriage may cause machine to tip.

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

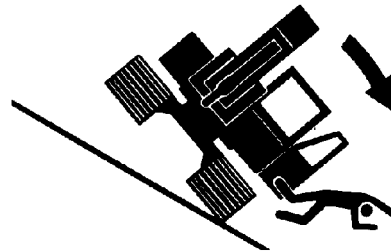


USE SEAT BELT

Use Seat Belt



Unloading Machine



Do Not Jump

TX03679,00016DF -19-24OCT19-1/1

T133716 —19—17APR13

T133545 —UN—15SEP00

T133803 —UN—27SEP00

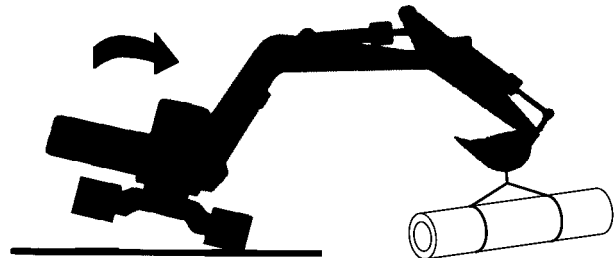
Use Special Care When Lifting Objects

Never use this machine to lift people.

Never lift a load above another person. Keep bystanders clear of all areas where a load might fall if it breaks free. Do not leave the seat when there is a raised load.

Do not exceed lift capacity limits posted on machine and in this manual. Extending heavy loads too far or swinging over undercarriage side may cause machine to tip over.

Use proper rigging to attach and stabilize loads. Be sure slings or chains have adequate capacity and are in good condition. Use tether lines to guide loads and prearranged hand signals to communicate with co-workers.



Use Special Care When Lifting Objects

TX,LIFT,CARE -19-08MAY20-1/1

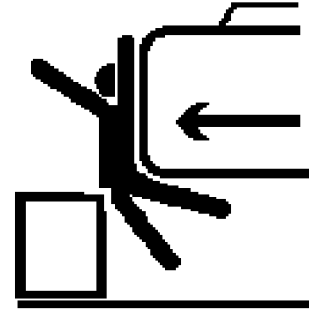
T133839 —UN—27SEP00

Use Care When Swinging Machine

Ensure that all bystanders are clear before swinging the machine.

Maintain a safe operating distance between the equipment and other personnel. Never swing upperstructure with boom, stick, attachment, or load elevated above the heads of bystanders.

Be aware of the position of the counterweight.



Use Care When Swinging Machine

TX,SWING,MACH,CARE -19-08MAY20-1/1

T149341 —UN—19DEC01

Operate Boom With Care

Always lower the boom so that the attachment is securely supported when operation is stopped.

When moving the machine, watch that enough clearance is available on both sides and above the boom. Extra clearance may be required, particularly where the ground is uneven.

Maintain a safe operating distance between the equipment and other personnel. Never swing boom, stick, attachment, or load elevated above the heads of bystanders.

Use only prearranged and approved signaling practices.



Operate Boom With Care

TX,OP,BOOM,CARE -19-08MAY20-1/1

T147349 —UN—24OCT01

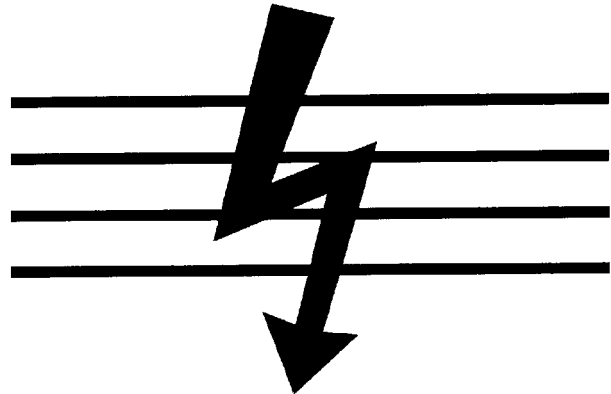
Avoid Power Lines

CAUTION: Power lines carrying more than 50 000 volts require a safety distance of 10 ft (3 m) plus 1/2 in (13 mm) for each additional 1000 volts above the 50 000 volt level.

Approach with caution areas where overhanging telephone or electric power lines are present. Serious injury or death by electrocution can result if the machine or any of its attachments are not kept a safe distance from high-voltage electric power lines.

Maintain a distance of 10 ft (3 m) between the machine, boom, stick, and any power line carrying up to 50 000 volts or less.

If state/province, local, or job site regulations require even greater safety distances than stated above, adhere strictly to these regulations for personal protection.



Avoid Power Lines

TX,AVOID,POWER,LINES -19-08MAY20-1/1

T147350 —UN—24OCT01

Travel Safely

When working on steep slopes, travel as straight up and down as possible to prevent roll over.

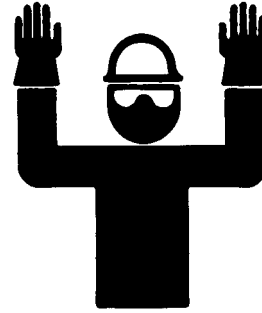
DO NOT PARK ON A HILLSIDE OR AN INCLINE.

Always park the machine on level ground.

Know the location of bystanders before moving the machine.

Always keep the reverse/travel warning alarm in working condition. The alarm warns bystanders when the machine starts to move in reverse.

Use a signal person when moving the machine in congested areas. Coordinate hand signals before starting the machine.



Travel Safely

T6964AD —UN—20DEC88

TX,TRAVEL,SAFE1 -19-08MAY20-1/1

Prevent Acid Burns

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:

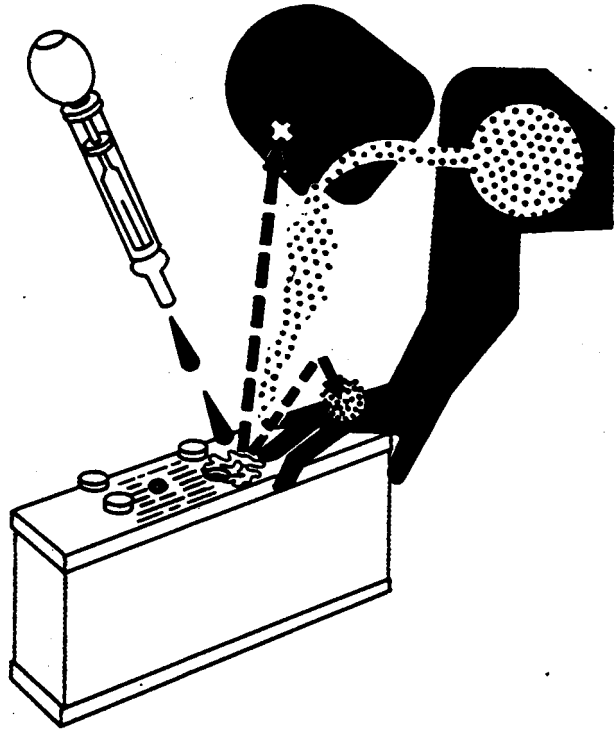
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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 2 L (2 quarts).
3. Get medical attention immediately.



TS203 —UN—23AUG88

DX,POISON -19-21APR93-1/1

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

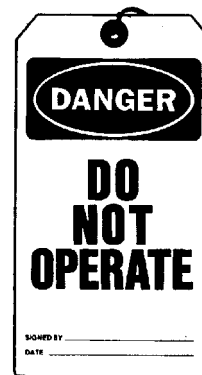
Warn others of service work. Always park and prepare machine for service or repair properly.

- Park machine on a level surface and lower equipment to the ground.
- Place pilot shutoff lever in locked (UP) position. Stop engine and remove key.
- Attach a “Do Not Operate” tag in an obvious place in the operator’s station.

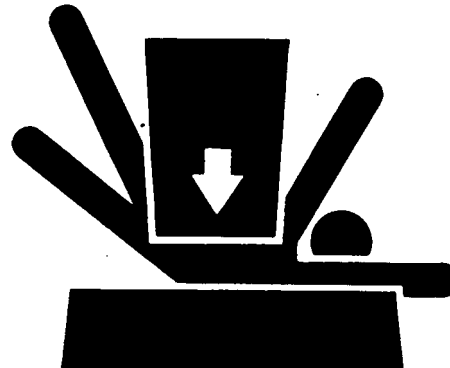
Securely support machine or attachment before working under it.

- Do not support machine with any hydraulically actuated equipment.
- 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.

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



Do Not Operate Tag



Support Machine Properly

OUT4001,000089A -19-02JUL15-1/1

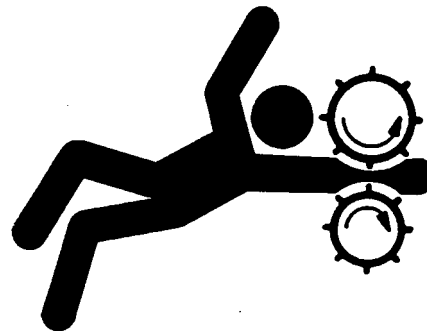
T133332 —19—17APR13

TS229 —UN—23AUG88

Service Machines Safely

Tie long hair behind head. Do not wear a necktie, scarf, loose clothing, or necklace when working near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



Service Machines Safely

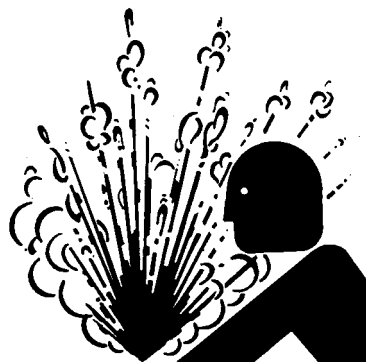
TX,SERV,SAFE -19-08MAY20-1/1

TS228 —UN—23AUG88

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

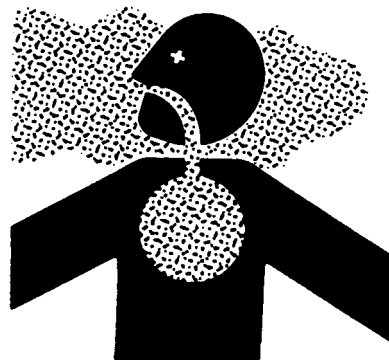
Avoid potentially toxic fumes and dust.

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.



TS220 —UN—15APR13

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

Dispose of paint and solvent properly.

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.



Heating Near Pressurized Fluid Lines

T133547 —UN—15APR13

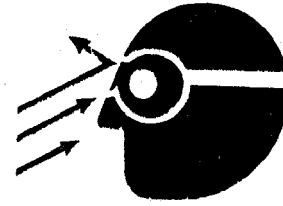
Make sure there is good ventilation. Wear eye protection and protective equipment when welding.

TX,WELD,SAFE -19-08MAY20-1/1

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.



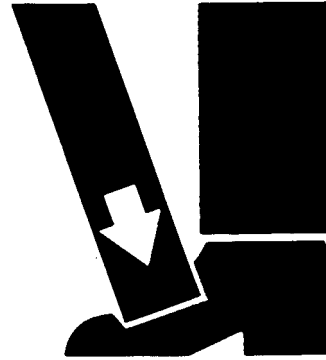
T133738 —UN—15APR13

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

Use Proper Lifting Equipment

Lifting heavy components or attachments incorrectly can cause injury or machine damage.

Follow recommended procedure for removal and installation of components or attachments.



Proper Lifting Equipment

TS226 —UN—23AUG88

TX,LIFT,EQUIP -19-08MAY20-1/1

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.

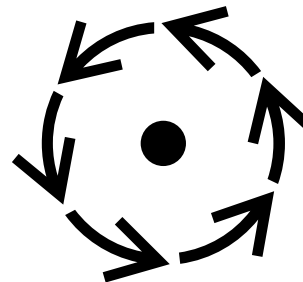
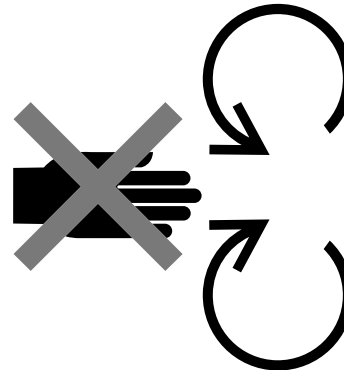
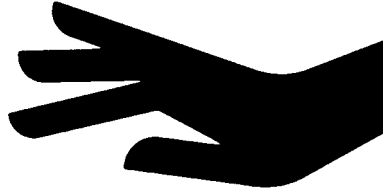
If service procedure requires engine to be running:

- 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.



STOP

TS227 —UN—15APR13

TS271 —UN—23AUG88

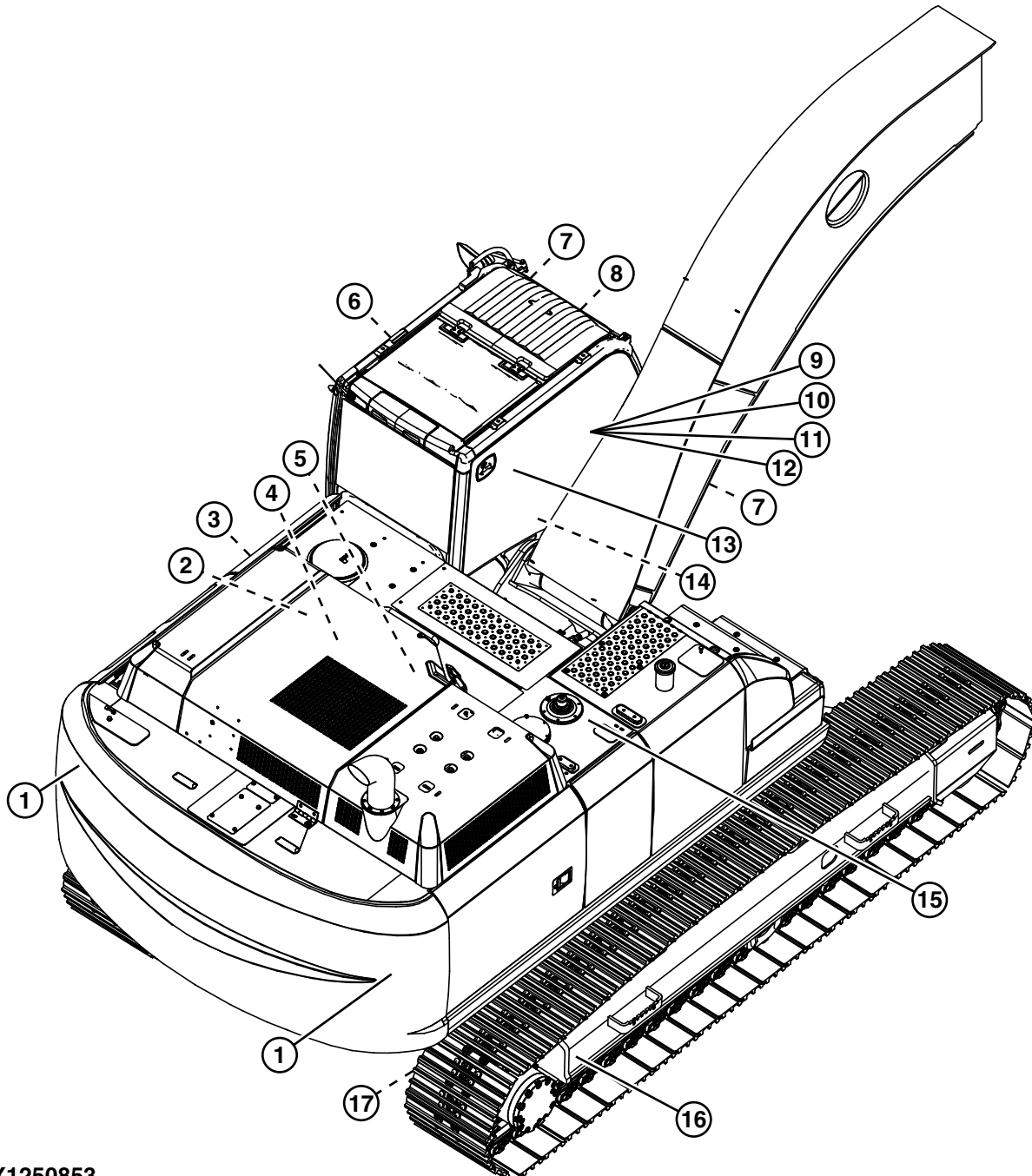
TS1693 —UN—09DEC09

TS1695 —UN—07DEC09

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

Safety—Safety Signs and Other Instructions

Safety Signs and Other Instructions



TX1250853

Safety Signs and Other Instructions

- | | | | |
|---------------------------|-------------------------------|-------------------------------|---------------------------|
| 1—WARNING, Stay Clear | 6—IMPORTANT, Alternative Exit | 11—WARNING, Avoid Serious | 15—CAUTION, Pressurized |
| 2—WARNING, Rotating Fan | 7—Protective Structure | Crushing Injury From Boom | 16—Lifting Point (4 used) |
| Blade | Certification | 12—CAUTION, Alternate Control | 17—Tiedown (4 used) |
| 3—WARNING, Avoid Machine | 8—CAUTION, Avoid Injury From | Patterns—If Equipped | |
| Tipover | Slip or Fall | 13—CAUTION, Prevent Injury | |
| 4—WARNING, Pressurized | 9—DANGER, Electric Lines | 14—CAUTION, Pinch Point | |
| System | 10—WARNING, Operate Machine | | |
| 5—DANGER, Start Only From | Safely | | |
| Seat | | | |

Continued on next page

CN93077,0000267 -19-19JAN18-1/16

TX1250853 —UN—23JAN18

1. **WARNING, Stay Clear**

Operator may swing or reverse machine

STAY CLEAR

This safety label is located at the rear of the machine on each side of the counterweight.



WARNING, Stay Clear

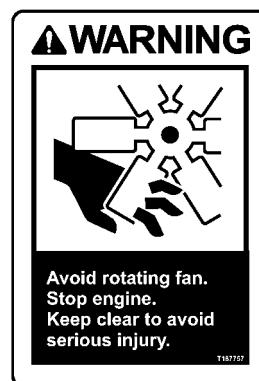
CN93077,0000267 -19-19JAN18-2/16

TX1104370 —19—19DEC12

2. **WARNING, Rotating Fan Blade**

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

This safety label is located on top of the engine.



WARNING, Rotating Fan Blade

CN93077,0000267 -19-19JAN18-3/16

TX1125730 —19—17DEC12

3. **WARNING, Avoid Machine Tipover**

AVOID MACHINE TIPOVER

Machine is less stable with boom and arm removed.

- Travel and swing very slowly.
- Use extreme care when loading.
 - Avoid counter-rotation.
 - Do not swing counterweight beyond edge of truck bed.
- Keep counterweight pointed uphill on inclines.

This safety label is located outside the left front service door.



WARNING, Avoid Machine Tipover

Continued on next page

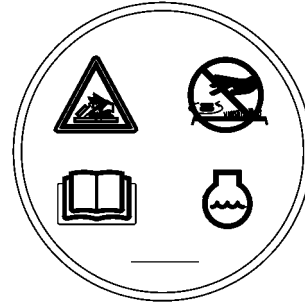
CN93077,0000267 -19-19JAN18-4/16

TX111959 —19—12APR12

4. **WARNING, 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. To relieve pressure, loosen the cooling system pressure cap slowly.

This safety label is located on the surge tank cap.



WARNING, Pressurized System

CN93077,0000267 -19-19JAN18-5/16

TX1099924 —UN—24OCT11

5. **DANGER, Start Only From Seat**

Start only from seat in park or neutral. Starting in gear kills.

This safety label is positioned on the starter inside the engine compartment.



DANGER, Start Only From Seat

CN93077,0000267 -19-19JAN18-6/16

TX1151465 —19—23JAN14

6. **IMPORTANT, Alternative Exit**

ALTERNATIVE EXIT

Use tool to break window.

Always keep tool in machine.

This safety label is located inside the cab on the left roll-over protective structure (ROPS) post.



IMPORTANT, Alternative Exit

Continued on next page

CN93077,0000267 -19-19JAN18-7/16

TX1250806 —19—26FEB18

7. Protective Structure Certification

Any alteration or modification to this structure voids the certification.

Always wear seat belt when moving.

This safety label is located inside the cab on the left front roll-over protective structure (ROPS) post or on the right front corner of the outside cab.



Protective Structure Certification

CN93077,0000267 -19-19JAN18-8/16

TX1156960 —UN—07APR14

8. CAUTION, Avoid Injury From Slip or Fall

Avoid injury from slip or fall. DO NOT use as a handhold. Window handle will move with the front window.

This safety label is located inside the cab on the handle of the front window.



CAUTION, Avoid Injury From Slip or Fall

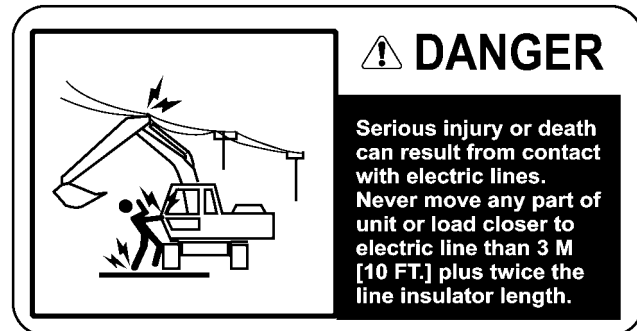
CN93077,0000267 -19-19JAN18-9/16

TX1104375 —19—12APR12

9. DANGER, Electric Lines

Serious injury or death can result from contact with electric lines. Never move any part of unit or load closer to electric line than 3 M [10 FT.] plus twice the line insulator length.

This safety label is located inside the cab on the right-side window.



DANGER, Electric Lines

Continued on next page

CN93077,0000267 -19-19JAN18-10/16

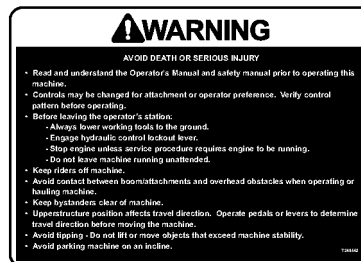
TX1104374 —19—19DEC12

10. WARNING, Operate Machine Safely

AVOID DEATH OR SERIOUS INJURY

- Read and understand the Operator's Manual and safety manual prior to operating this machine.
- Controls may be changed for attachment or operator preference. Verify control pattern before operating.
- Before leaving the operator's station:
 - Always lower working tools to the ground.
 - Engage hydraulic control lockout lever.
 - Stop engine unless service procedure requires engine to be running.
 - Do not leave machine running unattended.
- Keep riders off machine.
- Avoid contact between boom/attachments and overhead obstacles when operating or hauling machine.
- Keep bystanders clear of machine.
- Upperstructure position affects travel direction. Operate pedals or levers to determine travel direction before moving the machine.
- Avoid tipping - Do not lift or move objects that exceed machine stability.
- Avoid parking machine on an incline.

This safety label is located inside the cab on the right-side window.



WARNING, Operate Machine Safely

CN93077,0000267 -19-19JAN18-11/16

TX1104372 —19—12APR12

11. WARNING, Avoid Serious Crushing Injury From Boom

AVOID SERIOUS CRUSHING INJURY FROM BOOM.

Never place any part of body beyond window bars or frame. It could be crushed by the boom if boom control lever is accidentally bumped or otherwise engaged.

DO NOT remove window bars. If window is missing or broken, replace immediately.

This safety label is located inside the cab on the right-side window.



WARNING, Avoid Serious Crushing Injury From Boom

Continued on next page

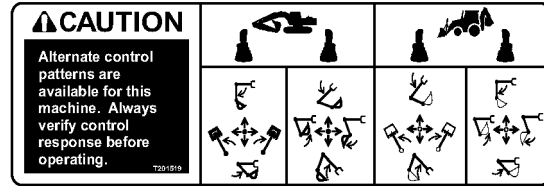
CN93077,0000267 -19-19JAN18-12/16

TX1104373 —19—12APR12

12. CAUTION, Alternate Control Patterns—If Equipped

Alternate control patterns are available for this machine. Always verify control response before operating.

This safety label is located inside the cab on the right-side window.



CAUTION, Alternate Control Patterns—If Equipped

CN93077,0000267 -19-19JAN18-13/16

TX1104371 —19—12APR12

13. CAUTION, Prevent Injury

To prevent injury from the front window falling, lock window in place with the lock pin.

This safety label is located inside the cab on the right-side window.



CAUTION, Prevent Injury

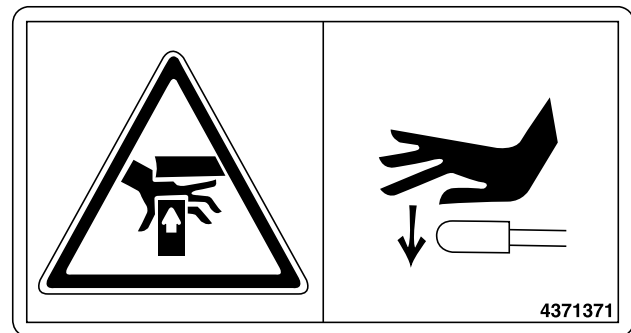
CN93077,0000267 -19-19JAN18-14/16

TX1104376 —19—12APR12

14. CAUTION, Pinch Point

Avoid personal injury when operating seat fore-and-aft lever.

This safety label is located on the front of seat pedestal.



CAUTION, Pinch Point

Continued on next page

CN93077,0000267 -19-19JAN18-15/16

TX1157159 —UN—04APR14

15. **CAUTION, Pressurized**

PRESSURIZED.

DO NOT OPEN HOT.

Release internal pressure by pressing air breather button prior to removing reservoir cap.

This safety label is located on top of the hydraulic reservoir.

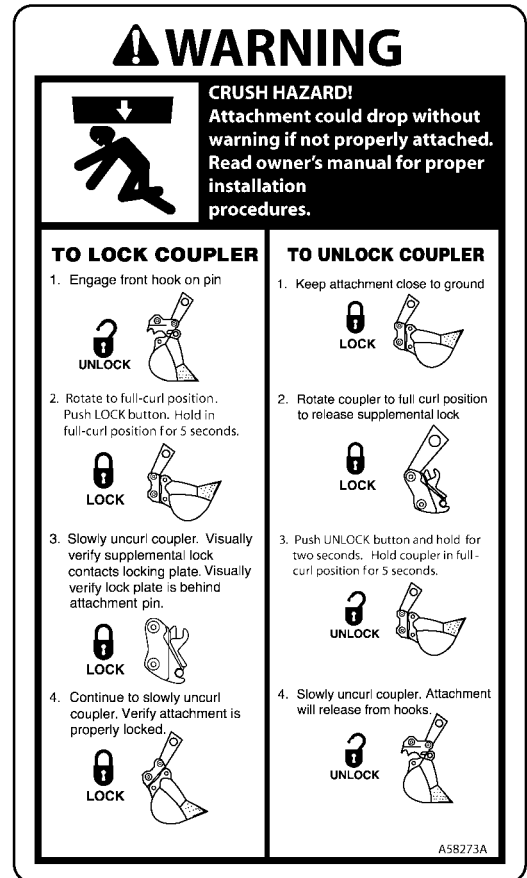
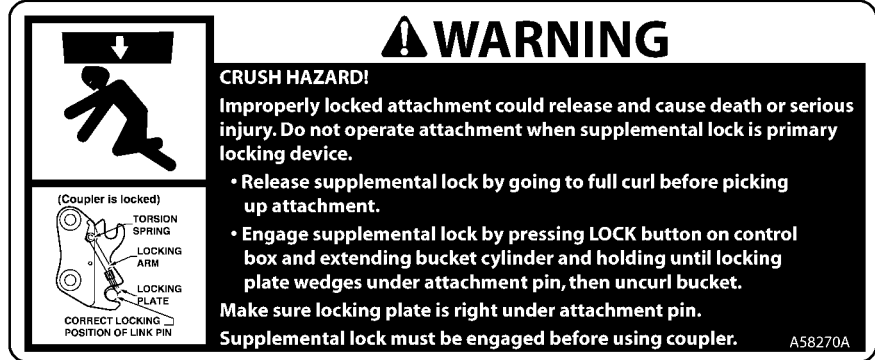


CAUTION, Pressurized

CN93077,0000267 -19-19JAN18-16/16

TX1156966 —19—04APR14

Safety Signs Installed on Hydraulic Coupler—If Equipped



TX1105472

Hydraulic Coupler Safety Signs

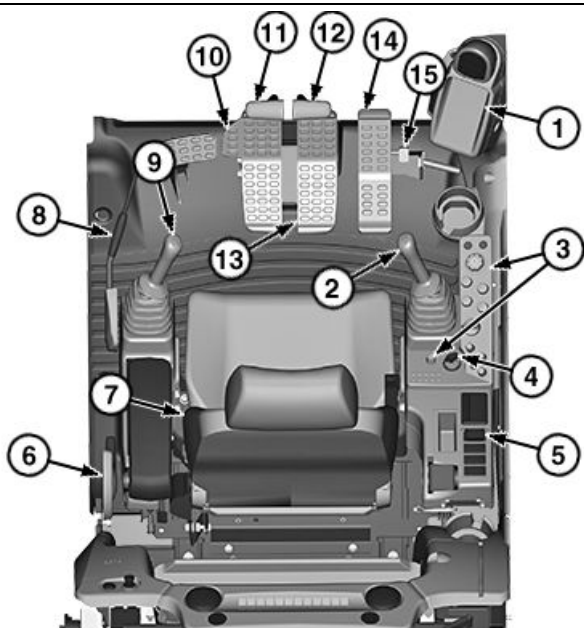
TX.SIGNS,HYD,COUP -19-18MAY20-1/1

TX1105472 —19—13JAN12

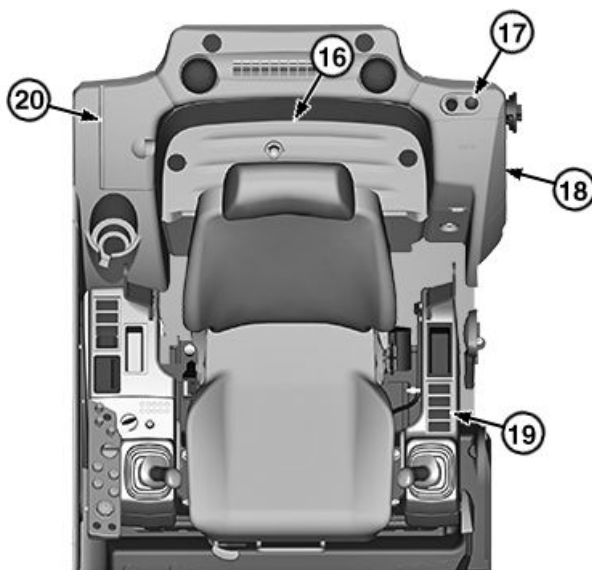
Operation—Operator's Station

Pedals, Levers, and Panels

- | | |
|--|--|
| 1— Monitor | 11— Left Travel Lever |
| 2— Right Pilot Control
Lever/Power Dig Button
(bottom button on top of
lever) | 12— Right Travel Lever |
| 3— Switch Panel | 13— Right Travel Pedal |
| 4— Key Switch | 14— Single Pedal Travel (if
equipped) |
| 5— Right Console | 15— Single Pedal Travel Lock |
| 6— Cab Door Release Lever | 16— Rear Deck |
| 7— Operator's Seat | 17— Lighter/Accessory Power
Port |
| 8— Pilot Shutoff Lever | 18— Fuse Box Cover |
| 9— Left Pilot Control Lever (3
button lever optional)/Horn
Button (bottom button on
top of lever) | 19— Left Console |
| 10— Left Travel Pedal | 20— Storage Compartment |



Pedals, Levers, and Panels



Fuse Box and Left Console

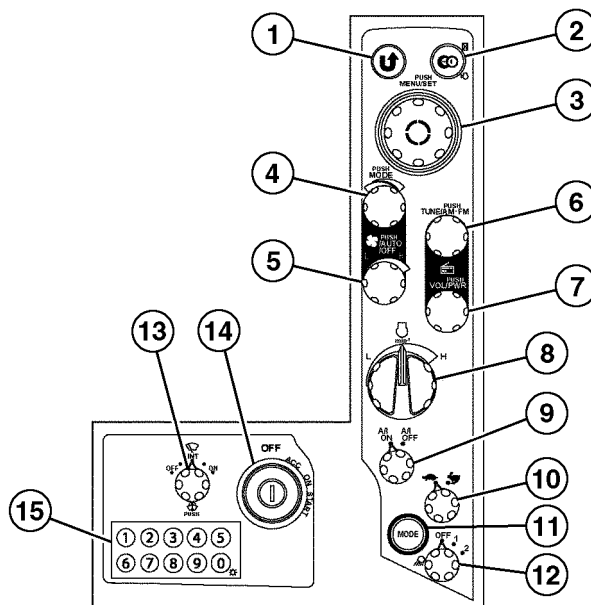
TX1249135A —UN—20DEC17

TX1249153A —UN—20DEC17

TD48962,0000056 -19-03JAN18-1/1

Switch Panel

- | | |
|------------------------------------|--|
| 1— Back Button | 9— Auto-Idle Switch |
| 2— Home Button | 10— Travel Mode Switch |
| 3— Monitor Dial | 11— Power Mode Button |
| 4— Temperature Control/Mode Switch | 12— Work Light Switch |
| 5— Blower Speed Switch | 13— Windshield Wiper and Washer Switch |
| 6— Radio Tuning Switch | 14— Key Switch |
| 7— Radio Power and Volume Switch | 15— Keypad |
| 8— Engine Speed Dial | |



Switch Panel

OUT4001,000073B -19-23FEB16-1/1

TX1086613 —UN—10JAN11

Switch Panel Functions

1. Back Button (for monitor use)—Press button to return to previous menu.

2. Home Button (for monitor use)—Press button to return to default screen when in any of the monitor menus. If key switch is in OFF position, press and hold button to check hour meter and fuel amount on monitor.

3. Monitor Dial (for monitor use)—Press dial to go from default screen to main menu screen. Rotate dial to highlight desired menu function on monitor. Press dial to select desired screen information or to confirm desired action.

4. Temperature Control/Mode Switch—Press switch to toggle between different air vent settings. Air conditioner display on monitor shows different settings each time switch is pressed. There are four different settings:

- Air flows out of front vent and defroster vents.
- Air flows out of front, rear, and defroster vents.
- Air flows out of front, rear, foot, and defroster vents.
- Air flows out of foot vents.

Rotate switch counterclockwise for cooler air setting and clockwise for warmer air setting. Temperature setting changes on air conditioner display as switch is rotated either way.

5. Blower Speed Switch—Press switch while air conditioner is OFF to select AUTO mode (blower speed setting and air flow setting are selected automatically). Temperature control/mode switch can be rotated to operator's preferred cab temperature setting. Blower speed and air flow settings adjust automatically to reach and maintain desired cab temperature.

If blower speed switch is rotated or temperature control/mode switch is pressed while in AUTO mode, AUTO mode is canceled and all settings need to be adjusted by operator as needed.

If blower speed switch is pressed while air conditioner is on, air conditioner turns off. Blower speed switch must be on to operate on/off function of air conditioner in monitor menu.

Rotate switch to adjust blower speed to desired setting when not in AUTO mode.

6. Radio Tuning Switch—Press switch to toggle between AM and FM frequency. Rotate switch to select desired radio station.

7. Radio Power and Volume Switch—Press switch to turn radio on or off. Rotate switch to adjust volume to desired setting.

8. Engine Speed Dial—Turn dial clockwise to increase engine speed or counterclockwise to decrease engine speed.

9. Auto-Idle Switch—Turn switch to select between A/I ON or A/I OFF.

With engine on, move auto-idle switch to A/I ON and engine speed dial to above auto-idle speed. Auto-idle indicator appears on monitor when auto-idle is on. Engine runs at engine speed dial setting for 4 seconds and then auto-idle system slows engine to auto-idle engine speed. When any pilot control lever is operated, engine speed increases to engine speed dial setting. When pilot control levers are placed back in neutral position, auto-idle circuit automatically slows engine to auto-idle engine speed after 4 seconds.

Turn auto-idle switch to A/I OFF and set engine speed dial to improve machine control in difficult work areas, loading, and unloading. Auto-idle indicator disappears on monitor.

10. Travel Mode Switch—Turn switch to select between fast (rabbit) or slow (turtle) speed travel.

11. Power Mode Button—Press button to select different engine speed modes:

- ECO (economy) Mode—use to improve fuel efficiency and reduce noise level with a small difference in engine speed.
- PWR (power) Mode—use when general digging work is needed.
- H/P (high power) Mode—use when more flow is desired for booming up or rolling in the arm in excavation work.

12. Work Light Switch—Switch has three positions:

- First Position—drive light on base of machine turns on. Switch panel also illuminates.
- Second Position—drive light on base of machine, upper cab lights, and on boom turn on. Switch panel illuminates and monitor changes to night mode (background lighting is dimmed).
- OFF—work lights and switch panel illumination turns off.

13. Windshield Wiper and Washer Switch—Switch has five operating positions:

NOTE: Wiper does not operate unless upper front window is closed.

- OFF—wiper stops operating and is retracted.
- INT (slow)—wiper operates intermittently at 8-second intervals.
- INT (medium)—wiper operates intermittently at 6-second intervals.
- INT (fast)—wiper operates intermittently at 3-second intervals.
- ON—wiper operates continuously.

Push and hold switch to squirt fluid on windshield. If switch is held more than 2 seconds, wiper operates until switch is released. Do not hold-down switch for more than 20 seconds.

14. Key Switch—Switch has four positions:

- OFF
- ACC

Continued on next page

CN93077,0000259 -19-05MAY16-1/2

- ON
- START

15. Keypad—Keypad has different applications:

- Use numbers 0—9 to enter password at machine start-up if equipped.
- Press keypad numbers 1—8 while radio is on to switch between programmed stations.
- When work light switch is on position 2, monitor changes to night mode (background lighting is dimmed). Press and hold number 0 on keypad to adjust monitor back to daytime mode display.

CN93077,0000259 -19-05MAY16-2/2

Rear Left Panel

Lighter (1): For operator convenience. Can also be used as an electrical port for 24-volt appliances only.

Accessory Power Port (2): 12-volt, 5-amp electrical port provided for service and maintenance.

1— Lighter

2— Accessory Power Port



Rear Left Panel

TX1085863A —UN—14DEC10

ER79617,0000D57 -19-29MAY14-1/1

Horn

Horn button (1) is located on top of left pilot control lever.

1— Horn Button



Horn Button

TX1086237A —UN—27DEC10

CN93077,000025A -19-29JAN15-1/1

Power Boost Button

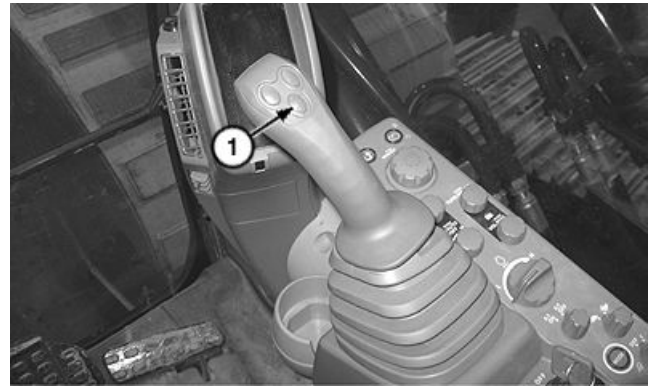
The power boost button (1 and 2) is located on the 3-button pilot control lever or auxiliary function lever (AFL). Press and hold down power boost button for an 8-second increase in hydraulic power. Release button to reset power boost function.

Power boost is automatically activated when the following conditions are met:

- Boom up
- No arm in
- High delivery pressure

1— Power Boost Button

2— Power Boost Button



3-Button Pilot Control Lever



Auxiliary Function Lever (AFL)

TX1086698A —UN—08JAN11

TX1322248A —UN—29MAR22

OUT4001,000073D -19-29MAR22-1/1

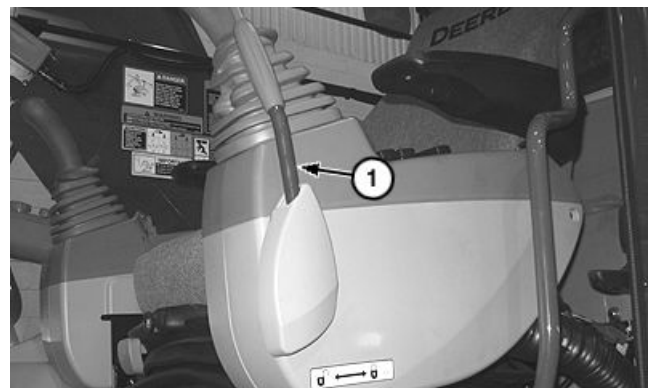
Pilot Shutoff Lever

The pilot shutoff lever (1) shuts off hydraulic pilot pressure to all pilot control valves. When pilot shutoff lever is in locked (UP) position, the machine will not move if a lever or pedal is accidentally moved. Engine will not start with pilot shutoff lever in the unlocked (DOWN) position.

Always pull pilot shutoff lever to locked (UP) position when stopping the engine or leaving operator's station.

Push pilot shutoff lever forward to unlocked (DOWN) position to operate machine.

1— Pilot Shutoff Lever



Lever in Locked (UP) Position

TX1086699A —UN—08JAN11

OUT4001,000073E -19-12JUN15-1/1

Left Console

NOTE: There are standard and optional switches on the left console. Before using the switches on the left console, be aware of what kind of optional devices are equipped on the machine.

Raise the armrest when operating the switches.

- | | |
|------------------------------------|--------------------------------------|
| 1—Travel Alarm Cancel Switch | 3—Rear Light Switch (if equipped) |
| 2—Seat Heater Switch (if equipped) | 4—Reversing Fan Switch (if equipped) |



Left Console

TX1251730A —UN—05FEB18

TD48962,000006D -19-06FEB18-1/1

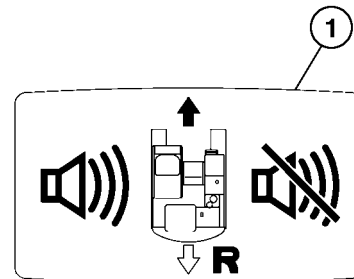
Travel Alarm and Travel Alarm Cancel Switch

NOTE: If alarm is not operating during normal transport or if alarm sounds when engine is running and machine is stationary, see an authorized John Deere dealer.

The travel alarm sounds when a travel pedal or lever is activated and will continue as long as the tracks are moving. When travel motion stops, the travel alarm switch is reset.

After the initial 13-second alarm, alarm can be silenced by depressing the right half of the travel alarm cancel switch (1) located on the left console.

- 1—Travel Alarm Cancel Switch



Travel Alarm Cancel Switch

TX1001227 —UN—14DEC05

OUT4001,0000740 -19-19FEB18-1/1

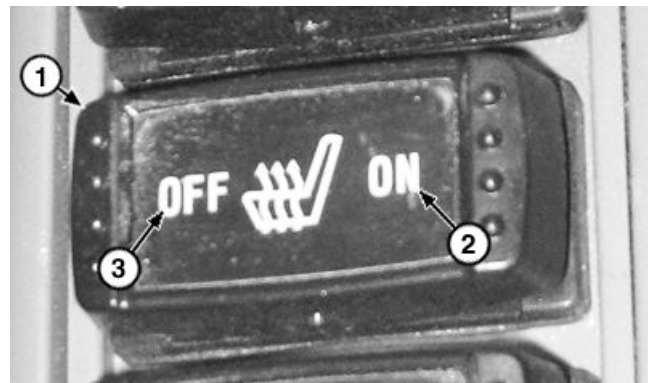
Seat Heater Switch—If Equipped

Seat heater switch (1) is located on the left console.

Use switch to turn seat heater ON (2) or OFF (3).

When seat heater is ON, it will automatically cycle between 10°C and 20°C (50°F and 68°F).

- | | |
|----------------------|-------|
| 1—Seat Heater Switch | 3—OFF |
| 2—ON | |



Seat Heater Switch

TX1198636A —UN—28JUL15

ER79617,0000D58 -19-17MAR22-1/1

Seat Heating and Cooling Switch—If Equipped

The heated/cooled seat switch (1) is located on the left side of the backrest on the premium seat.

With key switch in the ON position, set heated/cooled seat switch to desired mode. Toggle up for heat and choose setting as shown on the light emitting diode (LED) switch indicators (2). LED displays RED color for seat heating mode. Toggle down for cool and choose setting as shown on the switch indicators. LED displays BLUE color for seat cooling mode.

1— Heated/Cooled Seat Switch 2— Switch Indicator (3 used)



Heated/Cooled Seat Switch

TX1251631A —UN—31JAN18

TD48962,0000065 -19-08FEB18-1/1

Reversing Fan Switch—If Equipped

NOTE: The reversing fan function shall not be reactivated within 1 minute of its last completion (this time includes AUTO cycle).

The reversing fan switch has three positions:

- **AUTO:** Every 60 minutes, the radiator cooling fan will automatically reverse direction for 30 seconds without intervention from the operator when engine rpm is above auto-idle speed.
- **OFF:** Fan resumes normal operation.
- **MANUAL:** When pressed and held for 3 seconds, the fan will reverse direction for 30 seconds when right portion of switch is pressed.



Reversing Fan Switch

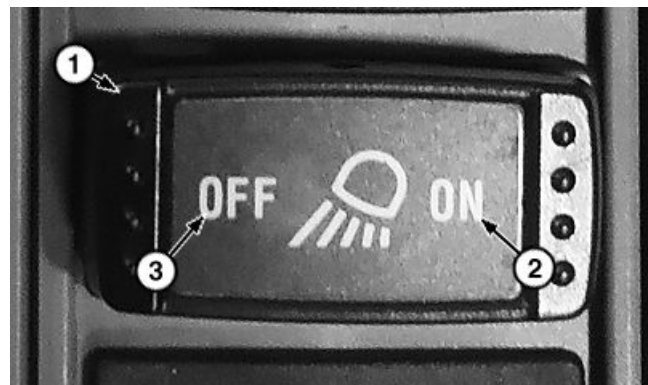
TX1000844A —UN—29NOV05

ER79617,0000D59 -19-05APR16-1/1

Rear Light Switch—If Equipped

Press rear light switch (1) to ON position (2) to turn on rear lights on cab roof.

1— Rear Light Switch 2— ON Position
3— OFF Position



Rear Light Switch

TX1164857A —UN—09JUL14

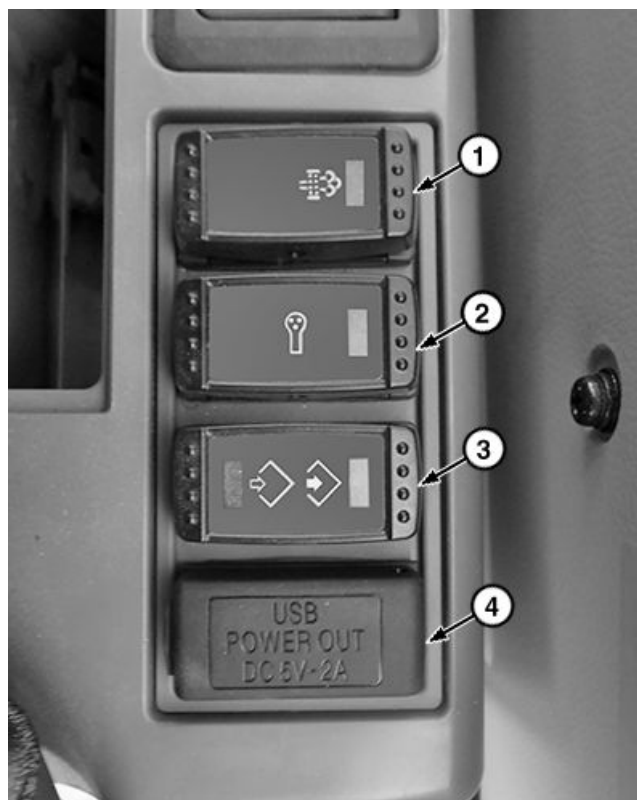
KR46761,0000CC3 -19-09JUL14-1/1

Right Console

NOTE: There are standard and optional switches on the right console. Before using the switches on the right console, be aware of what kind of optional devices are equipped on the machine.

Raise the armrest when operating the switches.

- | | |
|--|--|
| 1— Exhaust Filter Parked
Cleaning Switch | 3— Service ADVISOR™
Remote (SAR) Switch |
| 2— Auxiliary Function Enable
Switch (if equipped) | 4— USB Charge Port (if
equipped) |



Right Console

Service ADVISOR is a trademark of Deere & Company

TX1251746A —UN—01FEB18

TD48962,0000070 -19-08FEB18-1/1

Exhaust Filter Parked Cleaning Switch

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.

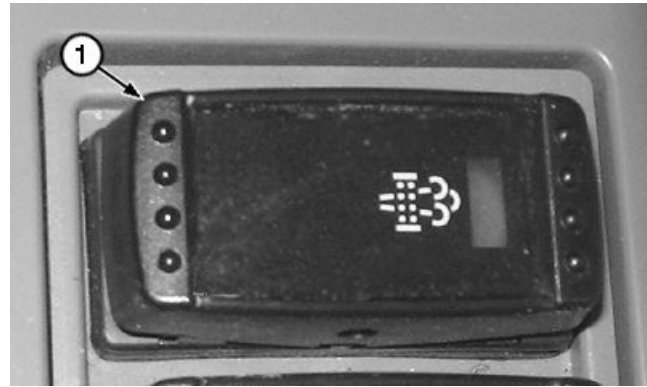
IMPORTANT: Avoid machine damage. Always park machine in a safe location and check for adequate fuel and diesel exhaust fluid (DEF) level before beginning exhaust filter parked cleaning.

The exhaust filter parked cleaning switch (1) is located on the right console.

Before starting the parked cleaning process, the machine needs to be in a predetermined safe state. This safe state includes three conditions:

- Machine is parked in a safe place with the front attachment lowered to the ground.
- Pilot shutoff lever is in locked (UP) position.
- Engine speed dial is set to slow idle.

An exhaust filter alarm indicator will appear on the monitor to inform the operator when a parked cleaning needs to



Exhaust Filter Parked Cleaning Switch

1— Exhaust Filter Parked Cleaning Switch

take place or the operator can check the restriction level bar graph in the monitor. See Main Menu—Information Menu—Monitoring. (Section 2-2.)

Once the safe state conditions are met, press and hold the right half of exhaust filter parked cleaning switch for 3 seconds to begin a parked cleaning procedure.

Monitor will show a progress screen during the cleaning and will prompt the operator when the cleaning is complete.

For more information, see Exhaust Filter Parked Cleaning. (Section 2-3.)

CN93077,000024E -19-23FEB15-1/1

TX1086795A —UN—11JAN11

Right Enable Switch—If Equipped

The right enable switch (1) is located on the right console.

Press right half of switch to enable auxiliary functions on the right pilot control lever.

Press left half of switch to disable auxiliary functions on the right pilot control lever.

1— Right Enable Switch



Right Enable Switch

OUT4001,0000850 -19-08FEB18-1/1

TX1086796A —UN—11JAN11

Service ADVISOR™ Remote (SAR) Switch

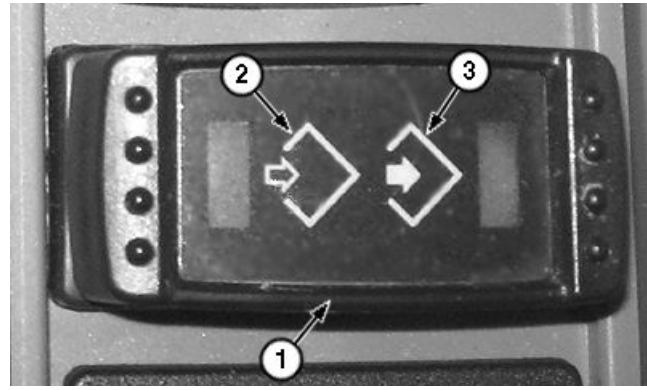
The Service ADVISOR™ Remote (SAR) switch (1) allows operator to accept or decline software updates available to the machine when prompted by an alarm on the monitor. LEDs on the SAR switch will illuminate when the alarm appears. The left LED will be red and the right LED will be green.

Press left side of SAR switch (red LED) to DECLINE installation (2) of software updates.

Press right side of SAR switch (green LED) to ACCEPT installation (3) of software updates.

For more information on SAR functionality, see Service ADVISOR™ Remote (SAR) Software Delivery Process and Service ADVISOR™ Remote (SAR) Operation. (Section 2-3.)

Service ADVISOR is a trademark of Deere & Company



Service ADVISOR™ Remote Switch

1— Service ADVISOR™ Remote (SAR) Switch
2— DECLINE Installation

3— ACCEPT Installation

TX1086797A —UN—21JAN11

OUT4001,0000748 -19-15MAY19-1/1

Auxiliary Function Enable Switch—If Equipped

(S.N. —610767)

The pilot control shutoff lever must be in the unlocked (DOWN) position to enable auxiliary function lever (AFL) functions. See Pilot Shutoff Lever. (Section 2-1.)

Press auxiliary function enable switch (1) to enable auxiliary function lever (AFL) on the right pilot control lever. The light-emitting diode (LED) on auxiliary function enable switch illuminates when functions are enabled.

NOTE: If pilot control lever is cycled to the locked (UP) position and then back to the unlocked (DOWN) position, the auxiliary function enable switch will be disabled.

To disable AFL, press the auxiliary function enable switch again or place the pilot control shutoff lever in the locked (UP) position. LED turns off when functions are disabled.

For more information, see Auxiliary Function Lever (AFL)—If Equipped. (Section 2-3.)

(S.N. 610768—)

The pilot control shutoff lever must be in the unlocked (DOWN) position to enable auxiliary function lever (AFL) functions. See Pilot Shutoff Lever. (Section 2-1.)

Press auxiliary function enable switch to enable auxiliary function lever (AFL) on the right pilot control lever. The



Auxiliary Function Enable Switch

1— Auxiliary Function Enable Switch

light-emitting diode (LED) on auxiliary function enable switch illuminates when functions are enabled.

NOTE: If pilot control lever is cycled to the locked (UP) position and then back to the unlocked (DOWN) position, the auxiliary function enable switch will remain enabled.

To disable AFL, press the auxiliary function enable switch again. LED turns off when functions are disabled.

For more information, see Auxiliary Function Lever (AFL)—If Equipped. (Section 2-3.)

TX1168382A —UN—11AUG14

TD48962,000005F -19-25JAN18-1/1

USB Charge Port—If Equipped

The USB charge port (2) allows operator to charge connected USB devices only. The USB charge port will not transfer data to or from a connected device.

The USB charge port is located on the right console.

1. Open USB charge port cover (1).
2. Connect device with a USB cord.
3. Turn key switch to ACC or ON position to charge a connected device.

1— USB Charge Port Cover

2— USB Charge Port



TX1252108A —UN—08FEB18

USB Charge Port Cover



TX1252109A —UN—09FEB18

USB Charge Port

TD48962,0000058 -19-09FEB18-1/1

Cab Heater and Air Conditioner

CAB HEATER OPERATION

AUTO Operation

1. Press blower speed switch (1) while air conditioner is OFF to set blower speed to AUTO mode (blower speed setting and air flow setting are then selected automatically).
2. Rotate temperature control/mode switch (2) to reach operator's preferred cab degree heat setting. Temperature setting will change on the air conditioner display on the monitor as the switch is rotated either way. Blower speed and air flow settings adjust automatically to reach and maintain desired cab temperature.

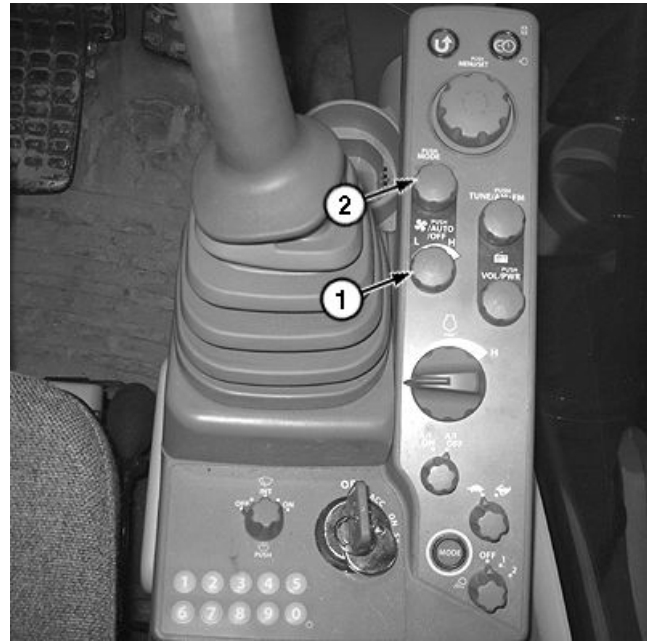
Manual Operation

1. Press blower speed switch (1) while air conditioner is OFF to set blower speed to AUTO mode. Rotate blower speed switch either way to cancel AUTO mode and set the blower speed manually to desired speed setting.
2. Rotate temperature control/mode switch (2) to reach operator's preferred cab degree heat setting. Temperature setting will change on the air conditioner display on the monitor as the switch is rotated either way.
3. Press temperature control/mode switch to toggle between different air vent options. The air conditioner display on the monitor will show the different settings each time the switch is pressed. There are four different settings:
 - Air flows out of front vent and the defroster vents.
 - Air flows out of front, rear, and the defroster vents.
 - Air flows out of front, rear, foot, and the defroster vents.
 - Air flows out of foot vents.

NOTE: Usually the cab heater turns the dehumidifier function off. Dehumidifier function can be turned on from monitor menu. See Main Menu—Air Conditioner. (Section 2-2.)

Defroster Operation

1. Press blower speed switch (1) while air conditioner is OFF to set blower speed to AUTO mode. During cold weather season when starting the engine, the engine coolant temperature and air temperature in the cab are low. The air conditioner and heater unit controls the blow rate to the minimum in order to restrict cool air from flowing into the cab.
2. Rotate temperature control/mode switch (2) to reach operator's preferred cab degree heat setting. Temperature setting will change on the air conditioner display on the monitor as the switch is rotated either way.
3. Set the circulation mode to fresh air using the monitor menu. See Main Menu—Air Conditioner. (Section 2-2.)
4. Once AUTO mode is operating and cab starts to heat up, press temperature control/mode switch to cancel



Cab Heater and Air Conditioner Operation

1— Blower Speed Switch

2— Temperature Control/Mode Switch

AUTO mode and toggle between different air vent options. The air conditioner display on the monitor will show the different settings each time the switch is pressed. For best defrosting results, select either:

- Air flows out of front vent and the defroster vents.
 - Air flows out of front, rear, and the defroster vents.
5. Control air flow direction by adjusting the vents in the cab to blow towards the windows.
 6. Rotate temperature control/mode switch as needed to control preferred air temperature.
 7. Rotate blower speed switch as needed to set preferred fan speed.

Air Conditioner Operation

NOTE: During off season, operate the air conditioner at least once a month for several minutes with the engine running at slow idle to protect each part of the air conditioner compressor from lack of lubricant.

AUTO Operation

1. Press blower speed switch (1) while air conditioner is OFF to set blower speed to AUTO mode (blower speed setting and air flow setting are selected automatically).
2. Rotate temperature control/mode switch (2) to reach operator's preferred cab degree cold air setting. Temperature setting will change on the air conditioner display on the monitor as the switch is rotated either way. Blower speed and air flow settings adjust automatically to reach and maintain desired cab temperature.

Manual Operation

Continued on next page

OUT4001,0000741 -19-19FEB18-1/2

1. Press blower speed switch while air conditioner is OFF to set blower speed to AUTO mode. Rotate blower speed switch either way to cancel AUTO mode and set the blower speed manually to desired speed setting.
2. Turn the air conditioner ON from the monitor menu. See Main Menu—Air Conditioner. (Section 2-2.)
3. Rotate temperature control/mode switch to reach operator's preferred cab degree cold air setting. Temperature setting will change on the air conditioner display on the monitor as the switch is rotated either way.
4. Press temperature control/mode switch to toggle between different air vent options. The air conditioner

display on the monitor will show the different settings each time the switch is pressed. There are four different settings:

NOTE: If lower front window becomes cloudy, defroster vents should be closed.

- Air flows out of front vent and the defroster vents.
- Air flows out of front, rear, and the defroster vents.
- Air flows out of front, rear, foot, and the defroster vents.
- Air flows out of foot vents.

OUT4001,0000741 -19-19FEB18-2/2

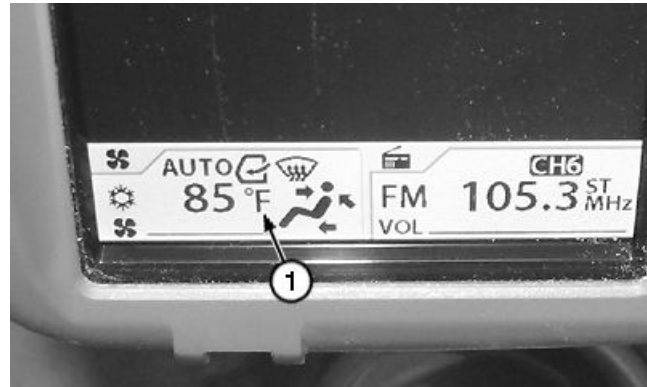
Selecting Display Between Celsius and Fahrenheit

The cab temperature (1) is always shown in the air conditioner display on the monitor. Temperature display can be changed between degrees Celsius (°C) and Fahrenheit (°F) using the Unit Selection menu. For more information, see Main Menu—Setting Menu—Unit Selection. (Section 2-2.)

Degrees Celsius (°C) can be set in a range from 18—32°C.

Degrees Fahrenheit (°F) can be set in a range from 63—91°F.

1— Cab Temperature



Air Conditioner Display on the Monitor

TX1087258A —UN—24JAN11

OUT4001,000083C -19-11JUN15-1/1

Operating the AM/FM Radio

Press the radio power and volume switch (1) to turn on the radio. Rotate the radio power and volume switch to desired volume setting. Treble and base settings are available through the monitor menu. For more information, see Main Menu—Radio. (Section 2-2.)

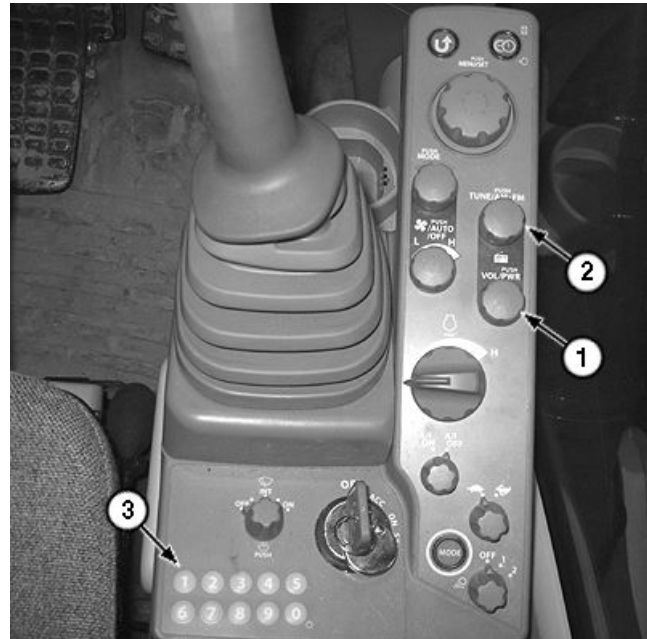
Press the radio tuning switch (2) to toggle between AM or FM frequency. Rotate radio tuning switch to tune radio to desired AM or FM station. To find the clearest reception stations for the area, use the seek function that is available through the monitor menu. For more information, see Main Menu—Radio. (Section 2-2.)

Press buttons 1—8 on the keypad (3) to move between preset memory radio stations. Radio display (4) on monitor shows the station and frequency setting that corresponds with each keypad button.

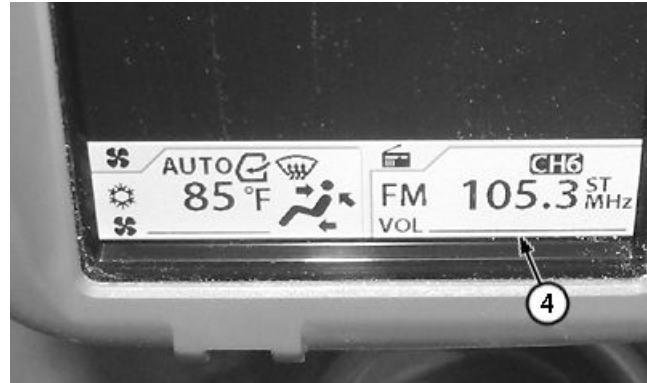
NOTE: Presetting memory radio stations can also be done using the monitor menu. Stations can be automatically selected for the area using the auto preset option in the monitor menu. For more information, see Main Menu—Radio. (Section 2-2.)

To preset memory radio stations or to change previously set stations using the keypad, tune radio to desired station setting. Press and hold one of the keypad buttons 1—8 for more than 1 second. Setting is stored to that corresponding button. Repeat procedure for seven other desired stations.

- | | |
|----------------------------------|------------------|
| 1— Radio Power and Volume Switch | 3— Keypad |
| 2— Radio Tuning Switch | 4— Radio Display |



Radio Controls on Switch Panel



Radio Display on Monitor

TX1087264A —UN—24/JAN11

TX1087265A —UN—24/JAN11

OUT4001,0000743 -19-19FEB18-1/1

Fire Extinguisher Mounting Location

MOUNTING LOCATION:

The designated fire extinguisher mounting location (1) is inside the cab on the left rear side.

USE:

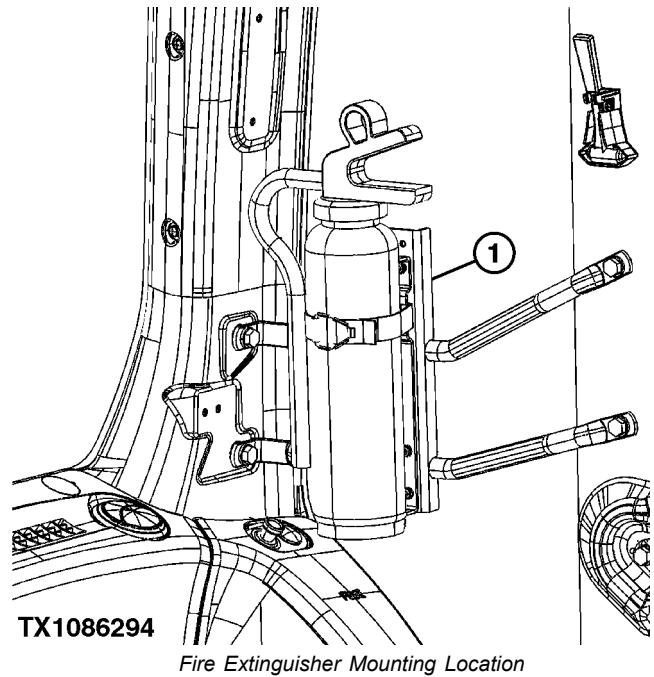
NOTE: All fire extinguishers do not operate the same. Read operating instructions on canister.

The portable fire extinguisher is used to aid in the extinguishing of small fires. Refer to individual manufacturer's instructions and proper fire fighting procedures before the need to use the fire extinguisher arises. See Prevent Fires. (Section 1-2.)

MAINTENANCE:

IMPORTANT: Avoid possible machine damage. Check gauge (if equipped) on fire extinguisher. If fire extinguisher is not fully charged, recharge or replace fire extinguisher according to the manufacturer's instructions.

Inspect and maintain the fire extinguisher following the manufacturer's recommendations and all local, regional, and national regulations.



1— Fire Extinguisher Mounting Location

TX1086294 —UN—03JAN11

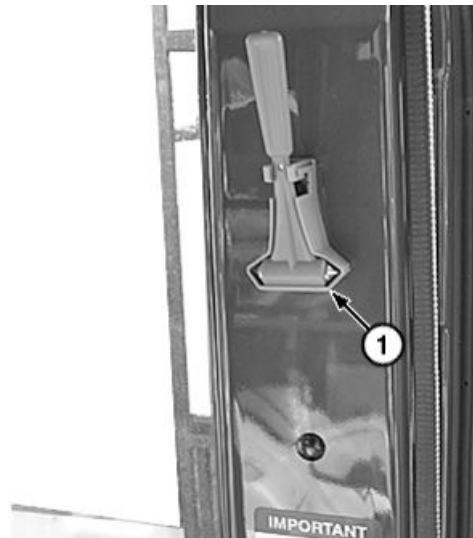
ER79617,0000D80 -19-21MAR22-1/1

Alternative Exit Tool

IMPORTANT: For alternative exit of machine, use the alternative exit tool (1) to break window. Always keep tool inside cab.

Alternative exit tool (1) is located on the left roll-over protective structure (ROPS) post.

1— Alternative Exit Tool



TX1246897A —UN—08NOV17

ER79617,0000D4F -19-08NOV17-1/1

Cab Dome Light Switch

The cab dome light is located on the right side of cab roof. There are three operating positions:

- **ON Position (1):** The cab light turns ON and stays ON until switch is moved to the OFF position.

NOTE: The cab light will NOT turn ON if the key switch is in OFF position.

- **Cab Door—Middle Position (2):** The cab light turns ON when the door is opened. When the cab door is closed or cab door is left in the open position, the cab light turns OFF automatically after 30 seconds.

NOTE: The cab light will turn ON if the key switch is in OFF position.

- **OFF Position (3):** The cab light turns OFF and stays OFF until switch is moved to the cab door—middle position or ON position.



Cab Dome Light Switch

- 1— ON Position 3— OFF Position
2— Cab Door—Middle Position

TX1086802A —UN—11JAN11

OUT4001.0000842 -19-23JUN15-1/1

Opening Upper Front (Alternative Exit) Window

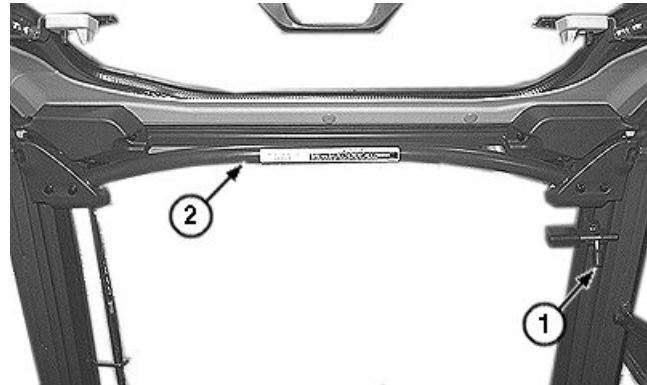
NOTE: The wiper cannot operate with the upper front window open. The washer can operate with the upper front window open.

1. Park machine on a solid, level surface.
2. Lower equipment to the ground.
3. Stop engine and pull pilot shutoff lever to locked (UP) position.
4. Lift the lock pin (1) up, slide inward, then slide down into notch.
5. Pull the lock release bar (2) toward operator.
6. While holding the lower handle on the window, pull window up and guide all the way back on track until window locks into position.

CAUTION: Prevent possible injury from window closing unexpectedly. Always lock the pin in the cab frame boss hole.

7. Slide the lock pin into the cab frame boss hole and rotate downward into the lock position.

CAUTION: Prevent possible injury when closing the upper front window. Upper front window



Upper Front Window

- 1— Lock Pin 2— Lock Release Bar

comes down forcefully. Close window only when sitting in operator's seat.

8. To close upper front window, unlock pin and pull lock release bar down. Hold lower handle on the window and guide window down the track slowly until window clicks into position. Install lock pin.

TX1087290A —UN—25JAN11

OUT4001.0000779 -19-19FEB18-1/1

Removing and Storing the Lower Front Window

NOTE: In cold weather, some operators may choose to work with the upper front window open and the lower front window in place. Working with upper front window open and lower front window in place provides excellent visibility and tends to hold the heat being circulated around the operator's feet.

Upper front window must be opened and locked in position before lower front window can be removed.

1. While pulling in on window, raise window to remove.
2. Store window in rear storage area of cab behind operator's seat. Install window in lower protectors (1) first.
3. Slide window into the upper left protector (2).
4. Push right fastener (3) up and slide window under fastener.
5. Release fastener to secure window in storage position.

1— Lower Protector (2 used) 3— Right Fastener
2— Upper Left Protector



Removing and Storing the Lower Front Window



Storage Area for Lower Front Window

T136266 —UN—18DEC00

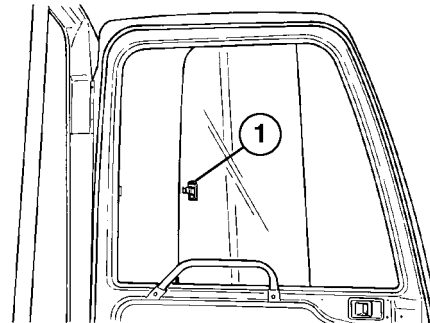
TX1087294A —UN—25JAN11

OUT4001,000077A -19-16SEP14-1/1

Opening Cab Door Window

To open cab window, pinch latch (1) and slide rear pane forward.

1— Latch



Cab Window Latch

T214915 —UN—17NOV05

VD76477,00001C4 -19-13AUG14-1/1

Opening and Closing the Polycarbonate-Type Roof Exit Cover

IMPORTANT: Replace the polycarbonate-type roof with a new one every 5 years, even if undamaged. In case polycarbonate-type roof was visibly damaged or has received severe shock loads, replace polycarbonate-type roof even if it has not been in use for 5 years.

When cleaning the polycarbonate-type roof, use a neutral detergent. If acidic or alkaline detergent is used, the polycarbonate-type roof may become discolored or crack.

Keep organic solvent away from polycarbonate-type roof. Failure to do so may cause the polycarbonate-type roof to become discolored or crack.

Opening the Roof Exit Cover:

1. Move lock levers (1) toward center of roof exit.
2. Push on handle (2) to open roof exit cover.



Roof Exit Cover

1— Lock Lever (2 used)

2— Handle

Closing the Roof Exit Cover:

Hold handle and pull roof exit cover down until levers lock in position.

TX1087303A —UN—25JAN11

OUT4001,000077B -19-28FEB18-1/1

Adjusting the Mechanical Suspension Seat

CAUTION: Prevent possibly injury. Do not adjust seat settings while operating the machine.

While sitting on seat, push down on seat angle lever (1) to adjust seat to desired angle. Release lever.

Pull up on seat fore-and-aft handle (2) to unlock seat. Slide seat to desired distance from pilot control levers. Release handle.

Turn weight adjustment knob (3) to adjust seat to weight of operator.

Squeeze lumbar ball (4) to add air for firmness to lower backrest area. Press button on bottom of lumbar ball to release air and decrease firmness.

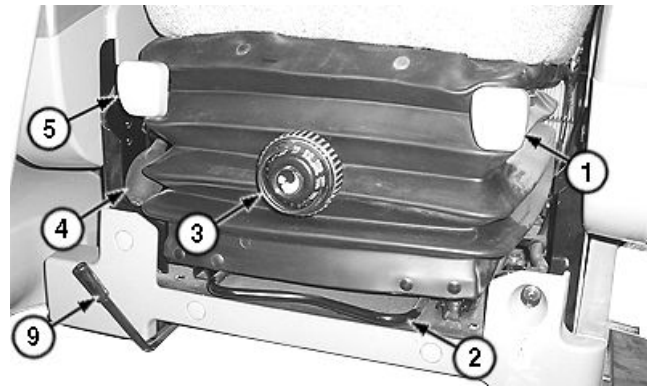
Pull up on backrest lever (5) to release backrest lock. Move backrest to desired position. Release lever.

Pull headrest (6) upward or push downward to desired height. Move headrest to desired angle.

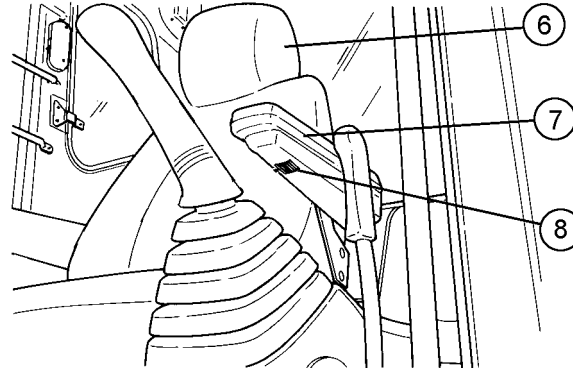
Pull up on armrest (7) to move armrest out of the way when exiting the cab.

Turn armrest dial (8) to adjust angle of armrest.

Pull seat and console handle (9) up toward operator. Slide entire seat and consoles to desired distance from travel pedals and levers. Release handle.



Mechanical Suspension Seat



Adjusting the Seat

- | | |
|-----------------------------|----------------------------|
| 1— Seat Angle Lever | 6— Headrest |
| 2— Seat Fore-and-Aft Handle | 7— Armrest |
| 3— Weight Adjustment Knob | 8— Armrest Dial |
| 4— Lumbar Ball | 9— Seat and Console Handle |
| 5— Backrest Lever | |

TX1000836A —UN—29NOV05

T140133 —UN—02MAY01

CN93077,000025B -19-11JAN17-1/1

Adjusting the Air Suspension Seat—If Equipped

CAUTION: Prevent possibly injury. Do not adjust seat settings while operating the machine.

While sitting on seat, push down on seat angle lever (1) to adjust seat to desired angle. Release lever.

Pull up on seat fore-and-aft handle (2) to unlock seat. Slide seat to desired distance from pilot control levers. Release handle.

Pull out firmness button (3) to decrease seat firmness. With key switch in the ON position, press in and hold firmness button to increase seat firmness.

Pull up on backrest lever (4) to release backrest lock. Move backrest to desired position. Release lever.

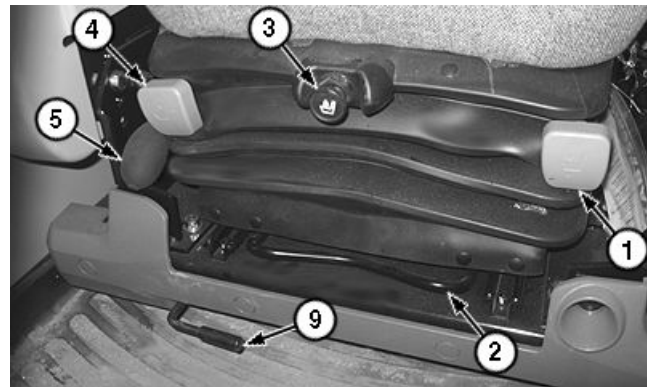
Squeeze lumbar ball (5) to add air for firmness to lower backrest area. Press button on bottom of lumbar ball to release air and decrease firmness.

Pull headrest (6) upward or push downward to desired height. Move headrest to desired angle.

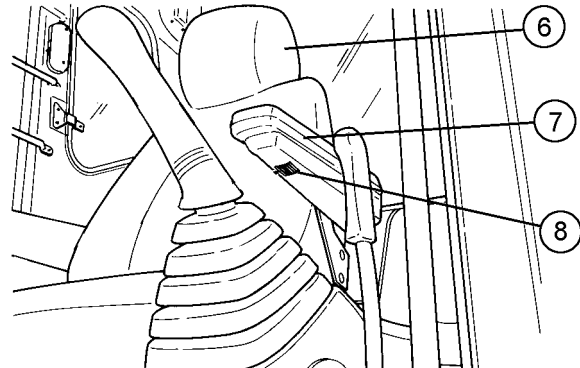
Pull up on armrest (7) to move it out of the way when exiting the cab.

Turn armrest dial (8) to adjust angle of armrest.

Pull seat and console handle (9) up toward operator. Slide entire seat and consoles to desired distance from travel pedals and levers. Release handle.



Air Suspension Seat



Adjusting the Armrest

- | | |
|-----------------------------|----------------------------|
| 1— Seat Angle Lever | 6— Headrest |
| 2— Seat Fore-and-Aft Handle | 7— Armrest |
| 3— Firmness Button | 8— Armrest Dial |
| 4— Backrest Lever | 9— Seat and Console Handle |
| 5— Lumbar Ball | |

CN93077,000025C -19-11JAN17-1/1

TX1087310A—UN—25JAN11

T140133—UN—02MAY01

Adjusting the Premium Air Suspension Seat—If Equipped

⚠ CAUTION: Prevent possibly injury. Do not adjust seat settings while operating the machine.

While sitting on seat and with key switch in the ON position, press down on height adjustment handle (1) to decrease seat suspension tension. Pull height adjustment handle up to increase suspension tension. Check air suspension gauge (2) for GREEN color to verify that seat suspension is within optimal range for operator height.

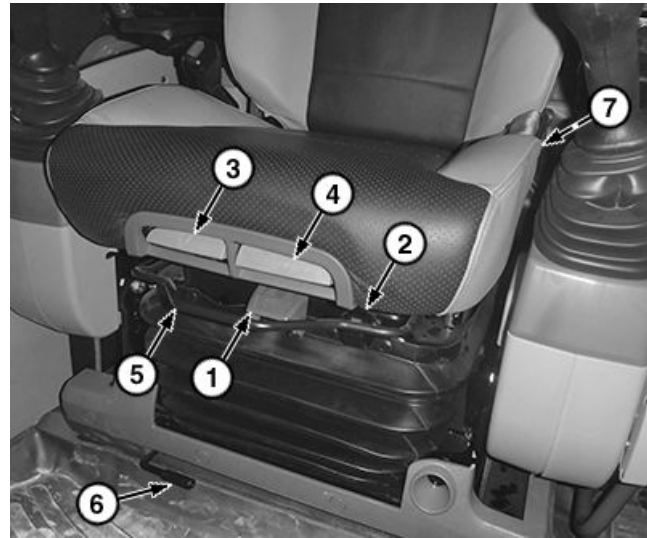
Pull up on seat pan angle adjustment handle (3) and apply pressure to front or rear part of the seat to adjust seat pan angle. Release handle.

Pull up on seat depth adjustment handle (4) and slide seat cushion to desired distance from pilot control levers. Release handle.

Pull up on main seat fore-and-aft handle (5) to unlock seat. Slide seat to desired distance from pilot control levers. Release handle.

Pull seat and console handle (6) up toward operator. Slide entire seat and consoles to desired distance from travel pedals and levers. Release handle.

Pull up on backrest lever (7) to release backrest lock. Move backrest to desired position. Release lever.



Premium Air Suspension Seat

- | | |
|-------------------------------------|----------------------------------|
| 1— Height Adjustment Handle | 5— Main Seat Fore-and-Aft Handle |
| 2— Air Suspension Gauge | 6— Seat and Console Handle |
| 3— Seat Pan Angle Adjustment Handle | 7— Backrest Lever |
| 4— Seat Depth Adjustment Handle | |

Continued on next page

TD48962,0000053 -19-14MAR18-1/2

TX1253845A —UN—14MAR18

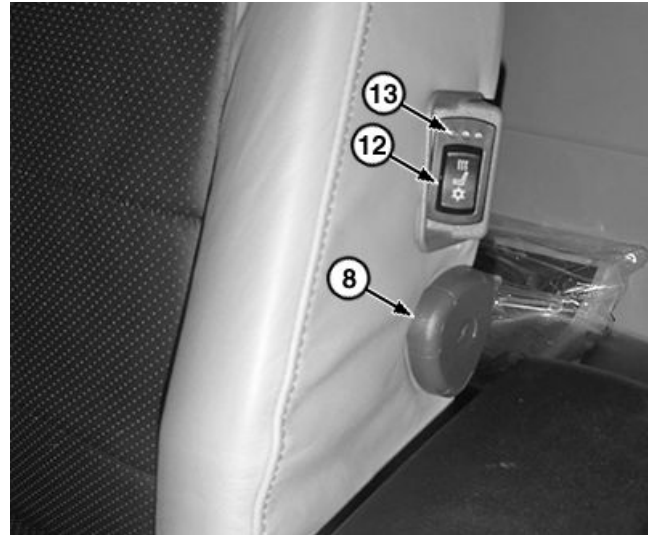
To increase firmness in lower backrest lumbar area, rotate lumbar dial (8) counterclockwise. To decrease firmness in lower backrest lumbar area, continue to rotate lumbar dial counterclockwise to reset.

Pull headrest (9) upward or push downward to desired height. Move headrest to desired angle.

Pull up on armrests (10) to move armrests out of the way when exiting the cab.

Turn armrest angle dials (11) to adjust angle of armrests.

With key switch in the ON position, set heated/cooled seat switch (12) to desired mode. Toggle up for heat and choose setting as shown on the light emitting diode (LED) switch indicators (13). LED displays RED color for seat heating mode. Toggle down for cool and choose setting as shown on the switch indicators. LED displays BLUE color for seat cooling mode.



Adjusting the Lumbar Support and Seat Temperature

TX1253847A —UN—14MAR18

- | | |
|----------------------|---------------------------------|
| 8— Lumbar Dial | 11— Armrest Angle Dial (2 used) |
| 9— Headrest | 12— Heated/Cooled Seat Switch |
| 10— Armrest (2 used) | 13— Switch Indicator (3 used) |



Adjusting the Armrest

TX1253848A —UN—14MAR18

TD48962,0000053 -19-14MAR18-2/2

Adjusting Pilot Control Lever Console Height

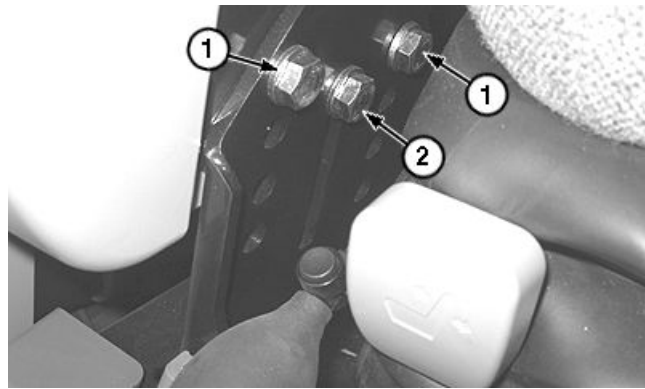
1. Ensure engine is off and pilot shutoff lever is in locked (UP) position.

CAUTION: Avoid possible crushing injury from console unexpectedly dropping. Before loosening the cap screws (1), support the console.

2. Remove right console holding cap screws (1).
3. Loosen cap screw (2) and adjust the pilot control lever console height relative to the cab floor.
4. Install holding cap screws in holes for desired console height and tighten.
5. Tighten cap screw to specification.

Specification

Cap Screw—Torque.....50 N·m
(37 lb·ft)



Right Side of Seat Shown

1— Holding Cap Screw (2 used) 2— Cap Screw

6. Repeat procedure for left console.

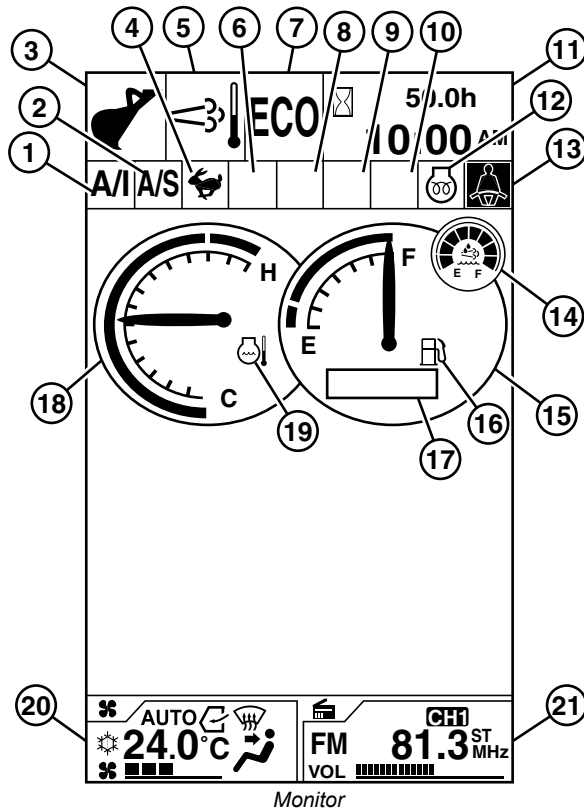
OUT4001,000077E -19-21MAR22-1/1

TX1087326A —UN—25JAN11

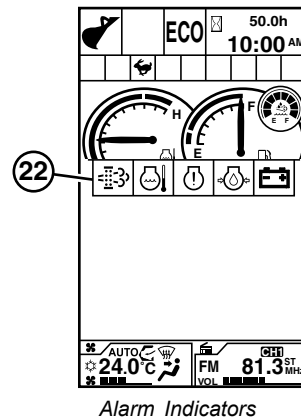
Operation—Monitor Operation

Monitor

TX1160703



- | | |
|----------------------------|-------------------------------------|
| 1—Auto-Idle Indicator | 12—Engine Preheat Indicator |
| 2—Auto-Shutdown Indicator | 13—Seat Belt Indicator |
| 3—Work Mode Indicator | 14—Diesel Exhaust Fluid (DEF) Gauge |
| 4—Travel Speed Indicator | 15—Fuel Gauge |
| 5—Exhaust Filter Indicator | 16—Fuel Mark |
| 6—Auxiliary Indicator | 17—Sub Meter |
| 7—Power Mode Indicator | 18—Coolant Temperature Gauge |
| 8—Auxiliary Indicator | 19—Coolant Temperature Mark |
| 9—Auxiliary Indicator | 20—Air Conditioner Display |
| 10—Not Used | 21—Radio Display |
| 11—Hour Meter and Clock | 22—Alarm Indicators |



TX1160703 —UN—15MAY14

TX1160709 —UN—15MAY14

CN93077,0000240 -19-26MAY16-1/1

Monitor Functions

1. Auto-Idle Indicator: Displays if auto-idle mode is turned ON from the switch panel. For more information, see Switch Panel Functions. (Section 2-1.)

2. Auto-Shutdown Indicator: Displays if auto-shutdown was selected by operator from the menu screen. For more information, see Main Menu—Setting Menu—Auto-Shutdown in this section.

3. Work Mode Indicator: Displays icon for the current attachment being used (bucket mode, breaker, pulverizer, crusher, vibrating hammer, grapple, clamshell, or others). For more information, see Main Menu—Work Mode in this section.

4. Travel Speed Indicator: Displays travel speed selected from the switch panel (rabbit—fast speed travel or turtle—slow speed travel).

5. Exhaust Filter Indicator: Displays condition of the exhaust filter. Two different indicators could appear here:

- **Exhaust Filter Cleaning Indicator** appears when exhaust temperature is high during an auto or parked cleaning.
- **Exhaust Filter Auto Cleaning Disabled Indicator** appears when exhaust filter auto cleaning has been disabled by the operator. For more information, see Main Menu—Setting Menu—Auto Exhaust Filter Cleaning in this section.

6. Auxiliary Indicator: Displays optional auxiliary data indicator.

7. Power Mode Indicator: Displays a power mode selected from the switch panel (ECO, PWR, or H/P). For more information, see Switch Panel Functions. (Section 2-1.)

8. Auxiliary Indicator: Displays optional auxiliary data indicator.

9. Auxiliary Indicator: Displays optional auxiliary data indicator.

10. Not Used.

11. Hour Meter and Clock: Displays total machine operation hours counted since the machine started working in the unit of hours (h). One digit after the decimal point indicates tenths of an hour (6 minutes).

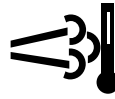
Clock indicates present time.

12. Engine Preheat Indicator:

IMPORTANT: Prevent engine damage. Do not use ether in this machine.

If preheating is required, the engine preheat indicator is automatically lit. If preheating is not required, this indicator will not display.

TX1086447 —UN—05JAN11



Exhaust Filter Cleaning Indicator

TX1086347 —UN—06JAN11



Exhaust Filter Auto Cleaning Disabled Indicator

13. Seat Belt Indicator: Displays when key switch is in ON position, and disappears 5 seconds after the engine starts.

14. Diesel Exhaust Fluid (DEF) Gauge: Displays approximate level of diesel exhaust fluid (DEF) remaining in the DEF tank. If Diesel Exhaust Fluid (DEF) is low, last segment of DEF gauge and outer ring illuminates yellow. When DEF level is severely low, engine power derates and last segment of DEF gauge illuminates yellow and blinks. When DEF level is empty, engine power and speed derates. All segments of DEF gauge are off, outer ring illuminates red, and warning indicators appear. Engine can start, but machine cannot be operated until DEF tank is filled. Fill DEF tank before last segment turns yellow.

15. Fuel Gauge: Displays remaining fuel amount as indicated by the needle. Fuel machine before needle reaches E.

16. Fuel Mark: If fuel sensor is malfunctioning, color of the fuel mark changes and the needle disappears. If the harness between the fuel sensor and the monitor unit is broken, the needle disappears but the fuel mark color does not change.

17. Sub Meter: Displays fuel consumption or breaker hours depending on what is set in the monitor. For more information, see Main Menu—Setting Menu—Sub Meter Selection in this section.

18. Coolant Temperature Gauge:

IMPORTANT: Possible engine damage may occur. If needle points to RED zone, idle engine to bring back to BLUE zone before stopping engine. If needle continues to rise, stop engine.

Displays engine coolant temperature. Needle should be around the center of the scale during operation.

19. Coolant Temperature Mark: If coolant temperature sensor is malfunctioning, color of the coolant temperature mark changes and the needle disappears. If the harness between the coolant temperature sensor and the monitor unit is broken, the needle disappears but the coolant temperature mark color does not change.

20. Air Conditioner Display: Shows blower fan speed, selected air vent, and temperature setting.

21. Radio Display: Shows current radio station, frequency, and volume setting.

Continued on next page

CN93077,0000243 -19-13JUL16-1/2

22. Alarm Indicators: Displays if an abnormality occurs. If six or more alarms are generated, the indicators can be scrolled through using the monitor dial on the switch

panel. For more information, see Main Menu—Alarm List in this section.

CN93077,0000243 -19-13JUL16-2/2

Aftertreatment Indicators Overview

IMPORTANT: The operator will be informed by the operator warning system when the emission control system does not function correctly and/or an engine malfunction is detected by the engine control unit. Ignoring the operator warning signals will lead to an emission related derate, resulting in an effective disablement of non-road mobile machinery operation.

It is essential to take prompt action to rectify any incorrect operation, use or maintenance of the emissions control system in accordance with the rectification measures indicated by the warnings referenced below.

The Diesel Exhaust Fluid (DEF) indicator illuminates when the DEF is low. Fill DEF tank.

When the DEF indicator is combined with the warning indicator or engine stop indicator engine performance is reduced by the Engine Control Unit (ECU) because the DEF is below a measurable level. Fill DEF tank.

When engine emissions temperature indicator illuminates exhaust gas temperature is high, elevated idle is active, or exhaust filter cleaning is in process. The machine can be operated as normal unless the operator determines the machine is not in a safe location for high exhaust temperatures and disables auto cleaning.

When engine emissions temperature indicator is combined with the warning indicator or engine stop indicator engine performance is reduced by the ECU because the exhaust gas temperature is higher than expected. Follow Diagnostic Trouble Code (DTC) procedure or see your authorized servicing dealer.

When the exhaust filter indicator illuminates the exhaust filter cleaning is in process, aftertreatment system has a fault, or the exhaust filter is in need of cleaning and the operator has disabled auto exhaust filter cleaning. If conditions are safe, the operator should enable the auto exhaust filter clean setting or perform manual service regeneration or follow DTC procedure.

When the exhaust filter indicator is combined with the warning indicator engine performance is reduced by the ECU because there is an aftertreatment system fault or the soot level of the exhaust filter is moderately high. If conditions are safe, the operator should enable the auto exhaust filter clean function. If conditions are not safe, the operator should move the machine to a safe location and engage the auto exhaust filter cleaning mode. Perform manual service regeneration or follow DTC procedure.

When the exhaust filter indicator is combined with the engine stop indicator engine performance is further reduced by the ECU because there is an aftertreatment system fault or the soot level of the exhaust filter is extremely high. If this combination is present, see your authorized servicing dealer.

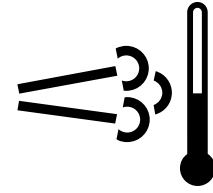
The auto cleaning disabled indicator illuminates when the operator has engaged the request to disable the

RG22487 —UN—21AUG13



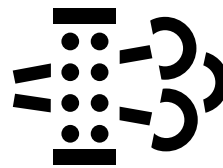
Diesel Exhaust Fluid Indicator

RG22488 —UN—21AUG13



Engine Emissions Temperature Indicator

RG22489 —UN—21AUG13



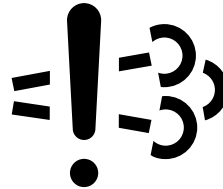
Exhaust Filter Indicator

RG22490 —UN—21AUG13



Auto Cleaning Disabled Indicator

RG22491 —UN—21AUG13



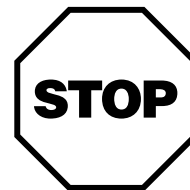
Engine Emissions System Malfunction Indicator

RG22492 —UN—21AUG13



Warning Indicator

RG22493 —UN—21AUG13



Engine Stop Indicator

auto exhaust filter cleaning function. This icon remains illuminated until the operator re-engages automatic exhaust filter cleaning from the diagnostic gauge. Disabling auto mode is not recommended for any situation unless it is safety-related or if the fuel tank lacks the required fuel to complete the cleaning process.

The engine emissions system malfunction indicator illuminates when engine emissions are outside of normal operating range or engine emissions system fault. Follow DTC procedure or see your authorized servicing dealer.

When the engine emissions system malfunction indicator is combined with the warning indicator engine performance is reduced by the ECU because the engine emissions are outside of normal operating range or engine emissions system fault. Follow DTC procedure or see your authorized servicing dealer.

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DX,AFTRTREAT,INDCATRS -19-12FEB18-1/2

Monitor Start-Up

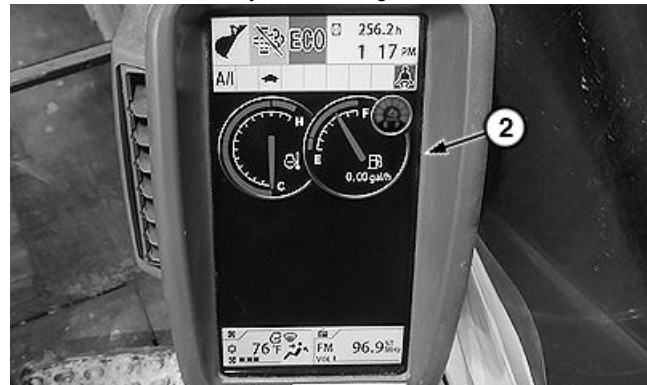
NOTE: Engine can be started after the default screen (2) has displayed.

When the key switch is turned to the ON position, the system starting screen (1) displays for approximately 2 seconds and then the default screen (2) is displayed.

1— System Starting Screen 2— Default Screen



System Starting Screen



Default Screen

TX1086287A —UN—28DEC10

TX1160713A —UN—15MAY14

CN93077,0000239 -19-19JAN16-1/1

Main Menu

When the default screen (5) is displayed, press the monitor dial (2) on the switch panel to display the **Main Menu** screen (1).

The Main Menu screen displays submenus, which can be selected to view diagnostic information or change various operating characteristics of the machine or the monitor.

NOTE: *Translations shown on screen may be abbreviated.*

The submenus under Main Menu that appear on monitor include:

NOTE: *Alarm List ONLY appears as a submenu if there is an actual alarm.*

- **Alarm List**—provides detailed information of generated alarms.
- **Air Conditioner**—provides air conditioner functions.
- **Radio**—provides radio functions.
- **Work Mode**—provides front attachment functions.
- **Setting Menu**—allows operator to change various monitor and machine functions.
- **Information Menu**—allows operator to view operating hours, maintenance items, troubleshooting (diagnostic trouble codes [DTCs]), engine speed, and exhaust filter accumulation.

NOTE: *The Alarm List will always be displayed first on the Main Menu if there is an actual alarm. Air Conditioner, Radio, and Work Mode submenus can be ordered in the sequence that is preferred according to how often they are used. For changing the order sequence of these submenus, see Main Menu—Setting Menu—Main Menu Sequence Change in this section.*

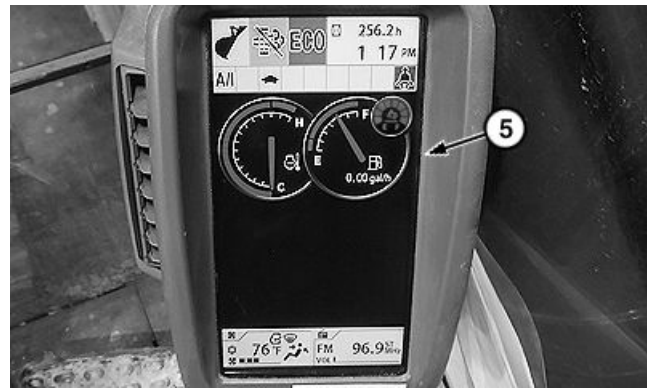
Rotate monitor dial to highlight desired submenu. Press dial button to display chosen submenu.

Press back button (3) to return to previous screen.

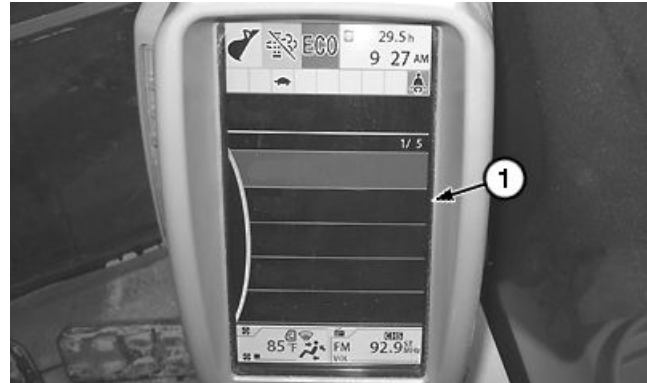
Press home button (4) to return to default screen.

- 1— Main Menu Screen
2— Monitor Dial
3— Back Button

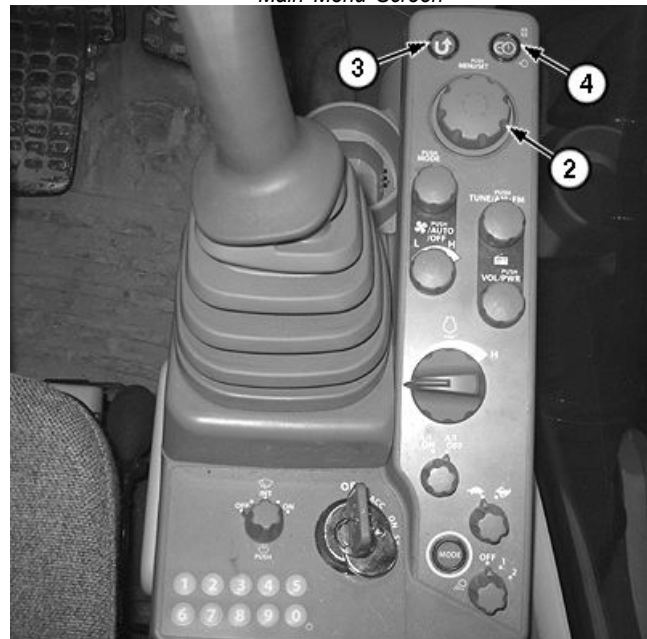
- 4— Home Button
5— Default Screen



Default Screen



Main Menu Screen



Switch Panel

TX1160715A —UN—15MAY14

TX1086306A —UN—28DEC10

TX1086272A —UN—27DEC10

CN93077,000023A -19-26MAY16-1/1

Main Menu—Alarm List

The **Alarm List** menu will always appear as the first submenu under Main Menu, but **ONLY** if there is an actual alarm generated. If there is more than one alarm, a list will be displayed. If there are no alarms, Alarm List will not appear as a submenu.

The submenus under Main Menu that appear on monitor include:

NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

At Main Menu screen (1) with Alarm List highlighted, press monitor dial (2) to view generated alarms.

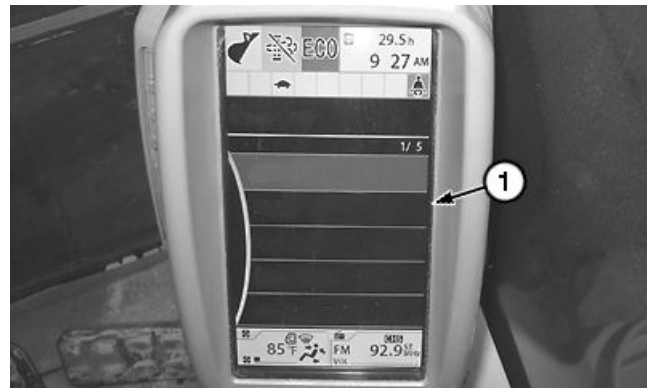
If there is more than one alarm, rotate monitor dial to highlight a particular alarm. Press monitor dial to view detailed information about that alarm and how to rectify the problem.

When an alarm indicator appears on the monitor display, an alarm light (5) is also illuminated on the bottom of the monitor to alert the operator.

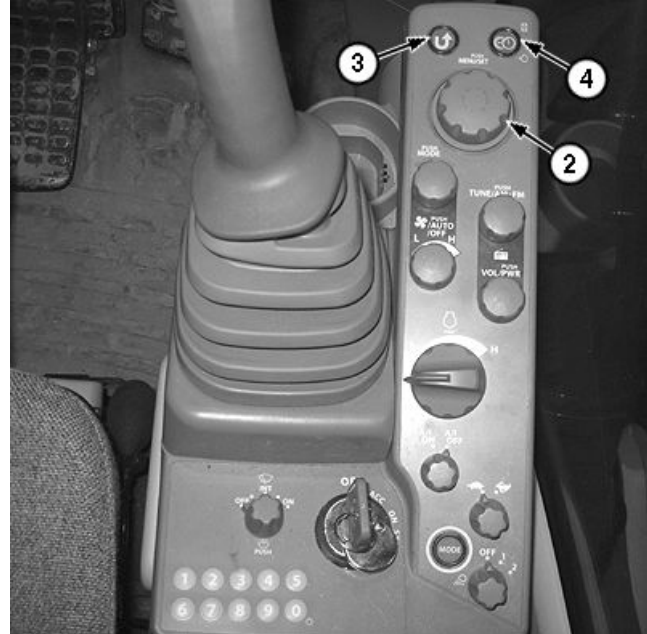
Press back button (3) to return to previous screen.

Press home button (4) to return to default screen.

- | | |
|---------------------|----------------|
| 1— Main Menu Screen | 4— Home Button |
| 2— Monitor Dial | 5— Alarm Light |
| 3— Back Button | |



Main Menu Screen



Switch Panel



Alarm Light

Continued on next page

CN93077,000023B -19-28JUL17-1/28

TX1086306A —UN—28DEC10

TX1086272A —UN—27DEC10

TX1160717A —UN—15MAY14

Possible alarm indicators that could appear are:

TX1086346 —UN—06JAN11

• **Exhaust Filter Alarms**—The same exhaust filter alarm symbol appears, but the condition of the alarm is different. If the alarm symbol is:

- Illuminated and yellow—Exhaust filter is restricted and at HIGH soot level. Enable auto cleaning, disable auto-idle, and operate machine normally or move machine to safe area and perform a parked cleaning.
- Blinking and yellow—Exhaust filter is restricted and at VERY HIGH soot level. The warning alarm will also illuminate yellow. Immediately move machine to safe area and perform a parked cleaning.
- Blinking and red—Exhaust filter is very restricted and at SERVICE soot level. The warning alarm will



Exhaust Filter Alarm

also illuminate red. Immediately park machine, stop the engine, and a service cleaning will need to be performed. For service cleaning, contact an authorized John Deere dealer.

For more information on exhaust filter, see Exhaust Filter. (Section 2-3.)

CN93077,000023B -19-28JUL17-2/28

• **Exhaust Filter Auto Cleaning Disabled Alarm**—Auto cleaning is disabled and exhaust filter needs to be cleaned. Move machine to safe area and perform a parked cleaning.

TX1086347 —UN—06JAN11



Exhaust Filter Auto Cleaning Disabled Alarm

CN93077,000023B -19-28JUL17-3/28

• **Exhaust Filter Error Alarm**—There is a system or hardware error causing the exhaust filter cleaning to abort. Contact an authorized John Deere dealer.

TX1086356 —UN—06JAN11



Exhaust Filter Error Alarm

CN93077,000023B -19-28JUL17-4/28

• **Engine Oil Pressure Alarm**—Engine oil pressure has decreased. Immediately stop engine. Check engine oil system and oil level.

TX1086353 —UN—06JAN11



Engine Oil Pressure Alarm

CN93077,000023B -19-28JUL17-5/28

• **Engine Start Disabled Alarm**—Engine will not start due to pilot shutoff lever being lowered.

TX1086354 —UN—06JAN11



Engine Start Disabled Alarm

Continued on next page

CN93077,000023B -19-28JUL17-6/28

- **Engine Overheat Alarm**—Engine coolant temperature has abnormally increased. Stop operation. Run the engine at slow idle speed or lower the coolant temperature.

TX1086350 —UN—06JAN11



Engine Overheat Alarm

CN93077,000023B -19-28JUL17-7/28

- **Cold Fluid Component Protection (CFCP) Alarm**—This alarm appears when engine and hydraulic oils are very cold. Allow machine to warm up until indicator light disappears.

TX1241579 —UN—11JUL17



CFCP Alarm

CN93077,000023B -19-28JUL17-8/28

- **Warning Alarm**—An abnormal condition has been detected. Alarm will either be red or yellow depending on severity of problem. Contact an authorized John Deere dealer.

TX1086352 —UN—06JAN11



Warning Alarm

CN93077,000023B -19-28JUL17-9/28

- **Programming Alarm**—If this Service ADVISOR™ Remote (SAR) programming alarm appears on the monitor, different conditions may exist depending on the color. If this alarm is:

TX1087187 —UN—21JAN11



Programming Alarm

- **YELLOW**—Service ADVISOR™ Remote (SAR) software update is ready to install.
- **RED**—SAR programming is in process. Do not turn OFF machine power until programming is complete.

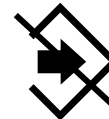
- **GREEN**—SAR programming is complete. Cycle machine power to complete the process.

Service ADVISOR is a trademark of Deere & Company

CN93077,000023B -19-28JUL17-10/28

- **Program Failure Alarm**—This alarm will appear along with a red warning alarm. A problem occurred during the Service ADVISOR™ Remote (SAR) programming process. Contact an authorized John Deere dealer.

TX1087189 —UN—21JAN11



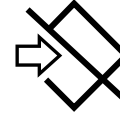
Program Failure Alarm

Continued on next page

CN93077,000023B -19-28JUL17-11/28

• **Unable to Program Alarm**—This alarm will appear along with a yellow warning alarm. A condition exists that will not allow the transfer of new Service ADVISOR™ Remote (SAR) software to happen. Retry programming or contact an authorized John Deere dealer.

TX1087190 —UN—21JAN11

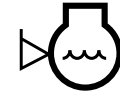


Unable to Program Alarm

CN93077,000023B -19-28JUL17-12/28

• **Coolant Level Alarm**—Check coolant level and refill coolant.

TX1086349 —UN—06JAN11

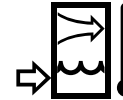


Coolant Level Alarm

CN93077,000023B -19-28JUL17-13/28

• **Cooling System Alarm**—High temperatures indicate a cooling system malfunction. Check cooling system.

TX1156523 —UN—11APR14

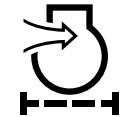


Cooling System Alarm

CN93077,000023B -19-28JUL17-14/28

• **Engine Air Filter Restriction Alarm**—Air filter elements are clogged. Clean or replace air filter elements.

TX1086365 —UN—06JAN11



Engine Air Filter Restriction Alarm

CN93077,000023B -19-28JUL17-15/28

• **Engine Derate Alarm**—A condition exists which is causing engine to be derated. Check for diagnostic trouble codes (DTCs).

TX1156524 —UN—11APR14



Engine Derate Alarm

CN93077,000023B -19-28JUL17-16/28

• **Boost Temperature Alarm**—Engine intake air temperature has abnormally increased. Stop operation. Check intercooler for clogging and intake air piping for disconnection.

TX1086355 —UN—06JAN11



Boost Temperature Alarm

Continued on next page

CN93077,000023B -19-28JUL17-17/28

- **Hydraulic Oil Overheat Alarm**—Hydraulic oil temperature has abnormally increased. Stop operation, check hydraulic oil level, and check for leaks.

TX1086351 —UN—06JAN11



Hydraulic Oil Overheat Alarm

CN93077,000023B -19-28JUL17-18/28

- **Hydraulic Oil Filter Restriction Alarm**—Hydraulic oil filter is clogged. Replace filter.

TX1086364 —UN—06JAN11



Hydraulic Oil Filter Restriction Alarm

CN93077,000023B -19-28JUL17-19/28

- **Hydraulic Oil Cooling System Alarm**—Hydraulic oil cooling system is abnormal. Contact an authorized John Deere dealer.

TX1086357 —UN—06JAN11

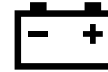


Hydraulic Oil Cooling System Alarm

CN93077,000023B -19-28JUL17-20/28

- **Alternator Alarm**—Electrical system is abnormal. Contact an authorized John Deere dealer.

TX1086358 —UN—06JAN11

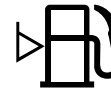


Alternator Alarm

CN93077,000023B -19-28JUL17-21/28

- **Fuel Level Alarm**—Fuel level is low. Refill fuel tank as soon as possible.

TX1086362 —UN—06JAN11



Fuel Level Alarm

CN93077,000023B -19-28JUL17-22/28

- **Fuel Filter Restriction Alarm**—Fuel filter is clogged. Replace fuel filter elements.

TX1086366 —UN—06JAN11



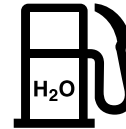
Fuel Filter Restriction Alarm

Continued on next page

CN93077,000023B -19-28JUL17-23/28

- **Water-in-Fuel Alarm**—Water separator is full. Drain water from separator.

TX1156519 —UN—14APR14



Water-in-Fuel Alarm

CN93077,000023B -19-28JUL17-24/28

- **System Failure Alarm**—Satellite communication system is abnormal. Contact an authorized John Deere dealer.

TX1086367 —UN—06JAN11



System Failure Alarm

CN93077,000023B -19-28JUL17-25/28

- **Pilot Shutoff Lever Alarm**—Pilot shutoff lever system is abnormal. Contact an authorized John Deere dealer.

TX1086368 —UN—06JAN11



Pilot Shutoff Lever Alarm

CN93077,000023B -19-28JUL17-26/28

- **Electric Lever Alarm**—Electric lever system is abnormal. Contact an authorized dealer.

TX1185012 —UN—10FEB15



Electric Lever Alarm

Continued on next page

CN93077,000023B -19-28JUL17-27/28

• **Diesel Exhaust Fluid (DEF) Alarm**—Diesel exhaust fluid (DEF) tank is empty or DEF quality is poor. Engine power is derated. Refill DEF tank as soon as possible.

TX1156518 —UN—20MAR14



Diesel Exhaust Fluid (DEF) Alarm

Monitor Display Messages

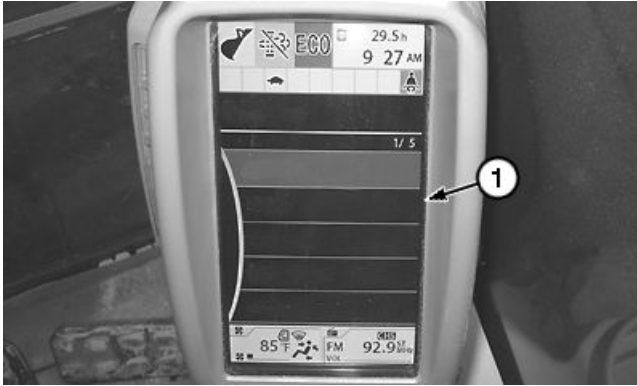
The monitor automatically displays a message for specific machine situations and certain diagnostic trouble codes (DTCs). Depending on machine situation or if a DTC is

initially active, a message displays on the monitor until the situation changes or the DTC is resolved.

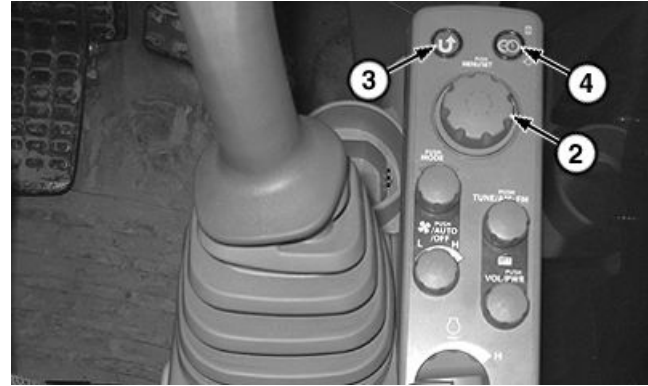
Display Message	Message Trigger
Exhaust Filter Cleaning Failed Aborted by Operator Cleaning Incomplete	The cleaning process was discontinued due to one of the following conditions: • Pilot shutoff lever is moved. • Engine speed dial is moved. • Parked cleaning is aborted due to a system fault. • Engine runs out of fuel. • Engine is shut off by operator (not recommended).
Exhaust Filter Cleaning Complete	Exhaust filter cleaning complete and machine is ready to return to operation.
REFILL DEF DEF Tank Level Low	DEF tank level is low.
REFILL DEF DEF Tank Empty Engine Power Limited	DEF tank level is empty.
REFILL DEF DEF Tank Empty Engine Power and Speed Limited	DEF tank level is empty.
DEF System Fault Engine Power and Speed Limited Check Active Codes	Initiated by active code.
DEF Quality Poor Engine Power and Speed Limited Check Active Codes	Poor DEF quality detected.
DEF System Fault Engine Power and Speed Limited Check Active Codes	Initiated by active code.

CN93077,000023B -19-28JUL17-28/28

Main Menu—Air Conditioner



Main Menu Screen



Switch Panel

The **Air Conditioner** menu allows operator to turn the air conditioner ON or OFF and set the circulation air mode to recirculating cab air or fresh air.

The submenus under Main Menu that appear on monitor include:

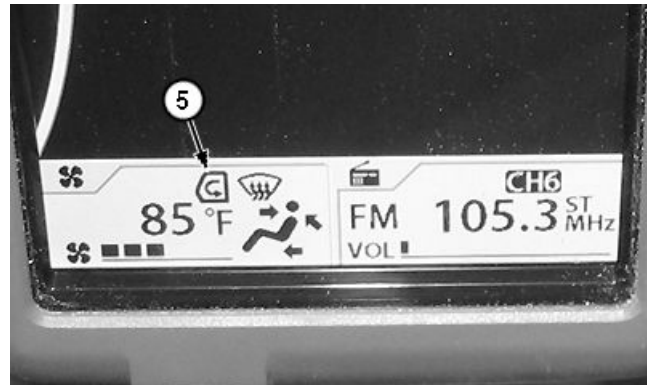
NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

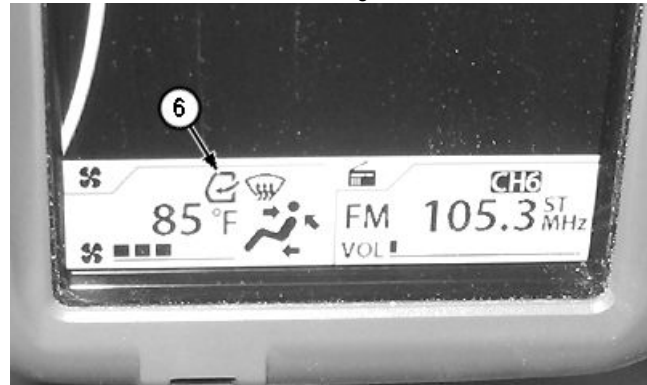
At Main Menu screen (1), rotate monitor dial (2) to highlight Air Conditioner. Press monitor dial to display Air Conditioner menu.

Air Conditioner menu items include:

- ☐ **(Cab recirculating air mode symbol is displayed.)** Rotate monitor dial to highlight the cab recirculating air mode symbol. Press monitor dial to turn ON the cab recirculating air mode. The color of the preceding square will turn green and a recirculating air icon (5) will appear in the air conditioner display in the lower left corner of the monitor. Press monitor dial again to turn OFF the recirculating air mode and switch to fresh air mode. The color of the preceding square will be gray and a fresh air icon (6) will appear in the air conditioner display in the lower left corner of the monitor.



Recirculating Air Icon



Fresh Air Icon

- 1— Main Menu Screen
- 2— Monitor Dial
- 3— Back Button

- 4— Home Button
- 5— Recirculating Air Icon
- 6— Fresh Air Icon

Continued on next page

OUT4001,000071E -19-19JAN16-1/2

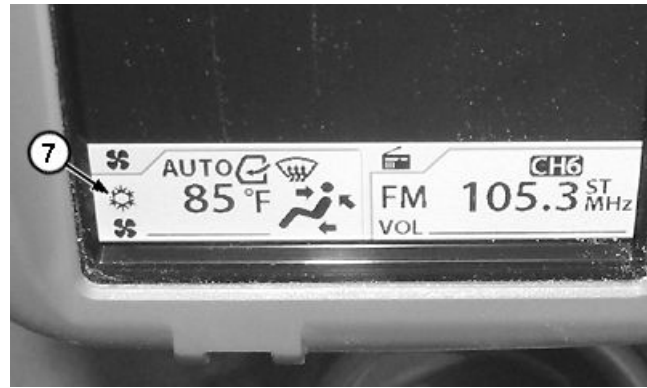
□ A/C

NOTE: Blower speed switch on switch panel needs to be ON in order to operate the ON/OFF function of the air conditioner in the monitor menu.

Rotate monitor dial to highlight A/C. Press monitor dial to turn ON the air conditioner. The color of the preceding square will turn green and an air conditioner icon (7) will appear in the air conditioner display in the lower left corner of the monitor. Press monitor dial again to turn OFF the air conditioner. The color of the preceding square will be gray and air conditioner icon will disappear.

If an exclamation mark appears on the monitor, communication between the air conditioner and the monitor is abnormal. See an authorized John Deere dealer.

Press back button (3) to return to previous screen.



Air Conditioner Icon

7— Air Conditioner Icon

Press home button (4) to return to default screen.

OUT4001,000071E -19-19JAN16-2/2

TX1086312A —UN—28DEC10

Main Menu—Radio

The **Radio** menu allows operator to set preferred radio stations and adjust the tone settings.

The submenus under Main Menu that appear on monitor include:

NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

At Main Menu screen (1), rotate monitor dial (2) to highlight Radio. Press monitor dial to display Radio menu.

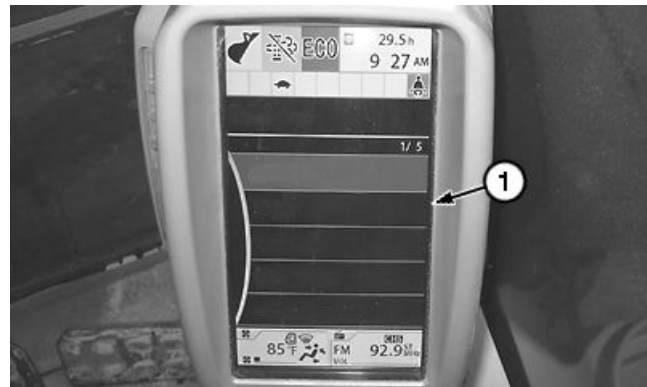
Radio menu items include:

- CH1 AM _ _ _ _ kHz
- CH2 AM _ _ _ _ kHz
- CH3 AM _ _ _ _ kHz
- CH4 AM _ _ _ _ kHz
- CH5 FM _ _ _ . MHz
- CH6 FM _ _ _ . MHz
- CH7 FM _ _ _ . MHz
- CH8 FM _ _ _ . MHz

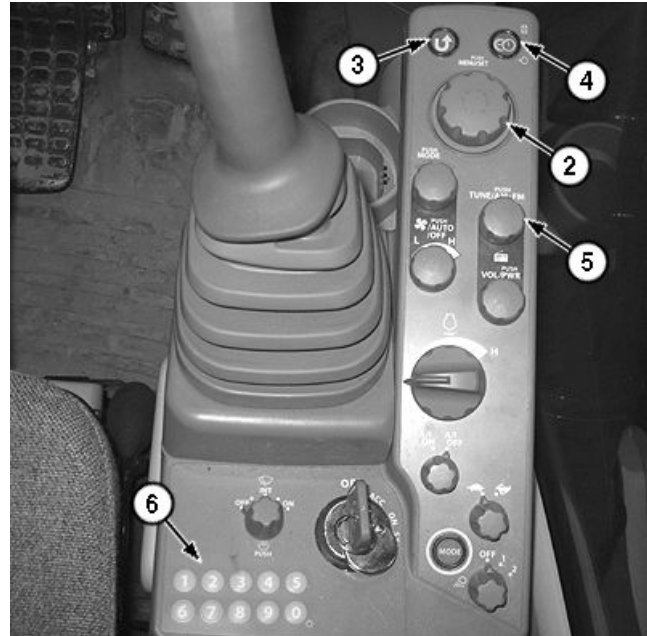
NOTE: Presetting memory radio stations can also be done using the keypad (6) on switch panel. See Operating the AM/FM Radio. (Section 2-1.)

Press radio tuning switch (5) to toggle between AM or FM frequency. Tune radio to desired AM or FM station by rotating the radio tuning switch. When desired station is found, rotate monitor dial to highlight CH1. Press and hold monitor dial for more than 1 second. Current station is set. Repeat procedure for seven additional AM or FM stations using CH2 through CH8. Once the stations are stored, operator can select these programmed stations by using keys 1—8 on the switch panel keypad (6).

- <<
Rotate monitor dial to highlight <<. Press monitor dial to seek next lower frequency station. Continue to press monitor dial to seek next lower frequency station until desired station is found.
- >>
Rotate monitor dial to highlight >>. Press monitor dial to seek next higher frequency station. Continue to press monitor dial to seek next higher frequency station until desired station is found.
- **TONE**
Rotate monitor dial to highlight TONE. Press monitor dial to adjust tone. Backlighting will turn orange. Rotate monitor dial clockwise to boost treble. Rotate monitor dial counterclockwise to boost base. Press monitor dial again to store changes.



Main Menu Screen



Switch Panel

- | | |
|---------------------|------------------------|
| 1— Main Menu Screen | 4— Home Button |
| 2— Monitor Dial | 5— Radio Tuning Switch |
| 3— Back Button | 6— Keypad |

• AUTO PRESET

Rotate monitor dial to highlight AUTO PRESET. Press monitor dial to start auto preset process. The AUTO PRESET scans reception frequency and allocates stations to CH1 to CH8. AM frequency stations will be preset to CH1 to CH4 and FM frequency stations will be preset to CH5 to CH8. Operating the radio during the scan stops the AUTO PRESET process.

If an exclamation mark appears in the radio display on the monitor, communication between the radio and the monitor is abnormal. See an authorized John Deere dealer.

Press back button (3) to return to previous screen.

Press home button (4) to return to default screen.

OUT4001.000071F -19-19JAN16-1/1

TX1086306A —UN—28DEC10

TX1086274A —UN—27DEC10

Main Menu—Work Mode

The **Work Mode** menu allows operator to select front attachment.

The submenus under Main Menu that appear on monitor include:

NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

At Main Menu screen (1), rotate monitor dial (2) to highlight Work Mode. Press monitor dial to display Work Mode menu.

Work Mode menu items include:

NOTE: This list of front attachments are examples only. Personalized list of front attachments can be entered in monitor through the Attachment Name Input screen. See Main Menu—Setting Menu—Attachment Name Input in this section.

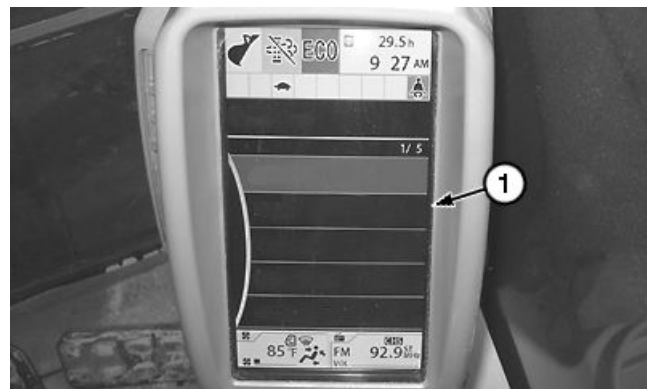
- Bucket (bucket icon will also be shown)
- Thumb 1 (thumb icon will also be shown)
- Breaker 1 (breaker icon will also be shown)
Type-A
- Breaker 2 (breaker icon will also be shown)
Type-B
- Pulverizer 1 (pulverizer icon will also be shown)
- Crusher 1 (crusher icon will also be shown)
- Grapple 1 (grapple icon will also be shown)

Rotate monitor dial to highlight desired front attachment. Press monitor dial to select the desired attachment for operation.

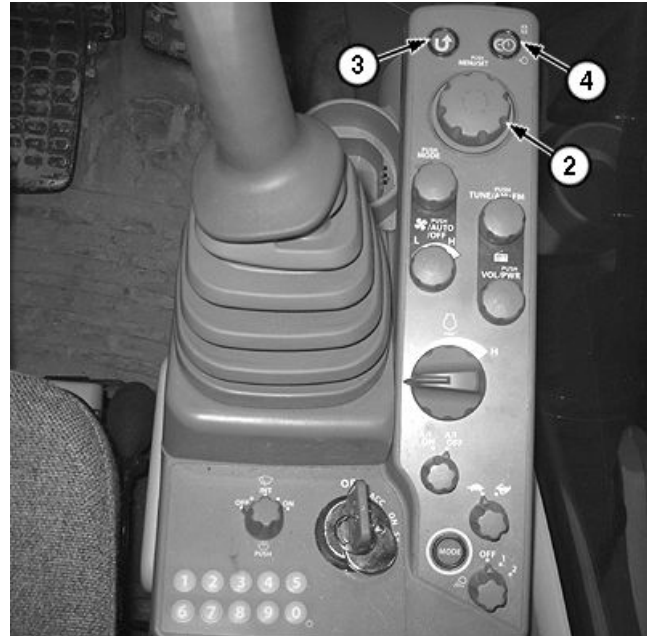
If Bucket work mode was selected, screen will revert back to the default screen and a bucket icon displays on monitor in the upper left corner.

If any other work mode is selected, the following information is displayed:

- Maximum Pump Flow Rate.....XXX.XX gpm
- Maximum Engine Speed.....XXXX min⁻¹
- Selector Valve.....O/T or C/V
- 2 Pumps Combined Flow.....OFF/ON
- Breaker Relief Pressure.....OFF/ON
- ✓



Main Menu Screen



Switch Panel

1— Main Menu Screen
2— Monitor Dial

3— Back Button
4— Home Button

If adjustments need to be made to this information, see an authorized John Deere dealer. If information is correct and ready for operation, rotate monitor dial to highlight the checkmark (✓) and press monitor dial. Screen will revert back to the default screen and selected attachment icon displays on monitor in the upper left corner.

Press back button (3) to return to previous screen.

Press home button (4) to return to default screen.

OUT4001,0000720 -19-31AUG15-1/1

TX1086306A —UN—28DEC10

TX1086272A —UN—27DEC10

Main Menu—Setting Menu

The **Setting Menu** allows operator to change various monitor and machine functions.

The submenus under Main Menu that appear on monitor include:

NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

At Main Menu screen (1), rotate monitor dial (2) to highlight Setting Menu. Press monitor dial to display Setting Menu.

Setting Menu items include:

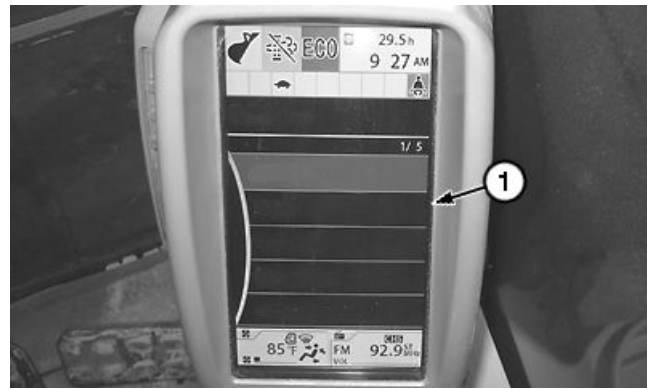
- Date and Time
- Attachment Name Input
- Auto-Shutdown
- Auto Exhaust Filter Cleaning
- Sub Meter Selection
- Rear View Camera Monitor
- Display Item Selection
- Brightness Adjustment
- Language
- Unit Selection
- Emergency Override¹
- Main Menu Sequence Change

Rotate monitor dial to highlight a Setting submenu. Press monitor dial to display chosen Setting submenu.

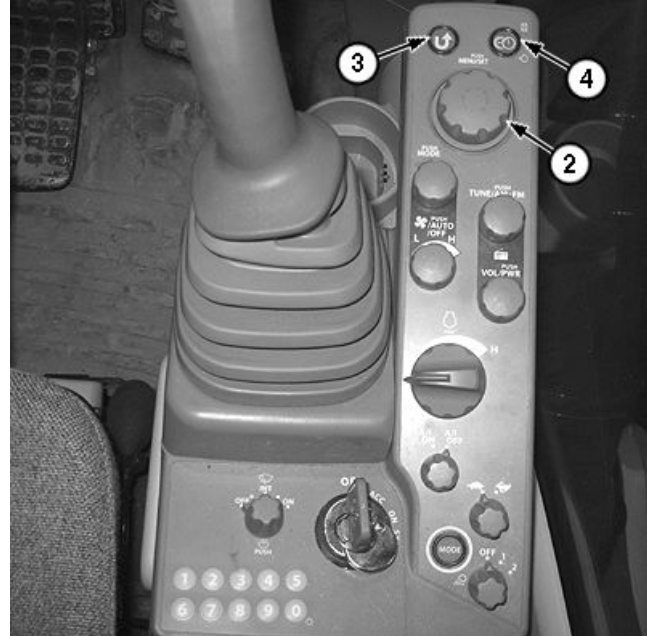
Press back button (3) to return to previous screen.

Press home button (4) to return to default screen.

¹If equipped.



Main Menu Screen



Switch Panel

1— Main Menu Screen
2— Monitor Dial

3— Back Button
4— Home Button

TX1086306A —UN—28DEC10

TX1086272A —UN—27DEC10

JR58078,000005E -19-12APR17-1/1

Main Menu—Setting Menu—Date and Time

The **Date and Time** menu provides the capability to change the date and time settings. Year/month/day format and 24h/12h display mode can also be changed.

At Setting Menu, rotate monitor dial to highlight Date and Time. Press monitor dial to display Date and Time menu.

Date and Time menu items include:

- **Time Setting**

(present time is displayed here)

- **Hour**
- **Minute**
- ✓

Rotate monitor dial to highlight Time Setting. Press monitor dial to display Time Setting screen. Rotate monitor dial to highlight Hour and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the hour setting. Rotate clockwise to increment number and counterclockwise to decrement number. Press monitor dial when desired hour setting is reached. Rotate monitor dial to highlight Minute and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the minute setting. Rotate clockwise to increment number and counterclockwise to decrement number. Press monitor dial when desired minute setting is reached. Rotate monitor dial to highlight checkmark (✓). Press monitor dial to store the Time Settings.

- **Date Setting**

- **Year**
- **Month**
- **Day**
- ✓

Rotate monitor dial to highlight Date Setting. Press monitor dial to display Date Setting screen. Rotate monitor dial to highlight Year and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the year setting. Rotate clockwise to increment number and counterclockwise to decrement number. Press monitor dial when desired year setting is reached. Rotate monitor dial to highlight Month and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the month setting. Rotate clockwise to increment number and counterclockwise to decrement number. Press monitor dial when desired month setting is reached. Rotate monitor dial to highlight Day and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the day setting. Rotate clockwise to increment number and counterclockwise to decrement number. Press monitor dial when desired day setting is reached. Rotate monitor dial to highlight checkmark (✓). Press monitor dial to store the Date Settings.

- **Display Form**

- **Time**
- **Date**

Rotate monitor dial to highlight Display Form. Press monitor dial to display Display Form screen. Rotate monitor dial to highlight Time and press monitor dial. Press monitor dial to switch between 12h or 24h settings. When desired time setting is reached, rotate monitor dial to highlight Date and press monitor dial. Press monitor dial to switch between YYYY/MM/DD, MM/DD/YYYY, or DD/MM/YYYY settings.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000724 -19-04APR16-1/1

Main Menu—Setting Menu—Attachment Name Input

The **Attachment Name Input** menu provides the capability to personalize front attachment with a specific name.

At Setting Menu, rotate monitor dial to highlight Attachment Name Input. Press monitor dial to display Attachment Name Input menu. Rotate monitor dial to highlight desired attachment name. Press monitor dial to display name change screen. To add specific information to the attachment name, rotate monitor dial either way to highlight a character, then press the monitor dial. After

inputting new name, rotate monitor dial to highlight **SET** on bottom right corner of monitor. Press monitor dial to finalize the setting.

To delete the last entered character, rotate monitor dial to highlight **BS** on bottom left corner of monitor and then press monitor dial. To delete all entered characters, rotate monitor dial to highlight **ALL CLEAR** and then press monitor dial.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000726 -19-31AUG15-1/1

Main Menu—Setting Menu—Auto-Shutdown

The **Auto-Shutdown** menu provides the capability to turn on this feature and set a desired time for machine shutdown to take place.

At Setting Menu, rotate monitor dial to highlight Auto-Shutdown. Press monitor dial to display Auto-Shutdown menu.

Auto-Shutdown menu items include:

NOTE: When auto-shutdown is ON, the color of the preceding square is green and A/S will appear on the default screen. When auto-shutdown is OFF, the color of the preceding square is gray.

☐ **ON (Enable)**

Rotate monitor dial to highlight ON (enable). Press monitor dial to turn the auto-shutdown function ON. Press monitor dial again to turn the auto-shutdown function OFF.

NOTE: Setting Time minute increment needs to be set before enabling auto-shutdown.

Setting Time

Rotate monitor dial to highlight Setting Time and press monitor dial (backlighting turns orange). Rotate monitor dial to adjust the auto-shutdown acting time. Auto-shutdown can be set to activate after 1, 2, 3, 4, 5, 7, 10, 15, 20, 25, or 30 minute increments. Press monitor dial to store desired time setting.

The following conditions must be met in order for auto-shutdown to work:

- Engine operated in auto-idle for the set amount of time that was selected for auto-shutdown.
- Pilot shutoff lever is in locked (UP) position.
- Engine coolant temperature is greater than 60°C (140°F) but lower than 100°C (212°F).
- Exhaust filter cleaning is not active.

*NOTE: Thirty seconds before the engine stops, the monitor will display **Engine Shutdown Soon** message.*

Press back button to return to previous screen.

Press home button to return to default screen.

KR46761,00015D5 -19-31JUL17-1/1

Main Menu—Setting Menu—Auto Exhaust Filter 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.

NOTE: Disabling auto exhaust filter 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 of the exhaust filter can be disabled.

The **Auto Exhaust Filter Cleaning** menu allows the operator to enable or disable the auto cleaning function for the exhaust filter.

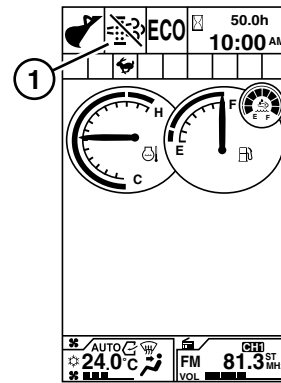
At Setting Menu, rotate monitor dial to highlight Auto Exhaust Filter Cleaning. Press monitor dial to display Auto Exhaust Filter Cleaning menu:

NOTE: When auto cleaning is disabled, the color of the preceding square is green and exhaust filter auto cleaning disabled indicator (1) will appear on the default screen.

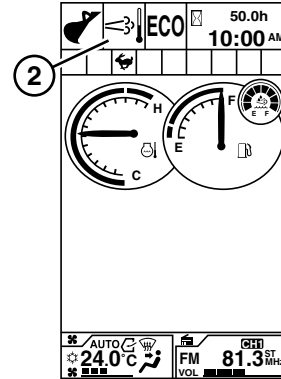
When auto cleaning is enabled, the color of the preceding square is gray and an exhaust filter cleaning indicator (2) will appear on the default screen when an auto or parked cleaning procedure is taking place.

☐ OFF (Disable)

Rotate monitor dial to OFF (disable) and press to turn off auto cleaning.



Exhaust Filter Auto Cleaning Disabled Indicator



Exhaust Filter Cleaning Indicator

1— Exhaust Filter Auto Cleaning Disabled Indicator

2— Exhaust Filter Cleaning Indicator

☐ ON (Enable)

Rotate monitor dial to ON (enable) and press to turn on auto cleaning.

Press back button to return to previous screen.

Press home button to return to default screen.

CN93077,000023C -19-15JAN16-1/1

TX1160726 —UN—15MAY14

TX1160738 —UN—15MAY14

Main Menu—Setting Menu—Sub Meter Selection

NOTE: Only one sub meter can be selected at a time. When one of the selections is ON, the color of the preceding square is green.

The **Sub Meter Selection** menu provides the capability to add a meter on the fuel gauge for fuel consumption or breaker hours.

At Setting Menu, rotate monitor dial to highlight Sub Meter Selection. Press monitor dial to display Sub Meter Selection menu.

Sub Meter Selection menu items include:

- ☐ **OFF (Disable)**
Rotate monitor dial to highlight OFF. Press monitor dial to turn OFF any meters.
- ☐ **Fuel Consumption Indicator**
Rotate monitor dial to highlight Fuel Consumption Indicator. Press monitor dial to turn ON the fuel consumption indicator (1). Fuel consumption will be displayed on the fuel gauge on the default screen.
- ☐ **Breaker Hour Meter**
Rotate monitor dial to highlight Breaker Hour Meter. Press monitor dial to turn ON the breaker hour meter (2). Breaker hours will be displayed on the fuel gauge on the default screen.

Press back button to return to previous screen.

Press home button to return to default screen.



Fuel Consumption Indicator



Breaker Hour Meter

1— Fuel Consumption Indicator 2— Breaker Hour Meter

TX1160739A —UN—15MAY14

TX1160740A —UN—15MAY14

CN93077,000023D -19-01SEP16-1/1

Main Menu—Setting Menu—Rear View Camera Monitor

CAUTION: The rear camera image is designed to supplement other safety practices and is not intended to be the sole method of collision awareness. Always be alert and aware of the surroundings when operating this machine to avoid possible injury or death to operator or others.

IMPORTANT: Prevent possible damage to the camera lens surface. The camera lens surface is a resin product. Lightly wipe the surface with a wet, clean cloth. Never use an organic solvent.

NOTE: When the Rear View Camera Monitor mode is enabled, the color of the preceding square is green and rear view image (1) is continuously displayed on the default screen.

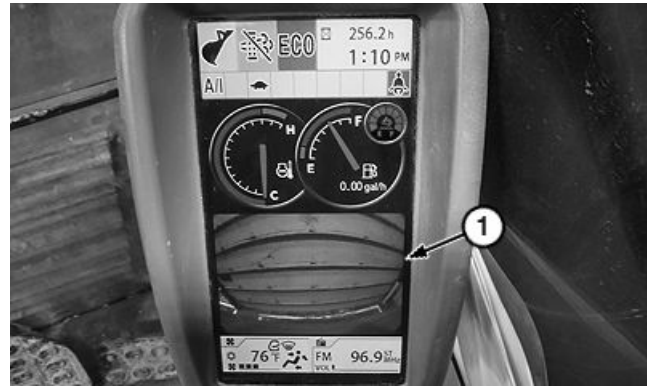
The **Rear View Camera Monitor** menu provides the capability to turn the camera ON or OFF so the view behind the machine is shown on the monitor.

At Setting Menu, rotate monitor dial to highlight Rear View Camera Monitor. Press monitor dial to display Rear View Camera Monitor menu.

☐ ON (Enable)

Press monitor dial to turn ON (enable) the rear camera on the monitor. Press monitor dial again to disable rear camera.

Never attempt to change the mounting position of the rear camera (2). If rear camera is not operating properly, see an authorized dealer.



Rear View Image



Rear Camera

1—Rear View Image

2—Rear Camera

Press back button to return to previous screen.

Press home button to return to default screen.

CN93077,000023E -19-21DEC21-1/1

TX1160741A —UN—15MAY14

TX1086331A —UN—28DEC10

Main Menu—Setting Menu—Display Item Selection

NOTE: Only one display item can be selected at a time. When one of the selections is ON, the color of the preceding square is green.

The **Display Item Selection** menu provides the capability to change what appears on the default screen.

At Setting Menu, rotate monitor dial to highlight Display Item Selection. Press monitor dial to display Display Item Selection menu.

Display Item Selection menu items include:

- ☐ **Logo**
Rotate monitor dial to highlight Logo. Press monitor dial to have manufacturer logo (1) appear on default screen.
- ☐ **Operational Information**
Rotate monitor dial to highlight Operational Information. Press monitor dial to have operational information (2) appear on default screen.
- ☐ **OFF (Disable)**
Rotate monitor dial to highlight OFF (disable). Press monitor dial to turn OFF any images.

Press back button to return to previous screen.

Press home button to return to default screen.

1— Manufacturer Logo

2— Operational Information



Manufacturer Logo



Operational Information

TX1160742A —UN—15MAY14

TX1160743A —UN—15MAY14

CN93077,000023F -19-31AUG15-1/1

Main Menu—Setting Menu—Brightness Adjustment

The **Brightness Adjustment** menu allows operator to adjust the brightness of the monitor for better viewing.

At Setting Menu, rotate monitor dial to highlight Brightness Adjustment. Press monitor dial to display Brightness Adjustment menu.

Rotate monitor dial clockwise for lighter image and counterclockwise for darker image.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,000072C -19-31AUG15-1/1

Main Menu—Setting Menu—Language

The **Language** menu allows operator to change the language text that appears on the monitor to a specific preference.

At Setting Menu, rotate monitor dial to highlight Language. Press monitor dial to display Language menu. A list of different languages appears.

NOTE: Only one language can be selected at a time. When one of the selections is ON, the color of the preceding square is green.

Rotate monitor dial to highlight desired language and press monitor dial to store setting.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,000072D -19-31AUG15-1/1

TX1086278A —UN—27DEC10

OUT4001,000072E -19-31AUG15-1/1

JR58078.000005F -19-12APR17-1/1

Main Menu—Setting Menu—Main Menu Sequence Change

The **Main Menu Sequence Change** menu provides the capability to change the sequence order of some of the submenus under the Main Menu according to how frequently they are used.

At Setting Menu, rotate monitor dial to highlight Main Menu Sequence Change. Press monitor dial to display Main Menu Sequence Change menu.

Main Menu Sequence Change menu items include:

- Air Conditioner
- Radio
- Work Mode

Rotate monitor dial to highlight the submenu that is preferred to be shown first. Press monitor dial to change the submenu sequence.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000730 -19-31AUG15-1/1

Main Menu—Information Menu

The **Information Menu** provides operating hour information, maintenance items, troubleshooting (diagnostic trouble codes [DTCs]), engine speed, and restriction level in the exhaust filter.

The submenus under Main Menu that appear on monitor include:

NOTE: Alarm List ONLY appears as a submenu if there is an actual alarm.

- Alarm List
- Air Conditioner
- Radio
- Work Mode
- Setting Menu
- Information Menu

At Main Menu screen (1), rotate monitor dial (2) to highlight Information Menu. Press monitor dial to display Information Menu.

Information Menu items include:

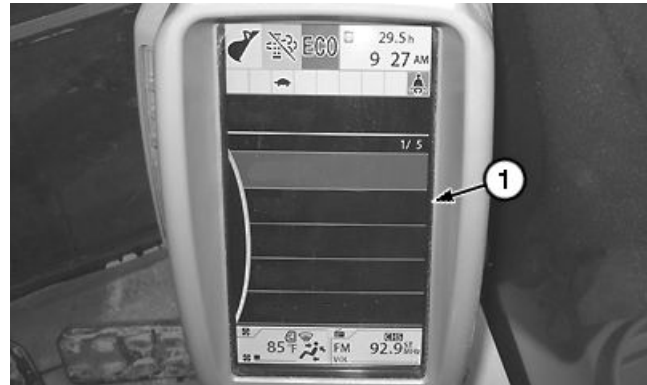
- Operation
- Maintenance
- Troubleshooting
- Monitoring

Press back button (3) to return to previous screen.

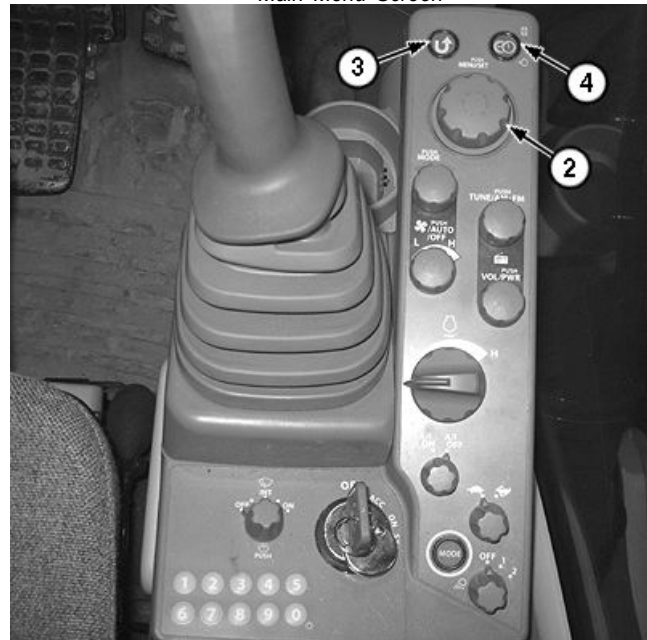
Press home button (4) to return to default screen.

1— Main Menu Screen
2— Monitor Dial

3— Back Button
4— Home Button



Main Menu Screen



Switch Panel

TX1086306A —UN—28DEC10

TX1086272A —UN—27DEC10

OUT4001,0000722 -19-31AUG15-1/1

Main Menu—Information Menu—Operation

The **Operation** menu provides fuel consumption and operating hours of the breaker, front attachment, tracks, and overall machine hours.

At Information Menu, rotate monitor dial to highlight Operation. Press monitor dial to display Operation menu.

NOTE: Total fuel consumption and fuel consumption rate depend on the operating environment and the operation method of machine.

Operation menu items include:

• Fuel Consumption

Rotate monitor dial to highlight Fuel Consumption. Press monitor dial to display Fuel Consumption information:

- **Machine Operation Hours** **XX h**
- **Fuel Consumption** **XX L**
- **Average Fuel Consumption Rate**....**XX.X L/h**

Press monitor dial to return to the previous menu. To reset fuel consumption data, rotate monitor dial to highlight CLEAR in the bottom right corner of screen and press monitor dial.

• Breaker Operation

Rotate monitor dial to highlight Breaker Operation. Press monitor dial to display Breaker Operation information:

- **Operating Time****XXXXXX.X h**
- **Machine Operation Hours****XXXX.X h**
- **Operation Ratio**.....**XXX.X %**

Press monitor dial to return to the previous menu. To reset breaker operating data, rotate monitor dial to highlight CLEAR in the bottom right corner of screen and press monitor dial.

• Attachment Operation

Rotate monitor dial to highlight Attachment Operation. Press monitor dial to display Attachment Operation information:

- **Operating Time****XXXX.X h**

Press monitor dial to return to the previous menu.

To reset attachment operating hours, rotate monitor dial to highlight CLEAR in the bottom right corner of screen and press monitor dial.

• Travel Operation

Rotate monitor dial to highlight Travel Operation. Press monitor dial to display Travel Operation information:

- **Operating Time****XXXX.X h**

Press monitor dial to return to the previous menu. To reset travel operating hours, rotate monitor dial to highlight CLEAR in the bottom right corner of screen and press monitor dial.

• Actual Operation

NOTE: The actual operation time includes the front attachment operation and the travel operation hours.

Rotate monitor dial to highlight Actual Operation. Press monitor dial to display Actual Operation information:

- **Operating Time****XXXX.X h**

Press monitor dial to return to the previous menu. To reset actual operating hours, rotate monitor dial to highlight CLEAR in the bottom right corner of screen and press monitor dial.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000731 -19-31AUG15-1/1

Main Menu—Information Menu—Maintenance

The **Maintenance** menu provides the capability to notify the operator when the next maintenance item is due, shows hours remaining until next maintenance interval, and allows the interval hours to be reset.

At Information Menu, rotate monitor dial to highlight Maintenance. Press monitor dial to display Maintenance menu.

Maintenance menu items include:

- Engine Oil
- Engine Oil Filter
- Hydraulic Oil
- Pilot Hydraulic Oil Filter
- Hydraulic Oil Full-Flow Filter
- Pump Transmission Oil
- Travel Reduction Gear Oil
- Swing Reduction Gear Oil
- Swing Bearing Grease
- Air Cleaner Element
- Fuel Filter
- Air Conditioner Filter
- Exhaust Filter
- DEF/AdBlue® Filter
- User Setting 1
- User Setting 2
- Maintenance Notice.....ON or OFF

Rotate monitor dial to highlight Maintenance Notice. Press monitor dial to turn Maintenance Notice ON. Press monitor dial again to turn Maintenance Notice OFF.

If Maintenance Notice is ON, a message is displayed on the monitor for 10 seconds (when the key switch is in ON

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position) if any of the maintenance items listed come due for a change. Press the home button on switch panel to delete the notification.

If Maintenance Notice is OFF, no notification is displayed on the monitor.

To check if a maintenance item is due for a change, rotate monitor dial through list to reach specific item and highlight. If a wrench symbol appears next to the item, service is due. Press monitor dial to display the following information for each item:

- **Previous Maintenance**
(date is displayed).....X.X h
- **Remains**.....XXX.X h
- **Maintenance Interval**.....XXX.X h

Press monitor dial to return to previous menu with no changes.

To reset remaining time data, rotate monitor dial to highlight RESET at the bottom center of monitor and press monitor dial. The value of remaining hours is reset to that of change interval. The previous maintenance date and hours are updated with current date and time.

To change the maintenance interval, rotate monitor dial to highlight the wrench with the clock next to it at the bottom right corner of monitor and press monitor dial. Backlighting will turn orange for Maintenance Interval. Rotate monitor dial to adjust the time for scheduled hour maintenance. Press monitor dial to store the change.

Press back button to return to previous screen.

Press home button to return to default screen.

KR46761,0000FB3 -19-31AUG15-1/1

Main Menu—Information Menu—Troubleshooting

The **Troubleshooting** menu provides access to view any diagnostic trouble codes (DTCs) generated by a controller.

At Information Menu, rotate monitor dial to highlight Troubleshooting. Press monitor dial to begin Troubleshooting data. After displaying Wait message, the screen displays controller troubleshooting menu:

- Engine (00)
- Main (00)

- **Monitor (00)**
- **Information (00)**
- **Option (00)**

The amount of currently generated DTCs is displayed at the right side of each item in parentheses. Rotate monitor dial to highlight an item displaying DTCs. Press monitor dial to display the actual DTC numbers. Up to 20 DTCs can be displayed.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000733 -19-31AUG15-1/1

Main Menu—Information Menu—Monitoring

The **Monitoring** menu provides access to view engine speed and restriction level in the exhaust filter.

At Information Menu, rotate monitor dial to highlight Monitoring. Press monitor dial to display Monitoring menu:

- **Actual Engine Speed.....XXXX min⁻¹**
- **Exhaust Filter Restriction Level....(displays a bar graph)**

There are five segments to the bar graph to indicate the restriction status of the exhaust filter.

- If any of the first three segments of the bar graph display a block, auto cleaning needs to be enabled.
- If the fourth or fifth segment also displays a block, a parked cleaning needs to be initiated by the operator. An exhaust filter alarm indicator will also appear on the monitor.

Press back button to return to previous screen.

Press home button to return to default screen.

OUT4001,0000734 -19-31AUG15-1/1

Operation—Operating the Machine

Before Starting Work

Review the operating precautions. See **Safety—Operating Precautions. (Section 1-3.)**

Use seat belt when operating machine. Remember to fasten seat belt even during brief periods of use.



Reading Operator's Manual

T133556 —UN—24AUG00

TX,BEFORE,WORK -19-18MAY20-1/1

Inspect Machine Daily Before Starting

Safety and Protective Devices Checks

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

Clear all steps and walking surfaces.

Check condition of guards, shields, and covers.

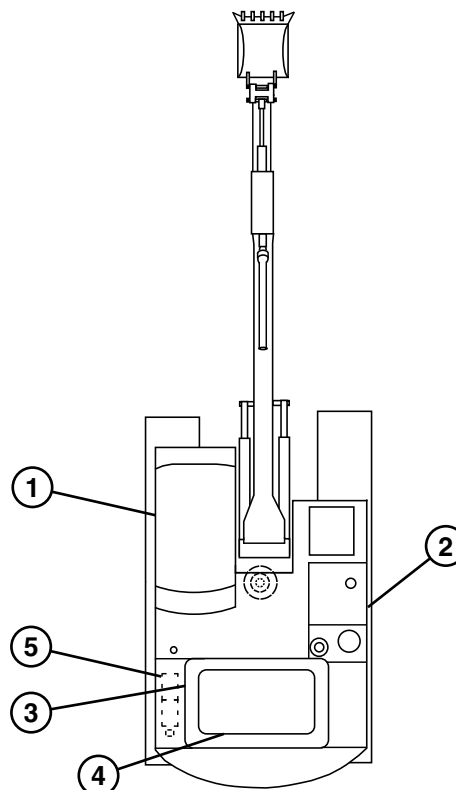
Overall Machine Checks

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

Inspect machine for bent, broken, or loose 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.



Inspect Machine Daily

1— Check Pedal and Lever Movement/Clean Out Cab Debris

2— Check Hydraulic Oil Level

3— Check Surge Tank Level

4— Check Engine Oil Level

5— Check/Clean Radiator and Oil Cooler Outer Fins

TX1000291 —UN—15NOV05

KR46761,0001172 -19-14APR16-1/1

Battery Disconnect Switch

IMPORTANT: Always turn battery disconnect switch (2) to the OFF position before any maintenance or repair is performed on machine's electrical system or any welding work is performed. The battery disconnect switch should also be turned to the OFF position if machine is left unattended. If switch is left in the ON position for long periods, batteries may become discharged.

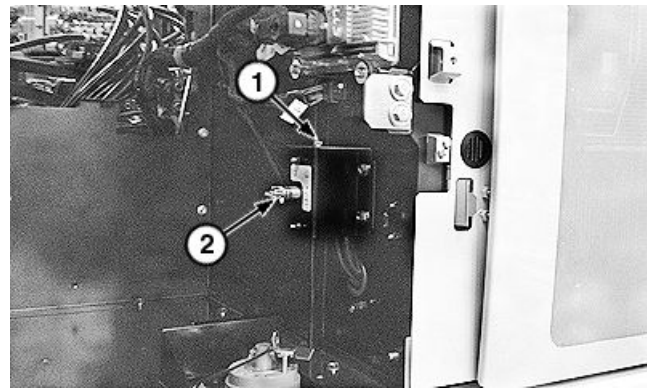
NOTE: When the battery disconnect switch is in the OFF position, JDLink™ and the diesel exhaust filter (DEF) dosing unit are not activated.

The battery disconnect switch (2) is used to isolate electrical power from batteries to machine. The battery disconnect switch has two positions: OFF and ON.

IMPORTANT: Avoid machine damage. After turning key switch to OFF position, only turn battery disconnect switch to OFF position when indicator light (1) no longer illuminates.

The battery disconnect switch is located inside the left front service door. Move battery disconnect switch to

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Battery Disconnect Switch (in ON position)

1—Indicator Light

2—Battery Disconnect Switch

ON position (horizontal) before starting engine. Turn battery disconnect switch to OFF position (vertical) when servicing or storing machine. The battery disconnect decal shows factory positions.

TX1156818A—UN—21APR14

CN93077,0000261 -19-12NOV19-1/1

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 engine oil should be used to make up any oil consumed during the break-in period.

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 CK-4
- 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. (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 in this manual.
5. Watch oil pressure gauge for pressure within specification.
6. Check belt for proper alignment and seating in pulley grooves.

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TX,BREAKIN,JD500HR -19-12OCT21-1/1

Starting Engine

IMPORTANT: Prevent possible damage to the engine. The diesel-fired coolant heater is required for temperatures -20°C (-4°F) and below. See an authorized John Deere dealer.

IMPORTANT: Prevent possible damage to engine. Temperatures below -20°C (-4°F) require an additional warm-up period.

For more information on engine warm-up procedure in temperatures below -20°C (-4°F), see Cold Weather Warm-Up in this section.

Before Starting the Engine

- Confirm battery disconnect switch is in the ON position.
- Confirm pilot shutoff lever is in locked (UP) position.
- Confirm all control levers are in neutral position.
- Confirm seat is adjusted to allow full pedal and control lever operation.
- Confirm seat belt condition; replace if necessary.

Turn key switch to ON position. The system starting screen (1) displays for approximately 2 seconds and then the default screen (2) is displayed.

IMPORTANT: Prevent possible damage to the engine. Wait until engine preheat indicator (4) is no longer illuminated before starting the machine.

Starting the Engine

1. Confirm pilot shutoff lever is in the locked (UP) position to start machine.
2. Move engine speed dial (3) to slow idle position.
3. Sound horn to alert persons nearby.

IMPORTANT: Prevent starter damage. Never operate starter for more than 20 seconds at a time. If engine does not start, return key switch to OFF position. Wait for approximately 2 minutes, then try again. After a false start, DO NOT turn key switch until engine stops.

4. Turn key switch to START position. Release key; switch will return to ON position.

After Starting Check

IMPORTANT: Prevent possible damage to engine. If alarm indicators remain illuminated after starting engine, IMMEDIATELY STOP THE ENGINE. Find and correct the problem.

After the engine is started, check that no alarm indicators are shown on display.

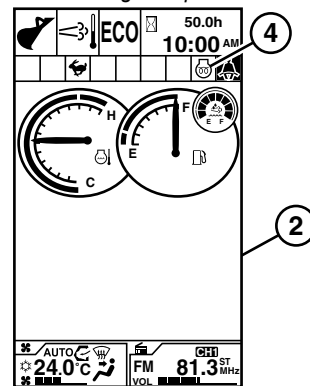
If the alarm indicators continue to be displayed, stop the engine immediately. Find and correct the problem. See Main Menu—Alarm List. (Section 2-2.)



System Starting Screen



Engine Speed Dial



Engine Preheat Indicator

- 1—System Starting Screen
2—Default Screen

- 3—Engine Speed Dial
4—Engine Preheat Indicator

Warming the Engine

1. Run engine at 1/3 speed for 30 seconds. Do not run engine at fast or slow idle. Do not accelerate rapidly during warm-up.
2. Operate machine at less-than-normal loads and speeds until engine is at normal operating temperature.

TX1086287A—UN—28DEC10

TX1086455A—UN—04JAN11

TX1219562—UN—19JUL16

CN93077.000024B -19-18JUL16-1/1

Cold Weather Start Aid

 **CAUTION:** Ether is highly flammable. Do not use ether when starting an engine equipped with glow plugs.

IMPORTANT: Prevent possible damage to the engine. The diesel fired coolant heater is required for temperatures -20°C (-4°F) and below. See an authorized John Deere dealer.

IMPORTANT: Prevent possible damage to engine. Temperatures below -20°C (-4°F) require an additional warm-up period. See Cold Weather Warm-Up in this section.

This machine is equipped with glow plugs. Glow plugs are automatically controlled by the engine controller when the key is turned ON. Do not start engine until the engine preheat indicator disappears on the monitor.

ER79617,0000DC8 -19-04MAY15-1/1

Cold Weather Warm-Up

CAUTION: Prevent possible injury from unexpected machine movement. If hydraulic oil is cold, hydraulic functions move slowly. **DO NOT** attempt normal machine operation until hydraulic functions move at close-to-normal cycle times.

IMPORTANT: Prevent possible damage to the engine. The diesel fired coolant heater is required for temperatures -20°C (-4°F), and below. See an authorized John Deere dealer.

IMPORTANT: Prevent possible damage to engine. Temperatures below -20°C (-4°F) require a diesel fired coolant heater warm-up period. At -20°C (-4°F), the engine requires 1-hour warm-up period. Temperatures below -20°C (-4°F) require additional warm-up period. See table below.

Diesel Fired Coolant Heater Warm-Up Period	
Temperature	Required Warm-Up Period Before Operation
-20°C (-4°F)	1 hour
-21°C (-5°F)	1 hour
-22°C (-7°F)	2 hours
-23°C (-9°F)	2 hours
-24°C (-11°F)	2 hours
-25°C (-13°F)	2 hours
-26°C (-14°F)	2 hours
-27°C (-16°F)	2 hours
-28°C (-18°F)	2 hours
-29°C (-20°F)	3 hours
-30°C (-22°F)	4 hours
-31°C (-23°F)	5 hours
-32°C (-25°F)	6 hours
-33°C (-27°F)	7 hours
-34°C (-29°F)	8 hours
-35°C (-31°F)	9 hours
-36°C (-32°F)	10 hours
-37°C (-34°F)	11 hours
-38°C (-36°F)	12 hours
-39°C (-38°F)	13 hours
-40°C (-40°F)	14 hours

In extremely cold conditions, an extended warm-up period is necessary.

Avoid sudden operation of all functions until the engine and hydraulic oil are thoroughly warm.

1. If temperature is below 0°C (32°F), engine will start at 800 rpm and ramp to 1200 rpm after 30 seconds. Engine maintains 1200 rpm until hydraulic temperature reaches 2°C (35.6°F) or 15 minutes have elapsed, whichever comes first.
2. Run engine at 1/2 speed for 5 minutes. Do not run at fast or slow idle.

CAUTION: Prevent possible injury from unexpected machine movement. Clear the area of all bystanders before running machine through the warm-up procedure. If machine is inside a building, warm the travel circuit first and move the machine to a clear area outside. Cold oil causes machine functions to respond slowly.

3. Actuate travel and swing functions slowly, initially moving only short distances.
4. Operate boom, arm, and bucket functions by moving cylinders a short distance in each direction for the first time.
5. Continue cycling cylinders by increasing travel each cycle until full stroke is obtained.
6. Swing upperstructure so boom is perpendicular to tracks.

CAUTION: Prevent possible injury from machine sliding backwards. Keep angle between boom and arm 90° — 110° .

7. Keeping the angle between boom and arm 90° — 110° , fully actuate bucket close function (cylinder extend) and lower bucket to raise track off ground.

IMPORTANT: Holding function actuated for more than 10 seconds can cause damage from hot spots in the control valve.

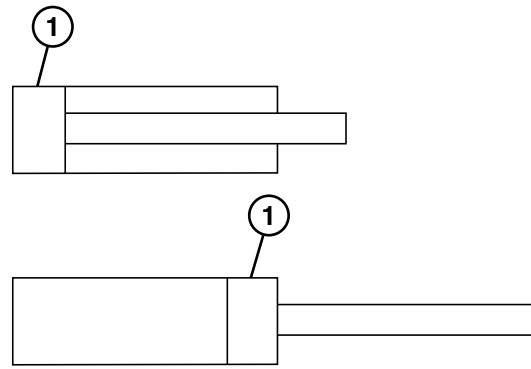
8. While rotating raised track in forward direction, actuate bucket curl function (cylinder extend) for 10 seconds and release for 5 seconds for a period of 2-1/2 minutes.
9. Repeat procedure with track rotating in reverse direction.
10. Lower machine to ground.
11. Repeat steps 6—10 on opposite track.
12. Operate all hydraulic functions to distribute warm oil in all cylinders, motors, and lines.
13. If hydraulic functions still move slowly, repeat steps 7 and 8.

ER79617,0000DC6 -19-27FEB18-1/1

Operate Within Machine Limits

IMPORTANT: Prevent boom, arm, and bucket cylinder damage. Operating machine with any cylinder at end of stroke (1) may apply excessive load which may damage the cylinders. Avoid operating machine with any cylinder at end of stroke.

When an excessive load is applied to the boom, arm, or bucket, hydraulic oil is relieved in those circuits. Relieving oil reduces hydraulic circuit pressure and load on the components to protect the machine from damage. If the cylinders are used at the end of stroke (1), the force is applied to the cylinders and machine components are no longer protected by the relief valve. Do not operate the machine with any cylinder at the end of stroke.



Operate Within Machine Limits

1— End of Stroke

TX1307270 —UN—14DEC20

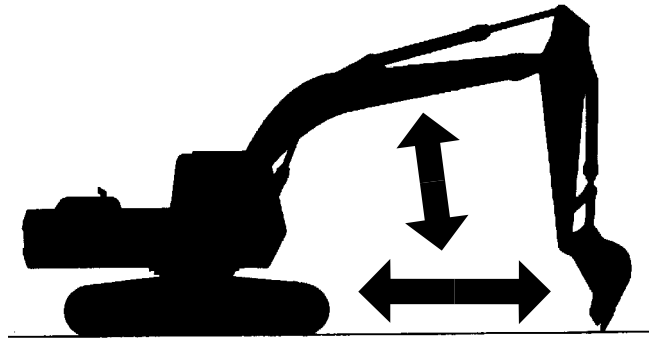
TX,CYLINDER,LIMITS -19-08JAN21-1/1

Digging and Grading Operation

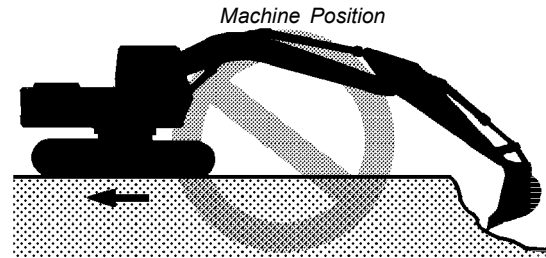
Operate the boom, arm, and bucket so the bucket teeth move horizontally. Keep the bucket teeth perpendicular with the ground while grading.

IMPORTANT: Prevent possible machine damage. Raising the front or rear of the machine to use the weight of the machine, or pushing and pulling dirt while traveling to increase digging force puts excess force on moving parts. Do not move or tilt the machine while bucket is in contact with dirt.

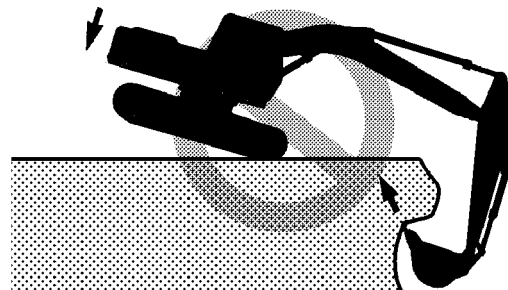
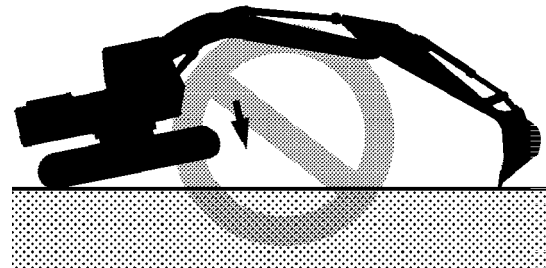
- Operate arm roll-in function while slowly raising the boom. When the boom moves past the vertical position, slowly lower the boom to allow the bucket to maintain a smooth surface.
- Operate arm roll-out function while slowly raising the boom. When the boom moves past the vertical position, slowly lower the boom to allow the bucket to maintain a smooth surface.
- Operate arm roll-in and arm roll-out functions while slowly raising the boom. When the boom moves past the vertical position, slowly lower the boom to allow the bucket to perform slope finishing work.



TX1316911 —UN—29SEP21



Machine Position



Machine Position

TX1316913 —UN—29SEP21

DH10862.0000623 -19-17DEC21-1/1

Operator Ability

- Machine owners must make sure that operators are responsible, trained, have read the operating instructions and warnings, and know how to operate the machine properly and safely.
- Age, physical ability, and mental capacity can be factors in machine-related injuries. Operators must be mentally and physically capable of accessing the operator station

and/or controls, and operating the machine properly and safely.

- Never allow a child or an untrained person to operate the machine. Instruct all operators not to give children a ride on the machine or an attachment.
- Never operate machine when distracted, fatigued, or impaired. Proper machine operation requires the operator's full attention and awareness.

DX,ABILITY -19-07DEC18-1/1

Travel Pedals and Levers

CAUTION: Prevent possible injury from unexpected machine movement. Keep bystanders clear of machine when traveling.

Keep bystanders clear of machine when traveling.

IMPORTANT: Prevent unexpected machine movement. Note current position of the travel motors (4). If motors are to the front of the machine, the machine moves **OPPOSITE** to the travel direction described in the following instructions.

The following instructions apply when the travel motors (4) are to the rear of the machine. If the travel motors are to the front of the machine, the machine moves **OPPOSITE** to the direction described.

FORWARD TRAVEL (1): Push down on front of both pedals or press both levers forward.

REVERSE TRAVEL (2): Push down on rear of both pedals or pull both levers rearward.

NEUTRAL POSITION (3): Travel brakes automatically stop and hold the machine.

RIGHT TURN: Push down on front of left pedal or press left lever forward.

LEFT TURN: Push down on front of right pedal or press right lever forward.

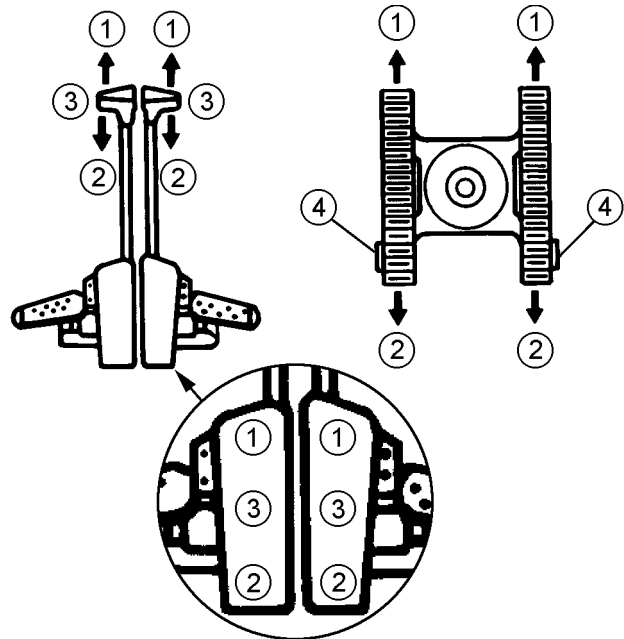
SHORT TURN (COUNTER ROTATE): Push down the front of one pedal and the rear of the other or press one lever forward and pull the other rearward.

SINGLE PEDAL TRAVEL (5): If equipped, single pedal travel can be used to move machine in forward or reverse direction of travel only.

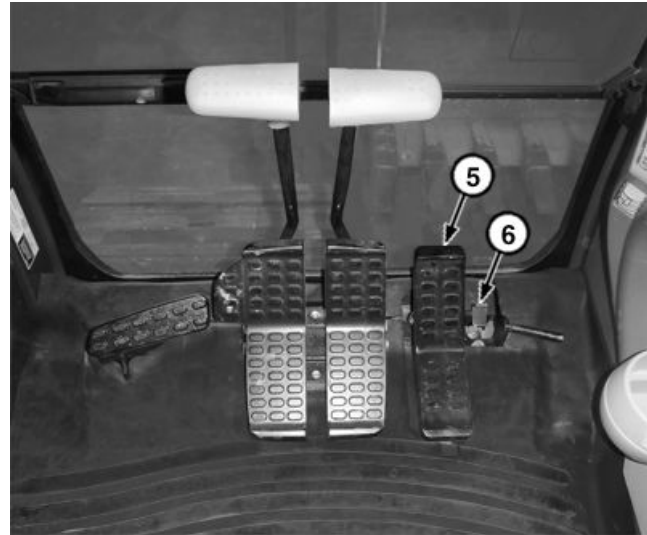
1. Disengage single pedal travel lock (6) by pushing forward.
2. **FORWARD TRAVEL:** Push down on front of single pedal travel.
3. **REVERSE TRAVEL:** Push down on rear of single pedal travel.
4. Engage single pedal travel lock by pulling back.

CAUTION: Prevent possible injury from machine tipping. Operate control pedals or levers slowly when traveling down a slope.

TRAVELING DOWN A SLOPE: Operate control pedals or levers slowly when traveling down a slope.



Travel Pedals and Levers



Single Pedal Travel

1— Forward Travel
2— Reverse Travel
3— Neutral Position

4— Travel Motor (2 used)
5— Single Pedal Travel
6— Single Pedal Travel Lock

COLD WEATHER OPERATION: Travel pedal and lever dampers are provided for smooth control. In extreme cold weather, pedal or lever effort increases. Operate pedals or levers several times with pilot shutoff lever in the locked (UP) position.

TD48962,0000059 -19-30JAN18-1/1

T137492 —UN—25JAN01

TX1250286A —UN—16JAN18

Auxiliary Function Lever (AFL)

IMPORTANT: Prevent possible machine damage.
Before operating attachment switch, consult attachment operator's manual for proper mounting and operation.

Do not use auxiliary function lever (AFL) (2) to operate couplers or similar devices.

Move pilot control shutoff lever to the unlocked (DOWN) position.

Press auxiliary function enable switch (1) to enable auxiliary function lever (AFL) (2) on the right pilot control lever. Light-emitting diode (LED) on auxiliary function enable switch illuminates when function is enabled.

The AFL on the right pilot control lever is a proportional switch used for optional equipment and attachments requiring proportional hydraulic flow. Use of AFL is for rotary and tilt functions or thumb operation.

The power boost button (3) is on the right pilot control lever. See Power Boost Button. (Section 2-1.)

The horn button (4) is on the top of the left pilot control lever in the bottom position.

- | | |
|------------------------------------|----------------------|
| 1—Auxiliary Function Enable Switch | 3—Power Boost Button |
| 2—Auxiliary Function Lever (AFL) | 4—Horn Button |



Auxiliary Function Enable Switch



Right Pilot Control Lever



Left Pilot Control Lever

TX1168382A —UN—11AUG14

TX1322255A —UN—29MAR22

TX1254232A —UN—22MAR18

DJ54098,000040A -19-29MAR22-1/1

Exhaust Filter

The exhaust filter is a critical component in the engine's emissions control system, which is required to meet governmental emissions regulations. The exhaust filter captures soot and ash to prevent its release into the atmosphere. To keep the exhaust filter functioning properly, soot and ash must be eliminated from the exhaust filter. 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 Operation—Exhaust Filter, SDM. (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 buildup 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 monitor 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.*

- ☐ REMEMBER SETTING
- ☐ DEFAULT TO ENABLED
- ☐ DEFAULT TO 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 monitor 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 exhaust filter 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 elevated exhaust temperatures may be unsafe, auto cleaning can be disabled. When disabled, a green exhaust filter auto cleaning disabled indicator will display on monitor. For more information, see Operation—Exhaust Filter Auto Cleaning, SDM. (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.

Continued on next page

TX, EXHAUST, FILTER -19-23JUN20-1/2

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 monitor and initiated by the operator. This process allows the system to clean the exhaust filter. Parked cleaning 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 monitor 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 Operation—Exhaust Filter Parked Cleaning, SDM. (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 three conditions:

- Park brake engaged.
- Forward, neutral, and reverse (FNR) in neutral position.
- Engine running at slow 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 monitor during a parked cleaning. When parked cleaning procedure is complete, engine will automatically return to slow 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 monitor 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.)

TX,EXHAUST,FILTER -19-23JUN20-2/2

Exhaust Filter 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 and diesel exhaust fluid (DEF) level before beginning exhaust filter parked cleaning.

The exhaust filter parked cleaning process allows the system to clean the exhaust filter when the filter restriction is at HIGH or VERY HIGH soot levels. Exhaust filter parked cleaning is most commonly initiated after extended operation with exhaust filter auto cleaning disabled or frequent engine shutdowns have occurred while the auto cleaning process was active. Operator can check the restriction level bar graph in the monitor at any time. See Main Menu—Information Menu—Monitoring. (Section 2-2.)

Before starting the parked cleaning process, the machine needs to be in a predetermined safe state. This safe state includes three conditions:

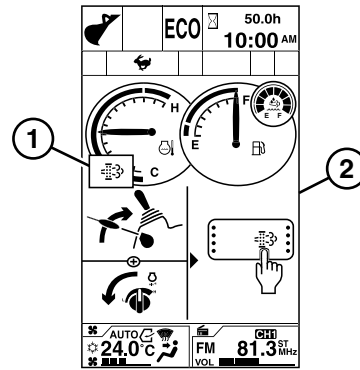
- Machine is parked in a safe place with the front attachment lowered to the ground.
- Pilot shutoff lever is in locked (UP) position.
- Engine speed dial is set to slow idle.

An exhaust filter alarm indicator (1) on the monitor informs the operator when a parked cleaning needs to take place.

- If the alarm indicator is illuminated yellow, exhaust filter restriction is at HIGH soot level and an exhaust filter parked cleaning should be done soon.
- If the alarm indicator is illuminated yellow and blinking, exhaust filter restriction is at VERY HIGH soot level and an exhaust filter parked cleaning should be done immediately. Warning alarm indicator also illuminates.

Before starting the parked cleaning process, make sure the machine is in a safe state as listed previously. Once these conditions are met, press and hold the exhaust filter parked cleaning switch (3) on the right console for 3 seconds.

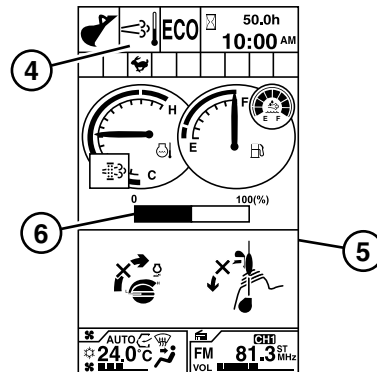
NOTE: If the safe state conditions are NOT met and the exhaust filter parked cleaning switch is pressed and held, a parked cleaning start screen (2) appears



Parked Cleaning Start Screen



Exhaust Filter Parked Cleaning Switch



Parked Cleaning Progress Screen

- | | |
|---|-------------------------------------|
| 1—Exhaust Filter Alarm Indicator | 4—Exhaust Filter Cleaning Indicator |
| 2—Parked Cleaning Start Screen | 5—Parked Cleaning Progress Screen |
| 3—Exhaust Filter Parked Cleaning Switch | 6—Bar Graph |

on the monitor. Move the pilot shutoff lever to locked (UP) position and set engine speed dial to slow idle. Press and hold the parked cleaning switch again for 3 seconds to begin the exhaust filter parked cleaning process.

Exhaust filter cleaning indicator (4) illuminates on the monitor and a parked cleaning progress screen (5) appears. Progress status is displayed on the bar graph (6).

During the cleaning process, the engine speed is controlled automatically and the machine must remain parked to complete the procedure. Complete cleaning time takes less than 45 minutes, but varies on several criteria including fuel type, oil type, duty cycle, ambient temperature, and the number of previously aborted exhaust filter cleaning requests. Exhaust combustion may temporarily emit white smoke during the cleaning process.

The cleaning process continues until one of the following conditions exist:

- An elapsed time of 45 minutes occurs, causing a time-out.
- Pilot shutoff lever is moved.
- Engine speed dial is moved.
- Parked cleaning is aborted due to a system fault.
- Engine runs out of fuel.
- Engine is shut off by operator (not recommended).

If any of these conditions happen during the parked cleaning process, the process is cancelled and a message is displayed on the monitor informing the operator. The condition needs to be amended and the parked cleaning

process must start over. For a system fault, see an authorized John Deere dealer.

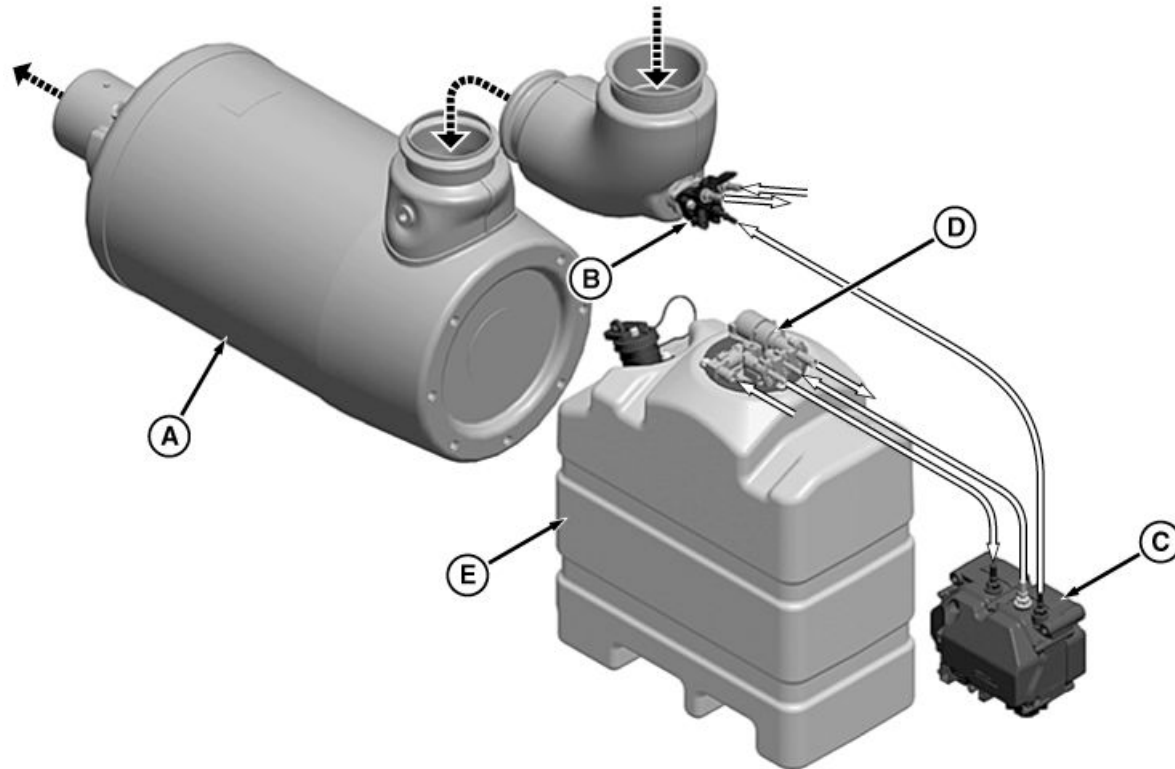
IMPORTANT: Avoid engine damage. If machine will NOT be returning to operation immediately after a parked cleaning procedure, allow the engine and exhaust filter time to return to normal operating temperatures BEFORE stopping engine.

NOTE: If machine needs to be operated during the parked cleaning procedure, press the exhaust filter parked cleaning switch again. The process is cancelled and a message is displayed on the monitor informing the operator. Machine operation can resume, but a parked cleaning must be performed as soon as possible.

When there is no soot restriction in the exhaust filter, the parked cleaning procedure is complete. Engine automatically returns to slow idle and exhaust filter cleaning indicator turns off. A message appears on the monitor stating Exhaust Filter Cleaning Complete and the machine is ready to return to operation.

CN93077,000024D -19-30JUN16-2/2

Selective Catalytic Reduction (SCR) System Overview



SCR System

A—SCR Catalyst
B—DEF Dosing Injector

C—DEF Dosing Unit
D—DEF Tank Header Assembly

E—DEF Tank

IMPORTANT: Do not remove battery leads for at least 5 minutes after engine stops. The SCR system automatically purges itself of diesel exhaust fluid (DEF) immediately after the engine is stopped. If adequate time is not allowed for lines to be purged, residual DEF can freeze and possibly damage components of the SCR system during cold-weather exposure.

In order to comply with national and local emission requirements, this engine series contains a selective catalytic reduction (SCR) system. The main components of the SCR system include the SCR catalyst (A), DEF dosing injector (B), DEF dosing unit (C), DEF tank header assembly (D), and DEF tank (E). The SCR system is effective at reducing the nitrogen oxides (NOx) emissions. NOx is a major component of smog and acid rain.

During combustion, NOx molecules are formed in the exhaust. DEF is injected into the exhaust stream before the SCR catalyst. Through a chemical reaction in the SCR, NOx is converted into nitrogen and water.

Water vapor is a normal by-product of combustion. During cold-weather operation at low exhaust temperatures,

this water vapor can condense and resemble white smoke from the exhaust. This will dissipate as operating temperature increases and the water is further vaporized. This situation is considered normal.

A DEF solution begins to crystallize and freeze at -11°C (12°F). With climate temperatures that can range much colder than this, DEF is expected to freeze in the DEF tank. For this reason, the DEF tank contains a heating element that provides rapid thawing of DEF upon start-up. The heating element cycles to maintain fluidity during operation as needed. DEF is not dosed upon initial start-up; therefore, it is not necessary to have liquid DEF at cold start-up.

If DEF quality deteriorates and it is no longer within specifications, the engine can derate. DEF should be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. A diagnostic trouble code (DTC) is displayed, informing the operator to replace the DEF. Upon replacement of DEF and operation of the engine under load for a period of time or an exhaust filter cleaning, the code automatically goes away with no required input from the operator.

TX,SCR,OVERVIEW,1 -19-13JUL20-1/1

RG22427 —UN—14FEB13

US EPA Qualified Emergency Use — SCR Derate Override Option

NOTE: This is a US EPA only option.

IMPORTANT: Operating the engine without emissions related derates could damage the aftertreatment system.

Description: US EPA Qualified Emergency Use – SCR Derate Override Option

Under the US EPA's regulations the Qualified Emergency SCR Derate Override Option (Emergency SCR Derate Override) is considered an Auxiliary Emission Control Device (AECD), which is only permitted during qualified emergency situations. To ensure compliance with US EPA regulations governing this type of AECD it is important that operators read the following information and comply with the requirements.

Emergency SCR Derate Override enables a Selective Catalyst Reduction (SCR) equipped application to operate without emissions-related derates for a specified period of time during qualified emergency situations. A qualified emergency situation is one in which the condition of an engine's emission controls poses a significant direct or indirect risk to human life. An example of a direct risk is an emission control condition that inhibits the performance of an engine being used to rescue a person from a life-threatening situation. An example of an indirect risk is an emission control condition that inhibits the performance of an engine being used to provide electrical power to a data center that routes "911" emergency response telecommunications.

Emergency SCR Derate Override Activation / Reporting

The operator can activate the Emergency SCR Derate Override through the operator interface. Once activated, the engine can operate free of emissions-related derates for 120 hours. If the derate condition is corrected during the 120 hours, the Emergency SCR Derate Override can be paused in order to preserve the remainder of time for future use. The option expires along with any remaining time 240 hours after the Emergency SCR Derate Override is activated.

When the Emergency SCR Derate Override has expired, the engine informational Diagnostic Trouble Code (DTC) is displayed to the operator upon every engine start and every hour until acknowledged by the operator. To clear the DTC and reset the Emergency SCR Derate

Override timer for future use, the operator (or other person responsible for the engine/equipment) must submit a report to the John Deere Dealer Technical Assistance Center, which must include the following:

- Contact name, mail and email addresses, and telephone number for responsible company or entity
- Description of the emergency situation, the location of the engine during the emergency, and the contact information for an official who can verify the emergency situation (such as a county sheriff, fire marshal, or hospital administrator)
- Reason for the Emergency SCR Derate Override activation during the emergency situation, such as the lack of diesel exhaust fluid, or the failure of an emission-related sensor when the engine was needed to respond to an emergency situation
- Engine's serial number
- Description of the extent and duration of the engine operation while the Emergency SCR Derate Override was active, including a statement describing whether or not the Override was manually deactivated after the emergency situation ended

In no event may this report be submitted to John Deere or other qualified service provide later than 60 calendar days after the Emergency SCR Derate Override is activated.

LEGAL Notification

The following actions by the operator are an improper use of the Emergency SCR Derate Override and are prohibited by the Clean Air Act and US EPA regulations:

- Activating the Emergency SCR Derate Override for something other than a qualified emergency situation;
- Failing to disable the Emergency SCR Derate Override after a qualified emergency situation ends; and,
- Failing to notify John Deere and send it reports as required in this Operators Manual and federal regulations. Note: John Deere is required to report to the US EPA the operator's failure to report to it any Emergency SCR Derate Override event (to the extent it becomes aware of such event).

The maximum civil penalty the US EPA may assess under 40 CFR 1068.101 is \$4,454 for each day an engine or piece of equipment is operated in violation of the requirements associated with the Emergency SCR Derate Override.

US EPA regulations governing the Emergency SCR Derate Override can be found at 40 CFR §1039.665, as may be amended.

DX,SCR,EMRGNCY,VERRIDE,US -19-24JAN18-1/1

EU Qualified Emergency Use — SCR Derate Override Option

NOTE: This is an EU only option.

IMPORTANT: Operating the engine without emissions related derates could damage the aftertreatment system.

Description: EU Qualified Emergency Use – SCR Derate Override Option

Under the EU regulations, this engine may be fitted with a means to disable the operator inducement (SCR Derate Override) during a qualified emergency. Using this option is only permitted during an emergency declared by a national or regional government, their emergency services, or their armed services. Any activation will be recorded in the on-board computer log and national inspection authorities will be able to read these records with a scan tool.

Emergency SCR Derate Override enables a Selective Catalyst Reduction (SCR) equipped application to operate without emissions-related derates for a specified period of time during qualified emergency situations. A qualified emergency situation is one in which the condition of an engine's emission controls poses a significant direct or indirect risk to human life. An example of a direct risk is an emission control condition that inhibits the performance of an engine being used to rescue a person from a life-threatening situation. An example of an indirect risk is an emission control condition that inhibits the performance of an engine being used to provide electrical power to a data center that routes "911" emergency response telecommunications.

Emergency SCR Derate Override Activation / Reporting

The operator can activate the Emergency SCR Derate Override through the operator interface. Once activated, the engine can operate free of emissions-related derates for 120 hours. If the derate condition is corrected during

the 120 hours, the Emergency SCR Derate Override can be paused in order to preserve the remainder of time for future use. The option expires along with any remaining time 240 hours after the Emergency SCR Derate Override is activated.

When the Emergency SCR Derate Override has expired, the engine informational Diagnostic Trouble Code (DTC) is displayed to the operator upon every engine start and every hour until acknowledged by the operator. To clear the DTC and reset the Emergency SCR Derate Override timer for future use, the operator (or other person responsible for the engine/equipment) must submit a report to the John Deere Dealer Technical Assistance Center, which must include the following:

- Contact name, mail and email addresses, and telephone number for responsible company or entity
- Description of the emergency situation, the location of the engine during the emergency, and the contact information for an official who can verify the emergency situation (such as a county sheriff, fire marshal, or hospital administrator)
- Reason for the Emergency SCR Derate Override activation during the emergency situation, such as the lack of diesel exhaust fluid, or the failure of an emission-related sensor when the engine was needed to respond to an emergency situation
- Engine's serial number
- Description of the extent and duration of the engine operation while the Emergency SCR Derate Override was active, including a statement describing whether or not the Override was manually deactivated after the emergency situation ended

In no event may this report be submitted to John Deere or other qualified service provide later than 60 calendar days after the Emergency SCR Derate Override is activated.

LEGAL Notification

Any activation will be recorded in the on-board computer log and national inspection authorities will be able to read these records with a scan tool.

DX,SCR,EMRGNCY,VERRIDE,EU -19-19JAN18-1/1

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. SAR 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 installing the software update.

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

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

For more information about Service ADVISOR Remote, see an authorized John Deere dealer.

Vehicle Reprogramming

NOTE: Factory setting is set to always accept software downloads.

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 can determine the appropriate time and place to install the new software on the machine. For more information, see Service ADVISOR™ Remote (SAR) Operation in this section.

Once the customer initiates 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.

TX,SAR,DELIVERY,1 -19-13JUL20-1/1

Service ADVISOR™ Remote (SAR) Operation

The flex power controller (FPC) will interface with JDLink™ and the monitor to communicate the availability of software updates and programming progress. The Service ADVISOR™ Remote (SAR) switch (1) is wired directly to the FPC and allows the operator to accept or decline available updates. Alarm indicators on the display are controlled through diagnostic trouble codes (DTCs) originating from the FPC. The FPC will create the DTCs under certain conditions, which will then prompt the monitor to display operator instructions. It will be necessary to interact with a John Deere dealer or technician for needed information.

NOTE: The programming alarm indicator is used for different purposes, but the color of the alarm indicator changes for each purpose.

When a software update is available to install, a yellow programming alarm will appear on the monitor, along with a message stating:

SOFTWARE UPDATE READY

NOTE: Alarm List *ONLY* appears as a submenu if there is an actual alarm.

The Alarm List submenu under the Main Menu will give instructions to guide the operator through the process. For viewing alarm instructions, see Main Menu—Alarm List. (Section 2-2.)

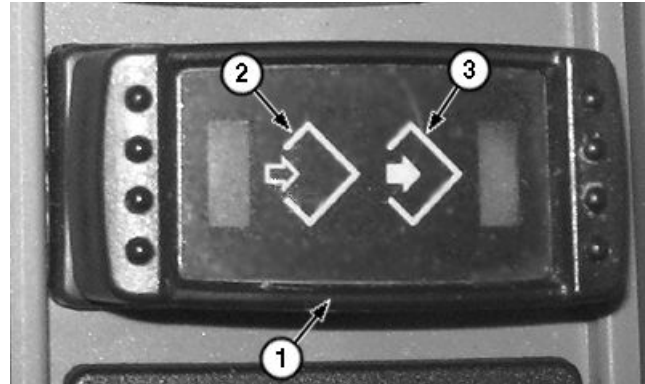
Park machine and stop engine. Installation of the software can only process if the engine is not running and pilot shutoff lever is in locked (UP) position.

NOTE: Before installing software, make sure the **SOFTWARE TERMS AND CONDITIONS** have been read. Find **SOFTWARE TERMS AND CONDITIONS** at the beginning of this manual.

LEDs on the SAR switch will illuminate when this alarm appears. The left LED will be red and the right LED will be green.

Press and hold the right side of SAR switch (green LED) for 3 seconds to begin programming installation. Press left side of SAR switch (red LED) to cancel software update and wait until the next power cycle.

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



Service ADVISOR™ Remote Switch
TX1087187 —UN—21JAN11



Programming Alarm

- 1— Service ADVISOR™ Remote (SAR) Switch
- 2— DECLINE Software Updates
- 3— ACCEPT Software Updates

If operator chooses to install the new update, the programming alarm will remain on the monitor, but the color will change to red and the message will state:

PROGRAMMING IN PROCESS

Green LED on SAR switch will blink while programming is taking place.

DO NOT turn OFF machine power until the programming is complete.

Once programming is completed, programming alarm will turn green and the message will state:

PROGRAMMING COMPLETED

Cycle machine power to complete the installation process.

Continued on next page

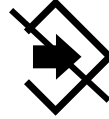
TX,SAR,OPERATION,1 -19-13JUL20-1/3

If a problem occurs during the programming process, a red program failure alarm will appear on the monitor along with a red warning alarm. The message on the monitor will state:

PROGRAM FAILURE

If these alarms appear, see an authorized John Deere dealer for solutions.

TX1087189 —UN—21JAN11



Program Failure Alarm

TX1086352 —UN—06JAN11



Warning Alarm

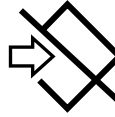
TX,SAR,OPERATION,1 -19-13JUL20-2/3

If conditions exist that will not allow the transfer of new software to happen, a red unable to program alarm appears on the monitor along with a yellow warning alarm. The message on the monitor will state:

UNABLE TO REPROGRAM DEVICE

Make sure the engine is stopped and pilot shutoff lever is in locked (UP) position. Press and hold the right side of SAR switch (green LED) again for 3 seconds to retry programming or contact an authorized John Deere dealer.

TX1087190 —UN—21JAN11



Unable to Program Alarm

TX1086352 —UN—06JAN11



Warning Alarm

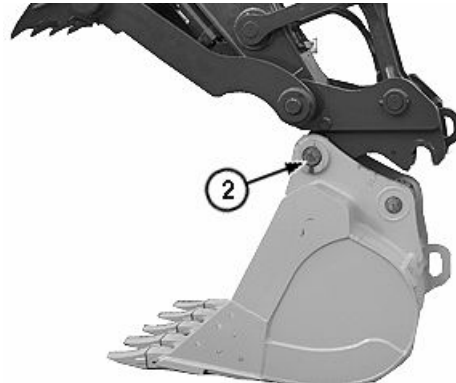
TX,SAR,OPERATION,1 -19-13JUL20-3/3

Locking the Hydraulic Coupler to the Attachment—If Equipped



Front Hook on Hydraulic Coupler

TX1017664A —UN—17JAN07



Hydraulic Coupler Pin

TX1017662A —UN—17JAN07

CAUTION: Prevent possible injury or death from unexpected hydraulic coupler movement. Make sure hydraulic coupler is attached correctly to attachment. The supplemental lock can be engaged with the attachment in an incorrect lock position. A visual check is required each time the lock operation is performed.

CAUTION: Avoid personal injury. Prevent injury from hydraulic coupler movement. Keep bystanders clear of machine.

IMPORTANT: Prevent possible hydraulic coupler damage from incorrect installation. Attaching the bucket in a reverse orientation on the hydraulic coupler is not recommended. When installed in the reverse orientation, the bucket or the lift hook interferes with the arm of the excavator when the bucket is in full curl position by extending the bucket cylinder. This is an inherent part of the design of the original equipment.

Since the hydraulic coupler interacts with the arm at full curl position to unlock the supplemental lock, the hydraulic coupler will NOT operate properly when the bucket is attached in reverse orientation.



Hydraulic Coupler Control Box

TX1171396A —UN—09SEP14

1— Front Hook
2— Pin

3— Hydraulic Coupler Control Box

NOTE: The safety buzzer located on the hydraulic coupler control box (3) sounds to alert personnel the lock/unlock function has been activated.

1. Engage front hook (1) on pin (2). Press UNLOCK button on hydraulic coupler control box (3).

Continued on next page

OUT4001,0000866 -19-26JUL21-1/2

NOTE: The hydraulic coupler must be held over relief to lock or unlock the hydraulic coupler cylinder.

2. Rotate to full curl position. Press LOCK button on hydraulic coupler control box. Hold in full curl position for 5 seconds.
3. Slowly uncurl hydraulic coupler. Visually verify supplemental lock contacts locking plate. Visually verify that lock plate is behind attachment pin.

IMPORTANT: Prevent possible damage to the hydraulic coupler. Do not operate attachment when the supplemental lock is used as the primary locking device. Doing so could result in hydraulic coupler malfunction.

4. Continue to slowly uncurl hydraulic coupler. Verify that attachment is properly locked.

Reset Lock Controller

CAUTION: Avoid personal injury. Prevent injury from hydraulic coupler movement. Keep bystanders clear of machine.

The safety buzzer will sound if an error occurs with the hydraulic coupler control box circuit.

1. Lower attachment to ground.
2. Turn key switch to OFF position.



Bucket Rotated to Full Curl Position

3. Press and hold LOCK and UNLOCK buttons on hydraulic coupler control box.
4. Turn key switch to ON position.
5. Continue to press and hold LOCK and UNLOCK buttons for 20 seconds.
6. Safety buzzer and hydraulic coupler control box lights will cycle on and off.
7. After safety buzzer stops, release LOCK and UNLOCK buttons. Resume normal operation. If safety buzzer will not turn off, contact an authorized John Deere dealer.

TX1017663A —UN—17JAN07

OUT4001,0000866 -19-26JUL21-2/2

Unlocking the Hydraulic Coupler From the Attachment—If Equipped

CAUTION: Prevent possible injury or death from unexpected hydraulic coupler movement. Make sure hydraulic coupler is attached correctly to attachment. The supplemental lock can be engaged with the attachment in an incorrect lock position. A visual check is required each time the lock operation is performed.

CAUTION: Avoid personal injury. Prevent injury from hydraulic coupler movement. Keep bystanders clear of machine.

IMPORTANT: Prevent possible hydraulic coupler damage from incorrect installation. Attaching the bucket in a reverse orientation on the hydraulic coupler is not recommended. When installed in the reverse orientation, the bucket or the lift hook interferes with the arm of the excavator when the bucket is in full curl position by extending the bucket cylinder. This is an inherent part of the design of the original equipment.

Since the hydraulic coupler interacts with the arm at full curl position to unlock the supplemental lock, the hydraulic coupler will **NOT** operate properly when the bucket is attached in reverse orientation.

1. Keep attachment close to ground.

NOTE: The hydraulic coupler must be held over relief in order to unlock the hydraulic coupler cylinder.

2. Rotate hydraulic coupler to full curl position to release supplemental lock.

NOTE: The safety buzzer located on the hydraulic coupler control box (3) will sound to alert personnel the lock/unlock function has been activated.

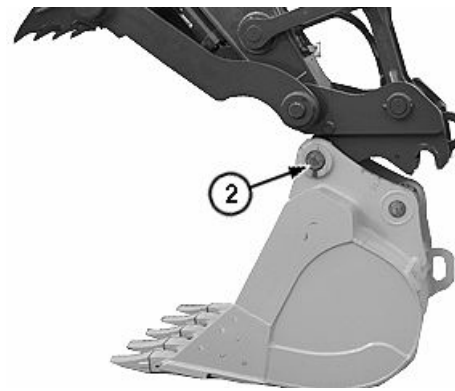
3. Press UNLOCK button on hydraulic coupler control box (3). Hold in full curl position for 5 seconds.
4. Slowly uncurl hydraulic coupler. Front hook (1) will release from pin (2).

Reset Lock Controller

CAUTION: Avoid personal injury. Prevent injury from hydraulic coupler movement. Keep bystanders clear of machine.

The safety buzzer will sound if an error occurs with the hydraulic coupler control box circuit.

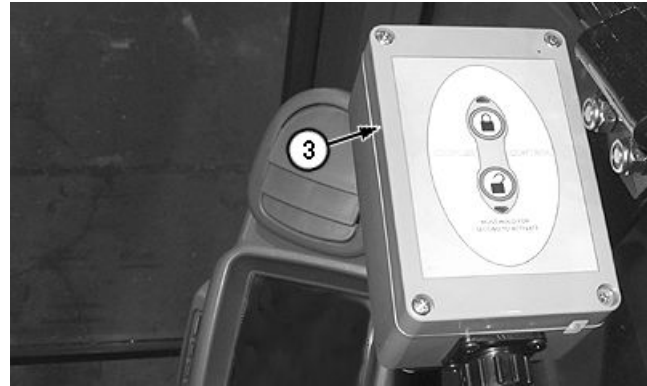
1. Lower attachment to ground.
2. Turn key switch to OFF position.



Hydraulic Coupler Pin



Front Hook on Hydraulic Coupler



Hydraulic Coupler Control Box

1— Front Hook
2— Pin

3— Hydraulic Coupler Control
Box

3. Press and hold LOCK and UNLOCK buttons on hydraulic coupler control box.
4. Turn key switch to ON position.
5. Continue to press and hold LOCK and UNLOCK buttons for 20 seconds.
6. Safety buzzer and hydraulic coupler control box lights will cycle on and off.
7. After safety buzzer stops, release LOCK and UNLOCK buttons. Resume normal operation. If safety buzzer will not turn off, contact an authorized John Deere dealer.

Continued on next page

OUT4001,0000867 -19-26JUL21-1/2

TX1017662A —UN—17JAN07

TX1017664A —UN—17JAN07

TX1171396A —UN—09SEP14

Control Lever Pattern Operation

CAUTION: Avoid personal injury from unexpected machine movement. Never place any part of body beyond window frame to avoid serious crushing injury from boom. Boom could lower if the pilot control lever is accidentally bumped or otherwise engaged. Immediately replace a missing or broken window.

Prevent injury from unexpected pilot control lever function. Be aware of the pilot control lever pattern used on the machine before operating.

The machine comes equipped from the factory with the excavator pilot control lever pattern. A label with both the excavator and backhoe pilot control lever patterns is installed on the right cab window.

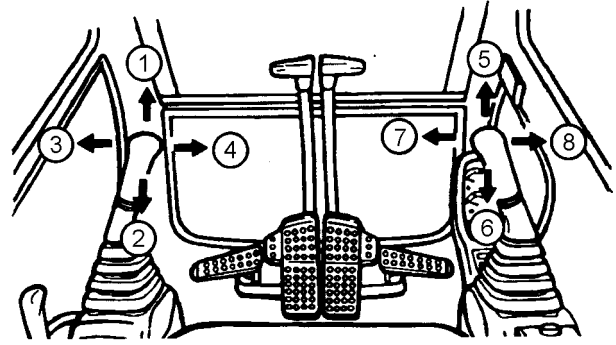
Check the patterns on the label. Carefully operate the pilot control levers to verify the pattern on machine.

NOTE: A control pattern selector is an available field kit that when installed allows operator to change the pilot control lever pattern using a mechanical valve.

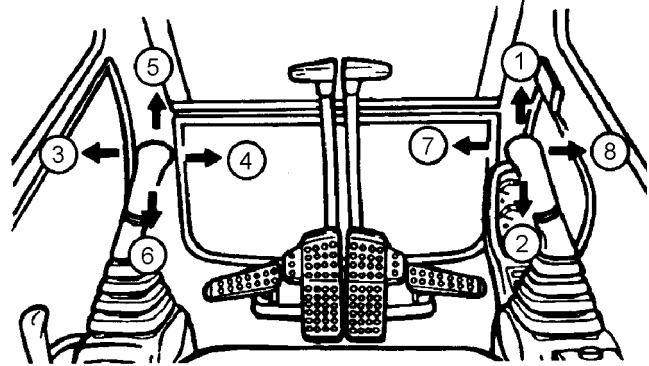
To change the pattern from excavator to backhoe, see Mechanical Control Lever Pattern Selector—If Equipped in this section.

Pilot control levers return to neutral when released. Functions stop and remain positioned. The parking brake for swing and travel engages.

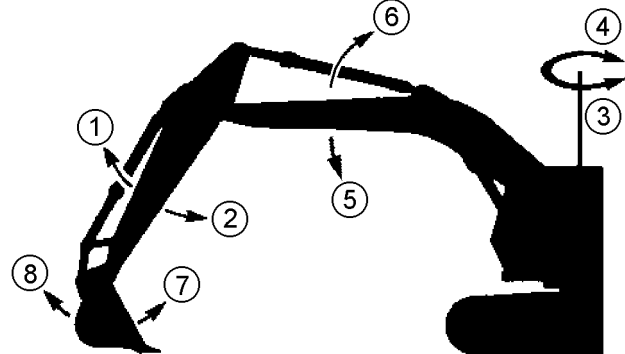
- | | |
|---------------|---------------|
| 1—Arm Out | 5—Boom Down |
| 2—Arm In | 6—Boom Up |
| 3—Swing Left | 7—Bucket Curl |
| 4—Swing Right | 8—Bucket Dump |



Excavator Pilot Control Lever Pattern



Backhoe Pilot Control Lever Pattern



Boom, Arm, and Bucket Movement

CN93077,000025D -19-27FEB18-1/1

T137500 —UN—25JAN01

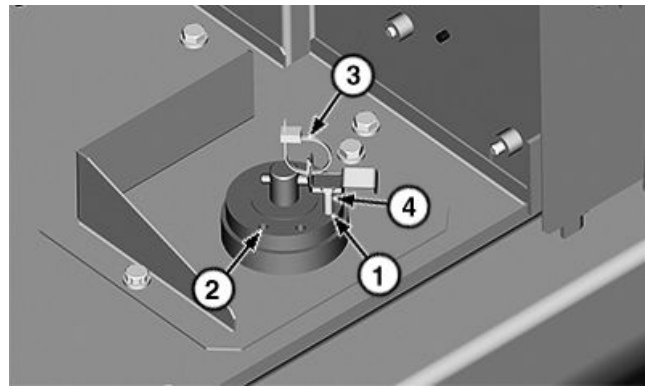
T137498 —UN—25JAN01

T137499 —UN—25JAN01

Mechanical Control Lever Pattern Selector—If Equipped

The machine pilot control levers can be changed from the standard EXCAVATOR control pattern (1) to a BACKHOE control pattern (2). To change control pattern:

1. Park machine on a level surface.
2. Run engine at slow idle speed without load for 3 minutes.
3. Place pilot shutoff lever in the locked (UP) position.
4. Turn key switch to OFF position to stop engine. Remove key from switch.
5. Open left front service door to access the mechanical control lever pattern selector.
6. Remove tie band (3).
7. Remove locking screw (4).
8. Turn selector lever to the standard EXCAVATOR control pattern or BACKHOE control pattern.
9. Install locking screw.



Mechanical Control Lever Pattern Selector

- | | |
|------------------------------|------------------|
| 1— EXCAVATOR Control Pattern | 3— Tie Band |
| 2— BACKHOE Control Pattern | 4— Locking Screw |

10. Install tie band.
11. Close left front service door.

CN93077,0000257 -19-15MAR18-1/1

TX1254021A —UN—15MAR18

Control Lever Pattern Conversion

1. Park and prepare machine for service.

CAUTION: To avoid injury from escaping fluid under pressure, stop engine and relieve the pressure in the system before disconnecting or connecting hydraulic or other lines. Tighten all connections before applying pressure.

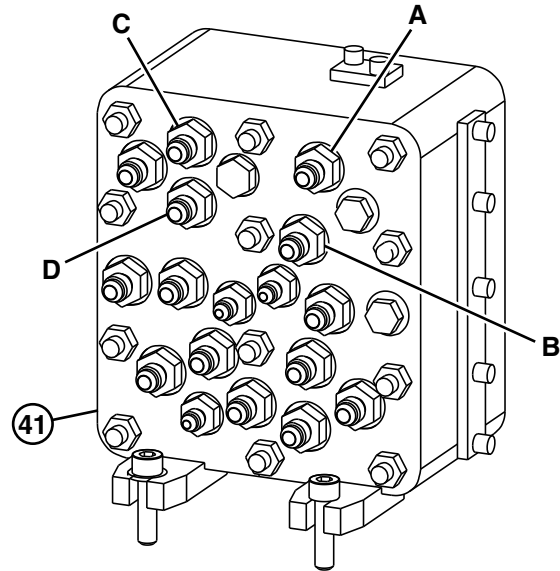
2. Release hydraulic oil tank pressure by pushing pressure release button on top of hydraulic oil tank.
3. Stop engine and turn key to the ON position. Place pilot shutoff lever in unlocked (DOWN) position. Move control levers back and forth, and right and left several times to release remaining pressure in hydraulic lines.

NOTE: When going from excavator to backhoe pattern, moving boom up (A) hose to arm in (D) port, a fabricated hose size -6 JIC male x female approximately 150 mm (6 in) long, is needed.

4. Switch pilot line boom up (A) with arm in (D) port. Switch pilot line boom down (B) with arm out (C) port.
5. To view control lever patterns, see Control Lever Pattern Operation in this section.

EXCAVATOR PATTERN			
	FUNCTIONS	PILOT SIGNAL MANIFOLD	
		PILOT CONTROL VALVE SIDE	CONTROL VALVE SIDE
Right	BUCKET DUMP	H	8
	BOOM DOWN	B	2
	BUCKET CURL	G	7
	BOOM UP	A	1
Left	SWING RIGHT	F	6
	ARM OUT	C	3
	SWING LEFT	E	5
	ARM IN	D	4

NOTE: Letters and numbers are on the housing next to the ports.



Pilot Control Valve Side

41— Pilot Signal Manifold (pilot control valve side) C—Arm Out
A—Boom Up D—Arm In
B—Boom Down

BACKHOE PATTERN			
	FUNCTIONS	PILOT SIGNAL MANIFOLD	
		PILOT CONTROL VALVE SIDE	CONTROL VALVE SIDE
Right	BUCKET DUMP	H	8
	ARM OUT	C	3
	BUCKET CURL	G	7
	ARM IN	D	4
Left	SWING RIGHT	F	6
	BOOM DOWN	B	2
	SWING LEFT	E	5
	BOOM UP	A	1

NOTE: Letters and numbers are on the housing next to the ports.

MM16284,0001B12 -19-10NOV20-1/1

TX1137117 —UN—17JUN13

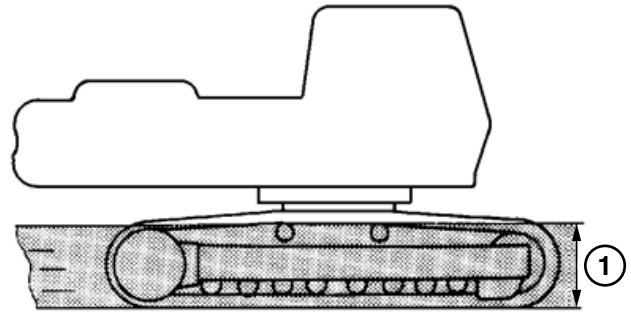
Operating in Water and Mud

Be careful not to operate machine in water or mud above upper track shoe surface (1), causing swing bearing and rotary manifold to be submerged.

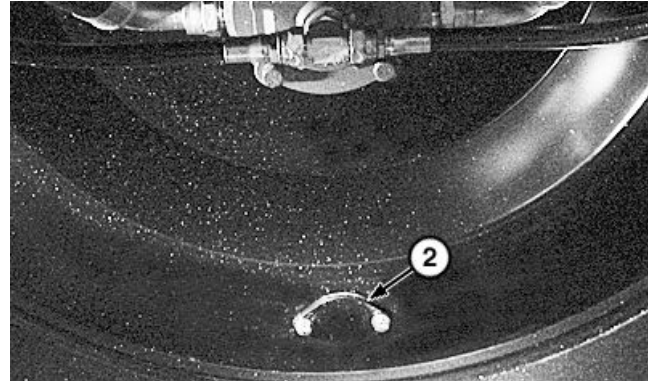
If the swing bearing and rotary manifold are submerged, remove cover from underneath center of machine. Remove drain plug (2) to drain water and mud.

Clean swing gear area. Install plug and cover. Lubricate swing bearing and swing bearing gear. See Lubricate Swing Bearing and Lubricate Swing Bearing Gear. (Section 3-8.)

1— Upper Track Shoe Surface 2— Drain Plug



Upper Track Shoe Surface



Drain Plug (view from underneath)

TX1183074 —UN—27 JAN15

TX1208809A —UN—08 JAN16

CN93077,000074A -19-08JAN16-1/1

Driving Up a Steep or Slippery Slope

CAUTION: Prevent possible injury from machine roll over. Use this technique only on a short slope. Machine depends on support of boom, arm, or bucket during entire procedure until machine reaches top of slope. Repositioning the bucket during this procedure is **NOT** recommended. **DO NOT** swing upperstructure during this procedure. **DO NOT** reposition bucket during this procedure.

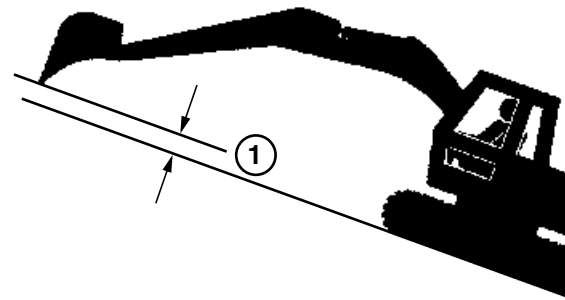
1. Wear seat belt.
2. Keep the bucket at specified height above ground (1) when ascending or descending slopes. If machine starts to slip, becomes unstable, or if engine stalls, lower the bucket immediately.

Specification

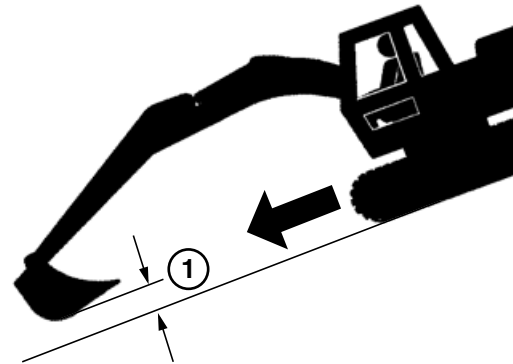
Height Above
Ground—Height.....20—30 cm
8—12 in

3. Do not travel on a slope steeper than 35°.

1— Height Above Ground



Ascending Slope



Descending Slope

TX1183083 —UN—27 JAN15

TX1183084 —UN—27 JAN15

KR46761,0000E3F -19-27FEB18-1/1

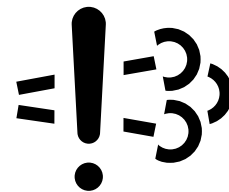
Required Machine Stop Warning

NOTE: Engine emissions system malfunction indicator is for machines equipped with F or L engine.

RG22491 —UN—21AUG13

Machine Stop Mandate Occurs

IMPORTANT: In some situations, machine engine power may be reduced as described. On notification, immediately place the machine in a safe state and move it to a safe location. A mandated machine stop can only be removed by a service technician.



Engine Emissions System Malfunction Indicator

Engine emissions system malfunction indicator illuminates when an emission-related fault occurs.

TX,MACH,STOP,WARNING -19-23JUN20-1/6

Warning indicator illuminates when a condition exists which requires operator action.

RG22492 —UN—21AUG13



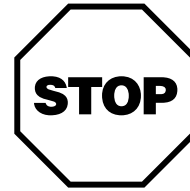
Warning Indicator

Continued on next page

TX,MACH,STOP,WARNING -19-23JUN20-2/6

Engine stop indicator illuminates when a condition exists which requires immediate operator action and service.

RG22493 —UN—21AUG13



Engine Stop Indicator

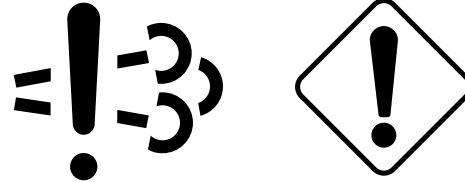
TX,MACH,STOP,WARNING -19-23JUN20-3/6

Emission System Fault Has Occurred

RG26361 —UN—04SEP14

Four hours or less remaining, engine emissions system malfunction and warning indicators are illuminated to warn operator of emissions-related fault. Two hours or less when pop-up is displayed.

- Engine power is normal.
- Machine operation is normal.
- Place machine in a safe state.
- Contact service provider.

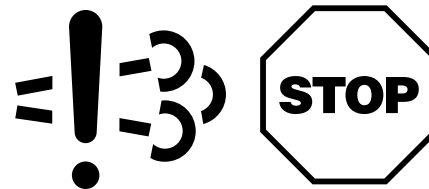


Engine Emissions System Malfunction and Warning Indicators

TX,MACH,STOP,WARNING -19-23JUN20-4/6

Sixty minutes remaining, engine emissions system malfunction and engine stop indicators are illuminated and alarm sounds to warn operator of emissions-related fault. Sixty minutes or less from when pop-up is displayed until final power restriction.

RG26972 —UN—26MAR15

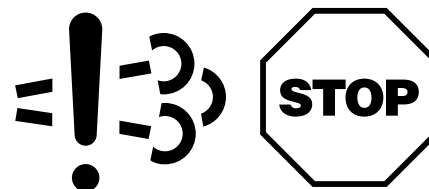


Engine Emissions System Malfunction and Engine Stop Indicators

TX,MACH,STOP,WARNING -19-23JUN20-5/6

Two minutes or less remaining, engine emissions system malfunction and engine stop indicators are illuminated and alarm sounds to warn operator of emissions-related fault which has not been corrected. "DEF System Fault-Engine Power and Speed Limited" is displayed on machines with monitors.

RG26972 —UN—26MAR15



Engine Emissions System Malfunction and Engine Stop Indicators

TX,MACH,STOP,WARNING -19-23JUN20-6/6

Lifting

⚠ CAUTION: Prevent possible injury when lifting. Observe these rules when lifting machine:

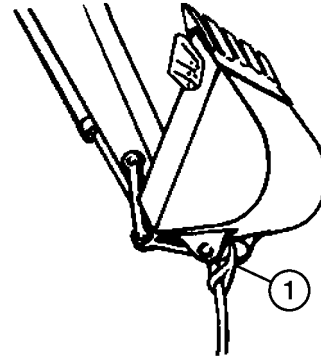
- Never move a load over a bystander's head.
- Never use machine to lift people.
- Keep everyone clear of raised loads.
- Do not exceed lift capacity limits.
- Never attach sling or chain to bucket teeth.
- Use tether lines to guide loads.
- Use hand signals to communicate with others.
- Never move load suddenly.
- Keep all bystanders away from raised load until blocks are supporting it or load is sitting on the ground.

For more information on lifting, see Use Special Care When Lifting Objects. (Section 1-3.)

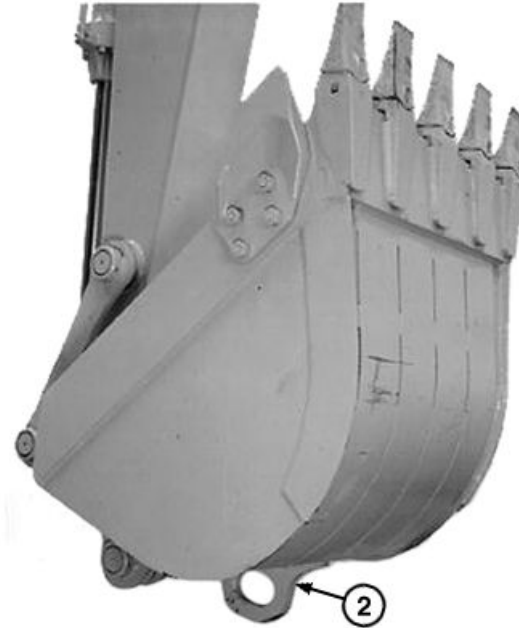
For more information on lift capacity limits, see Miscellaneous—Specifications.

1. Use proper rigging to attach and stabilize loads.
2. Without bucket loop: Curl bucket and retract arm. Fasten sling or chain to bucket pivot pin (1).

With bucket loop: Curl bucket and retract arm. Fasten sling or chain to bucket loop (2).
3. Coordinate hand signals with signal person before starting.
4. Know location of all bystanders in working area.
5. Attach a hand line to load and make sure person holding hand line is away from load.
6. Check stability by carefully doing a trial lift:
 - Park machine close to load.
 - Attach load to machine.
 - Raise load 50 mm (2 in) above ground.
 - Swing load all the way to one side.
 - While keeping load close to ground, move load away from machine.
 - If there is any indication of reduced stability of machine, lower load to ground.



Without Bucket Loop



With Bucket Loop

1— Bucket Pivot Pin

2— Bucket Loop

7. Lift load only as high as necessary.

TX,LIFTING -19-13JUL20-1/1

TX1144511 —UN—24OCT13

TX1144666 —UN—24OCT13

Lower Boom With Engine Stopped

When an engine stops during operation, the boom cannot be lowered using the pilot controller because there is no pilot pressure oil to move the boom valve spool.

CAUTION: Prevent possible injury from unexpected machine movement. Clear all persons from the area before lowering the boom with the engine stopped.

1. Remove control valve access cover.

CAUTION: To avoid injury from escaping oil under pressure, stop engine and relieve the pressure in the system before disconnecting or connecting hydraulic or other lines. Tighten all connections before applying pressure.

NOTE: Never loosen boom manual lower screw (2) more than two turns as boom manual lower screw may come off.

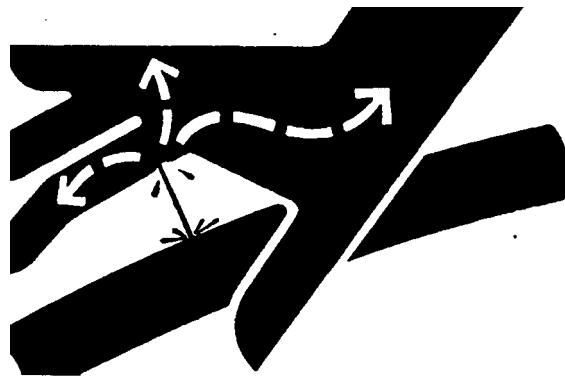
2. Loosen nut (1). Loosen boom manual lower screw (2) 1/2 turn. The boom will start to lower. The boom lowering speed can be adjusted by loosening screw more.
3. After the bucket is lowered to the ground, tighten screw, then nut to specification.

Specification

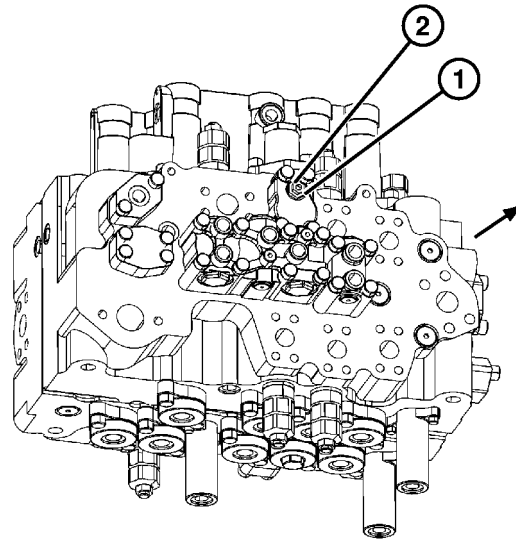
Screw—Torque.....	7 N·m 62 lb·in
Nut—Torque.....	13 N·m 115 lb·in

1— Nut

2— Boom Manual Lower Screw



Pressurized Fluids



TX1000642

Control Valve

DB84312,00000DB -19-30NOV18-1/1

X9811 —UN—23AUG88

TX1000642 —UN—29NOV05

Parking the Machine

IMPORTANT: During freezing weather, prevent damage to undercarriage components from frozen mud and dirt. Machine must be parked on a solid, level surface to prevent tracks freezing in the ground.

1. Park machine on a solid, level surface.

During freezing weather, clean mud and dirt from tracks, rollers, and track frames. Clean the steps and walkways after parking the machine.

If tracks are frozen in the ground, slowly raise the machine using boom to free the tracks. Move machine carefully.

2. Lower equipment to the ground.
3. Turn auto-idle switch (1) to the A/I OFF position.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

4. Run engine with engine speed dial (2) at 1/3 position without load for 2 minutes.
5. Turn engine speed dial to slow idle position.
6. Turn key switch (3) to the OFF position. Remove key from switch.
7. Place pilot shutoff lever (4) to locked (UP) position.

IMPORTANT: Prevent cab electrical component damage from bad weather. Windows, roof vent, and cab door must be closed to prevent rain from entering.

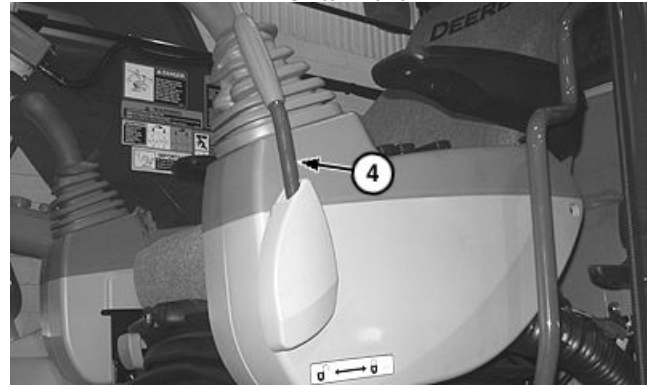
8. Close windows, roof vent, and cab door.
9. If machine is to be parked overnight, turn battery disconnect switch to OFF position. See Battery Disconnect Switch in this section.

If storing longer than overnight, see Miscellaneous—Storage. (Section 4-4.)

10. Lock all access doors and compartments.



Switch Panel



Pilot Shutoff Lever

- | | |
|---------------------|-----------------------|
| 1—Auto-Idle Switch | 3—Key Switch |
| 2—Engine Speed Dial | 4—Pilot Shutoff Lever |

TX1087012A—UN—18JAN11

TX1087013A—UN—18JAN11

CN93077,0000260 -19-17MAR16-1/1

Loading Machine for Transport

NOTE: Follow all federal, state, and local regulations when transporting machine on public roads.

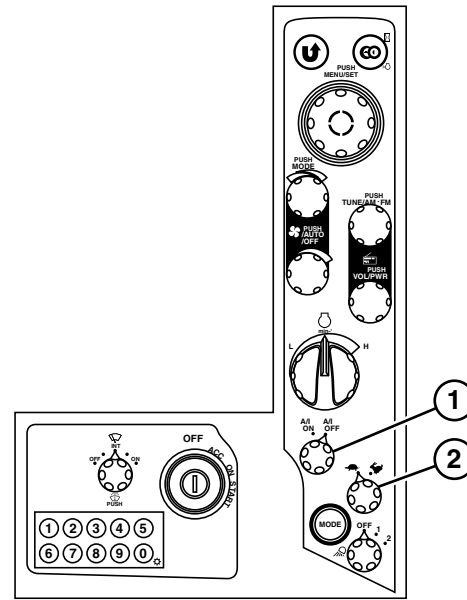
1. Select appropriate transportation equipment for the machine. See Machine Specifications. (Section 4-6.)
2. Park trailer on a level surface when loading and unloading the machine.
3. Start the engine. See Starting Engine in this section.
4. When positioning the machine, use the bucket for support with the arm to boom at a 90° angle.

CAUTION: Prevent possible injury from unexpected machine movement. Turn auto-idle switch (1) to the AI/OFF position. Use slow speed operating modes and move machine carefully.

5. Turn auto-idle switch (1) to the AI/OFF position.
6. Turn travel mode switch (2) counterclockwise to select slow (turtle) speed travel.

CAUTION: Prevent crushing injury or death. The machine is unstable if not centered. Position machine center line over trailer bed center line.

IMPORTANT: Prevent machine or trailer damage. Significant impact from the machine or bucket will cause damage to machine or trailer. Use caution when loading the machine.



Switch Panel

1—Auto-Idle Switch

2—Travel Mode Switch

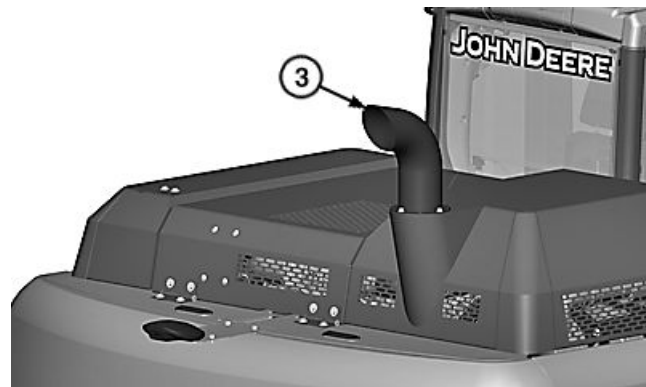
7. Before leaving the operator's seat, lower all equipment onto blocks and park the machine. See Parking the Machine in this section.

TD48962,00001DB -19-12FEB20-1/3

IMPORTANT: Prevent possible system contamination. To prevent moisture and foreign debris from entering the machine, it is essential that the exhaust pipe (3) is covered.

8. Cover the exhaust pipe (3) to prevent moisture and foreign debris from entering and damaging the machine.

3—Exhaust Pipe

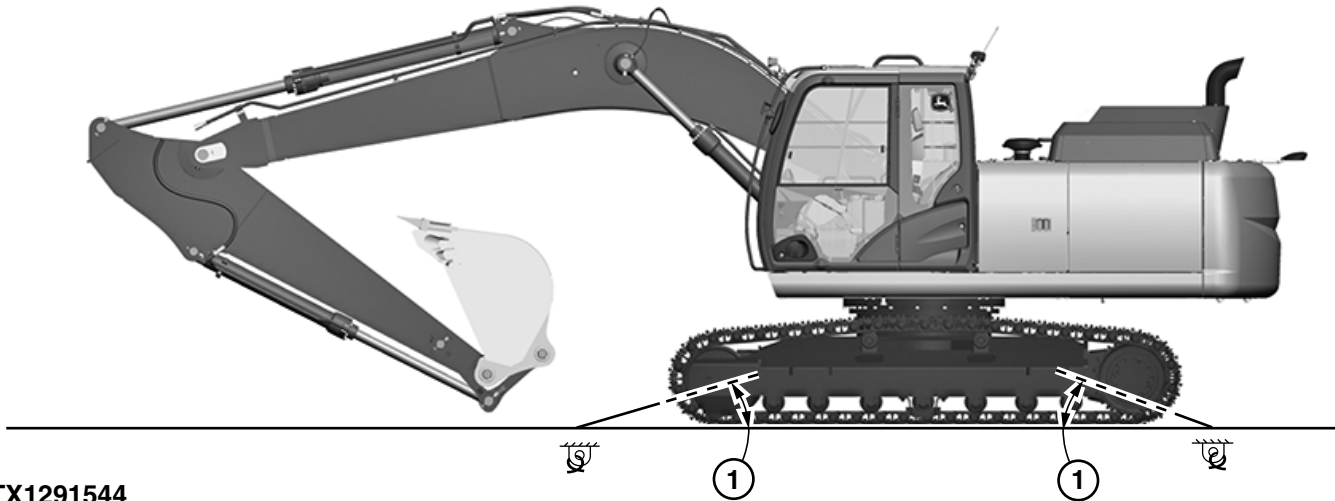


Exhaust Pipe

Continued on next page

TD48962,00001DB -19-12FEB20-2/3

Securing Machine for Transport

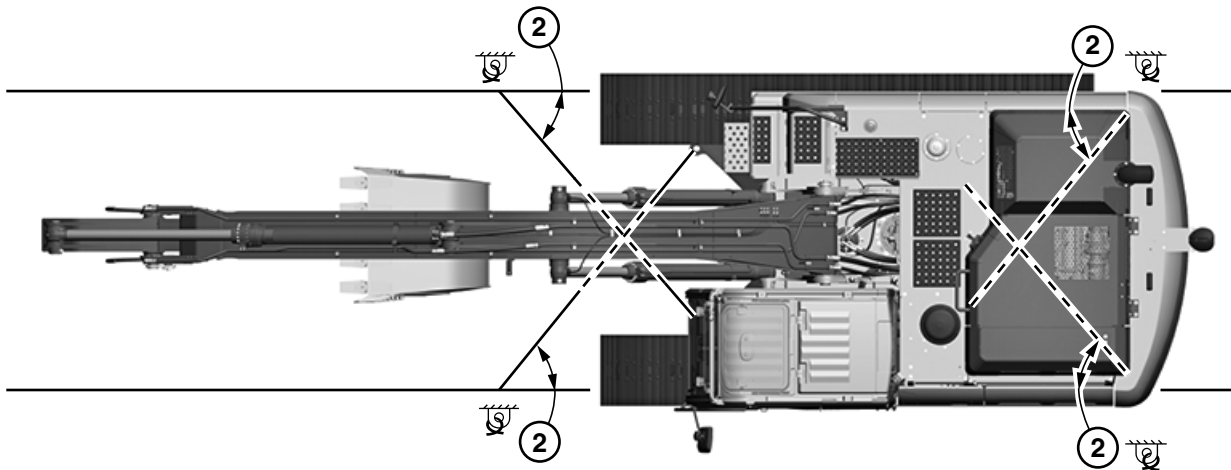


TX1291544

Machine (left side shown)

1—Vertical Tiedown Angle (4 used)

TX1291544 —UN—23JAN20



TX1291545

Machine (top of machine shown)

2—Side Tiedown Angle (4 used)

IMPORTANT: Avoid machine damage. Placing chains or cables over or against hydraulic lines or hoses can damage the lines and hoses. Use care when fastening chains or cables to the machine frame.

1. Fasten machine to trailer using chains or cables with the appropriate load binder at the front and rear frame tiedown points.
2. Ensure vertical and side tiedown angles (1 and 2) have angles between 20°—40°.
3. Fasten all equipment to trailer using chains or cables with appropriate load binder.

TX1291545 —UN—28JAN20

TD48962,00001DB -19-12FEB20-3/3

Towing-Recovery Procedure

CAUTION: Prevent possible injury from unexpected machine movement. When travel gear cases are disconnected, the machine has no brakes and can move. Place blocks at front and rear of tracks to prevent machine from rolling.

1. Block tracks.
2. Drain oil from each travel gear case.
3. Remove cover from each gear case.
4. Remove sun gear (1) from each gear case.

CAUTION: Prevent possible injury from recovery device (3) breaking. Do not recover a machine with frayed or damaged cables, chains, slings, straps, or wire recovery device. Use appropriate recovery device.

CAUTION: Prevent possible injury from pinching fingers in recovery device. Wear gloves.

5. Install cover. Fill gear case with oil.

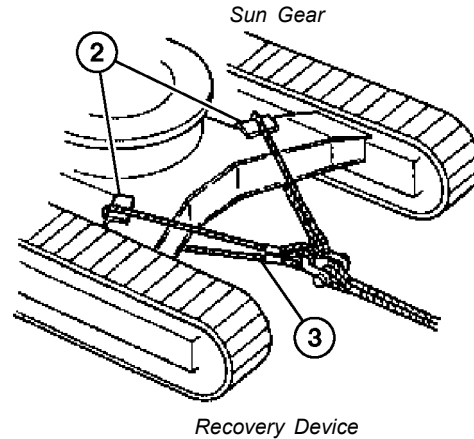
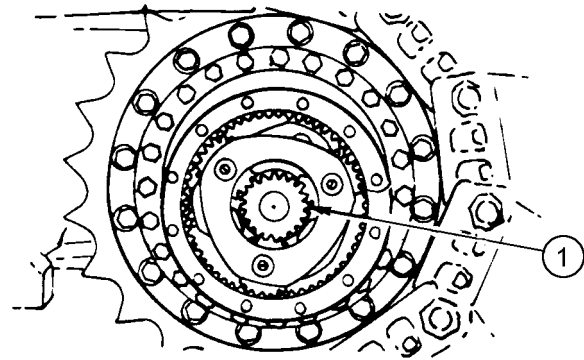
IMPORTANT: Avoid machine damage. Use protective material (2) between track frame and recovery device (3).

NOTE: Machines should be as close together as possible.

6. Connect the appropriate recovery device (3) to the track frame of the machine being recovered.

CAUTION: Prevent possible injury from unexpected machine movement. Keep bystanders away and operator off of machine being recovered.

7. Unblock tracks.
8. Slowly recover machine.



1— Sun Gear
2— Protective Material

3— Recovery Device

T137511 —UN—25/JAN/01

TX1192436 —UN—06/MAY/15

CN93077,000059D -19-08SEP20-1/1

Lifting With Bucket Loop

⚠ CAUTION: Avoid possible injury from unexpected machine movement. Lifting requires special care. Observe these rules when lifting with the machine:

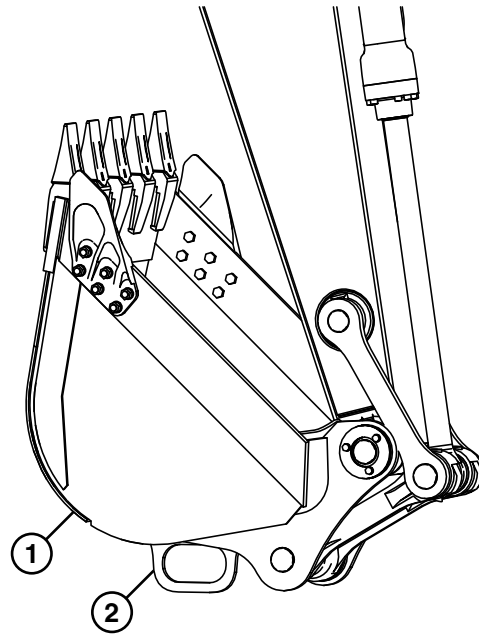
- Never move a load over a bystander's head.
- Never use machine to lift people.
- Keep everyone clear of raised loads.
- Do not exceed lift capacity limits.
- Never attach sling or chain to bucket teeth.
- Use tether lines to guide loads.
- Use hand signals to communicate with others.
- Never move load suddenly.
- Keep all bystanders away from raised load until blocks are supporting it or load is sitting on the ground.

For more information on lifting, see Use Special Care When Lifting Objects. (Section 1-3.)

For machine lift capacity, see Miscellaneous—Specifications.

1. Use proper rigging to attach and stabilize loads.
2. Check stability by carefully doing a trial lift:

- Raise load just off ground.
- Swing load all the way to one side.
- Move load slowly away from machine.



Bucket With Bucket Loop

1— Bucket

2— Bucket Loop

- Lower load immediately if machine is not stable.

TX1227481 —UN—01NOV16

MB60223,0000020 -19-01NOV16-1/1

Lifting With John Deere Quick Coupler

CAUTION: Avoid possible injury from unexpected machine movement. Lifting requires special care. Observe these rules when lifting with the machine:

- Do NOT exceed the coupler lifting capacity.
- Do NOT exceed machine lift capacity.
- Never use machine to lift people.
- Never move a load over a bystander's head.
- Use tether lines to guide loads.
- Use hand signals to communicate with others.
- Never move load suddenly.
- Keep all bystanders away from raised load until blocks are supporting it or load is sitting on the ground.

NOTE: Machine lift capacity may exceed the John Deere Quick Coupler lift point capacity.

For more information on lifting, see Use Special Care When Lifting Objects. (Section 1-3.)

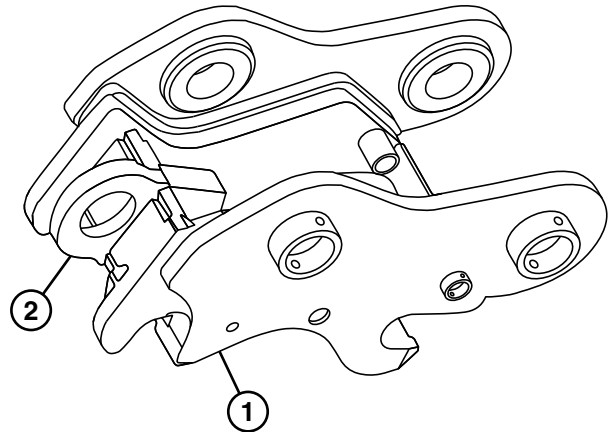
The John Deere Quick Coupler (1) is designed with a built-in lift point (2).

Specification

John Deere Quick Coupler Lift Point Lifting Capacity—Weight.....	4989 kg 11 000 lb
--	----------------------

Refer to the lift capacity chart for the machine lift capacity in various machine positions and track width. For machine lift capacity, see Miscellaneous—Specifications. (Section 4-6.)

1. Use proper rigging to attach and stabilize loads.



John Deere Quick Coupler

1— John Deere Quick Coupler 2— Lift Point

2. With John Deere Quick Coupler: Fasten sling or chain to lift point.
3. Check stability by carefully doing a trial lift:
 - Raise load just off ground.
 - Swing load all the way to one side.
 - Move load slowly away from machine.
 - Lower load immediately if machine is not stable.

MB60223,0000049 -19-24MAY16-1/1

TX1209202 —UN—13JAN16

Lifting the Machine

CAUTION: Prevent possible injury from unexpected machine movement when lifting the machine. Check lifting capacity of crane before lifting the excavator. Lift load only as high as necessary. Keep all people clear of raised load.

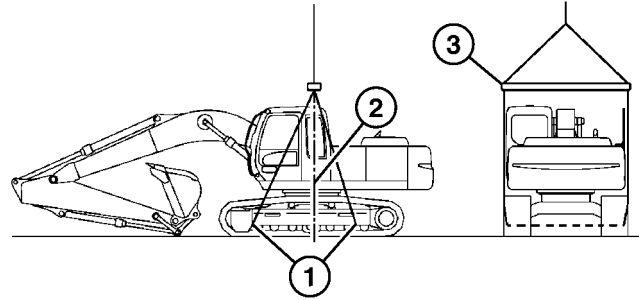
NOTE: The center of gravity (2) will vary depending on the kind of attachment.

NOTE: Refer to decals on machine for correct lifting points (1). There are two lifting points on each side of the undercarriage.

1. Fully extend the boom, arm, and bucket cylinders.
2. Position the boom straight ahead of the upperstructure.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

3. Run engine at slow idle speed without load for 5 minutes.
4. Turn key switch to OFF. Remove key from switch.
5. Pull the pilot control shutoff lever to the locked (UP) position.
6. Close and lock all doors and covers.



Lifting Machine

1— Lifting Point (4 used)
2— Center of Gravity

3— Support Bar

7. Route appropriate lifting device through lifting points (1) and under both sides of the track frame as illustrated.
8. Attach appropriate lifting device to crane.
9. Slowly lift the machine.

Specification

Machine—Weight	
(approximate).....	26 453 kg
	58 319 lb

CN93077,000024F -19-24JAN18-1/1

TX1156707 —UN—27MAR14

Maintenance—Machine

Required Emission-Related Information

Service Provider

A qualified 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 -19-12JUN15-1/1

Diesel Fuel

Consult a local fuel distributor for properties of the diesel fuel available in the 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 fuel that meets EN 590 or ASTM D975 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 43 minimum. Cetane number greater than 47 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5000 ft).

Cloud Point should be below the expected lowest ambient temperature or **Cold filter plugging point** (CFPP) should be at least 5°C (9°F) below the expected lowest temperature or **Cloud Point** below the expected lowest ambient temperature.

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).

E-Diesel fuel

 **CAUTION: Avoid severe injury or death due to the fire and explosion risk from using 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.

Sulfur Content for Engines That Meet Interim Tier 4, Final Tier 4, Stage III B, Stage IV, and Stage V Engines

- Use ONLY ultra low sulfur diesel (ULSD) fuel with a maximum of 15 mg/kg (15 ppm) sulfur content.

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.

Sulfur Content for Engines That Meet Tier 3 and Stage III A 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.
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact an authorized John Deere dealer.

Sulfur Content for Engines That Meet 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.
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact an authorized 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.

MB60223,0000029 -19-29JUL21-1/1

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 fuel is 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 and regulations can encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

John Deere Stage V Engines Operating in the European Union

Where the engine is to be operated within the Union on diesel or non-road gas-oil, a fuel with a FAME content not greater than 8% volume/volume (B8) shall be used.

John Deere Engines with Exhaust Filter Except Stage V Engines Operating in the European Union

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 can harm the engine's emission control systems and should not be used. Risks include, but are not limited to, more frequent stationary regeneration, soot accumulation, and increased intervals for ash removal.

John Deere Fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B20, and are recommended when using lower biodiesel blends.

John Deere Engines Without Exhaust Filter

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

These John Deere engines can operate on biodiesel blends above B20 (up to 100% biodiesel). Operate at levels above B20 ONLY if the biodiesel is permitted by law and meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 might not fully comply with or be permitted by 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 fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B100, and are recommended when using lower biodiesel blends.

Biodiesel Use Requirements and Recommendations

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and sourced from a BQ-9000 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>.

Biodiesel contains residual ash. Ash levels exceeding the maximums allowed in either ASTM D6751 or EN14214 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present).

The fuel filter can require more frequent replacement when using biodiesel fuel, particularly if switching from diesel. Check engine oil level daily prior to starting engine. A rising oil level can indicate fuel dilution of the engine oil. 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.

When using biodiesel blends up to B20, the following must be considered:

- Cold-weather flow degradation
- Stability and storage issues (moisture absorption, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)
- Possible fuel leakage through seals and hoses (primarily an issue with older engines)
- Possible reduction of service life of engine components

Request a certificate of analysis from your fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult your John Deere dealer for John Deere fuel products to improve storage and performance with biodiesel fuels.

The following must also be considered if using biodiesel blends above B20:

- Possible coking or blocked injector nozzles, resulting in power loss and engine misfire if John Deere fuel additives and conditioners or equivalent containing detergent/dispersants are not used
- Possible crankcase oil dilution (requiring more frequent oil changes)
- Possible lacquering 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, distribution, and storage equipment
- Possible reduction in water separator efficiency
- Possible damage to paint if exposed to biodiesel
- Possible corrosion of fuel injection equipment
- Possible elastomeric seal and gasket material degradation (primarily an issue with older engines)
- Possible high acid levels within fuel system

- Because biodiesel blends above B20 contain more ash, using blends above B20 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present)

IMPORTANT: Raw pressed vegetable oils are NOT acceptable for use as fuel in any concentration in John Deere engines. Their use could cause engine failure.

DX,FUEL7 -19-13JAN18-2/2

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

Supplemental Diesel Fuel Additives

Diesel fuel can be the source of performance or other operational problems for many reasons. Some causes include poor lubricity, contaminants, low cetane number, and a variety of properties that cause fuel system deposits. These and others are referenced in other sections of this Operator's Manual.

To optimize engine performance and reliability, closely follow recommendations on fuel quality, storage, and handling, which are found elsewhere in this Operator's Manual.

To further aid in maintaining performance and reliability of the engine's fuel system, John Deere has developed a family of fuel additive products for most global markets. The primary products include Fuel-Protect Diesel Fuel Conditioner (full feature conditioner in winter and summer formulas) and Fuel-Protect Keep Clean (fuel injector deposit removal and prevention). Availability of these and other products varies by market. See your local John Deere dealer for availability and additional information about fuel additives that might be right for your needs.

DX,FUEL13 -19-07FEB14-1/1

Fuel Filters

The importance of fuel filtration cannot be overemphasized with modern fuel systems. The combination of increasingly restrictive emission regulations and more efficient engines requires fuel system to operate at much higher pressures. Higher pressures can only be achieved using fuel injection components with very close tolerances. These close

manufacturing tolerances have significantly reduced capacities for debris and water.

John Deere brand fuel filters have been designed and produced specifically for John Deere engines.

To protect the engine from debris and water, always change engine fuel filters as specified in this manual.

DX,FILT2 -19-14APR11-1/1

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. 1-D 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 begins to form in the fuel. This wax causes fuel filters to plug. **Pour point** is the lowest temperature at which movement of the fuel is observed.

NOTE: On 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. (See DIESEL ENGINE OIL and ENGINE COOLANT requirements in this section.)

Diesel Fuel Cold Flow Additive

Use John Deere Fuel-Protect Diesel Fuel Conditioner (winter formula), which contains anti-gel chemistry, or equivalent fuel conditioner to treat non-winter grade fuel (No. 2-D 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 Fuel-Protect Diesel Fuel Conditioner (winter formula) or equivalent 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).

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.

DX,FUEL10 -19-13JAN18-1/1

Diesel Exhaust Fluid (DEF) — Use in Selective Catalytic Reduction (SCR) Equipped Engines

In order to maintain the emissions performance of the engine, it is essential to use and refill DEF in accordance with the specification.

RG30211 —UN—08MAR18



Diesel exhaust fluid (DEF) is a high purity liquid that is injected into the exhaust system of engines equipped with selective catalytic reduction (SCR) systems. Maintaining the purity of DEF is important to avoid malfunctions in the SCR system. Engines requiring DEF shall use a product that meets the requirements for aqueous urea solution 32 (AUS 32) according to ISO 22241-1.

The use of John Deere Diesel Exhaust Fluid is recommended. John Deere Diesel Exhaust Fluid is available at your John Deere dealer in a variety of package sizes to suit your operational needs.

If John Deere Diesel Exhaust Fluid is not available, use DEF that is certified by the American Petroleum Institute (API) Diesel Exhaust Fluid Certification Program or by the AdBlue™ Diesel Exhaust Fluid Certification Program. Look for the API certification symbol or the AdBlue™ name on the container.

In some cases, DEF is referred to by one or more of these names:

- Urea
- Aqueous Urea Solution 32
- AUS 32
- AdBlue™
- NOx Reduction Agent
- Catalyst Solution

AdBlue is a trademark of VDA, the German Association of the Automotive Industry.

DX,DEF -19-13JAN18-1/1

Refilling Diesel Exhaust Fluid (DEF) Tank

⚠ CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: Use only distilled water to rinse components that are used to deliver DEF. Tap water can contaminate DEF. If distilled water is not available, rinse with clean tap water, then thoroughly rinse with ample amounts of DEF.

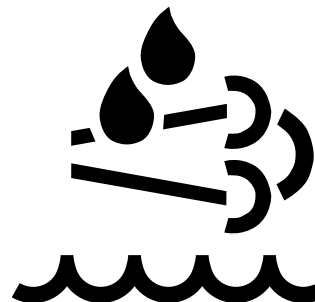
If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

If DEF is filled into engine fuel tank or other fluid compartment, do not operate engine until system is properly purged of DEF. Contact your John Deere dealer immediately to determine how to clean and purge the system.

Reasonable care should be taken when refilling the DEF tank. Ensure that the DEF tank cap area is free of debris before removing the cap. Seal containers of DEF between use to prevent contamination and evaporation.

Avoid splashing DEF and do not allow DEF to come into contact with skin, eyes, or mouth.

DEF is not harmful to handle, but DEF can be corrosive to materials such as steel, iron, zinc, nickel, copper,



aluminum, and magnesium. Use suitable containers to transport and store DEF. Containers made of polyethylene, polypropylene, or stainless steel are recommended.

Avoid prolonged contact with skin. In case of accidental contact, wash skin immediately with soap and water.

Keep anything used to store or dispense DEF clean of dirt and dust. Wash and rinse containers or funnels thoroughly with distilled water to remove contaminants.

If an unapproved fluid, such as diesel fuel or coolant is added to the DEF tank, contact your John Deere dealer immediately to determine how to clean and purge the system.

If water has been added to the DEF tank, a tank cleaning is necessary. See Cleaning DEF Tank in this manual. After refilling the tank, check the DEF concentration. See Testing Diesel Exhaust Fluid (DEF).

The operator must maintain appropriate DEF levels at all times. Check the DEF level daily and refill the tank as needed. The filling port is identified by a blue colored cap embossed with the following DEF symbol.

TS1731 —UN—23AUG13

DX,DEF,REFILL -19-15JUL20-1/1

Testing Diesel Exhaust Fluid (DEF)

IMPORTANT: Using DEF with the correct concentration is critical to engine and aftertreatment system performance. Extended storage and other conditions can adversely alter the DEF concentration.

If DEF quality is questionable, draw a sample out of the DEF tank or storage tank into a clear container. DEF must be crystal clear with a light ammonia smell. If DEF appears cloudy, has a colored tint, or has a profound ammonia smell, it is likely not within specification. DEF in this condition should not be used. Drain tank, flush with distilled water and refill with new or good DEF. After refilling the tank, check the DEF concentration.

If the DEF passes the visual and smell test, check the DEF concentration with a handheld refractometer calibrated to measure DEF.

DEF concentration should be checked when the engine has been stored for extended periods, or if there is

suspicion the engine or packaged DEF fluid has been contaminated with water.

Two approved tools are available through your John Deere dealer:

- JDG11594 Digital DEF Refractometer—A digital tool providing an easy to read concentration measurement
- JDG11684 DEF Refractometer—Low-cost alternative tool providing an analog reading

Follow instructions included with either tool to obtain the measurement.

The correct DEF concentration is 31.8—33.2% urea. If the DEF concentration is not within specification, drain the DEF tank, flush with distilled water and fill with new or good DEF. If packaged DEF is not within specification, dispose of DEF packages and replace with new or good DEF.

DX,DEF,TEST -19-13JUN13-1/1

Storing Diesel Exhaust Fluid (DEF)

CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Materials Safety Data Sheet (MSDS) for additional information.

Do not ingest DEF. In the event DEF is ingested, contact a physician immediately. Reference the Materials Safety Data Sheet (MSDS) for additional information.

IMPORTANT: It is unlawful to tamper with or remove any component of the aftertreatment system. Do not use DEF that does not meet the required specifications or operate the engine with no DEF.

Never attempt to create DEF by mixing agricultural grade urea with water. Agricultural grade urea does not meet the necessary specifications and can damage the aftertreatment system.

Do not add any chemicals or additives to DEF in an effort to prevent freezing. Any chemicals or additives added to DEF can damage the aftertreatment system.

Never add water or any other fluid in place of, or in addition to DEF. Operating with a modified DEF or using an unapproved DEF can damage the aftertreatment system.

Storage information provided below is for reference and is to be used as a guideline only.

It is preferred to store DEF out of extreme ambient temperatures. DEF freezes at -11°C (12°F). Exposure to temperatures greater than 30°C (86°F) can degrade DEF over time. Do not store DEF in direct sunlight.

Dedicated DEF storage containers must be sealed between uses to prevent evaporation and contamination. Containers made of polyethylene, polypropylene, or stainless steel are recommended to transport and store DEF.

Ideal conditions for storage of DEF are:

- Store at temperatures between -5°C and 30°C (23°F and 86°F)
- Store in dedicated containers sealed to avoid contamination and evaporation

Under these conditions, DEF is expected to remain useable for a minimum of 18 months. Storing DEF at higher temperatures can reduce its useful life by approximately 6 months for every 5°C (9°F) temperature above 30°C (86°F).

If unsure how long or under what conditions DEF has been stored, test DEF. See Testing Diesel Exhaust Fluid (DEF).

Long-term storage in the DEF tank (over 12 months) is not recommended. If long-term storage is necessary, test DEF prior to operating engine. See Testing Diesel Exhaust Fluid (DEF).

It is recommended to purchase DEF in quantities that will be consumed within 12 months.

DX,DEF,STORE -19-15JUL20-1/1

Disposal of Diesel Exhaust Fluid (DEF)

Although there is little issue with minor spillage of DEF on the ground, large amounts of DEF should be contained. If large spills occur, contact local environmental authorities for assistance with clean-up.

If a substantial quantity of DEF is not within specification, contact the DEF supplier for assistance with disposal. Do

not dump substantial quantities of DEF onto the ground or send DEF to wastewater treatment facilities.

DX,DEF,DISPOSE -19-13JUN13-1/1

John Deere Break-In Plus™ Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V

New engines are filled at the factory with John Deere Break-In Plus™ Engine Oil. During the break-in period, add John Deere Break-In Plus™ Engine Oil, 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.

During the initial operation of a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and maximum equal to the interval specified for John Deere Plus-50™ II oil.

After engine overhaul, fill the engine with John Deere Break-In Plus™ Engine Oil.

If John Deere Break-In Plus™ Engine Oil is not available, use an SAE 10W-30 viscosity grade diesel engine oil meeting one of the following:

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

If one of these oils is used during the initial operation of a new or rebuilt engine, change the oil and filter between a minimum of 100 hours and a maximum of 250 hours.

IMPORTANT: Do not use any other engine oils during the initial break-in of a new or rebuilt engine.

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 or other diesel engine oil as recommended in this manual.

*Break-In Plus is a trademark of Deere & Company
Plus-50 is a trademark of Deere & Company.*

DX,ENOIL16 -19-13JAN18-1/1

Diesel Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, Stage IV, and Stage V

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.

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 your 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:

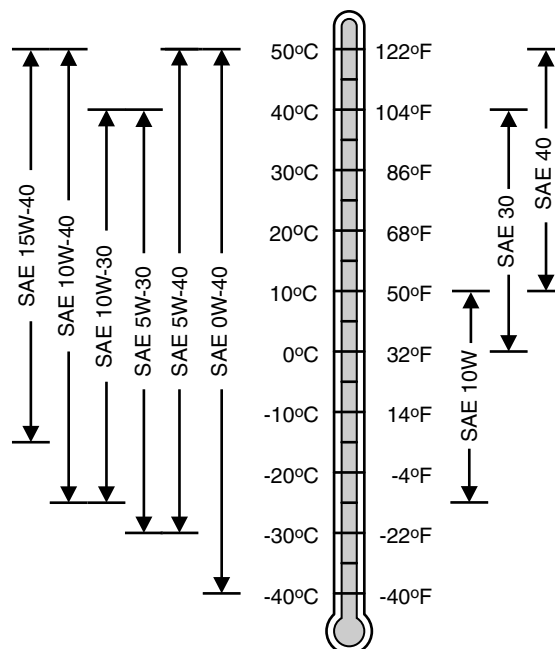
- API Service Category CK-4
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

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.

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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).

TS1743 —UN—25APR19

DX,ENOIL14 -19-23APR19-1/1

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.

Use of diesel fuel with sulfur content less than 15 mg/kg (15 ppm) is **REQUIRED**.

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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 Oil Service Interval for Operation at High Altitude

IMPORTANT: Diesel fuel sulfur content also affects engine oil and filter service intervals. See Engine Oil and Service Intervals in this section to determine the appropriate service interval prior to performing high altitude recommendations.

To avoid excessive oil degradation and potential engine damage, reduce oil and filter service intervals to 50% of the original recommended values when operating engines at altitudes above **1676 m (5500 ft)**.

Oil analysis may allow longer service intervals.

Use only approved oil types.

Example of Original Hours	Corresponding High Altitude Hours
125	60
150	75
175	85
200	100
250	125
275	135
300	150
350	175
375	185
400	200
500	250

TX,ENOIL,SERV,HIALT -19-24JUN20-1/1

Oil Filters

Filtration of oils is critically important for proper operation and lubrication. John Deere brand oil filters have been designed and produced specifically for John Deere applications.

John Deere filters adhere to engineering specifications for quality of the filter media, filter efficiency rating, strength

of the bond between the filter media and the element end cap, fatigue life of the canister (if applicable), and pressure capability of the filter seal. Non-John Deere branded oil filters might not meet these key John Deere specifications.

Always change oil filters regularly as specified in this manual.

DX,FILT1 -19-11APR11-1/1

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

¹Coolant 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

Water Quality for Mixing with Coolant Concentrate

Engine coolants are a combination of three chemical components: ethylene glycol (EG) or propylene glycol (PG) antifreeze, inhibiting coolant additives, and quality water.

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.

All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total solids	<340 mg/L
Total dissolved hardness	<170 mg/L
pH	5.5—9.0

IMPORTANT: Do not use bottled drinking water because it often contains higher concentrations of total dissolved solids.

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,COOL19 -19-13JAN18-1/1

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

Testing Coolant Freeze Point

The use of a handheld coolant refractometer is the quickest, easiest, and most accurate method to determine coolant freeze point. This method is more accurate than a test strip or a float-type hydrometer which can produce poor results.

A coolant refractometer is available through your John Deere dealer under the SERVICEGARD™ tool program. Part number 75240 provides an economical solution to accurate freeze point determination in the field.

To use this tool:

1. Allow cooling system to cool to ambient temperatures.
2. Open radiator cap to expose coolant.
3. With the included dropper, collect a small coolant sample.
4. Open the lid of the refractometer, place one drop of coolant on the window and close the lid.
5. Look through the eyepiece and focus as necessary.
6. Record the listed freeze point for the type of coolant (ethylene glycol coolant or propylene glycol) being tested.



SERVICEGARD™ Part Number 75240

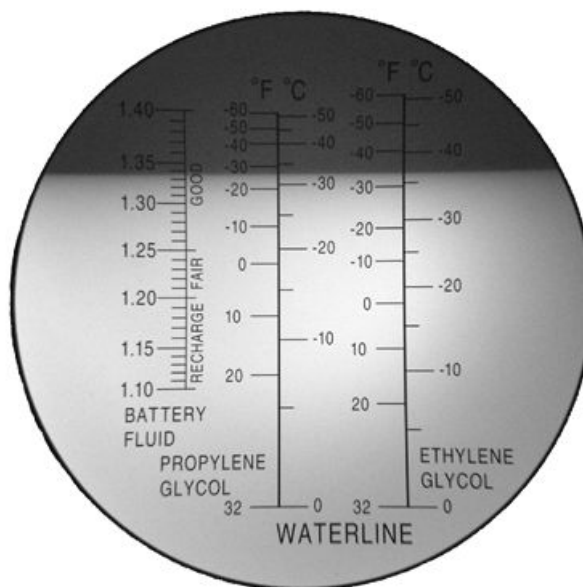


Image with a Drop of 50/50 Coolant Placed on the Refractometer Window

SERVICEGARD is a trademark of Deere & Company

DX,COOL,TEST -19-13JUN13-1/1

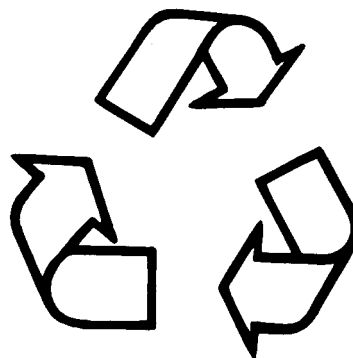
Disposing of Coolant

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 a local environmental or recycling center, or from an authorized John Deere dealer.



Recycle Waste

TX,COOL,DISP -19-26OCT20-1/1

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

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

Hydraulic Oil

IMPORTANT: This machine is factory filled with Zinc-Free Hydraulic Oil 46.

DO NOT MIX ZINC-BASED AND ZINC-FREE OILS.

Flushing system is required when changing from zinc-free to zinc-based oils. Contact authorized dealer for the flushing procedure.

Avoid mixing different brands of oils. Oil manufacturers engineer the oils to meet certain specifications and requirements. Mixing different oils can degrade lubricant and machine performance.

Use oil viscosity based on the expected air temperature range during the period between oil changes.

Low Temperature Operation

- **Do not mix zinc-based and zinc-free oils.**
- A preferred ISO32 hydraulic oil may be added to the machine for low temperature operations. Hydraulic system oil viscosity must be 32Cst at 40°C (104°F) minimum and must not be operated when ambient temperature exceeds 30°C (86°F).
- When switching back to warm-weather operation, a preferred ISO46 hydraulic oil may be added to the machine. The hydraulic system oil viscosity must be 40Cst at 40°C (104°F) minimum and must not be operated when ambient temperature exceeds 40°C (104°F).

Seasonal Hydraulic Flushing

- **Do not mix zinc-based and zinc-free oils.**
- Two hydraulic tank flushes are required when changing hydraulic oils for seasonal operation. Drain and refill tank with new oil (ISO32-cold, ISO46-warm). Operate machine to mix oil in system. Drain and refill tank again. Check oil viscosity.

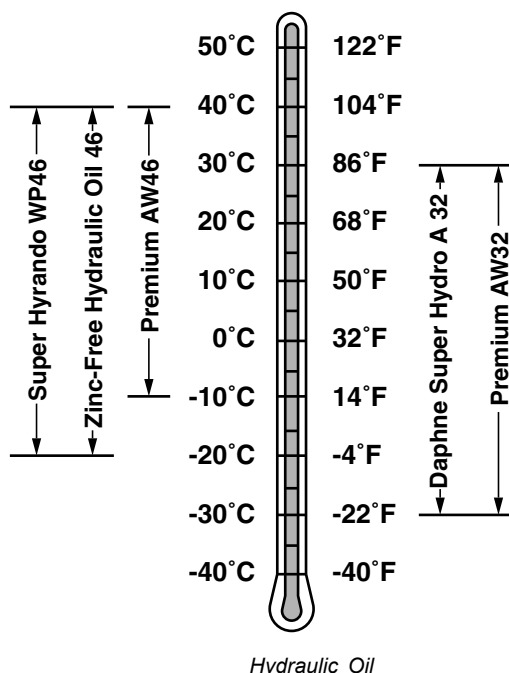
The following oil is preferred:

5000 hour change interval:

- Zinc-Free Hydraulic Oil 46 from John Deere
- Zinc-Free Super Hyrando WP46

2500 hour change interval:

- Zinc-Free Daphne Super Hydro A 32 (for low temperature operation)



1500 hour change interval:

IMPORTANT: Avoid damage to the machine.

Zinc-based oils must not be mixed with 2500 hour and 5000 hour zinc-free oils.

The following products may be zinc-based and can be used provided a complete hydraulic system flush has been performed. Contact an authorized dealer for this procedure.

Premium AW oil: AW46 or AW32 (for low temperature operation)

Biodegradable Hydraulic Oil:

IMPORTANT: Other fire resistant and readily biodegradable oil (also called FR oils) are not approved in John Deere Construction and Forestry equipment.

Use only Exxon Mobil EAL EnviroSyn 46H Synthetic Esther Oil when biodegradable oil is required. Contact an authorized John Deere dealer for this Registration and Routine Oil Analysis to meet warranty requirements.

TX, HYDOIL, D -19-16FEB22-1/1

TX1320463 —UN—09FEB22

Pump Drive Gear Case Oil

IMPORTANT: This machine can use 15W/40 engine oil or 80/90 gear oil in the pump drive gear case.

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oil is preferred:

- John Deere Plus-50™ II

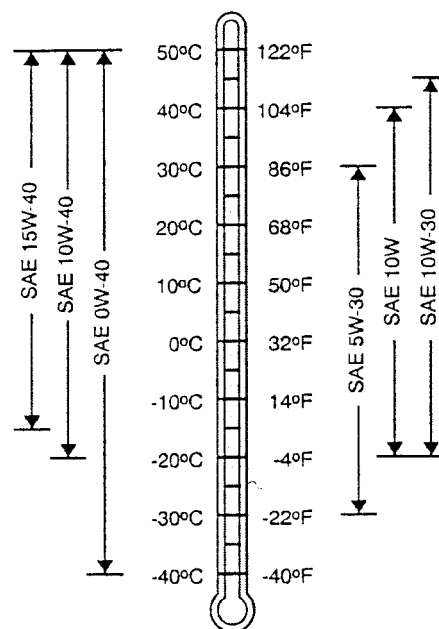
The following oil is also recommended:

- John Deere Torq-Gard™

Other oils may be used if they meet one or more of the following:

- API Service Category CI-4
- API Service Category CH-4
- API Service Category CG-4

Plus-50 is a trademark of Deere & Company
Torq-Gard is a trademark of Deere & Company



Pump Gear Case Oil

T197398 —UN—21JAN04

DB84312,000008E -19-29APR14-1/1

Swing Gear Case and Travel Gear Case Oils

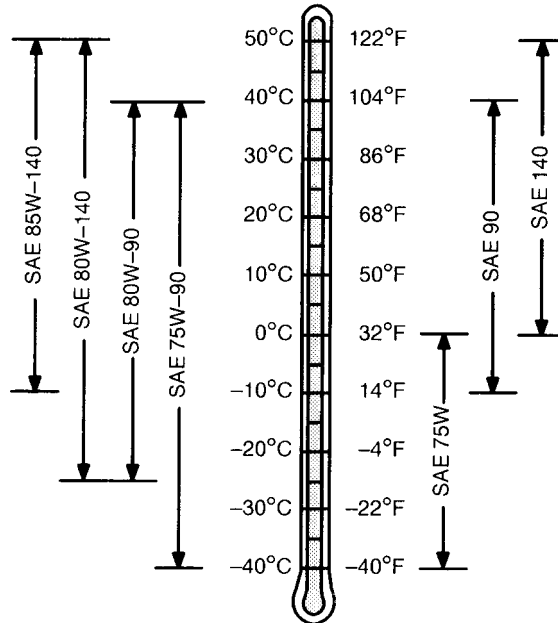
Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oils are preferred:

- John Deere GL-5 Gear Lubricant
- John Deere EXTREME-GARD™

Other oils may be used if they meet the following:

- API Service Category GL-5



Swing Gear Case Oil

TS1653 —UN—14MAR96

EXTREME-GARD is a trademark of Deere & Company

VD76477,00001F6 -19-29APR14-1/1

Track Adjuster, Working Tool Pivot, Swing Bearing, and Swing Bearing Gear Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following grease is preferred:

- John Deere SD POLYUREA GREASE

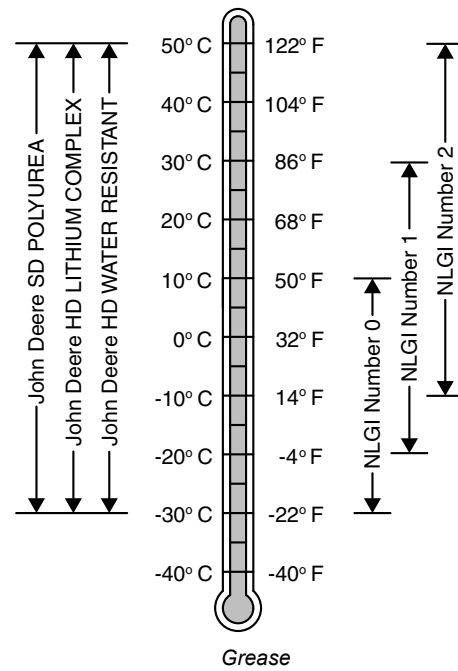
The following greases are also recommended:

- John Deere HD MOLY GREASE
- John Deere HD LITHIUM COMPLEX GREASE
- John Deere HD WATER RESISTANT GREASE

Other greases may be used if they meet the following:

- NLGI Performance Classification GC-LB

IMPORTANT: Some types of grease thickener are not compatible with others. Consult grease supplier before mixing different types of grease.



TX1237263 —UN—11APR17

OUT4001,00007D4 -19-11APR17-1/1

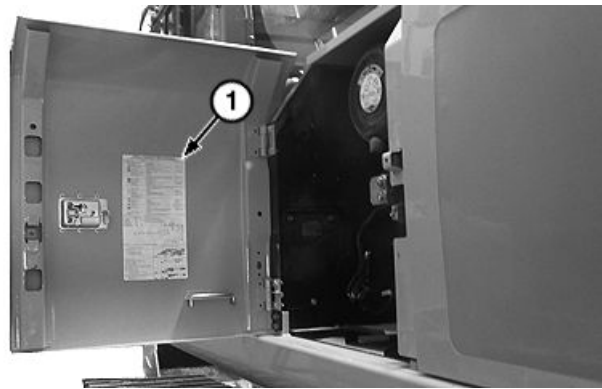
Maintenance—Periodic Maintenance

Service Machine at Specified Intervals

Lubricate and make service checks and adjustments at intervals shown on the periodic maintenance chart (1) and on the following pages.

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.

1— Periodic Maintenance Chart



Periodic Maintenance Chart

KR46761,0000BD6 -19-10MAR14-1/1

TX1155981A —UN—10MAR14

Check the Hour Meter Regularly

NOTE: Hour meter display is located in the upper right corner of the monitor.

Hour meter (1) displays total machine operation hours. Use the hour meter to determine when machine needs periodic maintenance.

Turn key to the ON position to view the default screen and the hour meter.

Intervals on the periodic maintenance chart are for operating in normal conditions. If operating the machine in severe conditions, machine should be serviced at shorter intervals.



Hour Meter

1— Hour Meter

KR46761,0000BCF -19-24JUN15-1/1

TX1160747A —UN—15MAY14

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.

1. Park machine on a level surface as shown.
2. Lower equipment to the ground.
3. Turn auto-idle switch (1) to the A/I OFF position.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

4. Run engine with engine speed dial (2) at 1/3 position without load for 2 minutes.
5. Turn engine speed dial to slow idle position.
6. Turn key switch (3) to the OFF position. Remove key from switch.
7. Place pilot shutoff lever (4) to locked (UP) position.

IMPORTANT: Avoid machine damage. After turning key switch to OFF position, only turn battery disconnect switch to OFF position when indicator light no longer illuminates.

8. Turn battery disconnect switch to the OFF position. See Battery Disconnect Switch. (Section 2-3.)

1— Auto-Idle Switch
2— Engine Speed Dial

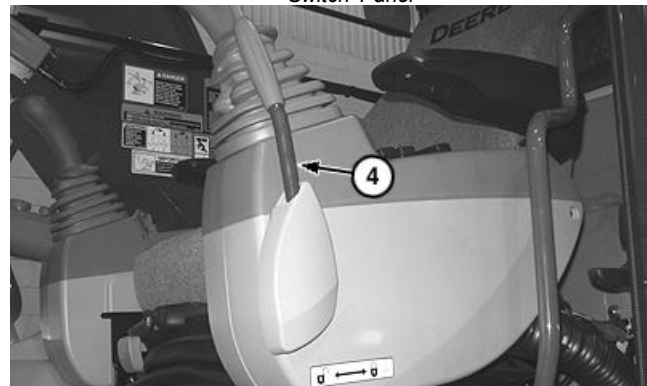
3— Key Switch
4— Pilot Shutoff Lever



Machine Position



Switch Panel



Pilot Shutoff Lever

KR46761,0000C05 -19-19APR16-1/1

T6811AI —UN—18OCT88

TX1087012A —UN—18JAN11

TX1087013A —UN—18JAN11

Open Access Doors for Service

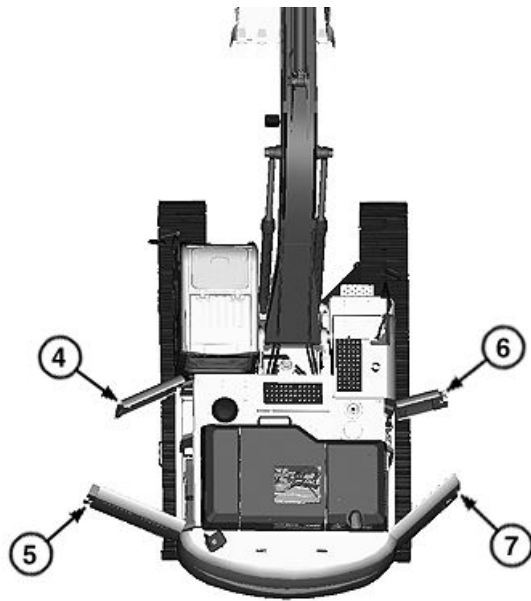
⚠ CAUTION: Prevent possible injury from door closing. Secure door in the OPEN position.

In order to open left rear door (5), left front door (4) must be opened.

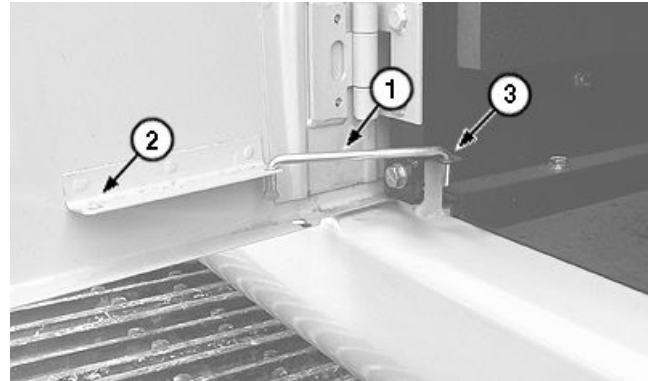
In order to open right front door (6), right rear door (7) must be opened.

To hold doors open, remove rod (1) from stored position (2) and insert in tab (3).

- | | |
|--------------------|---------------------|
| 1— Rod | 5— Left Rear Door |
| 2— Stored Position | 6— Right Front Door |
| 3— Tab | 7— Right Rear Door |
| 4— Left Front Door | |



Access Doors



Access Door Hold

KR46761,0000C03 -19-28APR14-1/1

TX1156690 —UN—24MAR14

T214860A —UN—04OCT05

Open Engine Cover for Service

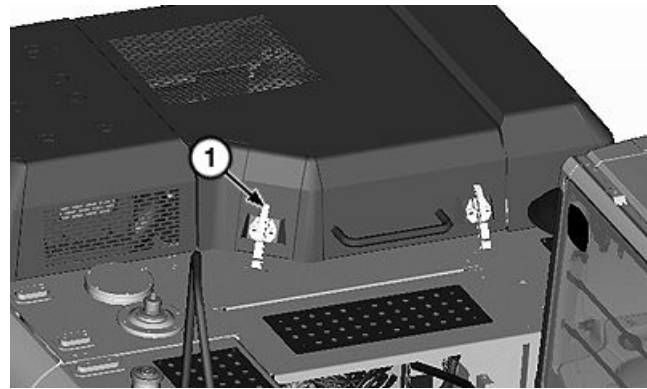
CAUTION: Prevent possible injury from cover closing. Unlock latches. Pull open latches to unlock cover. Raise the cover until the end of the bar is securely locked into catch.

NOTE: There is an optional engine cover light (3) under the engine cover for the operator's convenience.

1. Pull open latches (1) to unlock cover.
2. Raise the cover until the end of the bar is securely locked into catch (2).

1— Latch (2 used)
2— Catch

3— Engine Cover Light (if equipped)
4— Light Switch (if equipped)



Engine Lock (closed position shown)



Engine Cover

TX1156040 —UN—10MAR14

TX1161070A —UN—19MAY14

KR46761,0000BD7 -19-06MAR15-1/1

Fuel Tank

CAUTION: Fuel is flammable and may ignite if spilled on hot engine. To prevent injury, handle fuel carefully. If engine is hot or running, **DO NOT** fill the fuel tank. **DO NOT** smoke while filling fuel tank or working on fuel system.

IMPORTANT: Avoid engine damage. If machine has run out of fuel, engine will not start. Contact an authorized John Deere dealer for instructions.

To avoid condensation, fill the fuel tank at the end of each work day. Shut off engine before filling.

KR46761,0000F5B -19-18AUG15-1/1

Hydraulic Breaker Attachment

IMPORTANT: Avoid mixing different brands or types of oils. Oil manufacturers engineer the oils to meet certain specifications and performance requirements. Mixing different oil types can degrade lubricant and machine performance.

This excavator is factory filled with Zinc-Free Hydraulic Oil 46. Avoid servicing the excavator with products that do not meet this specification. If oils have been mixed or if alternate service oils are desired, an authorized dealer must flush the complete hydraulic system.

Hydraulic breaker operation subjects the hydraulic system of the machine to possible contamination and accelerated deterioration. The hydraulic return filter and hydraulic oil must be replaced frequently to prevent damage to hydraulic pumps and other hydraulic components. Change the hydraulic return filter and hydraulic oil at the intervals recommended in the table based on the amount of machine operating time the attachment is used.

NOTE: John Deere recommends the addition of the hydraulic filter restriction indicator kit with the attachment.

Percentage of Operating Time Hydraulic Breaker Used	Hydraulic Return Filter Change Interval (Hours)	Hydraulic Oil Change Interval (Hours)
100	100	600
60	150	800
40	200	1000
20	300	1300

VD76477,00001DB -19-16FEB22-1/1

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 sampling products and expertise to assist you in lowering your overall operating costs through fluid sampling.



TX1003513A —UN—20FEB06

TX_ANALYSIS -19-20JAN11-1/1

Service Intervals

Model:	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	
Fluid samples should be taken from each system at its recommended change interval prior to actually draining the fluid. Regular oil sampling will extend the operational life of the machine.	
As Required	
☐ Remove and clean fuel tank inlet screen	☐ Check and adjust track sag
☐ Check windshield washer fluid level	☐ Clean rear camera lens (if equipped)
☐ Check and clean air cleaner dust unloader valve	☐ Service exhaust filter
☐ Clean and tighten battery terminals	
Every 10 Hours or Daily	
☐ Check hydraulic tank oil level	☐ Check engine oil level
☐ Check engine coolant level	☐ Lubricate hydraulic coupler (if equipped)
Every 50 Hours or Weekly	
☐ Drain water and sediment from fuel tank sump	☐ Drain primary fuel filter and water separator
☐ Drain auxiliary fuel filter and water separator (if equipped)	☐ Drain final fuel filter
☐ Lubricate working tool pivots	
Every 100 Hours	
☐ Inspect and re-torque track hardware	
Every 250 Hours	
☐ Check swing gear case oil level	☐ Check travel gear case oil level
☐ Check pump drive gear case oil level	☐ Drain water and sediment from hydraulic tank
☐ Check hybrid battery electrolyte level (if equipped)	☐ Take engine oil sample
☐ Lubricate front end pin joints	
Every 500 Hours	
☐ Lubricate swing bearing gear	☐ Check air intake hoses
☐ Lubricate swing bearing	☐ Take diesel fuel sample
☐ Replace primary fuel filter and water separator	☐ Take swing gear case oil sample
☐ Replace final fuel filter	☐ Take hydraulic oil sample
☐ Replace auxiliary fuel filter and water separator (if equipped)	☐ Take engine coolant sample
☐ Drain and refill engine oil and replace filter	☐ Take travel gear case oil sample
☐ Clean cab fresh air and cab recirculating air filters (replace every 6 cleanings)	☐ Take pump drive gear case oil sample
Every 1000 Hours	
☐ Drain and refill swing gear case oil	☐ Inspect serpentine belt
☐ Replace hydraulic tank oil filter	☐ Replace air cleaner elements

Continued on next page

KR46761,0000BAA -19-02APR20-1/2

☐ Replace pilot oil filter	☐ Replace air cleaner dust unloader valve
☐ Drain and refill pump drive gear case oil	☐ Check coolant condition
☐ Remove and clean open crankcase ventilation (OCV) hose	
Every 2000 Hours	
☐ Check and adjust engine valve lash	☐ Drain and refill travel gear case oil
☐ Replace open crankcase ventilation (OCV) filter	☐ Replace diesel exhaust fluid (DEF) dosing unit filter ¹
☐ Clean diesel exhaust fluid (DEF) tank (S.N. —610421)	☐ Replace diesel exhaust fluid (DEF) header suction screen and baffle (S.N. —610421)
Every 4000 Hours	
☐ Replace diesel exhaust fluid (DEF) tank breather filter	☐ Clean diesel exhaust fluid (DEF) tank (S.N. 610422—611599)
☐ Replace diesel exhaust fluid (DEF) header suction filter and baffle (S.N. 610422—611599)	
Every 5000 Hours	
☐ Drain and refill hydraulic tank oil	☐ Replace hydraulic tank vent cap filter
Every 6000 Hours	
☐ Drain, flush, and refill engine cooling system	☐ Replace diesel exhaust fluid (DEF) in-line filter ¹ (S.N. 611600—)
¹ Interval not to exceed 3 years.	

KR46761,0000BAA -19-02APR20-2/2

Required Parts

REQUIRED PARTS							
Ensure machine performance and availability; use only genuine John Deere parts. Verify that 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 4000 Hours	Every 5000 Hours	Every 6000 Hours
Engine Oil Filter Element		1	1	1	1	1	1
Primary and Final Fuel Filter Element (kit)		1	1	1	1	1	1
Auxiliary Fuel Filter Element (if equipped)		1	1	1	1	1	1
Hydraulic Tank Oil Filter Element			1	1	1	1	1
Pilot Oil Filter Element			1	1	1	1	1
Primary Air Filter Element			1	1	1	1	1
Secondary Air Filter Element			1	1	1	1	1
Dust Unloader Valve			1	1	1	1	1
Engine Rocker Arm Cover Gasket				1	1		1
Open Crankcase Ventilation (OCV) Filter Element				1	1		1
Diesel Exhaust Fluid (DEF) Header Suction Screen and Baffle (kit) (S.N. —610421)				1	1		1
Diesel Exhaust Fluid (DEF) Dosing Unit Filter ³				1	1		1
Diesel Exhaust Fluid (DEF) Header Suction Filter and Baffle (S.N. 610422—611599)					1		
Diesel Exhaust Fluid (DEF) Tank Breather Filter					1		
Diesel Exhaust Fluid (DEF) In-Line Filter ³ (S.N. 611600—)							1
Hydraulic Tank Vent Cap Filter Element						1	
Diesel Particulate Filter (DPF) (component of exhaust filter)	As Required						
Cab Fresh Air Filter	As Required						
Cab Recirculating Air Filter	As Required						
John Deere Plus-50™ II Engine Oil ¹		19.5 L (5.2 gal)	20.6 L (5.4 gal)	20.6 L (5.4 gal)	20.6 L (5.4 gal)	20.6 L (5.4 gal)	20.6 L (5.4 gal)
API GL-5 Gear Oil ¹			7.0 L (1.8 gal)	19.4 L (5.1 gal)	19.4 L (5.1 gal)	7.0 L (1.8 gal)	19.4 L (5.1 gal)
Zinc-Free Hydraulic Oil 46 ¹						147.6 L (39.0 gal)	
John Deere Cool-Gard™ II Pre-Mix							23.0 L (6.0 gal)
Fluid Analysis Kits²							
Diesel Engine Oil	1	1	1	1	1	1	1
Hydraulic Oil		1	1	1	1	1	1
Travel Gear Case Oil		2	2	2	2	2	2
Swing Gear Case Oil		1	1	1	1	1	1
Pump Drive Gear Case Oil		1	1	1	1	1	1
Diesel Fuel		1	1	1	1	1	1

Continued on next page

KR46761,0000BAB -19-01APR22-1/2

REQUIRED PARTS

Ensure machine performance and availability; use only genuine John Deere parts. Verify that 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 4000 Hours	Every 5000 Hours	Every 6000 Hours
Engine Coolant		1	1	1	1	1	1
¹ For recommended 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.							
³ Interval not to exceed 3 years.							

Plus-50 is a trademark of Deere & Company
Cool-Gard is a trademark of Deere & Company

KR46761,0000BAB -19-01APR22-2/2

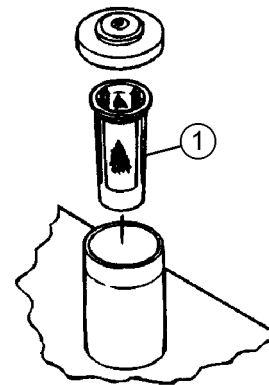
Maintenance—As Required

Remove and Clean Fuel Tank Inlet Screen

Clean fuel tank inlet screen (1) using solvent or diesel fuel to remove any debris.

Replace screen if damaged.

1— Fuel Tank Inlet Screen



Fuel Tank Inlet Screen

ER79617,0000A84 -19-07APR16-1/1

TX1135186 —UN—06NOV00

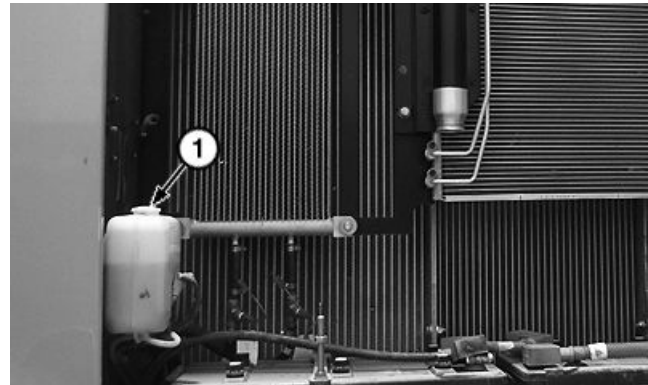
Check Windshield Washer Fluid Level

1. On left side of machine, open rear service door to access windshield washer fluid bottle (1).

NOTE: During winter season, use all-season windshield washer fluid which will not freeze.

2. Check fluid level in windshield washer fluid bottle and refill as required.
3. Close service door.

1— Windshield Washer Fluid Bottle



Windshield Washer Fluid Level

KR46761,0000BD8 -19-29JAN15-1/1

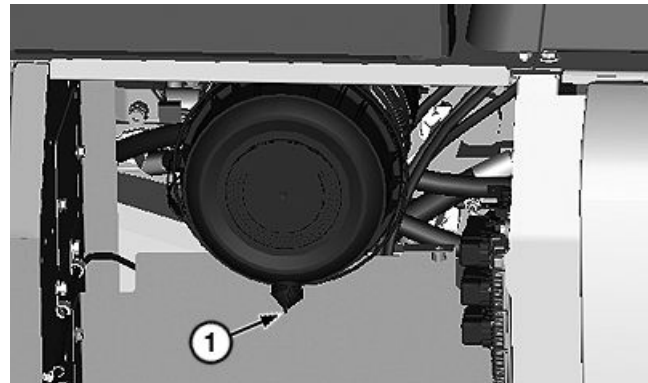
TX1156001A —UN—10MAR14

Check and Clean Air Cleaner Dust Unloader Valve

IMPORTANT: Avoid machine damage. A missing, damaged, or hardened air cleaner dust unloader valve (1) will make the dust cup precleaner ineffective, causing very short element life. Valve should suck closed when engine is running.

NOTE: If operating in high dust conditions, squeeze dust valve every 2 hours of operation to release dust.

1. On left side of machine, open front service door to access air cleaner dust unloader valve (1).
2. Squeeze air cleaner dust unloader valve to remove dust from the air cleaner.
3. Check condition of dust unloader valve. Replace if hardened or damaged.
4. Close service door.



Air Cleaner Dust Unloader Valve

1— Air Cleaner Dust Unloader Valve

KR46761,0000BD9 -19-29JAN15-1/1

TX1156004 —UN—27MAR14

Check and Adjust Track Sag

Check Track Sag

1. Swing upperstructure 90°, and lower bucket to raise track off ground.
2. Keep the angle (1) between boom and arm 90—110°, and position the bucket's round side on the ground.

CAUTION: Prevent possible injury from unexpected machine movement. Place blocks under machine frame to support machine while measuring track sag.

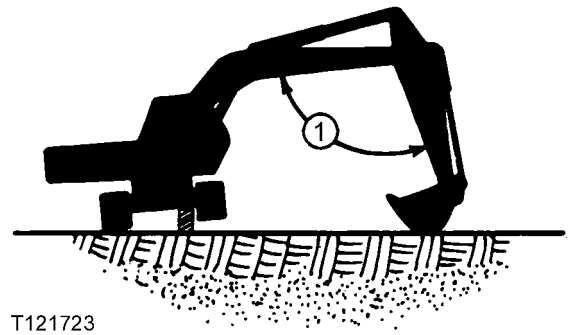
3. Place blocks under machine frame to support machine.
4. Rotate track forward two full rotations and then in reverse two full rotations.
5. Measure distance (2) at middle track roller from bottom of track frame to top surface of track shoe.

Specification

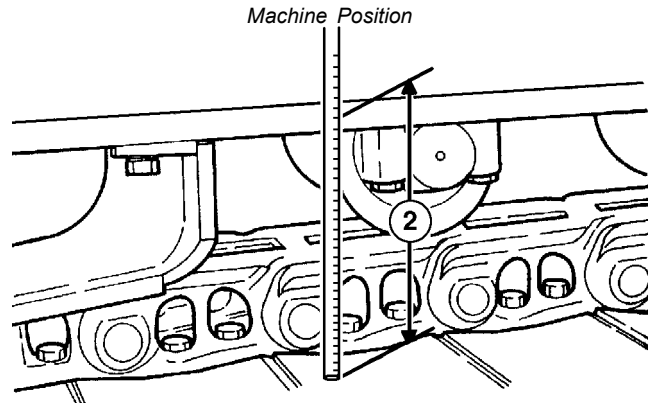
Track—Sag.....300.0—335.0 mm
11.8—13.2 in

1— Boom-To-Arm Angle

2— Distance



T121723



Track Sag Measurement

KR46761,0000BCC -19-19MAR21-1/2

T121723 —UN—10JUN99

TX1103806 —UN—16DEC11

Adjust Track Sag

IMPORTANT: Prevent possible damage to track components. **DO NOT** use the grease fitting on the track adjusting cylinder for lubrication. Use this fitting **ONLY** for track adjustment.

1. To tighten track, connect a grease gun to grease fitting (1) (located through access hole (4) in track frame.) Add grease until sag is within recommended limits.

CAUTION: Prevent possible injury from high-pressure grease. **DO NOT** remove grease fitting (1) from nut (2).

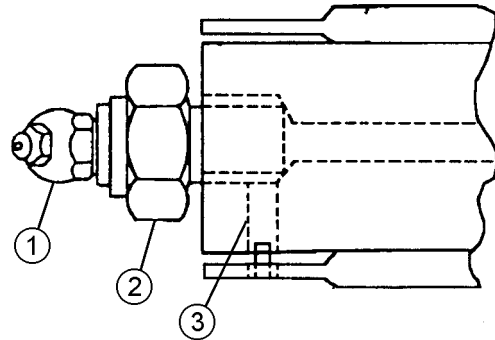
2. To loosen, slowly turn nut (2) counterclockwise; grease will escape through the bleed hole (3).
3. When amount of track sag is satisfactory, turn nut clockwise. Tighten to specification.

Specification

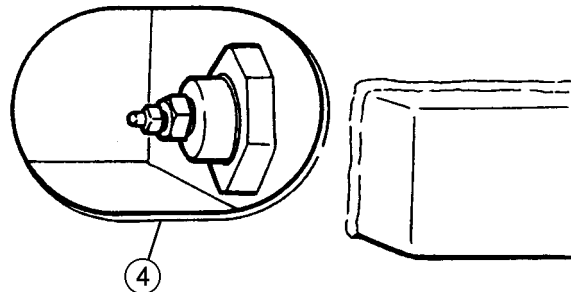
Nut—Torque.....90 N·m
66 lb·ft

1— Grease Fitting
2— Nut

3— Bleed Hole
4— Access Hole



Grease Fitting



Access Hole

KR46761,0000BCC -19-19MAR21-2/2

T135187 —UN—06NOV00

T135188 —UN—06NOV00

Clean Rear Camera Lens—If Equipped

CAUTION: Avoid personal injury. **DO NOT** climb on machine when inspecting or cleaning rear camera lens.

NOTE: The camera lens surface is a resin product. Lightly wipe the surface with a wet, clean cloth. Never use an organic solvent.

Inspect camera lens (1) for any accumulation of dirt, mud, snow, ice, or debris.

Clean lens as necessary.

1— Camera Lens



Rear Camera

TX1086324A —UN—28DEC10

ER79617.0000D75 -19-27JUL15-1/1

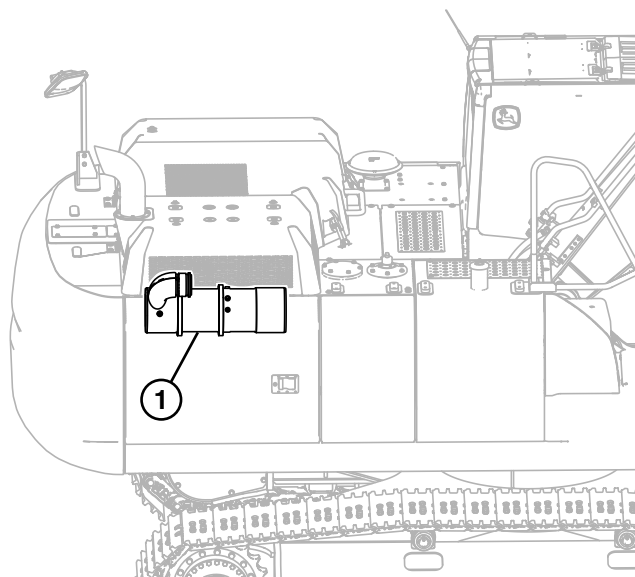
Service Exhaust Filter

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.

The exhaust filter (1) 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 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.

Do **NOT** attempt to remove exhaust filter 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.



Exhaust Filter

1— Exhaust Filter

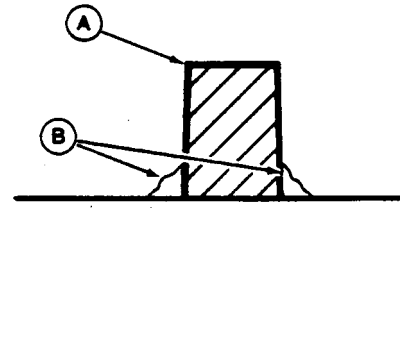
TX1156075 —UN—14MAR14

KR46761.0000BB4 -19-14MAR14-1/1

Clean and Tighten Battery Terminals

⚠ CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Always remove grounded (-) battery clamp first and replace it last.

1. Disconnect battery clamps, grounded clamp first.
2. Clean terminal (A) and clamp with a stiff brush.
3. Apply lubricating grease (B) where battery terminal meets top of battery case to prevent grease from escaping.
4. Install and tighten clamps, grounded clamp last.



Battery Terminal

A—Terminal

B—Lubricating Grease

T6758AA —UN—21OCT88

TX,55,FF765 -19-30NOV16-1/1

Maintenance—Every 10 Hours or Daily

Check Engine Oil Level

IMPORTANT: Prevent engine damage. DO NOT run engine when oil level is below the ADD mark.

The most accurate oil level reading is obtained when the engine is cold before starting the engine for the day's operation.

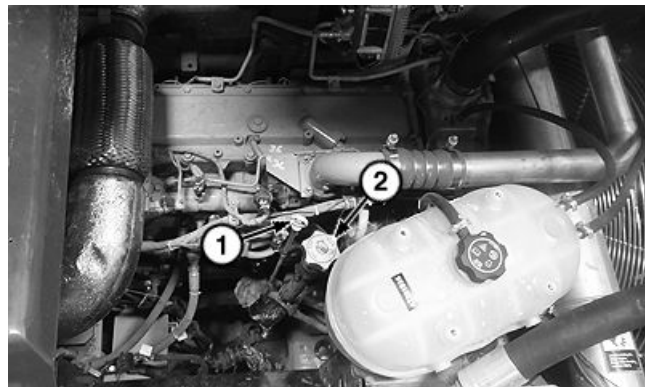
1. Park machine on a level surface.
2. Shut off engine and allow oil to drain into oil pan for 10 minutes.
3. Open engine cover to access engine.
4. Make sure dipstick (1) is fully seated.
5. Remove dipstick to check oil level.

BEFORE THE ENGINE IS STARTED: The engine is full when oil level is in the cross-hatch area (3). It is acceptable to run the engine when the oil level is above the ADD mark.

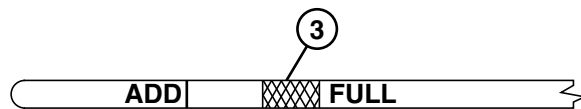
AFTER THE ENGINE HAS BEEN RUN: Allow the oil to drain into the oil pan for 10 minutes before checking the oil level. Ten minutes after shutdown the engine oil level must be above the ADD mark.

IMPORTANT: Avoid engine damage. Make sure that area around and above engine oil filler cap is clean and clear of debris before removing cap.

6. If necessary, remove filler cap (2) to add oil.
7. If oil level is below ADD mark, add oil as necessary. See Diesel Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, and Stage IV. (Section 3-1.)



Engine Oil Dipstick and Filler Cap



Cross-Hatch Area

1— Dipstick
2— Filler Cap

3— Cross-Hatch Area

8. Install dipstick and close engine cover.

KR46761,0000BD5 -19-28APR14-1/1

TX1156014A —UN—10MAR14

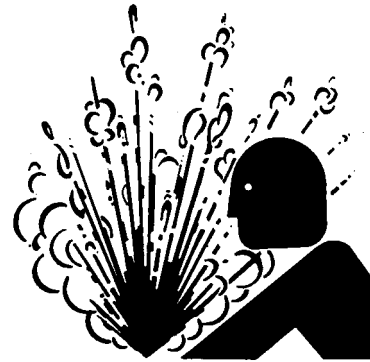
T216546 —UN—29NOV05

Check Engine Coolant Level

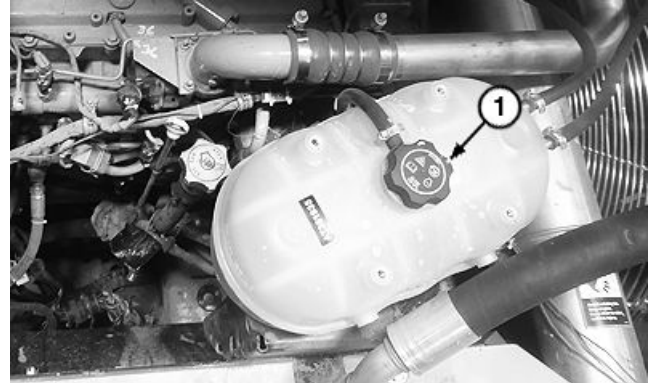
⚠ CAUTION: Prevent possible injury from hot spraying fluids. Shut off engine. Remove filler cap only when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

IMPORTANT: Avoid machine damage. Mixing different coolant types can degrade coolant and machine performance. Avoid mixing different brands or types of coolant. Coolant manufacturers engineer their coolants to meet certain specifications and performance requirements.

1. Open engine cover and check coolant level in surge tank (1).
2. With engine cold, coolant level must be between MIN COLD and MAX COLD marks on surge tank.
3. If coolant is below MIN COLD mark, add coolant to surge tank. See Diesel Engine Coolant (engine with wet sleeve cylinder liners). (Section 3-1.)
4. If surge tank is empty, check for leaks in tank, hoses, and radiator. Repair as required, then refill with coolant.
5. Close engine cover.



Service Cooling System Safely



Surge Tank

1— Surge Tank

TS281—UN—15APR13

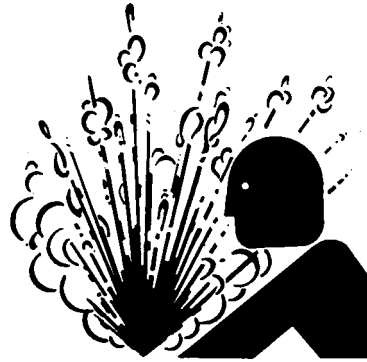
TX1156018A—UN—10MAR14

KR46761,0000BCA -19-03SEP14-1/1

Check Hydraulic Tank Oil Level



Machine Position



Pressurized Fluids

IMPORTANT: Prevent damage to hydraulic system components. **DO NOT** run engine without oil in hydraulic tank.

Avoid machine damage. Mixing different oil types can degrade lubricant and machine performance. Oil manufacturers engineer their oils to meet certain specifications and performance requirements.

Avoid machine damage. This excavator is factory filled with Super EX 46HN extended life zinc-free hydraulic oil. Avoid servicing this excavator with products that do not meet this specification. If oils have been mixed or if alternate service oils are desired, the complete hydraulic system needs to be totally flushed by an authorized dealer.

1. Park machine on a level surface, and position machine with arm cylinder fully retracted and bucket cylinder fully extended.

IMPORTANT: Turbocharger can be damaged if procedure to shutdown engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. On right side of machine, open front service door to check hydraulic oil level gauge (1) on hydraulic tank. Oil must be between marks on window.

If necessary, add oil.

To add oil:

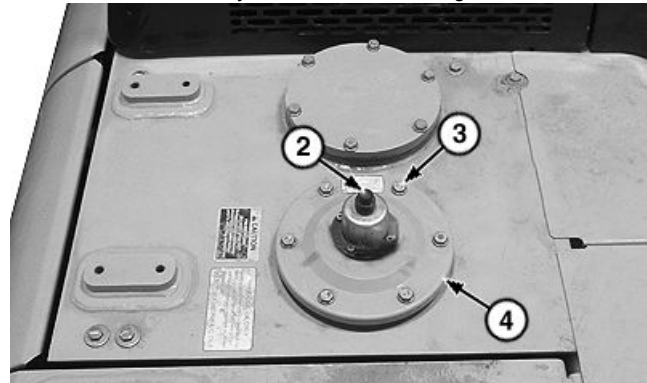
CAUTION: High pressure release of oil from pressurized system can cause serious burns or penetrating injury. Relieve pressure by pushing pressure release button.

- a. Push pressure release button (2).

- b. Remove cap screws (3).



Hydraulic Oil Level Gauge



Hydraulic Tank Cover

- | | |
|-----------------------------|------------------------|
| 1—Hydraulic Oil Level Gauge | 3—Cap Screw (6 used) |
| 2—Pressure Release Button | 4—Hydraulic Tank Cover |

Continued on next page

KR46761,0000BDA -19-03SEP14-1/2

- c. Remove hydraulic tank cover (4).
- d. Add oil.

- e. Install cover and cap screws.
- 5. Close service door.

KR46761,0000BDA -19-03SEP14-2/2

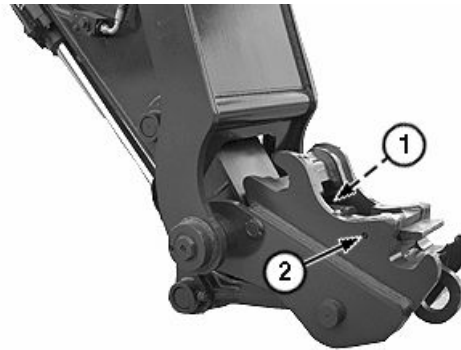
Lubricate Hydraulic Coupler—If Equipped

NOTE: Cylinders that are supplied without grease zerks (1 and 2) DO NOT need to be lubricated.

To keep hydraulic coupler in proper working condition, hydraulic coupler must be lubricated on a daily basis.

Most hydraulic couplers are supplied with a cylinder grease zerk (1), which is located on the head end of the cylinder or cylinder barrel; a lock arm grease zerk (2); and a grease zerk on each side of the hydraulic coupler for the locking wedge.

Apply grease to fittings until grease escapes from joints. See Track Adjuster, Working Tool Pivot, Swing Bearing, and Swing Bearing Gear Grease. (Section 3-1.)



Lubrication Points

1— Cylinder Grease Zerk

2— Lock Arm Grease Zerk

TX1017854A —UN—22JAN07

VD76477,0001376 -19-20FEB18-1/1

Maintenance—Every 50 Hours or Weekly

Drain Water and Sediment from Fuel Tank Sump

1. Park machine on a level surface. Rotate upperstructure 90° for easier access.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Remove fuel tank fill cap.
5. Open right front service door to access the drain valve (1) for the fuel tank.

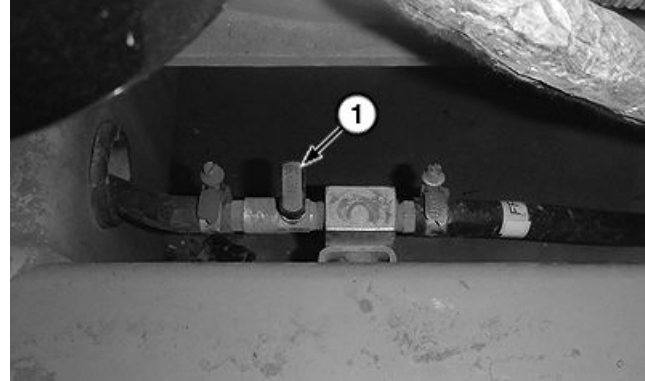
NOTE: Drain waste into a container. Dispose of waste properly.

6. Open drain valve for several seconds to drain water and sediment into a container. Dispose of waste properly. Close drain valve.
7. Close service door and install fuel tank fill cap.

1— Drain Valve



Machine Position



Drain Valve

KR46761,0000BDD -19-04DEC17-1/1

T6811AJ —UN—18OCT88

TX1156110A —UN—11MAR14

Drain Primary Fuel Filter and Water Separator

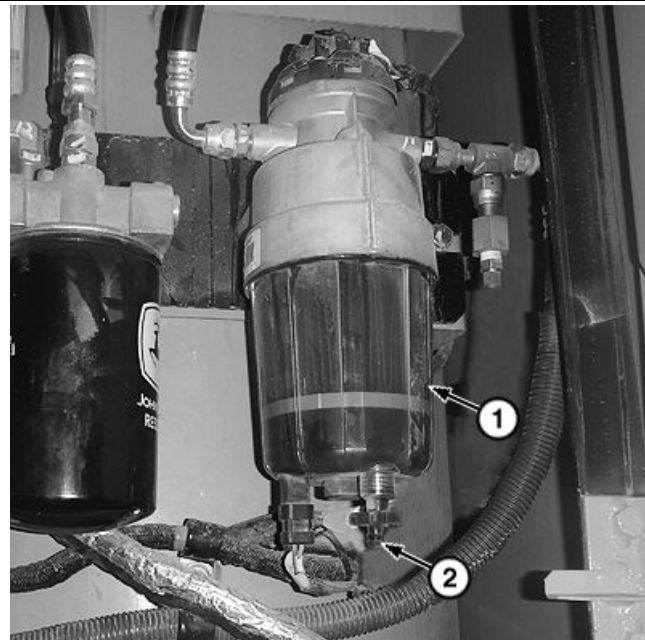
1. Open right front service door to access primary fuel filter and water separator (1).

NOTE: Drain waste into a container. Dispose of waste properly.

2. Open drain valve (2) to extract water from fuel system. Drain fluid until water and sediment is removed. Collect waste in a container and dispose of waste properly.
3. Close drain valve.
4. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)
5. Close service door.

1— Primary Fuel Filter and Water Separator

2— Drain Valve



Primary Fuel Filter and Water Separator

KR46761,0000BB5 -19-28APR14-1/1

TX1156112A —UN—12MAR14

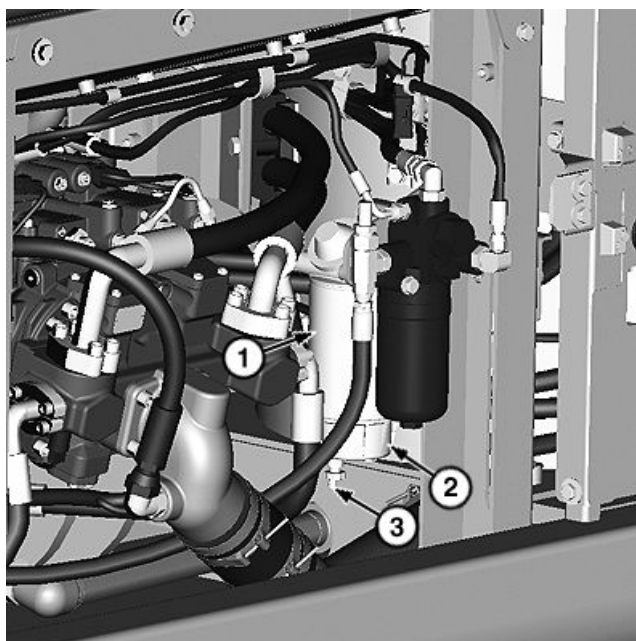
Drain Auxiliary Fuel Filter and Water Separator—If Equipped

1. Open right rear service door to access auxiliary fuel filter and water separator (1).

NOTE: Drain waste into a container. Dispose of waste properly.

2. Open drain valve (3) on bottom of water separator bowl (2) to extract water from fuel system. Drain until water and sediment is removed. Collect waste in a container and dispose of waste properly.
3. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)
4. Close drain valve and service door.

- | | |
|---|----------------|
| 1— Auxiliary Fuel Filter and
Water Separator | 3— Drain Valve |
| 2— Water Separator Bowl | |



Auxiliary Fuel Filter and Water Separator

TX1156858 —UN—27MAR14

KR46761,0000BDC -19-09JAN18-1/1

Drain Final Fuel Filter

1. Open right front service door to access final fuel filter (1).

NOTE: Drain waste into a container. Dispose of waste properly.

2. Open drain valve (2) on bottom of filter to extract water from fuel system. Drain fluid until water and sediment is removed. Collect waste in a container and dispose of waste properly.
3. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)
4. Close drain valve and service door.

- | | |
|----------------------|----------------|
| 1— Final Fuel Filter | 2— Drain Valve |
|----------------------|----------------|



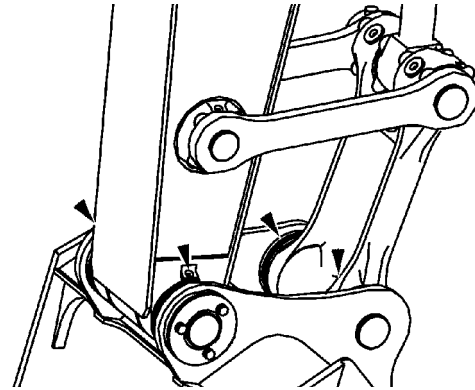
Final Fuel Filter

TX1156118 —UN—11MAR14

KR46761,0000BDB -19-09JAN18-1/1

Lubricate Working Tool Pivots

Lubricate working tool pivots (4 points) until grease escapes from joints. Lubricate every 4 hours for first 20 hours, then every 50 hours thereafter.



Four Points

TX1000687 —UN—23NOV05

JL58967,0000717 -19-16NOV16-1/1

Maintenance—Every 100 Hours

Inspect and Re-Torque Track Hardware

Each inspection and re-torquing should be documented by completing a service report for each unit, placing a copy of this report in the machine file, and forwarding a copy to the manufacturer's attention.

For shoes with missing or loose cap screws and nuts, remove shoes and clean the mating surface of shoes and links before replacing cap screws and nuts. The cap screws must be replaced because they have been stretched to yield previously.

IMPORTANT: Prevent possible machine damage.

Operating a machine with loose shoes can cause the cap screws and holes in the shoes and links to wear, making it difficult to keep the shoes tight. Loose shoes can also cause hardware malfunction and loss of shoes.

Improper track shoe cap screw torque will result in serious damage to the undercarriage components, shorter life expectancy, and will void the manufacturer's warranty on the undercarriage components.

Checking Track Shoe Hardware Torque

NOTE: This procedure is for checking the torque specification on existing track shoe hardware.

1. Tighten cap screws in sequence to specification.

Specification

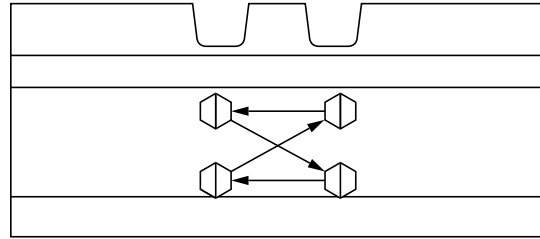
Cap Screw—Torque.....1556 N·m
1147.6 lb·ft

2. Cap screws that have turned have reduced tightness and need to be re-torqued. See Re-Torquing Track Shoe Hardware. (Section 3-6.)
3. Check track shoe holes for wear or damage. Replace as necessary.

Re-Torquing Track Shoe Hardware

NOTE: This procedure is for re-torquing existing track hardware that was found loose during the Checking Track Shoe Hardware Torque procedure.

1. Loosen cap screw.
2. Tighten cap screws in sequence to specification.



Cap Screw Torque Sequence

Specification

Cap Screw—Initial
Torque.....136.0 N·m
100.3 lb·ft

3. Re-torque cap screws in sequence to specification.

Specification

Cap Screw—Final
Torque..... 353.0 N·m + 1/3 Turn (120°)
260.4 lb·ft + 1/3 Turn (120°)

Torquing Replacement Track Shoe Hardware

IMPORTANT: Prevent possible machine damage.

Clean shoe and link surfaces of dirt, paint, and debris before installation.

NOTE: This procedure is for installing and torquing new track shoe hardware to specification.

1. Clean shoe and link surfaces of dirt or paint.
2. Tighten cap screws in sequence to specification.

Specification

Cap Screw—Initial
Torque.....136.0 N·m
100.3 lb·ft

3. Torque cap screws in sequence to specification.

Specification

Cap Screw—Final
Torque..... 353.0 N·m + 1/3 Turn (120°)
260.4 lb·ft + 1/3 Turn (120°)

DH10862,0000179 -19-11MAY18-1/1

TX1255661 —UN—19APR18

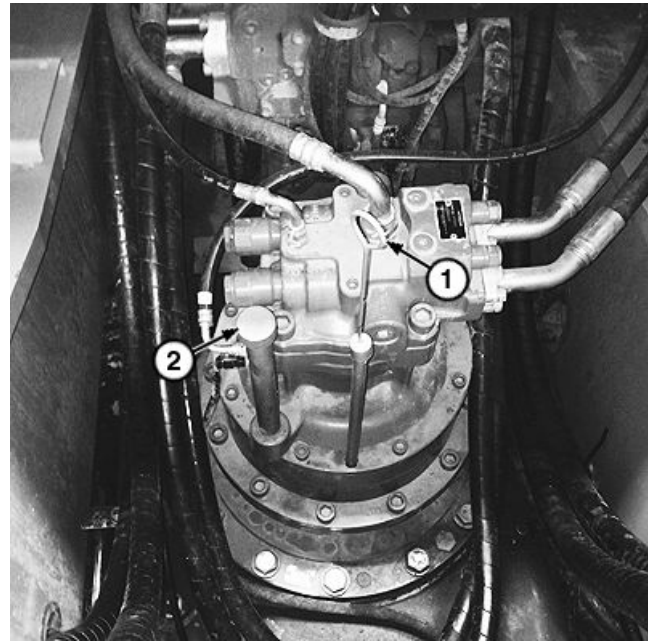
Maintenance—Every 250 Hours

Check Swing Gear Case Oil Level

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shutdown engine is not done properly.

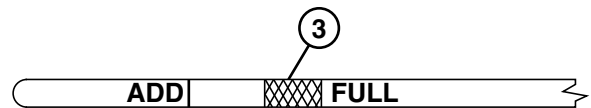
2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Remove dipstick (1). Wipe dipstick clean and replace completely into tube.
5. Remove dipstick. Oil must be in the dipstick cross-hatch area (3).
6. If necessary, remove filler cap (2) and add oil. See Swing Gear Case and Travel Gear Case Oils. (Section 3-1.)
7. Install filler cap.
8. Check oil level on dipstick.



Swing Gear Case

1—Dipstick
2—Filler Cap

3—Dipstick Cross-Hatch Area



Dipstick Cross-Hatch Area

TX1156448A—UN—18MAR14

T216546—UN—29NOV05

KR46761,0000BF8 -19-05MAR15-1/1

Drain Water and Sediment From Hydraulic Tank

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.

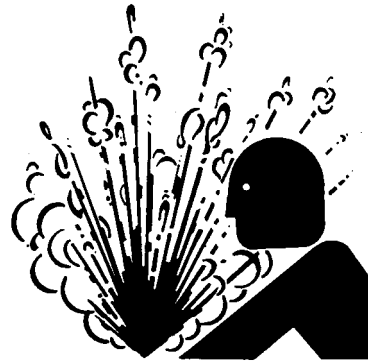
CAUTION: High-pressure release of oil from pressurized system can cause serious burns or penetrating injury. The hydraulic tank is pressurized. Relieve pressure by pushing pressure release button (1).

4. Push the pressure release button (1) to relieve pressure.
5. Remove cap screws (3).
6. Remove hydraulic tank oil cover (2).

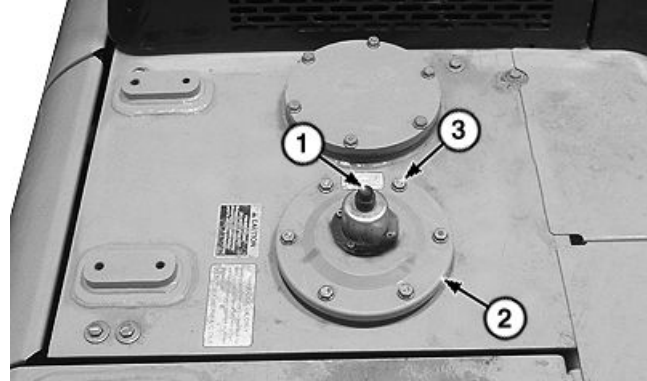
NOTE: Drain waste into a container. Dispose of waste properly.

7. After oil is cool, loosen drain valve cap screw (4) for several seconds to drain water and sediment into a container. Do not remove cap screw completely. Dispose of waste properly.
8. Tighten drain valve cap screw.
9. Check hydraulic oil level. See Check Hydraulic Tank Oil Level. (Section 3-4.)
10. Install hydraulic tank oil cover and cap screws.

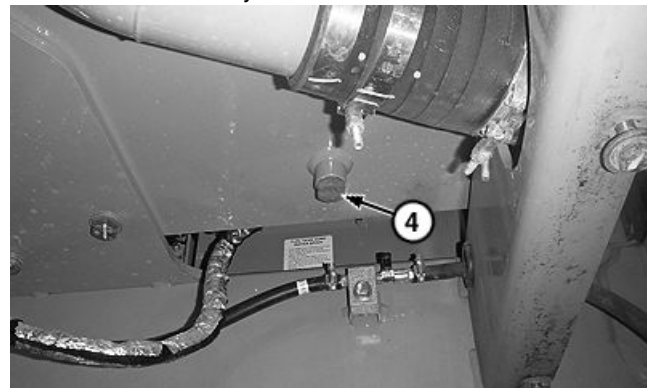
- | | |
|-----------------------------|--------------------------|
| 1— Pressure Release Button | 3— Cap Screw (4 used) |
| 2— Hydraulic Tank Oil Cover | 4— Drain Valve Cap Screw |



Pressurized Fluids



Hydraulic Tank Oil Cover



Drain Valve Cap Screw

TS281 —UN—15APR13

TX1156120A —UN—18MAR14

TX1156449A —UN—18MAR14

KR46761,0000BDE -19-24JAN18-1/1

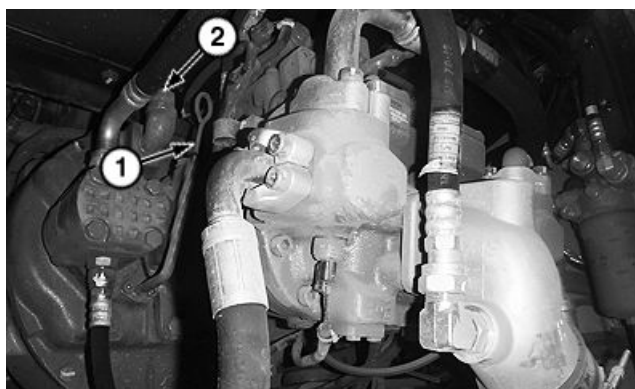
Check Pump Drive Gear Case Oil Level

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

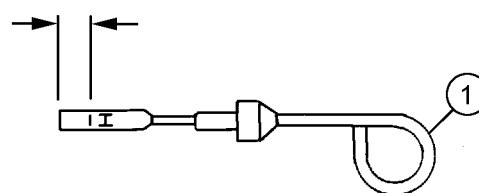
1. Run engine at slow idle speed without load for 5 minutes.
2. Stop engine.
3. Open right rear service door to access pump drive gear case.
4. Remove dipstick (1).
5. Wipe dipstick clean and insert completely into tube.
6. Remove dipstick.
7. Oil level must be approximately halfway below the H mark. Insert dipstick.

To add oil:

- a. Remove filler plug (2).
 - b. Add oil. See Pump Drive Gear Case Oil. (Section 3-1.)
 - c. Install filler plug.
8. Close service door.



Pump Drive Gear Case



Dipstick

1— Dipstick

2— Filler Plug

TX1156199A —UN—12MAR14

T145092 —UN—31AUG01

KR46761,0000BE7 -19-04DEC17-1/1

Check Hybrid Battery Electrolyte Level—If Equipped

⚠ 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:

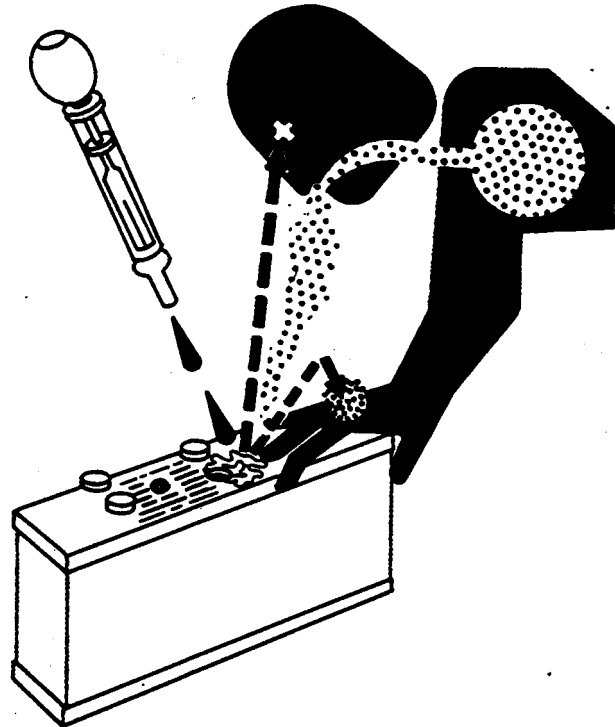
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Using proper jump start procedure.

If acid is spilled on skin:

1. Flush skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush eyes with water for 15–30 minutes.
4. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.



Avoid Acid Burns

2. Drink large amounts of water or milk but do not exceed 1.9 L (2 qt).
3. Get medical attention immediately.

1. Remove battery box cover.

Continued on next page

TX, HYBATT, CHK -19-24APR20-1/2

TS203 —UN—23AUG88

IMPORTANT: If water is added to batteries during freezing weather, batteries must be charged after water is added to prevent batteries from freezing. Charge battery using a battery charger or by running the engine.

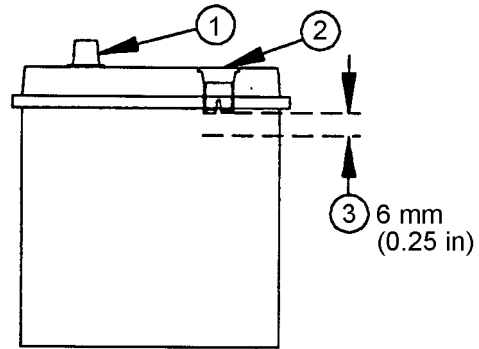
2. Fill each cell to within the specified range with distilled water. DO NOT overfill.

CAUTION: Prevent possible injury. ALWAYS remove grounded (-) battery clamp first and replace it last.

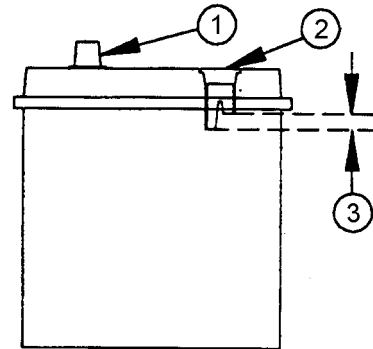
3. Disconnect battery clamps, grounded clamp first.
4. Clean battery terminal (4) and clamps with a stiff brush.
5. Apply lubricating grease (5) around battery terminal base only.
6. Install and tighten clamps, grounded clamp last.

1— Battery Post
2— Fill Tube
3— Electrolyte Level Range

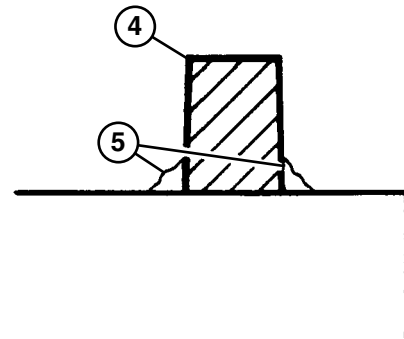
4— Battery Terminal
5— Lubricating Grease



Battery Terminal and Fill Hole



Fill Level



Terminal and Grease

TX, HYBATT, CHK -19-24APR20-2/2

TX1208617 —UN—05JAN16

T137536 —UN—25JAN01

TX1265575 —UN—03OCT18

Check Travel Gear Case Oil Level

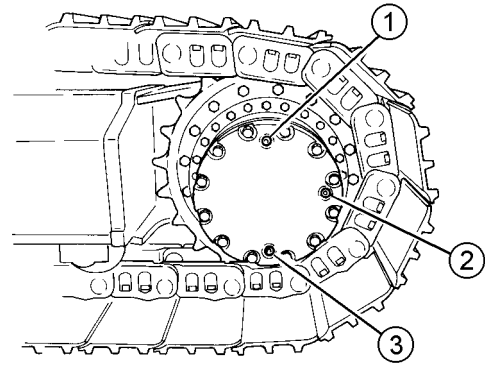
1. Park the machine on level ground, rotating travel gear case until positioned as shown.
2. Stop engine.

CAUTION: High-pressure release of oils from pressurized system can cause serious burns. Wait for travel gear case oil to cool. Keep body and face away from fill plug (1). Gradually loosen fill plug to release pressure.

3. After travel gear case has cooled, slowly loosen fill plug (1) to release air and relieve pressure.
4. Remove check plug (2). Oil must be to bottom of hole.
5. If necessary, remove fill plug and add oil until oil flows out of check plug hole. See Swing Gear Case and Travel Gear Case Oils. (Section 3-1.)
6. Wrap threads of plugs with sealing-type tape. Install plugs. Tighten plugs to specification.

Specification

Plug—Torque.....50 N·m
37 lb·ft



Travel Gear Case Oil Level

1— Fill Plug
2— Check Plug

3— Drain Plug

7. Check second travel gear case oil level.

TX1000270 —UN—15NOV05

DB84312,0000147 -19-31JAN17-1/1

Take Engine Oil Sample

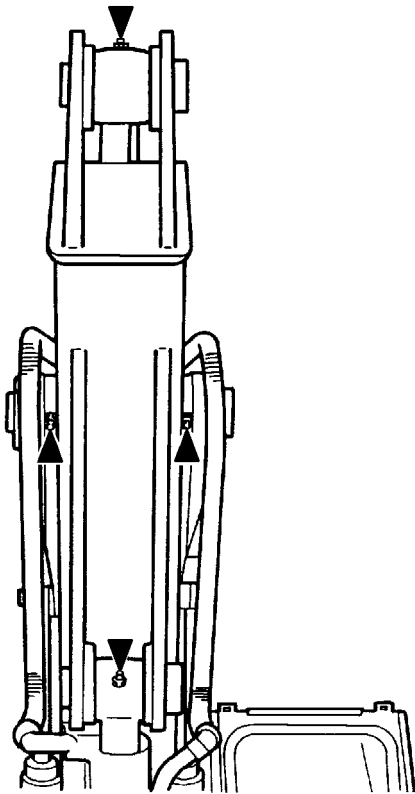
See an authorized John Deere dealer for procedures and sampling equipment. For more information, see Fluid Sampling Test Ports—If Equipped. (Section 4-1.)

CN93077,000041E -19-26JAN16-1/1

Lubricate Front End Pin Joints

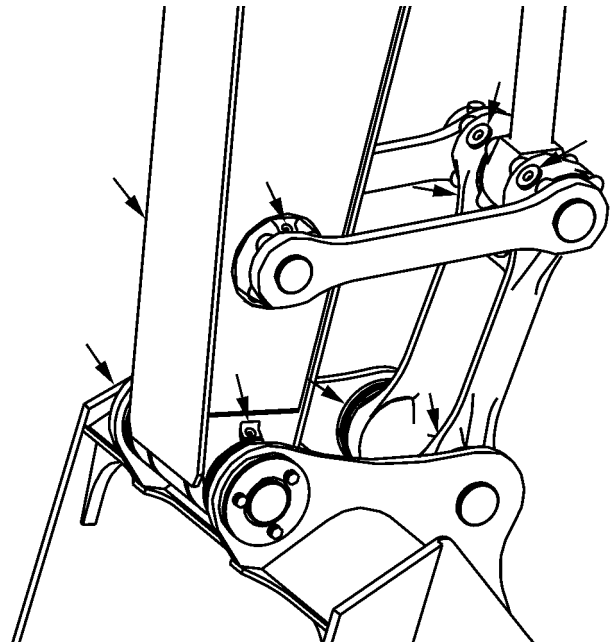
Lubricate front end pin joints (20 points) until grease escapes from joints. Lubricate every 4 hours for first 20 hours. Lubricate every 10 hours during first 30—100

hours of operation, then every 250 hours thereafter. Lubricate daily when working in mud and water.



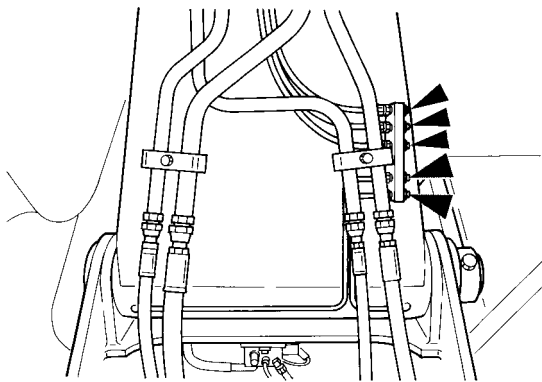
Four Points

T134954 —UN—01NOV00



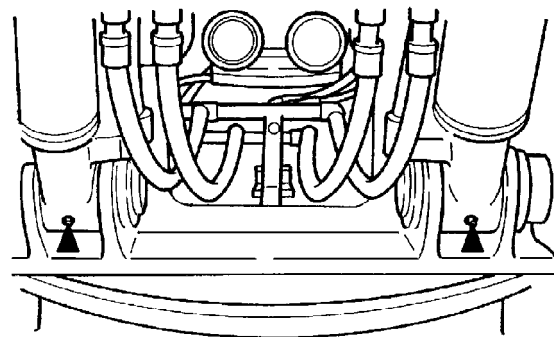
Nine Points

T136448 —UN—18DEC00



Five Points

T134956 —UN—01NOV00



Two Points

T134957 —UN—01NOV00

JL58967,0000718 -19-16NOV16-1/1

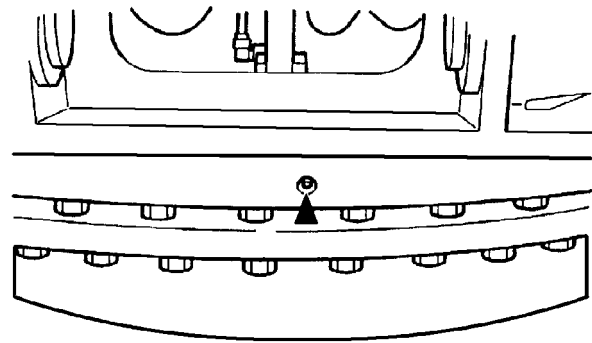
Maintenance—Every 500 Hours

Lubricate Swing Bearing

CAUTION: Prevent possible injury from unexpected machine movement if controls are moved by another person. Lubricating swing bearing and rotating the upperstructure must be done by one person. Before lubricating swing bearing, clear the area of all persons.

1. Park machine on a level surface.
2. Stop engine.
3. Lubricate swing bearing with 8 shots of grease at both grease fittings.
4. Start engine. Raise bucket several inches off the ground and turn upperstructure 45°.

NOTE: It is not necessary to start the engine the last time.



Swing Bearing

T134968—UN—01NOV00

5. Lower bucket to the ground.
6. Repeat steps 2—4 three times.

VD76477,0000395 -19-26AUG15-1/1

Lubricate Swing Bearing Gear

CAUTION: Prevent possible injury from unexpected machine movement if controls are moved by another person. Lubricating swing bearing and rotating the upperstructure must be done by one person. Before lubricating swing bearing gear, clear the area of all persons.

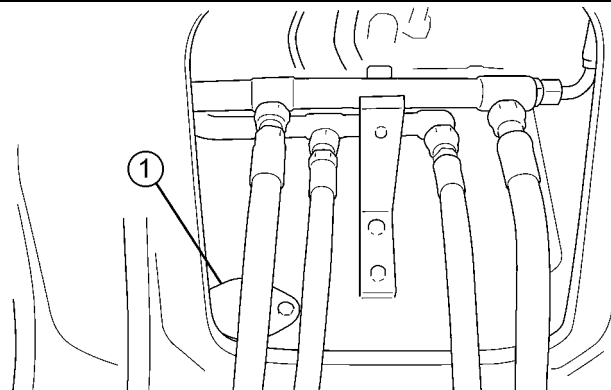
1. Remove swing bearing gear access cover (1).
2. Grease must be 13—25 mm (0.5—1 in) deep, measured from the bottom of the ring gear. The grease must also be free of contamination by dirt and water.

If the grease is contaminated, remove grease and replace with clean grease.

NOTE: If water or mud is found in swing gear area, see *Operating in Water and Mud*. (Section 2-3.)

3. Add grease as required (approximately 0.5 kg [1.1 lb] every 90°). See Track Adjuster, Working Tool Pivot, Swing Bearing, and Swing Bearing Gear Grease. (Section 3-1.)

IMPORTANT: Excessive grease can damage the swing gear case seal.



Access Cover

1— Access Cover

4. Remove any excess grease from over the top of the swing drive pinion.
5. Install access cover.

T136458—UN—18DEC00

ER79617,0000DE4 -19-07APR16-1/1

Replace Primary Fuel Filter and Water Separator

1. Ensure that key switch is in the OFF position.
2. Open right front service door to access primary fuel filter and water separator.
3. Thoroughly clean exterior of primary fuel filter and water separator assembly and surrounding area.

NOTE: On machines equipped with fuel shutoff valve (4) and auxiliary fuel filter, fuel shutoff valve will be located on inlet of auxiliary fuel filter.

4. Close fuel shutoff valve (if equipped) (4).

NOTE: Drain waste into a container. Dispose of waste properly.

5. Loosen drain valve (1) to relieve pressure and drain water and contaminants from water separator bowl (3) into a suitable container. Dispose of waste properly. Close drain valve.

6. Disconnect the water-in-fuel (WIF) sensor wiring (2).

NOTE: Additional fuel will remain in the primary fuel filter housing.

7. Rotate primary fuel filter counterclockwise and remove from mounting base. Remove water separator bowl from primary fuel filter. Dispose of used fuel filter properly.

8. Clean filter mounting base.

9. Clean and dry water separator bowl. Replace if necessary.

10. Install water separator bowl to new primary fuel filter.

IMPORTANT: DO NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

Only lubricate filter seal with diesel fuel before installing.

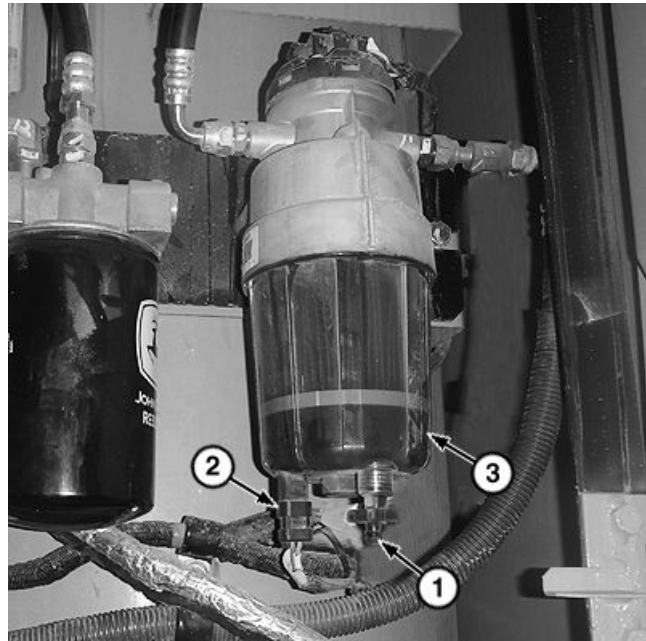
11. Install new primary fuel filter onto mounting base. Rotate filter housing clockwise by hand. Tighten 1/2—3/4 turn after seal contacts mounting base.

12. Connect WIF sensor wiring.

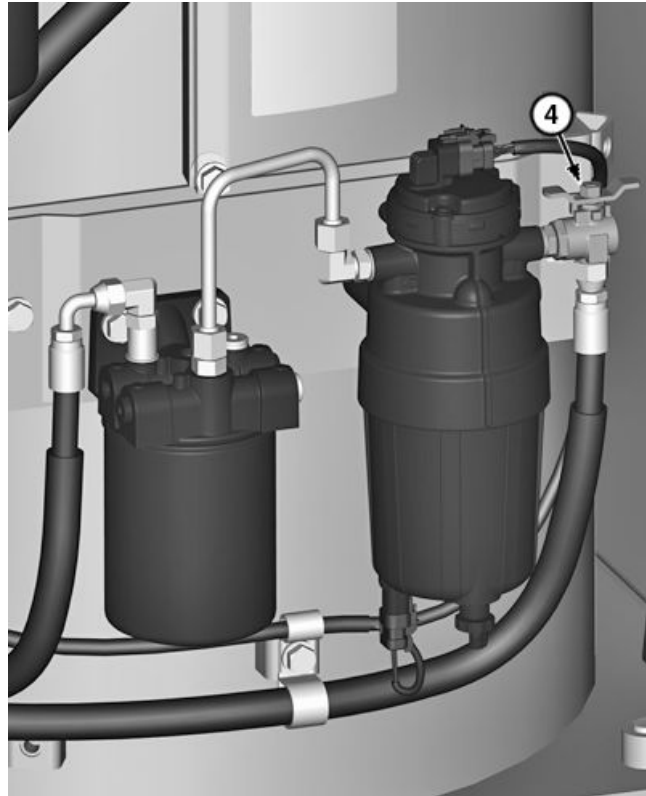
13. Open fuel shutoff valve (if equipped).

14. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)

15. Close service door.



Primary Fuel Filter and Water Separator



Fuel Shutoff Valve (if equipped)

- | | |
|--------------------------------------|-------------------------------------|
| 1— Drain Valve | 3— Water Separator Bowl |
| 2— Water-in-Fuel (WIF) Sensor Wiring | 4— Fuel Shutoff Valve (if equipped) |

TX1156146A —UN—19MAR14

TX1251035A —UN—08FEB18

TD48962,000005B -19-09FEB18-1/1

Replace Final Fuel Filter

NOTE: Do not clean fuel tank inlet screen and change fuel filter at the same time. Clean fuel tank inlet screen and run engine before changing fuel filter.

1. Ensure that key switch is in the OFF position.
2. Open right front service door to access final fuel filter (1).
3. Thoroughly clean exterior of final fuel filter and surrounding area.

NOTE: On machines with fuel shutoff valve (3) and auxiliary fuel filter, fuel shutoff valve will be located on inlet of auxiliary fuel filter.

4. Close fuel shutoff valve (if equipped) (3).

NOTE: Some fuel will be present in final fuel filter housing.

5. Remove final fuel filter using a filter wrench. Dispose of used filter properly.
6. Clean filter mounting base (2).

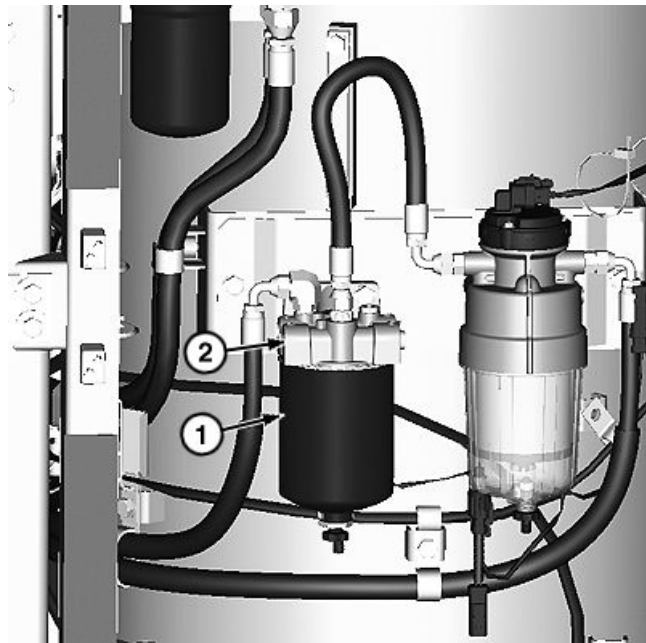
IMPORTANT: DO NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

Only lubricate filter seal with diesel fuel before installing.

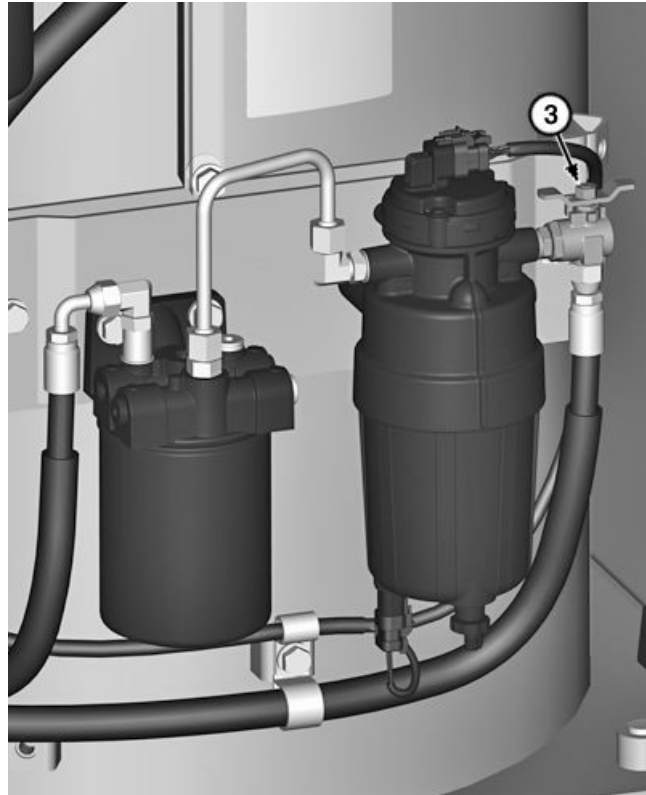
7. Install new final fuel filter onto mounting base. Rotate filter housing clockwise by hand. Tighten 1 turn after seal contacts mounting base.
8. Open fuel shutoff valve (if equipped).
9. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)
10. Close service door.

1— Final Fuel Filter
2— Mounting Base

3— Fuel Shutoff Valve (if equipped)



Final Fuel Filter



Fuel Shutoff Valve (if equipped)

TX1156147 —UN—12MAR14

TX1251658A —UN—08FEB18

TD48962,0000066 -19-08FEB18-1/1

Replace Auxiliary Fuel Filter and Water Separator—If Equipped

1. Ensure that key switch is in the OFF position.
2. Open right rear service door to access auxiliary fuel filter and water separator (1).
3. Thoroughly clean exterior of auxiliary fuel filter and water separator assembly and surrounding area.
4. Close fuel shutoff valve (if equipped) (4) located on inlet of auxiliary fuel filter.

NOTE: Drain waste into a container. Dispose of waste properly.

5. Loosen drain valve (3) to relieve pressure and drain contaminates from water separator bowl (2). Dispose of waste properly. Close drain valve.
6. Rotate auxiliary fuel filter counterclockwise and remove from mounting base. Remove water separator bowl from auxiliary fuel filter. Dispose of used fuel filter properly.
7. Clean filter mounting base.
8. Clean and dry water separator bowl. Replace if necessary.
9. Install water separator bowl to new auxiliary fuel filter.

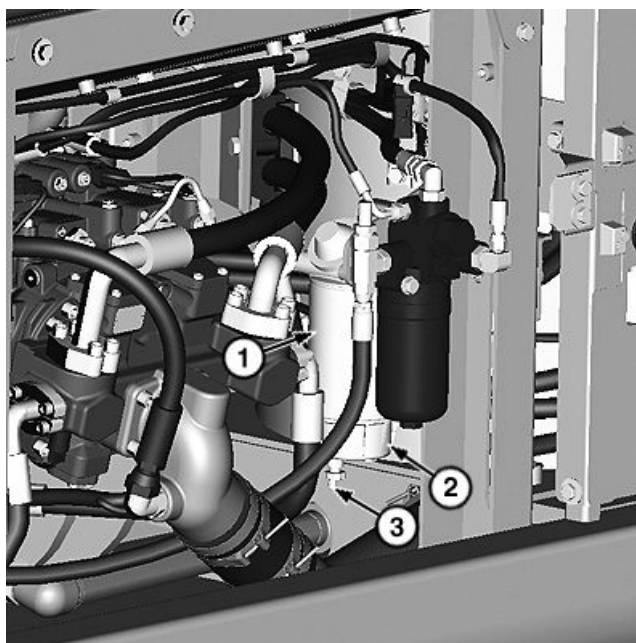
IMPORTANT: DO NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components.

Only lubricate filter seal with diesel fuel before installing.

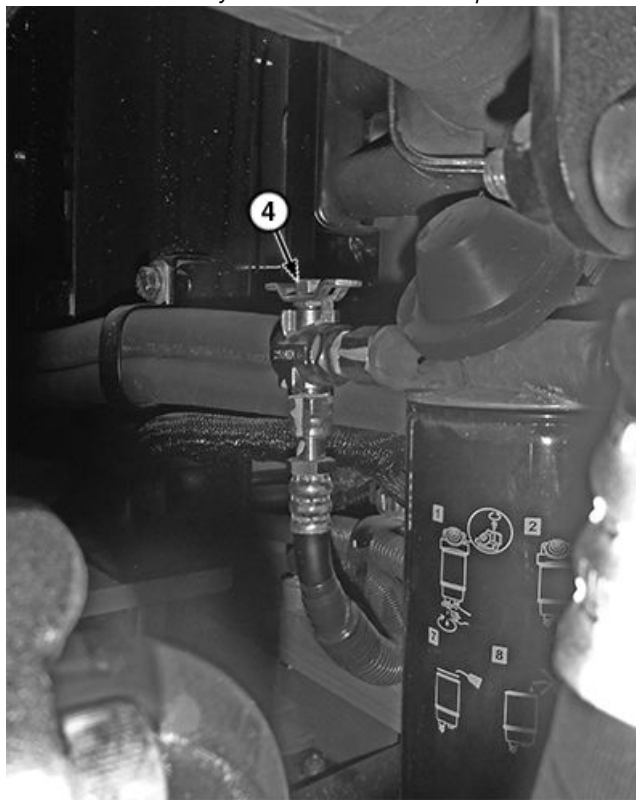
10. Install new auxiliary fuel filter onto mounting base. Rotate filter housing clockwise by hand. Tighten 1/2—3/4 turn after seal contacts mounting base.
11. Open fuel shutoff valve (if equipped).
12. Prime fuel system and bleed air. See Bleed Fuel System. (Section 4-1.)
13. Operate engine and check for leaks.
14. Tighten filter element and bowl only enough to stop leaks.
15. Close service door.

1—Auxiliary Fuel Filter and Water Separator
2—Water Separator Bowl

3—Drain Valve
4—Fuel Shutoff Valve (if equipped)



Auxiliary Fuel Filter and Water Separator



Fuel Shutoff Valve (if equipped)

TX1156858 —UN—27MAR14

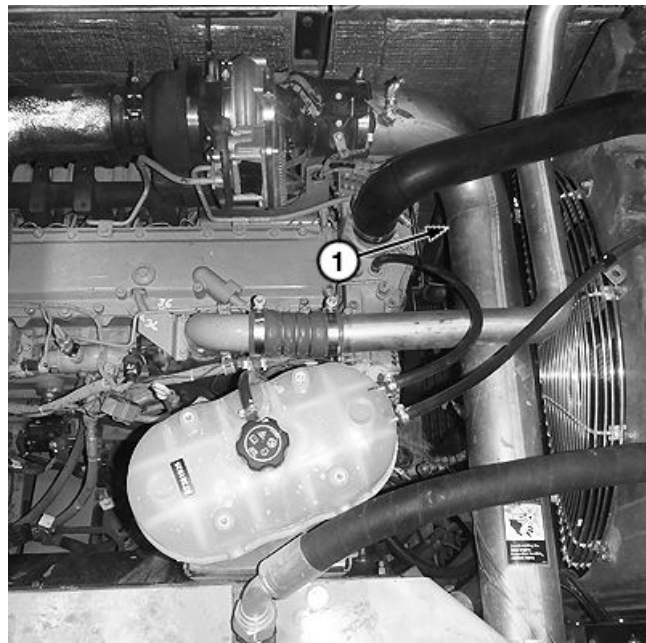
TX1252146A —UN—08FEB18

TD48962.0000067 -19-09FEB18-1/1

Check Air Intake Hoses

1. Check air intake hoses (1) for cracks. Replace as necessary.
2. Check for loose connections and tighten clamps as necessary.

1— Air Intake Hose



Air Intake Hose

TX1156281A —UN—13MAR14

KR46761,0000BBB -19-13MAR14-1/1

Drain and Refill Engine Oil and Replace Filter

IMPORTANT: Avoid engine damage. Make sure that area around and above engine oil filler cap is clean and clear of debris before removing cap.

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shutdown engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Remove middle access cover under the machine. Open drain valve on side of engine oil pan. Allow oil to drain into a container. Dispose of waste oil properly.
5. Close drain valve and install access cover.
6. Open right front service door to access engine oil filter (3).
7. Turn engine oil filter counterclockwise to remove. Clean mounting surface on base.
8. Apply thin film of oil to rubber gasket of new filter.
9. Install new filter. Turn filter clockwise by hand until gasket touches mounting surface.
10. Tighten filter 1/2—3/4 turn more.
11. Open engine cover.
12. Remove filler cap (2) and fill engine with oil. For specific engine oil, see Diesel Engine Oil — Interim Tier 4, Final Tier 4, Stage IIIB, and Stage IV. (Section 3-1.)

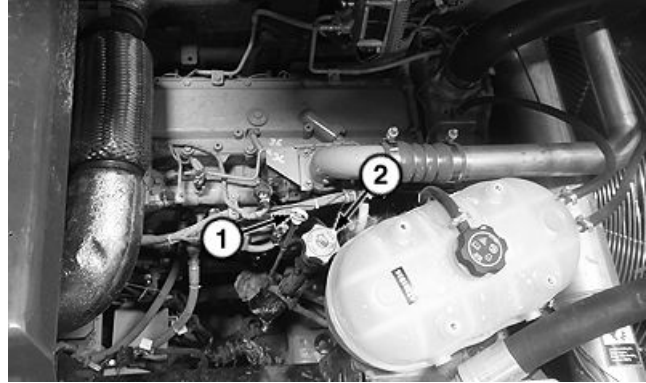
Specification

Engine Oil With	
Filter—Capacity.....	19.5 L
	5.2 gal.

13. Install filler cap.



Engine Oil Filter



Engine Oil Filler Cap and Dipstick

1—Dipstick
2—Filler Cap

3—Engine Oil Filter

14. Start engine.
15. Stop engine, remove dipstick (1) and check oil level. Engine is full when oil level is in the cross-hatch area.
16. Check for any leakage at filter. Tighten filter just enough to stop leakage.
17. Close engine cover and service door.

KR46761,0000BBC -19-28APR14-1/1

TX1156148A —UN—12MAR14

TX1156014A —UN—10MAR14

Clean Cab Fresh Air and Cab Recirculating Air Filters

Replace filters after the sixth cleaning.

Removing Cab Fresh Air Filter:

1. Unlock cab side cover (1) on left side of machine with key to access fresh air filter (2).
2. Squeeze tab on each side of the filter to remove.

Removing Cab Recirculating Air Filter:

1. Move operator's seat forward to access recirculating air filter (3) located under the rear deck.
2. Squeeze tab (4) on right side of filter to remove.

Cleaning Filters:

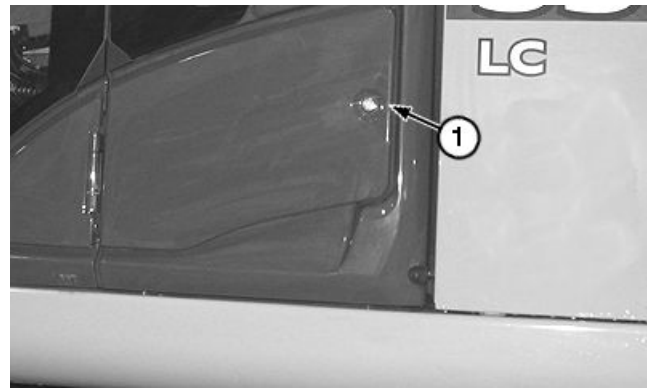
1. Clean filters in one of two ways.

CAUTION: Avoid injury from flying debris. Clear area of bystanders and wear personal protection equipment including eye protection. Reduce compressed air to less than 196 kPa (1.06 bar) (28.4 psi) when using for cleaning purposes.

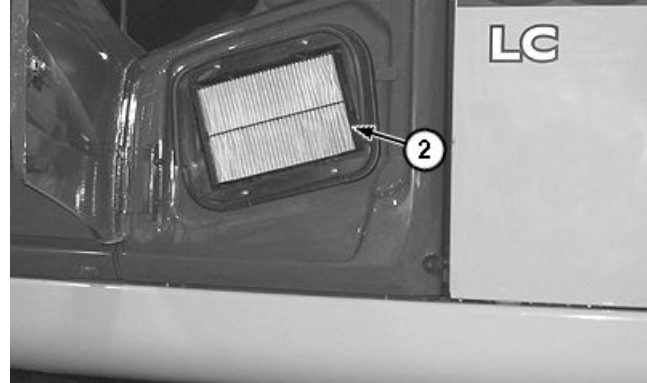
- Use compressed air opposite to the normal air flow.
 - Wash filters with water. Soak the filters in warm, soapy water for 5 minutes. Flush filter. Allow filter to dry before installing.
2. Install filters.
 3. Secure cab side cover.

1— Cab Side Cover
2— Fresh Air Filter

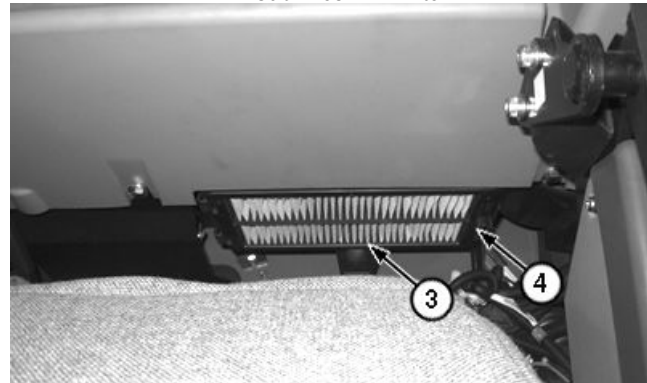
3— Recirculating Air Filter
4— Tab



Cab Side Cover



Cab Fresh Air Filter



Cab Recirculating Air Filter

TX1087411A —UN—27JAN11

TX1087400A —UN—27JAN11

TX1013147A —UN—12OCT06

CN93077,0000013 -19-29JAN15-1/1

Take Fluid Samples

See an authorized John Deere dealer for procedures and sampling equipment. For more information, see Fluid Sampling Test Ports—If Equipped. (Section 4-1.)

- Diesel Fuel

- Engine Coolant
- Hydraulic Oil
- Swing Gear Case Oil
- Pump Drive Gear Case Oil
- Travel Gear Case Oil

KR46761,0000E35 -19-04FEB16-1/1

Maintenance—Every 1000 Hours

Drain and Refill Swing Gear Case Oil

Specification

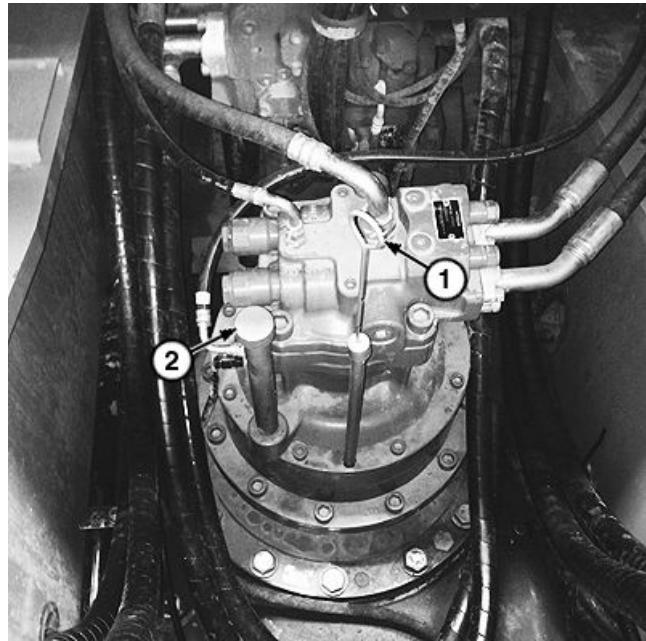
Swing Gear Case—Oil

Capacity..... 7.0 L
1.8 gal.

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Remove plug mounted on end of drain pipe to drain oil into a container. Dispose of waste oil properly.
5. Install plug.
6. Remove filler cap (2), and add oil. See Swing Gear Case and Travel Gear Case Oils. (Section 3-1.)
7. Install filler cap.
8. Check oil level on dipstick (1).



Swing Gear Case Oil

1— Dipstick

2— Filler Cap

TX1156448A —UN—18MAR14

KR46761,0000BBD -19-04DEC17-1/1

Replace Pilot Oil Filter

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shutdown engine is not done properly.

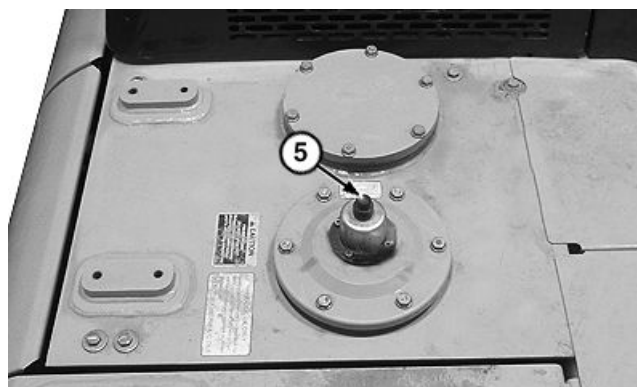
2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.

CAUTION: High pressure release of oil from pressurized system can cause serious burns or penetrating injury. The hydraulic tank is pressurized. Relieve pressure by pushing the pressure release button (5).

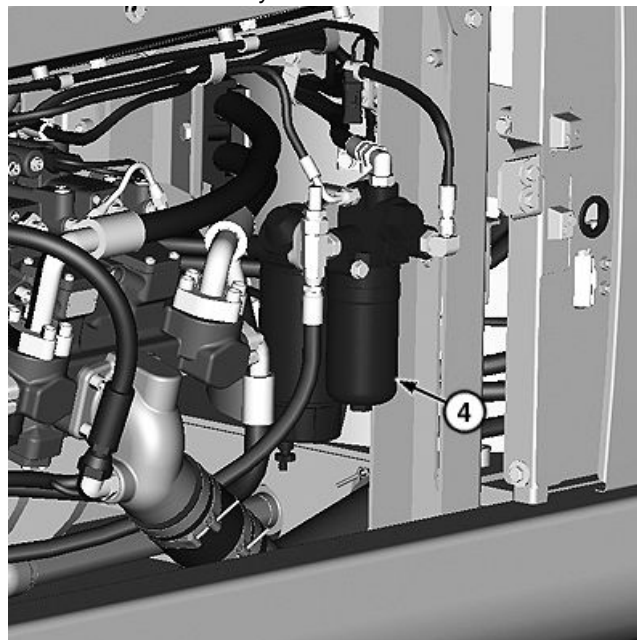
4. To relieve hydraulic pressure, push the pressure release button (5).
5. Open right rear service door to access pilot oil filter (4).
6. Remove filter canister (1) from head cover by turning counterclockwise.
7. Clean head cover contact area.
8. Remove filter element (2) and O-ring (3).
9. Install new O-ring and filter element.
10. Install filter canister clockwise by hand. Check for any leakage.
11. Close service door.

1— Filter Canister
2— Filter Element
3— O-Ring

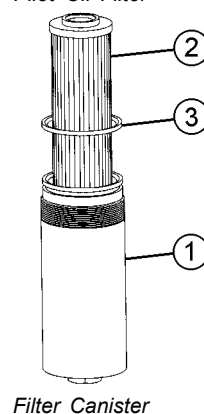
4— Pilot Oil Filter
5— Pressure Release Button



Hydraulic Tank Cover



Pilot Oil Filter



Filter Canister

TX1156250A —UN—13MAR14

TX1156252 —UN—31MAR14

T136461 —UN—19DEC00

KR46761,0000BEB -19-27MAR14-1/1

Replace Hydraulic Tank Oil Filter

1. Park machine on a level surface with arm cylinder fully retracted and bucket cylinder fully extended.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.

CAUTION: High-pressure release of oil from pressurized system can cause serious burns or penetrating injury. The hydraulic tank is pressurized. **DO NOT** remove hydraulic cap. Relieve pressure by pushing the pressure release button (7).

4. To release pressure, press the pressure release button (7).
5. Hold down hydraulic oil filter cover (1) against light spring load when removing the last two cap screws.
6. Remove spring (3), valve (5), and filter element (4).
7. Remove and discard filter element and O-ring (6).

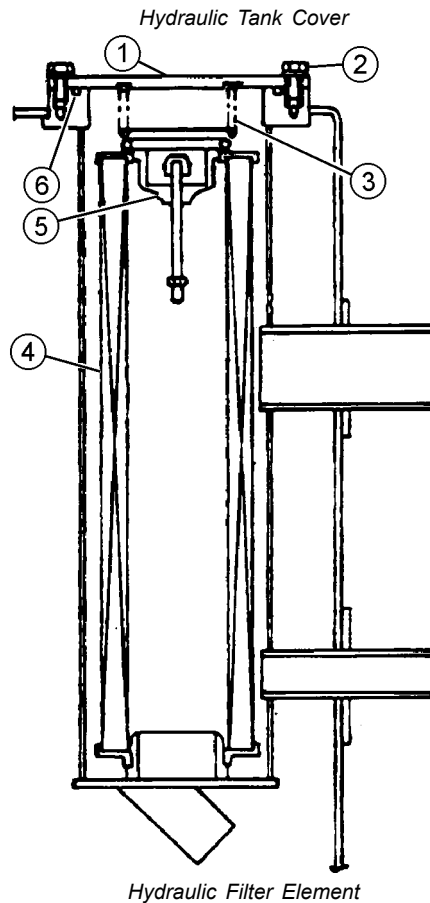
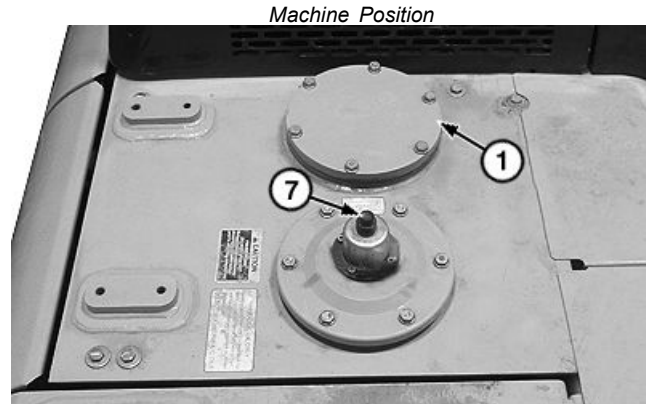
NOTE: Remove element, and inspect for metal particles and debris in bottom of filter canister. Excessive amounts of brass and steel particles can indicate a hydraulic pump, motor, or valve malfunction, or a malfunction in process. A rubber type of material can indicate cylinder packing problem.

8. Install filter element, valve, and spring.
9. Install hydraulic oil filter cover and tighten cap screws (2) to specification.

Specification

Cap Screw—Torque.....	50.0 N·m
	36.9 lb·ft

- | | |
|------------------------------|---------------------------|
| 1—Hydraulic Oil Filter Cover | 5—Valve |
| 2—Cap Screw (6 used) | 6—O-Ring |
| 3—Spring | 7—Pressure Release Button |
| 4—Filter Element | |



T6811AI —UN—18OCT88

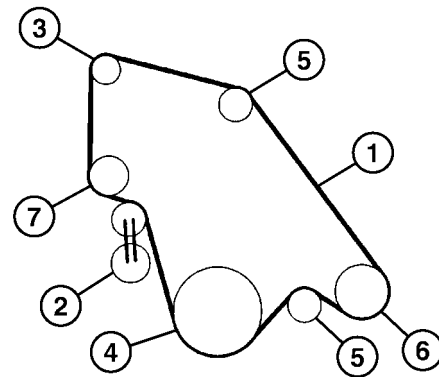
TX1156221A —UN—02APR14

TX1087387 —UN—27JAN11

KR46761,0000BBE -19-09JAN18-1/1

Inspect Serpentine Belt

1. Check belt (1) regularly for wear, especially for cracks at the bottom of grooves and for frayed edges.
2. If necessary, replace belt.
3. Install a 1/2-in. drive socket wrench to the belt tension adjuster (2). Turn wrench to pull tension adjuster pulley away from belt, releasing belt tension.
4. Hold tension adjuster away from belt while removing old belt and installing new belt.
5. Slowly release wrench tension to allow tension adjuster to move against new belt. Tension is automatically adjusted.
6. Remove wrench.



Serpentine Belt

1—Belt
2—Belt Tension Adjuster
3—Alternator
4—Crankshaft Pulley

5—Idler Pulley (2 used)
6—A/C Compressor
7—Water Pump

KR46761,0000BBF -19-15JUN15-1/1

TX1156527—UN—19MAR14

Drain and Refill Pump Drive Gear Case Oil

1. Park machine on a level surface.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Open right rear service door to access pump drive gear case.
5. Remove filler plug (2).

NOTE: Drain waste into a container. Dispose of waste properly.

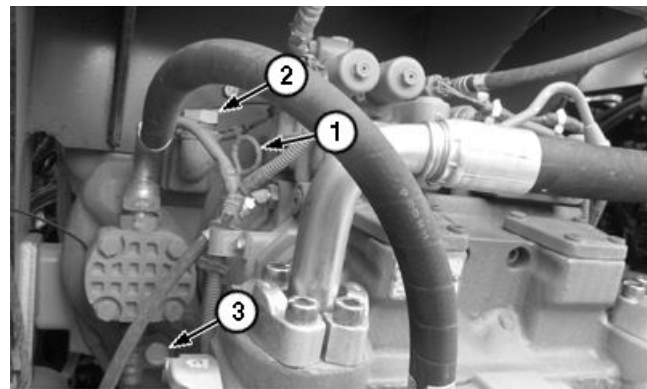
6. Remove drain plug (3). Allow oil to drain into a container. Dispose of waste oil properly.
7. Apply liquid pipe thread sealant to drain plug. Install plug.

Specification

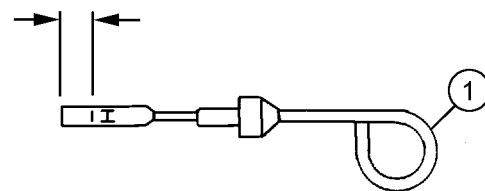
Pump Drive Gear
Case—Oil Capacity..... 1.1 L
1.2 qt.

8. Add oil. See Pump Drive Gear Case Oil. (Section 3-1.)
9. Remove dipstick (1), and check oil level. Oil level must be approximately halfway below H mark.
10. Install filler plug.
11. Install dipstick.

12. Close service door.



Pump Drive Gear Case



Dipstick

1—Dipstick
2—Filler Plug

3—Drain Plug

KR46761,0000BEC -19-05DEC17-1/1

TX1102989A—UN—07DEC11

T145092—UN—31AUG01

Remove and Clean Open Crankcase Ventilation (OCV) Hose

1. Remove small front access cover under the machine.
2. Remove the open crankcase ventilation (OCV) hose (1).

IMPORTANT: Restrictions in the OCV hose can cause sludge to form in crankcase. This can lead to clogging of oil passages, filters, and screens, resulting in serious engine damage. Avoid engine damage by cleaning the OCV hose at shorter intervals if operating machine in dusty conditions.

3. Inspect OCV hose for dirt and debris.
4. Clean OCV hose with solvent and compressed air if restricted.
5. Install OCV hose and front access cover.



View Shown From Under Machine Looking Through Access Cover

1— Open Crankcase Ventilation (OCV) Hose

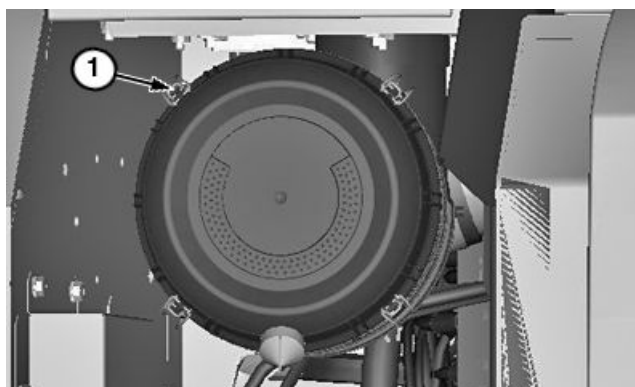
TX1156461A —UN—18MAR14

KR46761,0000BC0 -19-18MAR14-1/1

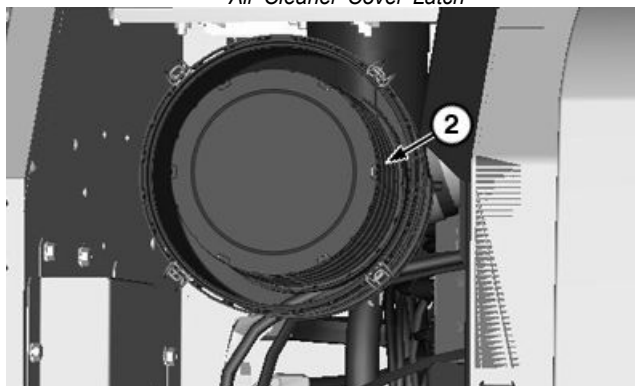
Replace Air Cleaner Elements

1. Open left front service door to access air cleaner.
2. Release latches (1) to unlock cover.
3. Remove cover.
4. Remove primary air filter element (2).
5. Clean the inside of the filter canister.
6. Remove secondary air filter element (3).
7. Install elements, making sure the secondary air filter element is centered in canister.
8. Install cover and secure latches.
9. Close service door.

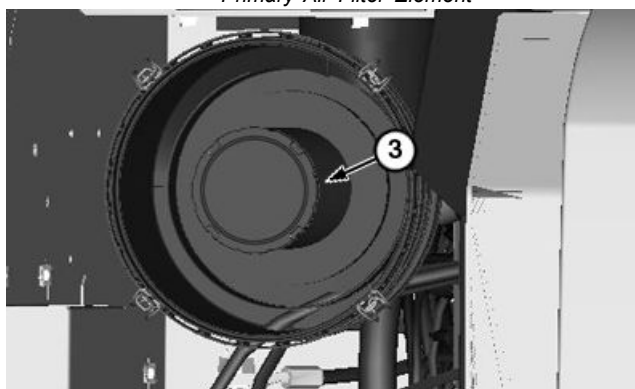
1— Latch (4 used) 3— Secondary Air Filter Element
2— Primary Air Filter Element



Air Cleaner Cover Latch



Primary Air Filter Element



Secondary Air Filter Element

TX1163474A —UN—18JUN14

TX1163475 —UN—18JUN14

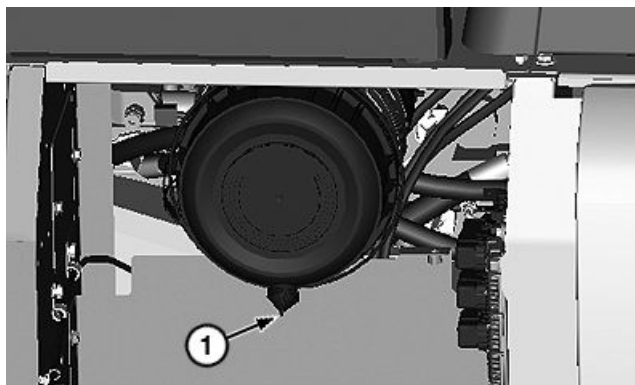
TX1163477 —UN—18JUN14

KR46761,0000BF0 -19-29JAN15-1/1

Replace Air Cleaner Dust Unloader Valve

IMPORTANT: Avoid machine damage. A missing, damaged, or hardened air cleaner dust unloader valve (1) will make the dust cup precleaner ineffective, causing very short element life. Valve should suck closed when engine is running.

1. On left side of machine, open front service door to access dust unloader valve (1).
2. Twist and pull on dust unloader valve to remove dust unloader valve from the air cleaner cover.
3. Install new dust unloader valve on air cleaner cover.
4. Close service door.



Dust Unloader Valve

1— Dust Unloader Valve

TX1156004 —UN—27MAR14

KR46761,0000BEE -19-29JAN15-1/1

Check Coolant Condition

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.

NOTE: Coolant should be checked every 1000 hours or 1 year, or when replacing 1/3 or more of coolant using SERVICEGARD™ tool program.

1. Open engine cover to access surge tank.
2. Test engine coolant. See Testing Coolant Freeze Point. (Section 3-1.)
3. Install surge tank cap.

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Pressurized Fluids

4. Close engine cover.

TS281 —UN—15APR13

KR46761,0000BB7 -19-17APR17-1/1

Maintenance—Every 2000 Hours

Check and Adjust Engine Valve Lash

See an authorized John Deere dealer for engine valve clearance adjustment.

MB60223,0005281 -19-04JUN18-1/1

Drain and Refill Travel Gear Case Oil

1. Park the machine on level ground rotating travel gear case until pictured as shown.
2. Stop engine.

CAUTION: High-pressure release of oils from pressurized system can cause serious burns. Wait for travel gear case oil to cool. Keep body and face away from fill plug (1). Gradually loosen fill plug to release pressure.

3. After travel gear case has cooled, slowly loosen fill plug (1) to release air to relieve pressure.

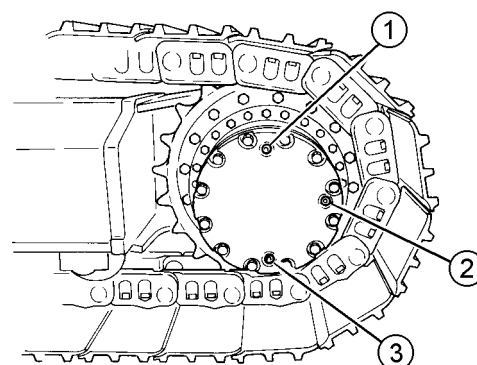
NOTE: Drain waste into a container. Dispose of waste properly.

4. Remove drain plug (3). Allow oil to drain into a container. Dispose of waste oil properly.
5. Wrap threads of drain plug with a sealing-type tape. Install plug. Tighten plug to specification.

Specification

Plug—Torque.....50.0 N·m
36.9 lb.-ft.

6. Remove fill plug and check plug (2).
7. Add oil until oil flows out of check plug hole. See Swing Gear Case and Travel Gear Case Oils. (Section 3-1.)



TX1000270 —UN—15NOV05

1— Fill Plug
2— Check Plug

3— Drain Plug

Specification

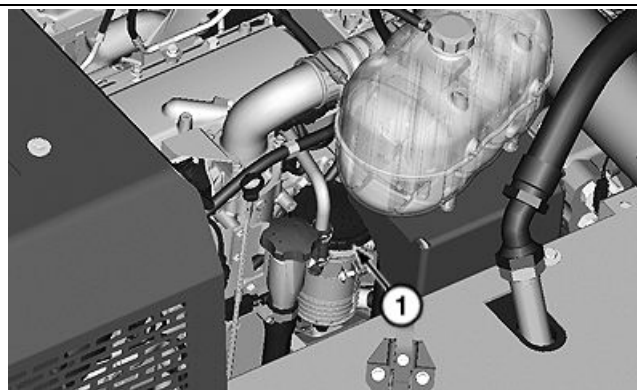
Travel Gear Case—Oil
Capacity (each)..... 6.2 L
1.6 gal.

8. Wrap threads of check plug and fill plug with sealing-type tape. Install plugs. Tighten plugs to specification.
9. Change oil of second travel gear case.

KR46761,0000BC1 -19-03FEB15-1/1

Replace Open Crankcase Ventilation (OCV) Filter

1. Open engine cover.
2. Remove open crankcase ventilation (OCV) filter cap (1) by turning counterclockwise.
3. Remove OCV filter element.
4. Inspect filter housing for dirt and debris.
5. Install new OCV filter element.
6. Install OCV filter cap. Hand tighten only.
7. Close engine cover.



Open Crankcase Ventilation Filter

1— Open Crankcase Ventilation
Filter Cap

TX1156875 —UN—27MAR14

KR46761,0000BC2 -19-28MAR14-1/1

Clean Diesel Exhaust Fluid (DEF) Tank (S.N. —610421)

See an authorized John Deere dealer.

JL58967,0000719 -19-17NOV16-1/1

Replace Diesel Exhaust Fluid (DEF) Header Suction Screen and Baffle (S.N. —610421)

See an authorized John Deere dealer.

JL58967,000071A -19-30AUG17-1/1

Access Diesel Exhaust Fluid (DEF) Dosing Unit Filter

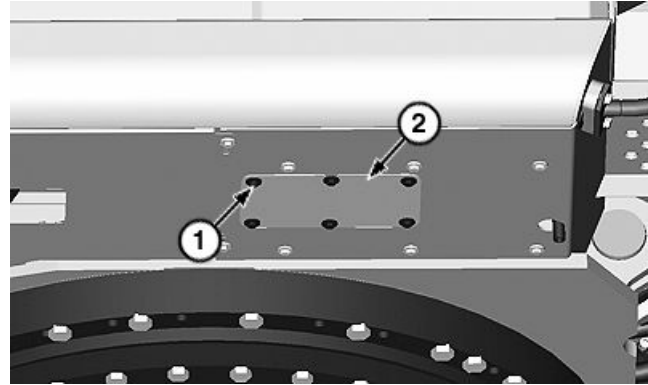
NOTE: Diesel exhaust fluid (DEF) dosing unit filter is located on right front side of machine under steps.

Park machine on level surface with upperstructure rotated 90° for easier access.

To access diesel exhaust fluid (DEF) dosing unit filter, remove cap screws (1) and cover (2) located underneath machine.

1— Cap Screw (6 used)

2— Cover



Diesel Exhaust Fluid (DEF) Dosing Unit Filter Access

TX1157414 —UN—09APR14

KR46761,0000BC4 -19-18FEB15-1/1

Replace Diesel Exhaust Fluid (DEF) Dosing Unit Filter

CAUTION: Avoid contact with eyes. In case of contact, immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the Safety Data Sheet (SDS) for additional information.

IMPORTANT: Avoid system and filter damage. Diesel exhaust fluid (DEF) dosing unit filter replacement interval is not to exceed 3 years.

IMPORTANT: If the DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. The DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components.

Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. Improperly cleaned DEF spill can interfere with diagnosis of selective catalytic reduction (SCR) system leakage problems.

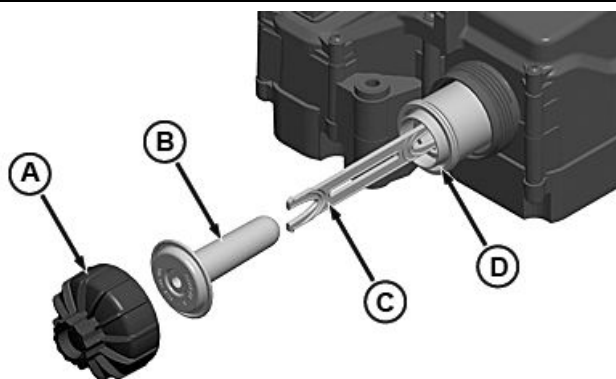
NOTE: Servicing the DEF dosing unit filter may require removing additional covers or components. See Access DEF Dosing Unit for location information.

1. Remove the DEF dosing unit filter cover (A).
2. Remove and discard the DEF dosing unit filter equalizing element (B).

NOTE: The DEF dosing unit filter tool (C) is supplied with replacement filter.

3. Insert black end of the DEF dosing unit filter tool (C) into the DEF dosing unit filter (D) until a click is felt or heard indicating the DEF dosing unit filter tool is fully engaged.

NOTE: A tool, such as a screwdriver, can be inserted into the DEF dosing unit filter tool slot to assist in removal.



DEF Dosing Unit Filter

A—DEF Dosing Unit Filter Cover
B—DEF Dosing Unit Filter Equalizing Element

C—DEF Dosing Unit Filter Tool (supplied with new filter)
D—DEF Dosing Unit Filter

4. Pull the DEF dosing unit filter tool and the DEF dosing unit filter from the DEF dosing unit. Discard the DEF dosing unit filter and the DEF dosing unit filter tool.
5. Clean the DEF dosing unit threads and mating surfaces with distilled water.
6. Lubricate the DEF filter O-rings with clean DEF. Carefully insert the DEF dosing unit filter into the DEF dosing unit.
7. Install new the DEF dosing unit filter equalizing element into the DEF dosing unit filter.
8. Install the DEF dosing unit filter cover and tighten to specification.

Specification

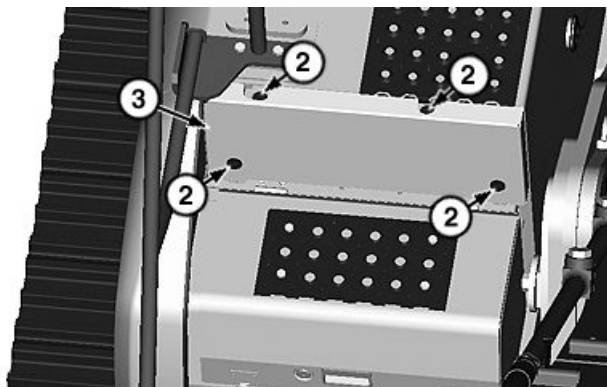
DEF Dosing Unit Filter	
Cover—Torque.....	23 N·m 204 lb·in

TD48962,00001CE -19-20DEC21-1/1

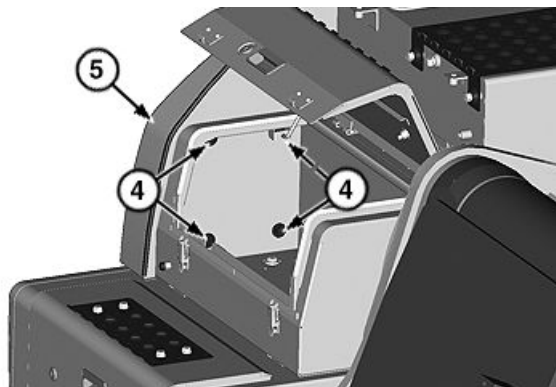
RG22534—UN—21MAR13

Maintenance—Every 4000 Hours

Replace Diesel Exhaust Fluid (DEF) Tank Breather Filter



Cap Screws and Cover

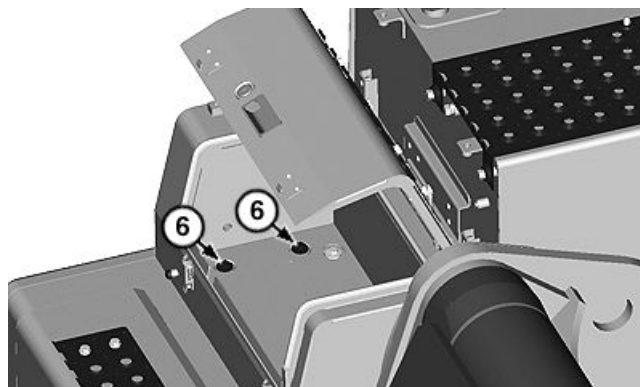


Cap Screws and Side Panel

Diesel exhaust fluid (DEF) tank breather filter (1) is located behind toolbox on right side of machine.

1. Remove cap screws (2) and cover (3).
2. Open toolbox and remove cap screws (4) on side of toolbox. Remove side panel (5).
3. Remove cap screws (6) on bottom of toolbox.
4. Close toolbox.
5. Pull handle (7) to tilt toolbox forward to access diesel exhaust fluid (DEF) tank breather filter.
6. Loosen clamp.
7. Remove diesel exhaust fluid (DEF) tank breather filter.
8. Install new diesel exhaust fluid (DEF) tank breather filter and tighten clamp.

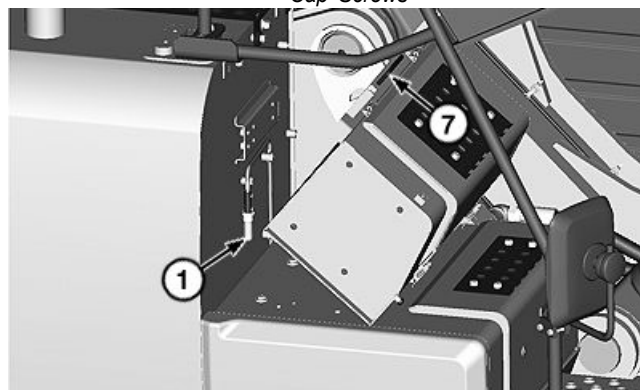
- | | |
|---|-----------------------|
| 1— Diesel Exhaust Fluid (DEF)
Tank Breather Filter | 5— Side Panel |
| 2— Cap Screw (4 used) | 6— Cap Screw (4 used) |
| 3— Cover | 7— Handle |
| 4— Cap Screw (4 used) | |



Cap Screws



Cap Screws



Diesel Exhaust Fluid (DEF) Tank Breather Filter

KR46761,0000BC3 -19-11APR14-1/1

**Replace Diesel Exhaust Fluid (DEF)
Header Suction Filter and Baffle (S.N.
610422—611599)**

See an authorized John Deere dealer.

JL58967,000071B -19-05FEB20-1/1

**Clean Diesel Exhaust Fluid (DEF) Tank (S.N.
610422—611599)**

See an authorized John Deere dealer.

JL58967,000071C -19-05FEB20-1/1

Maintenance—Every 5000 Hours

Drain and Refill Hydraulic Tank Oil

NOTE: Change original factory fill hydraulic oil after first 5000 hours. Change every 5000 hours thereafter if using Super EX 46HN. If using alternative oils, see Hydraulic Oil. (Section 3-1.)

NOTE: Perform this service at the 5000-hour interval when operating in normal conditions. When operating with an attachment, drain and refill as necessary.

IMPORTANT: Prevent damage to hydraulic system components. **DO NOT** run engine without oil in the tank.

Avoid mixing different brands or types of oils. Oil manufacturers engineer their oils to meet certain specifications and performance requirements. Mixing different oil types can degrade lubricant and machine performance.

This excavator is factory filled with Super EX 46HN extended life zinc-free hydraulic oil. Avoid servicing this excavator with products that do not meet this specification. If oils have been mixed or if alternate service oils are desired, the complete hydraulic system must be totally flushed by an authorized dealer.

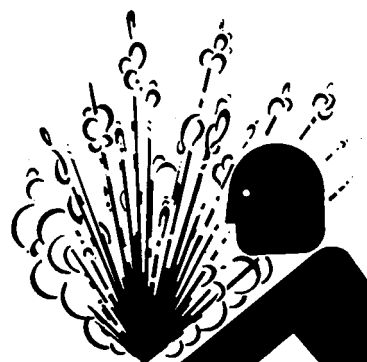
1. Park machine on level surface with upperstructure rotated 90° for easier access.
2. Position machine with arm cylinder fully retracted and bucket cylinder fully extended.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

3. Run engine at slow idle speed without load for 5 minutes.
4. Stop engine.

CAUTION: Avoid personal injury from high-pressure fluid. High-pressure release of oil from pressurized system can cause serious burns or penetrating injury. Relieve pressure by pushing pressure release button (5).

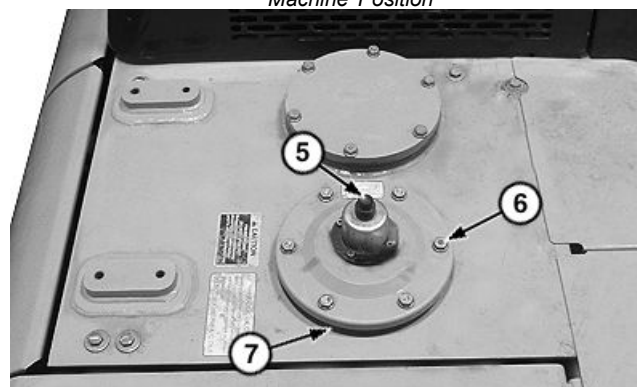
5. To relieve pressure, press the pressure release button (5).
6. Remove cap screws (6).
7. Remove hydraulic tank oil cover with suction screen (7).



Pressurized Fluids



Machine Position



Hydraulic Tank Oil Cover

5— Pressure Release Button
6— Cap Screw (6 used)

7— Hydraulic Tank Oil Cover
With Suction Screen

Specification

Hydraulic Tank—Oil	
Capacity.....	147.6 L 39.0 gal

Continued on next page

CN93077,0000253 -19-30JAN18-1/2

TS281 —UN—15APR13

T6811AJ —UN—18OCT88

TX1156316A —UN—14MAR14

NOTE: Drain waste into a container. Dispose of waste properly.

8. Remove drain valve cap screw (4). Allow oil to drain into a container. Dispose of waste oil properly.

9. Clean inside of tank and suction screen.

NOTE: The hydraulic tank oil filter and pilot oil filter can be changed at this point in the procedure. See Maintenance—Every 1000 Hours. (Section 3-9.)

10. Install suction screen with cover. Suction screen must seal against outlet pipe in bottom of tank. If necessary, loosen suction screen rod nut (2) to adjust suction screen rod length.

11. Replace drain valve cap screw.

IMPORTANT: If the hydraulic pump is not filled with oil, it will be damaged when the engine is started.

12. Add oil until it is between marks on sight glass. See Hydraulic Oil. (Section 3-1.)

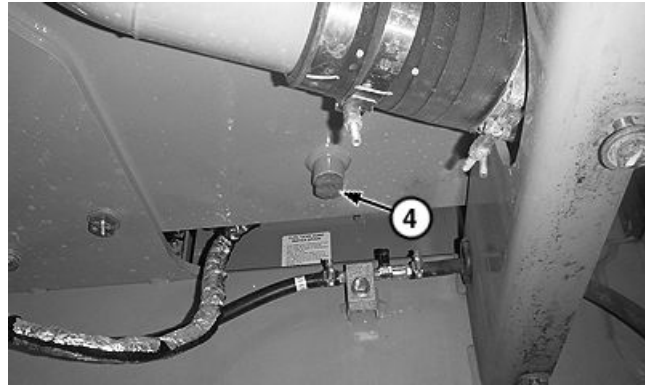
Specification

Suction Screen Rod	
(1)—Length.....	889.0 mm 35.0 in
Suction Screen Rod	
Nut—Torque.....	17.0 N·m 150.5 lb·in
Hydraulic Cover Cap	
Screw—Torque.....	50.0 N·m 36.9 lb·ft

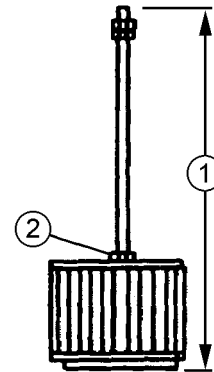
13. Install hydraulic tank cover with cap screws.

14. Bleed air from hydraulic system. See Bleed Hydraulic System. (Section 4-1.)

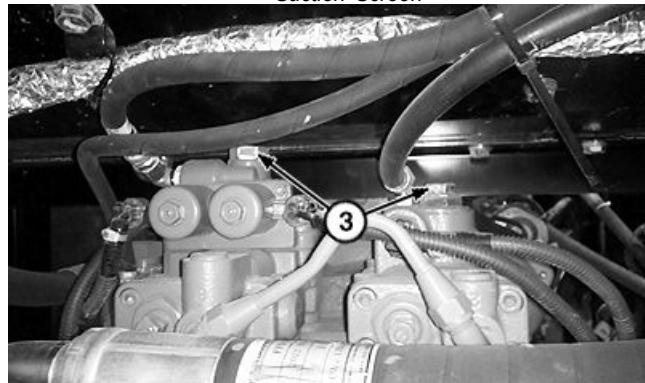
- | | |
|---------------------------|--------------------------|
| 1— Suction Screen Rod | 3— Bleed Plug (2 used) |
| 2— Suction Screen Rod Nut | 4— Drain Valve Cap Screw |



Drain Valve Cap Screw



Suction Screen



Bleed Plugs

CN93077,0000253 -19-30JAN18-2/2

TX1156449A —UN—18MAR14

T135193 —UN—06NOV00

TX1156502A —UN—19MAR14

Replace Hydraulic Tank Vent Cap Filter



Pressurized Fluids



Machine Position

CAUTION: Avoid personal injury from high-pressure fluid. High-pressure release of oil from pressurized system can cause serious burns or penetrating injury. Relieve pressure by pushing pressure release button (1).

To prevent possible burn injury from hot hydraulic oil, wait for hydraulic oil to cool before starting work.

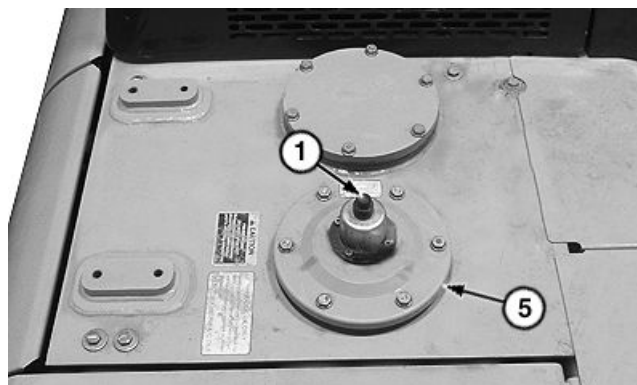
1. Park machine on a solid, level surface as shown.

IMPORTANT: Turbocharger can be damaged if procedure to shut down engine is not done properly.

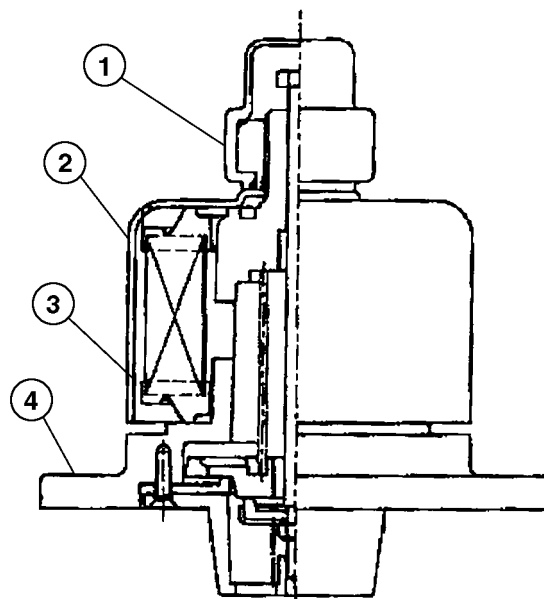
2. Run engine at slow idle speed without load for 5 minutes.
3. Stop engine.
4. Push the pressure release button (1) on top of the hydraulic tank oil cover with suction screen (5).
5. Remove rubber pressure release button.
6. Remove cap screw under the pressure release button.
7. Remove hydraulic tank vent cap filter cover (2) by turning counterclockwise.
8. Remove vent cap filter (3). Install new filter.

IMPORTANT: Prevent damage to hydraulic system components. Do not allow water or contaminants between cover and body (4).

9. Install filter cover until it comes in contact with the filter element. Then further tighten the cover 1/4 turn.
10. Install cap screw and pressure release button.



Hydraulic Tank Oil Cover



Hydraulic Tank Oil Vent Cap

1—Pressure Release Button
2—Hydraulic Tank Vent Cap
Filter Cover
3—Vent Cap Filter

4—Body
5—Hydraulic Tank Oil Cover
With Suction Screen

KR46761,0000BC5 -19-30JAN18-1/1

Maintenance—Every 6000 Hours

Drain 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.

1. Open engine cover.
2. Check coolant hoses for cracks and leaks. Replace if necessary.
3. Tighten clamps.
4. Check radiator, charge air cooler, and oil cooler for dirt, grease, leaks, and loose or broken mountings. Clean radiator, charge air cooler, and oil cooler fins. See Clean Radiator, Oil Cooler, Charge Air Cooler, and Fuel Cooler. (Section 4-1.)
5. Remove surge tank cap (1) to relieve pressure.
6. Remove cover from underside of machine to access radiator drain valve (2).

NOTE: Drain waste into a container. Dispose of waste properly.

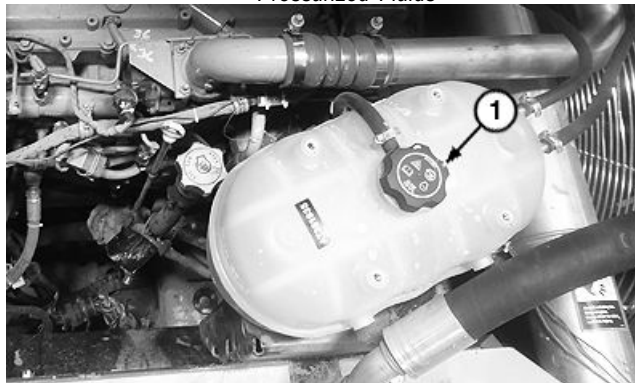
7. Turn radiator drain valve counterclockwise to open. Allow coolant to drain into a container. Dispose of waste coolant properly.
8. Close radiator drain valve and replace cover.
9. Install surge tank cap.
10. Close engine cover.

1— Surge Tank Cap

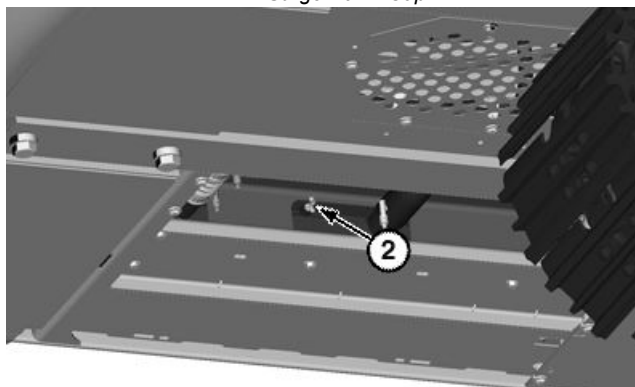
2— Radiator Drain Valve



Pressurized Fluids



Surge Tank Cap



Radiator Drain Valve

TS281 —UN—15APR13

TX1156018A —UN—10MAR14

TX1156464 —UN—15APR14

KR46761,0000BC6 -19-10JAN18-1/1

Cooling System Fill and Deaeration Procedure

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: Avoid mixing different brands or types of coolant. Coolant manufacturers engineer their coolants to meet certain specifications and performance requirements. Mixing different coolant types can degrade coolant and machine performance.

Use only permanent-type low silicate ethylene glycol base antifreeze in coolant solution. Other types of antifreeze may damage cylinder seals.

John Deere COOL-GARD™ II Pre-Mix coolant is recommended when adding new coolant to cooling system.

Follow directions on container for correct mixture ratio.

FREEZING TEMPERATURES: Fill with permanent-type, low silicate, ethylene glycol antifreeze (without stop-leak additive) and clean, soft water.

Fill

Remove surge tank cap (1) to relieve pressure. Fill surge tank to above the full hot mark. Replace surge tank cap.

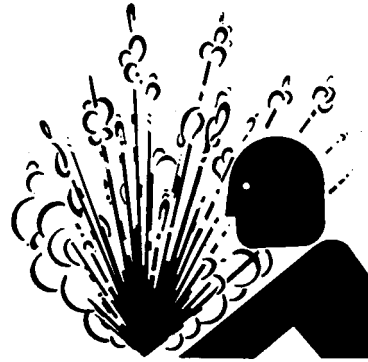
Deaeration

The cooling system requires several warmup and cool down cycles to deaerate. It will NOT deaerate during normal operation. Only during warmup and cool down cycles will the system deaerate.

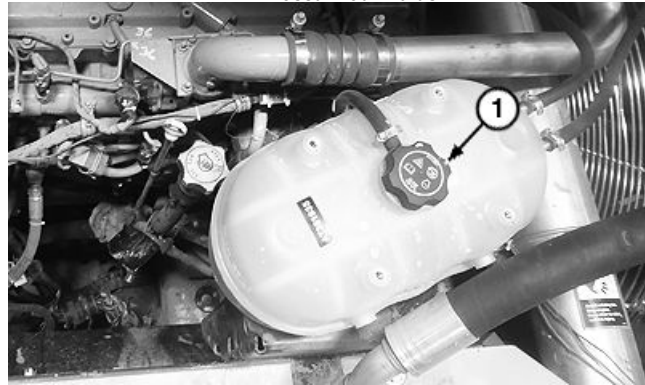
1. Start engine. Run engine until coolant reaches a warm temperature.
2. Stop engine. Allow coolant to cool.
3. Check coolant level at surge tank.
4. Repeat steps 1—3 until surge tank coolant level is repeatedly at the same level (stabilized).

NOTE: The level of the coolant in the cooling system **MUST BE** repeatedly checked after all drain and

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Pressurized Fluids



Surge Tank Cap

1— Surge Tank Cap

refill procedures to insure that all air is out of the system which allows the coolant level to stabilize. Check coolant level only when the engine is cold.

5. If necessary, fill surge tank to above the MIN COLD mark.

Specification

Cooling System—Capacity.....	23.0 L
	6.0 gal.

KR46761,0000BC7 -19-02APR14-1/1

TS281—UN—15APR13

TX1156018A—UN—10MAR14

Replace Diesel Exhaust Fluid (DEF) In-Line Filter (S.N. 611600—)

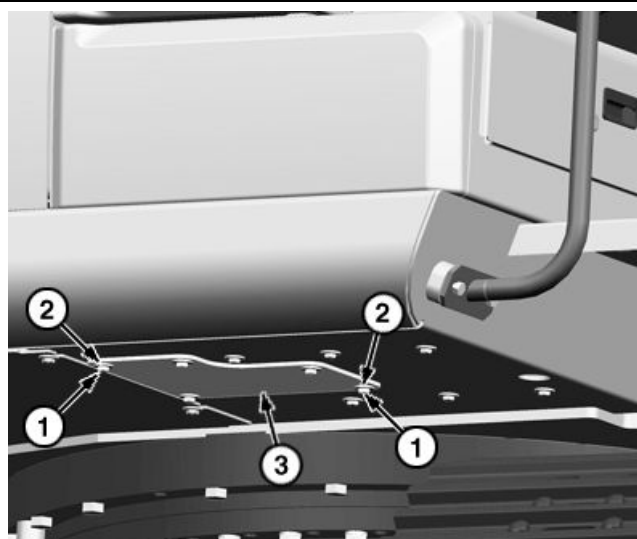
CAUTION: Avoid possible personal injury. In case of contact with diesel exhaust fluid (DEF), immediately flush eyes with large amounts of water for a minimum of 15 minutes. Reference the materials safety data sheet (MSDS) for additional information. Do not ingest DEF. In the event DEF is ingested, contact a physician immediately.

IMPORTANT: Avoid system and filter damage. Diesel exhaust fluid (DEF) in-line filter replacement interval is not to exceed 3 years. Replace filter every 6000 hours or 3 years.

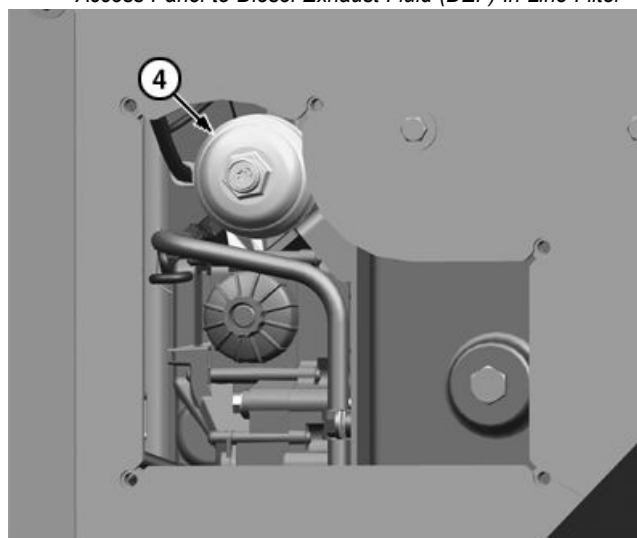
IMPORTANT: Avoid corrosion of machine parts or surfaces. If DEF is spilled or contacts any surface other than the storage tank, immediately clean the surface with clear water. DEF is corrosive to painted and unpainted metallic surfaces and can distort some plastic and rubber components. Spilled DEF, if left to dry or if only wiped away with a cloth, leaves a white residue. An improperly cleaned DEF spill may interfere with the diagnosis of selective catalytic reduction (SCR) system leakage problems.

Avoid system and filter damage. Ensure that DEF system is not frozen before changing filter. If system is frozen, operate engine until system defrosts completely.

1. Park machine on a solid, level surface with upperstructure rotated 90° for easier access.
2. Stop engine.
3. To access diesel exhaust fluid (DEF) in-line filter (4), remove cap screws (1), washers (2), and access panel (3) located underneath the machine.



Access Panel to Diesel Exhaust Fluid (DEF) In-Line Filter



Diesel Exhaust Fluid (DEF) In-Line Filter

1— Cap Screw (5 used)
2— Washer (5 used)

3— Access Panel
4— Diesel Exhaust Fluid (DEF)
In-Line Filter

Continued on next page

TD48962,00001FD -19-25FEB20-1/7

TX1293030A —UN—24FEB20

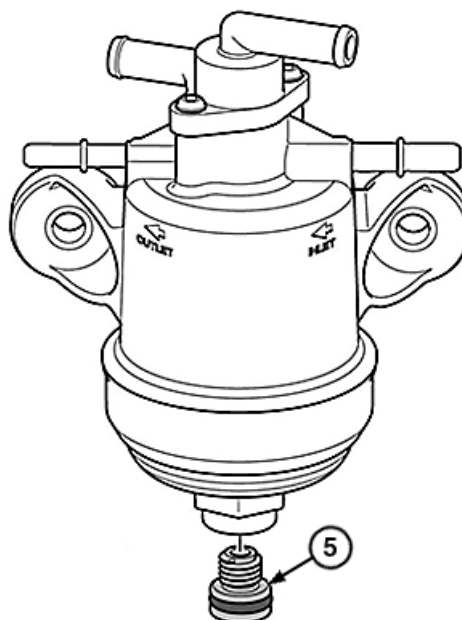
TX1293031A —UN—24FEB20

4. Remove and discard drain plug with O-ring (5).

NOTE: Container must hold at least 300 mL (0.32 qt).

5. Drain DEF into an appropriate container.

5— Drain Plug With O-Ring



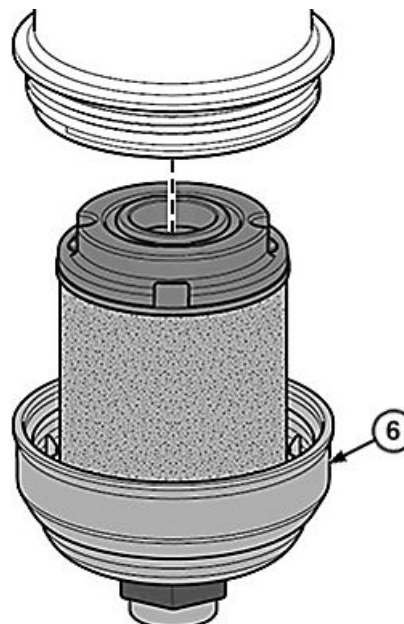
DEF Removal

TX1286984A —UN—23OCT19
TD48962,00001FD -19-25FEB20-2/7

6. Rotate filter housing (6) counterclockwise and pull down.

7. Remove and discard filter from filter housing. If necessary, tap filter to loosen from filter housing.

6— Filter Housing



Filter Removal

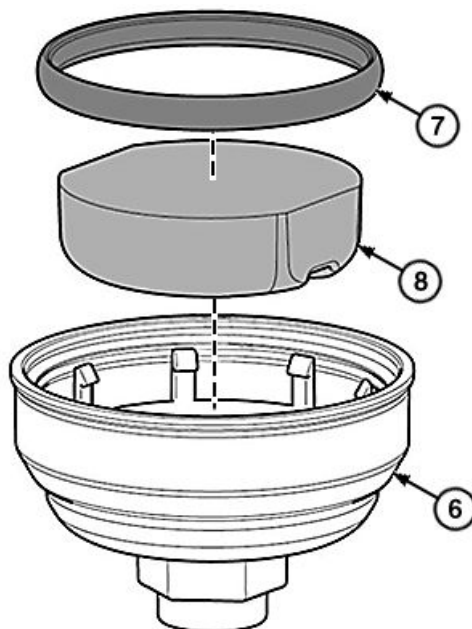
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TX1286985A —UN—23OCT19
TD48962,00001FD -19-25FEB20-3/7

8. Remove and discard O-ring (7) and foam compensation element (8).
9. Using new DEF, clean the filter housing to remove any sediment or contamination.
10. Install new O-ring and foam compensation element into filter housing.

6— Filter Housing
7— O-Ring

8— Foam Compensation
Element



Filter Housing Assembly

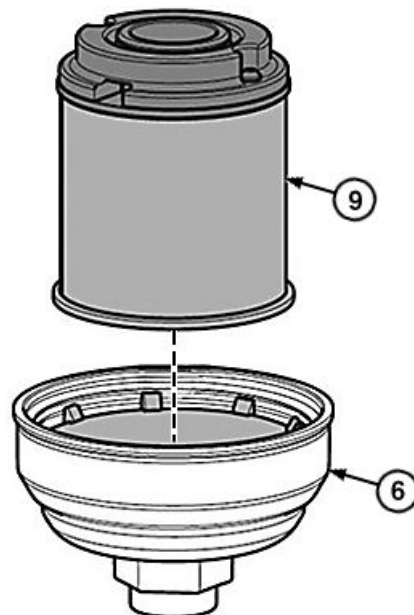
TD48962,00001FD -19-25FEB20-4/7

TX1286986A —UN—23OCT19

11. Install new filter element (9) into filter housing.

6— Filter Housing

9— Filter Element



Filter and Components Installation

Continued on next page

TD48962,00001FD -19-25FEB20-5/7

TX1286987A —UN—23OCT19

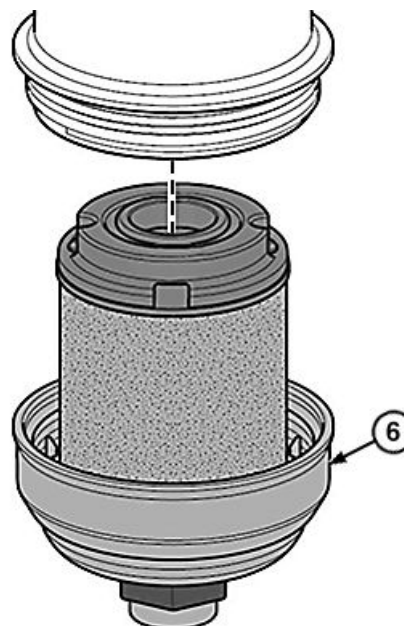
12. Install filter housing with O-ring, foam compensation element, and filter element.

13. Rotate filter housing clockwise and tighten to specification.

Specification

DEF In-Line Filter	
Housing—Torque.....	25 N·m
	221 lb·in

6— Filter Housing



Filter Installation

TD48962,00001FD -19-25FEB20-6/7

TX1286985A —UN—23OCT19

14. Install new drain plug with O-ring. Tighten to specification.

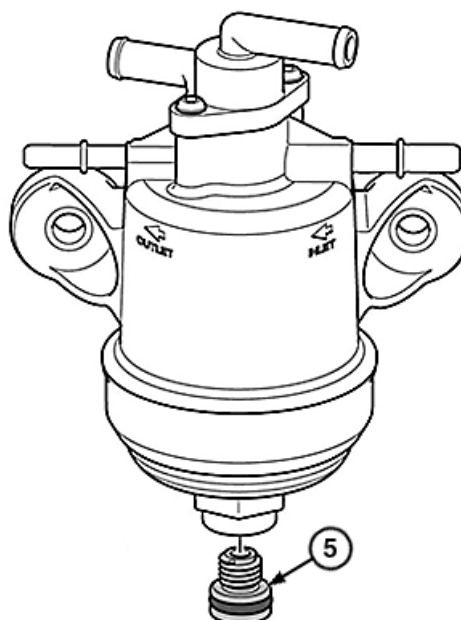
Specification

DEF In-Line Filter Drain	
Plug—Torque.....	4 N·m
	35 lb·in

15. Start engine and check for DEF leakage around the DEF in-line filter.

16. Install access panel, washers, and cap screws.

5— Drain Plug With O-Ring



Drain Plug With O-Ring

TD48962,00001FD -19-25FEB20-7/7

TX1286984A —UN—23OCT19

Miscellaneous—Machine

Clean Machine Regularly

Remove any grease, oil, fuel, or debris buildup to avoid possible injury or machine damage.

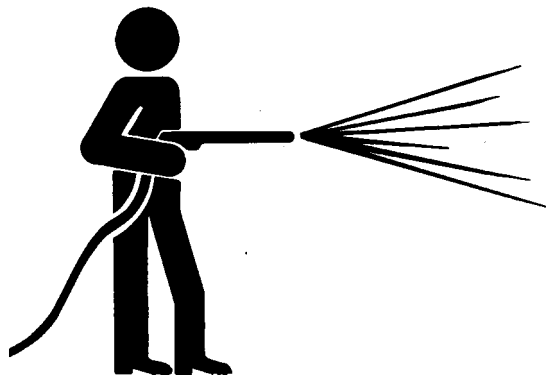
IMPORTANT: Avoid using high-pressure washing for electronic or electric devices installed in, on, or around the engine, including the engine control unit (ECU), relays, and harness couplers.

Never steam-clean or pour cold water on the high-pressure fuel pump while it is still warm; doing so may cause pump parts to seize. Also, avoid steam-cleaning electrical components, wiring, sensors, and the ECU.

Avoid using high-pressure washing when cleaning the exhaust stack to prevent damage to engine.

Steam-clean engine thoroughly. High-pressure washing is not recommended.

High-pressure washing greater than 1379 kPa (13.8 bar) (200 psi) can damage freshly painted finishes. Paint



Clean Machine Regularly

T6642EJ—UN—18OCT88

should be allowed to air-dry for 30 days minimum after receipt of machine before cleaning with high pressure. Use low-pressure wash operations until 30 days have elapsed.

Do not spray oil cooler fins at an angle; doing so may bend the cooler fins.

BB11933,0000076 -19-16JUL20-1/1

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 drain, fuel filter change, or when the engine has run out of fuel.

Air can enter fuel system when draining fuel filters, 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. Open fuel shutoff valve (if equipped).
2. Turn key switch to the ON position to energize ignition system and fuel pump. Let pump run for 60 seconds to prime fuel system.
3. After 60 seconds, turn key switch to the OFF position.
4. Turn key switch back to the ON position.
5. Run engine for 5 minutes at slow idle.

ER79617,0000DF9 -19-12MAR18-1/1

Bleed Hydraulic System

IMPORTANT: If the hydraulic pump is not filled with oil, pump will be damaged when the engine is started.

This procedure should be performed after changing hydraulic oil, hydraulic oil filter, or pilot oil filter.

Bleed Air From Hydraulic Pump

1. Loosen air bleed plugs (1) until oil flows from bleed holes.
2. Purge air and tighten air bleed plugs to specification.

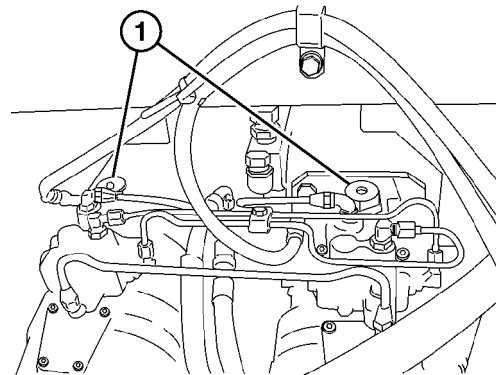
Specification

Air Bleed Plug (2 used)—Torque.....95 N·m
70.1 lb·ft

3. Start engine and run for 5—10 seconds to ensure oil flow to hydraulic pump. Stop engine.
4. Check hydraulic tank oil level. See Check Hydraulic Tank Oil Level. (Section 3-4.) If necessary, add oil. See Hydraulic Oil. (Section 3-1.)
5. Start the engine again. Confirm oil level is above minimum point in hydraulic oil sight gauge. Run engine for approximately 1 minute to circulate oil through the system.

Bleed Air From Hydraulic Circuit

1. Start engine again. Operate each cylinder and swing motor repeatedly for 10—15 minutes to purge air from hydraulic system.



Air Bleed Plugs

1— Air Bleed Plug (2 used)

2. Park machine on a level surface with arm cylinder fully retracted and bucket cylinder fully extended. Lower bucket to ground.
3. Stop engine.
4. Check hydraulic tank oil level. See Check Hydraulic Tank Oil Level. (Section 3-4.) If necessary, add oil. See Hydraulic Oil. (Section 3-1.)

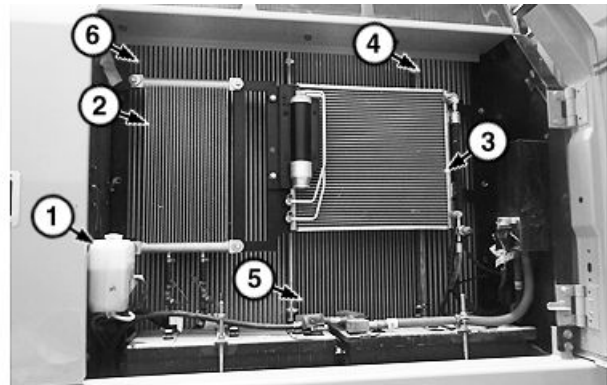
TX1183404 —UN—27JAN15

KR46761,0000E4E -19-28AUG15-1/1

Clean Radiator, Oil Cooler, Charge Air Cooler, and Fuel Cooler

CAUTION: Prevent possible injury from rotating fan and flying debris. Shut off engine before opening cover. Avoid rotating fan and fan blast.

1. Turn machine off.
2. Open the engine cover.
3. Attach an air wand to an air compressor, and blow dirt and debris back through cooling system.
4. Open left rear service door to access coolers.
5. Use compressed air to clean out cooler cores.
6. Close engine cover and service door.



Coolers

- | | |
|---------------------------------|-------------------------|
| 1— Windshield Washer Fluid Tank | 4— Charge Air Cooler |
| 2— Fuel Cooler | 5— Radiator Cooler |
| 3— Air Conditioner Condenser | 6— Hydraulic Oil Cooler |

TX1156590A —UN—20MAR14

Continued on next page

KR46761,0000BFD -19-29JAN15-1/2

If machine is equipped with a hydraulic reverse fan function, use the reversing fan switch to clean the cooling system. The reversing fan switch is located on the left console.

NOTE: The reversing fan function shall not be reactivated within 1 minute of its last completion (this time includes AUTO cycle).

The reversing fan switch has three positions:

- **AUTO:** Every 60 minutes the radiator cooling fan will automatically reverse direction for 30 seconds without intervention from the operator.
- **OFF:** Fan resumes normal operation.
- **MANUAL:** When pressed and held for 3 seconds, the fan will reverse direction for 30 seconds when right portion of switch is pressed.



Reversing Fan Switch—If Equipped

KR46761,0000BFD -19-29JAN15-2/2

TX1000844A —UN—29NOV05

Replace Coolant Filter—If Equipped (S.N. —610421)

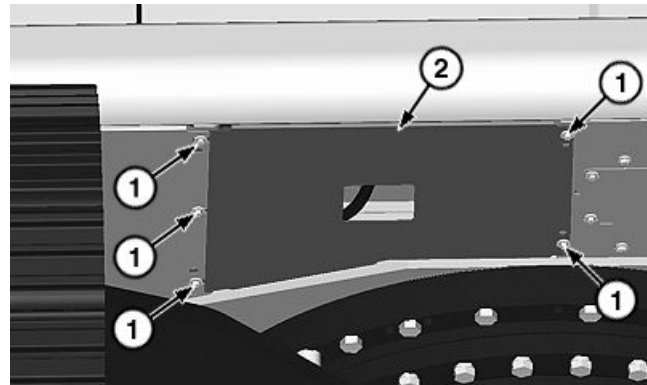
1. Park machine on level surface with upperstructure rotated 90° for easier access.

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.

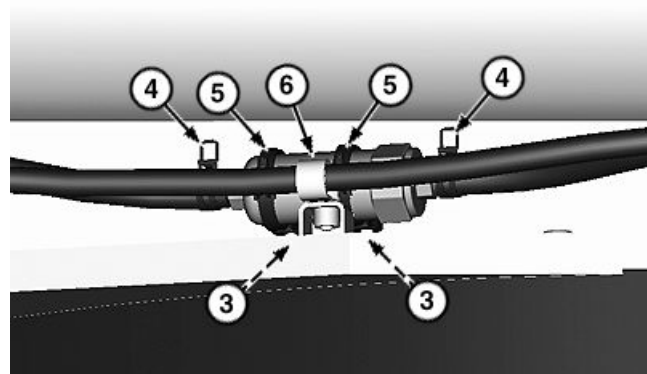
2. Allow engine to cool and remove surge tank cap.
3. Drain cooling system. See Drain Cooling System. (Section 3-13.)
4. Underneath the machine on the right side, remove cap screws (1) and access panel (2) to access coolant filter (6).
5. Remove cap screws (3) from mounting clamps.
6. Remove hose clamps (4) from each end of the coolant filter. Close all openings using caps and plugs.
7. Remove filter brackets (5) and remove coolant filter.

IMPORTANT: Avoid component damage. Install coolant filter in correct orientation. Coolant filter inlet is the hose coming from the engine and coolant filter outlet is the hose going to the diesel exhaust fluid (DEF) tank.

8. Install new coolant filter removing caps and plugs.
9. Install and tighten hose clamps and filter brackets.
10. Install cap screws to mounting clamps.
11. Install access panel and cap screws.



Access Panel (view from underneath machine)



Coolant Filter

- 1— Cap Screw (5 used)
2— Access Panel
3— Cap Screw (2 used)

- 4— Hose Clamp (2 used)
5— Filter Bracket (2 used)
6— Coolant Filter

12. Install surge tank cap and refill engine cooling system. See Cooling System Fill and Deaeration Procedure. (Section 3-13.)

KR46761,0000E81 -19-17NOV16-1/1

TX1186061 —UN—23FEB15

TX1186062 —UN—23FEB15

Do Not Service or Adjust Injection Nozzles or High-Pressure Fuel Pump

If injection nozzles are not working correctly or are dirty, the engine will not run normally. See an authorized John Deere dealer for service.

Changing the high-pressure fuel pump in any way not approved by the manufacturer will end the warranty. See copy of the John Deere warranty on this machine.

Do not service a high-pressure fuel pump that is not operating correctly. See an authorized John Deere dealer.

VD76477,0000366 -19-30MAR17-1/1

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

NOTE: Under normal operating conditions, general service of maintenance free batteries is not required.

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. Sulfuric acid 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 acid is spilled on a person:

1. Flush contacted skin with water.
2. Apply baking soda or lime to contacted area to help neutralize the acid.
3. Flush eyes with water for 15—30 minutes.
4. 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.

CAUTION: 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 (11.0 fl oz) household ammonia in 4 L (1 gal) water.

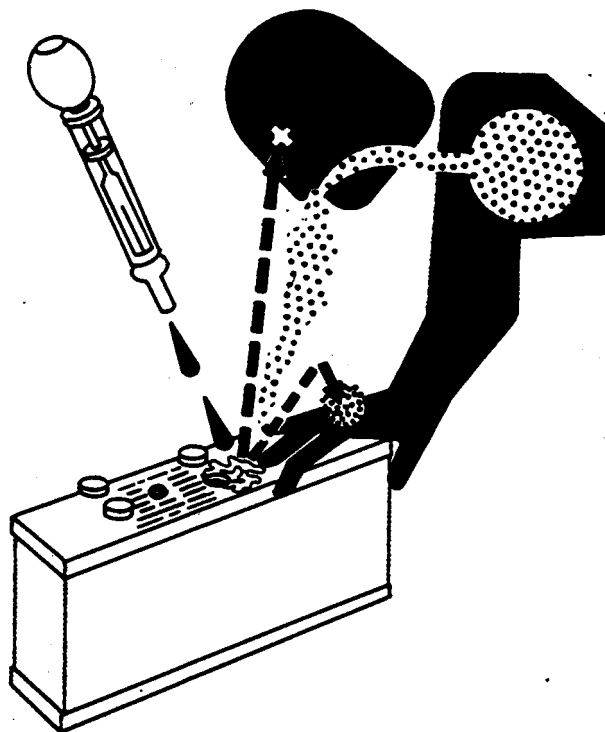
IMPORTANT: Do not overfill the battery cells.

Check the specific gravity of electrolyte in each battery cell.

See an authorized John Deere dealer for SERVICEGARD™ battery and coolant tester. Follow directions included with the tester.



Exploding Battery Gas



Battery Electrolyte



Battery and Coolant Tester

TS204 —UN—15APR13

TS203 —UN—23AUG88

T85402 —UN—10NOV88

A fully charged battery will have a corrected specific gravity reading of 1.260. If the reading is below 1.200, charge the battery.

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TX,SERV,BATT,CARE -19-02APR20-2/2

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.

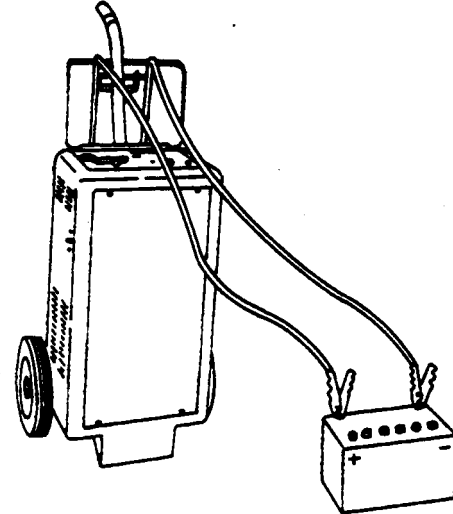
1. Turn the battery disconnect switch (if equipped) to the OFF position.
2. Ventilate the area where battery is being charged.
3. Connect positive (+) cable to the positive (+) terminal of machine battery.
4. Connect negative (-) cable to the negative (-) terminal of machine battery.

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.



Prevent Battery Explosions



Charger

5. Stop or cut back charging rate if battery case becomes 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

KR46761,0000C06 -19-17AUG21-1/2

TS204—UN—15APR13

N36890—UN—07OCT88

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.

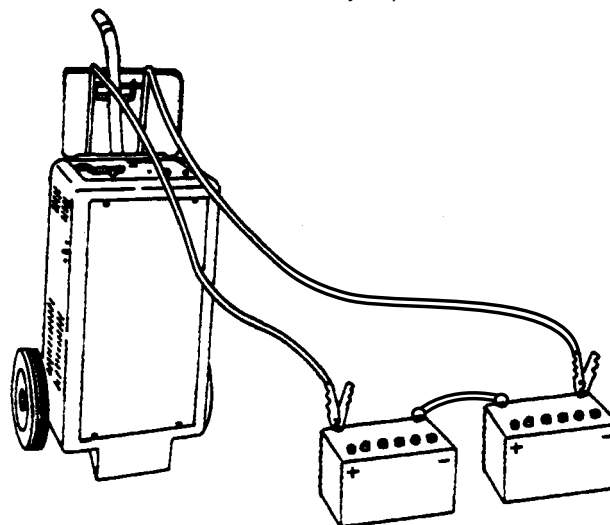
1. Turn the battery disconnect switch (if equipped) to the OFF position.
2. Ventilate the area where batteries are being charged.
3. Connect positive (+) cable to the positive (+) terminal of one machine battery.
4. Connect negative (-) cable to the negative (-) terminal of second machine battery.

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.



Prevent Battery Explosions



Charger

5. Stop or cut back charging rate if battery case becomes hot or is venting electrolyte. Battery temperature must not exceed 52°C (125°F).
6. Remove charger cables in reverse order of connection.

KR46761,0000C06 -19-17AUG21-2/2

TS204 —UN—15APR13

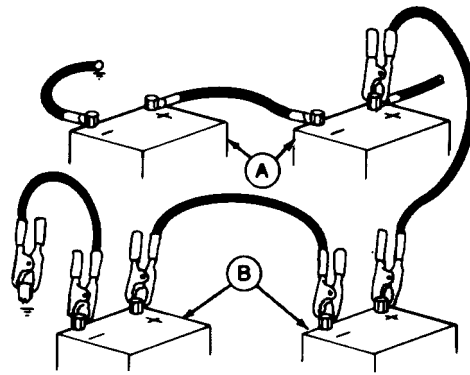
TX1314241 —UN—22JUN21

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.



Booster Batteries, 2-Battery Application

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.

A—Machine Battery (2 used)

B—Booster Battery (2 used)

4. Immediately after starting engine, disconnect the end of 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

T7233JN —UN—21MAY90

Replacing Batteries

CAUTION: Avoid personal injury from battery acid. 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.

NOTE: Reserve capacity is the time in minutes it takes a fully charged battery at 26.6°C (80°F) to drop below 10 volts.

Turn battery disconnect switch to the OFF position. See Battery Disconnect Switch. (Section 2-3.)

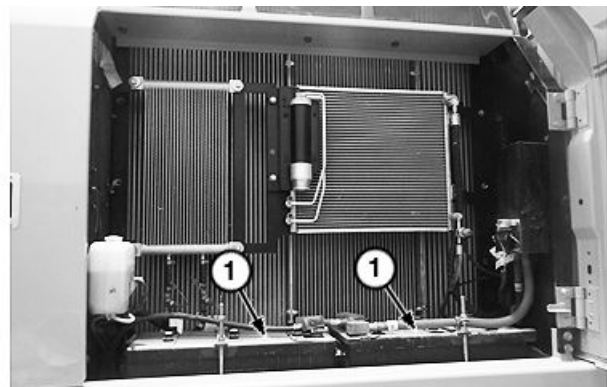
Open left rear service door to access batteries (1).

Your machine has two 12-volt batteries with negative (-) ground connected in series to provide 24-volts.

Only use batteries which meet the following specifications.

Specification

Battery—Cold Cranking	
Amps (CCA) at -18°C (0°F) per Battery.....	1000 CCA
Battery—Minutes	
Reserve Capacity at 25	
Amps per Battery.....	320 min.



Batteries

1— Battery (2 used)

If one battery in a 24-volt system has malfunctioned but the other is still good, replace the malfunctioned battery with one of the same type. For example, replace a malfunctioned maintenance-free battery with a new maintenance-free battery. Different types of batteries may have different rates of charge. This difference could overload one of the batteries and cause it to malfunction.

KR46761,0000BFF -19-19FEB15-1/1

TX1156623A —UN—21MAR14

Fluid Sampling Test Ports—If Equipped

Engine Oil Test Port

On right side of machine, open front service door to access the engine oil test port (1).

1— Engine Oil Test Port



Engine Oil Test Port

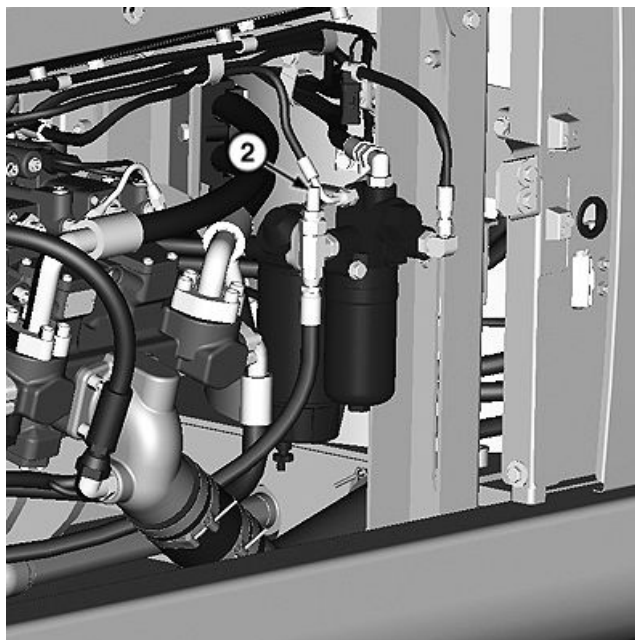
TX1156627A —UN—21MAR14

KR46761,0000C01 -19-31MAR14-1/2

Hydraulic Oil Test Port

On right side of machine, open rear service door to access the hydraulic oil test port (2).

2— Hydraulic Oil Test Port



Hydraulic Oil Test Port

TX1156636 —UN—31MAR14

KR46761,0000C01 -19-31MAR14-2/2

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, or pivot points. 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 battery and control units. 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.

For any repairs, see an authorized John Deere dealer.

VD76477,00005A0 -19-21JUL17-1/1

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

Adding 12-Volt Accessories

IMPORTANT: This machine has a 24-volt electrical system. Installing 12-volt accessories without the addition of 24-volt-to-12-volt converter may cause battery malfunction.

This machine is equipped with a 12-volt, 5-amp outlet.

When possible, use 24-volt accessories. If 12-volt accessories are added, use a 24-volt-to-12-volt converter. Converters are available from an authorized John Deere dealer.

Converter capacity requirements depend on the load of the accessories installed. Follow electronic dealer

and manufacturer's recommendations to determine the capacity of the converter required and its installation requirements. If standard equipment, verify if amperage is adequate for application.

IMPORTANT: DO NOT connect an accessory to one battery. Connecting a 12-volt accessory to one battery will cause one battery to overcharge and the other battery to undercharge, causing battery malfunction.

TX,90,DH3734 -19-21FEB18-1/1

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

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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 -19-26MAR15-1/1

Keep ROPS Installed Properly

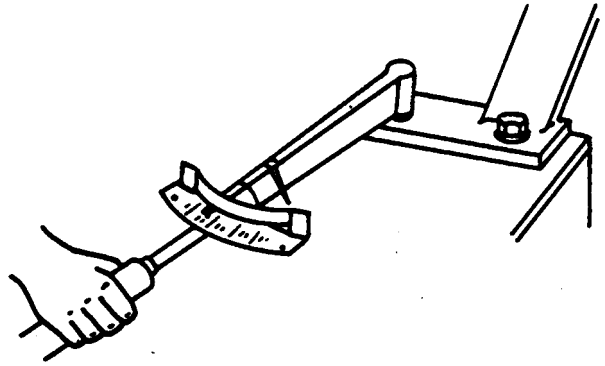
CAUTION: Make certain all parts are installed correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

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. A damaged ROPS should be replaced, not reused.

When installation of equipment on a machine necessitates loosening or removing ROPS, mounting bolts must be tightened to specification.

Specification

ROPS Mounting	
Bolts—Torque.....	620 N·m 457 lb·ft



ROPS Maintenance

TS176 —UN—23AUG88

KR46761,0001089 -19-13JAN16-1/1

Replacing Fuses

The fuse box is located inside the cab underneath the left rear panel labeled FUSE.

Remove cover.

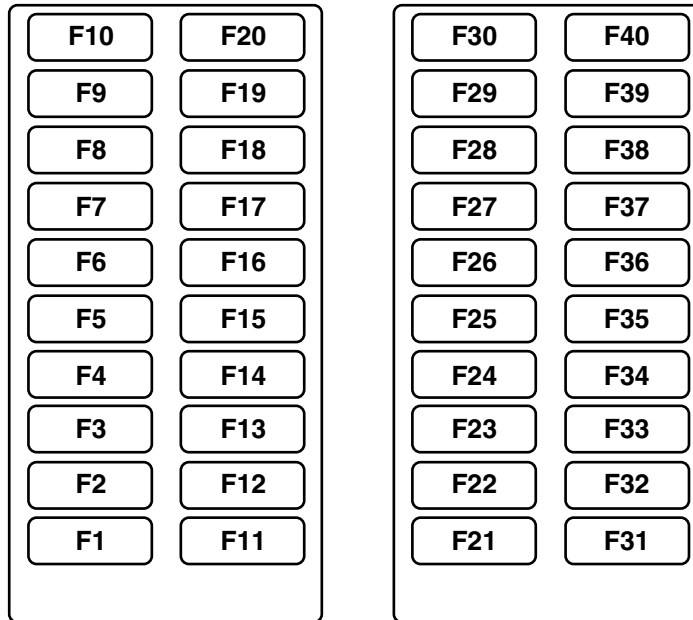
IMPORTANT: Install fuse with correct amperage rating to prevent electrical system damage from overload.

Additional fuses located in battery compartment:

- F60—ALT 65 A Fuse
- F61—BAT 45 A Fuse

Amperage Rating	Color
1	Black
3	Violet
4	Pink
5	Tan
7-1/2	Brown
10	Red
15	Light Blue
20	Yellow
25	Natural (white)
30	Light Green

Fuse Color Codes



TX1161372

Fuse Blocks

F1 — LAMP 20 A Fuse
F2 — WIPER 10 A Fuse
F3 — HEATER 20 A Fuse
F4 — SOLENOID 20 A Fuse
F5 — OPT. 1 (ALT) 5 A Fuse
F6 — OPT. 2 (ALT) 20 A Fuse
F7 — START 5 A Fuse
F8 — ECU P1 20 A Fuse
F9 — BACK UP 10 A Fuse
F10 — CONTROLLER 5 A Fuse
F11 — TRAVEL ALARM 5 A Fuse
F12 — RADIO 5 A Fuse
F13 — LIGHTER 10 A Fuse
F14 — MONITOR 5 A Fuse
F15 — AUX 10 A Fuse
F16 — 12 V UNIT 10 A Fuse
F17 — POWER ON 5 A Fuse
F18 — IDLE STOP 5 A Fuse
F19 — HORN 10 A Fuse
F20 — OPT. 3 (BAT) 5 A Fuse

F21 — SEAT HEATER 10 A Fuse
F22 — CAB LAMP FRONT 10 A Fuse
F23 — CAB LAMP REAR 10 A Fuse
F24 — IMOBIL 5 A Fuse
F25 — QUICK HITCH 5 A Fuse
F26 — AUX 3 5 A Fuse
F27 — SEAT HEAT/COOL 20 A Fuse
F28 — NOT USED
F29 — NOT USED
F30 — NOT USED
F31 — SEAT COMPR 10 A Fuse
F32 — CAB LAMP FRONT +2 10 A Fuse
F33 — WARNING LAMP 10 A Fuse
F34 — AUX 2 10 A Fuse
F35 — DIAG 5 A Fuse
F36 — ECU P2 20 A Fuse
F37 — ECU P3 20 A Fuse
F38 — ECU P4 20 A Fuse
F39 — NOT USED
F40 — NOT USED

Continued on next page

TD48962,0000076 -19-08FEB18-1/3

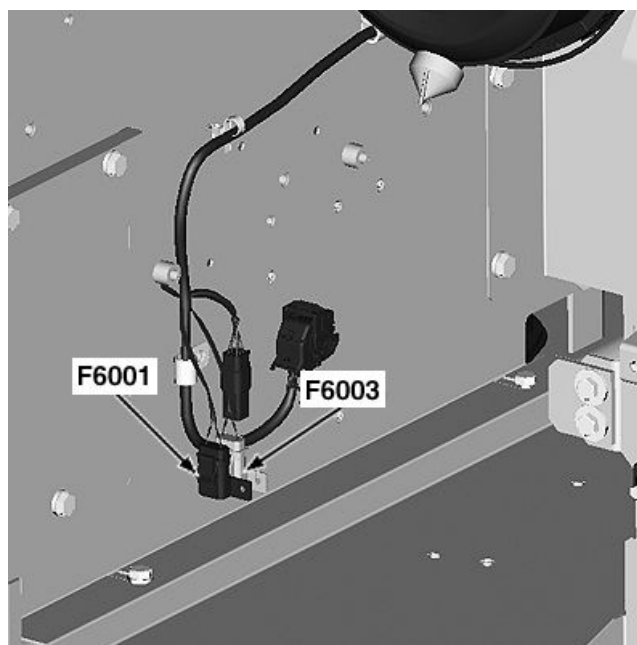
TX1161372 —UN—22MAY14

JDLINK™ In-Line Fuses—If Equipped

1. Turn off machine.
2. Open left front service door to access the JDLINK™ unswitched power in-line 7.5 A fuse (F6001) on the yellow wire.
3. To deactivate the JDLINK™ Machine Monitoring System, remove the JDLINK™ unswitched power in-line 7.5 A fuse.
4. Close service door.

**F6001—JDLINK™ Unswitched
Power In-Line 7.5 A
Fuse**

**F6003—JDLINK™ Switched
Power In-Line 7.5 A
Fuse**



JDLINK In-Line Fuses

JDLINK is a trademark of Deere & Company

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TD48962,0000076 -19-08FEB18-2/3

TX1200485 —UN—27AUG15

In-Line Fuses

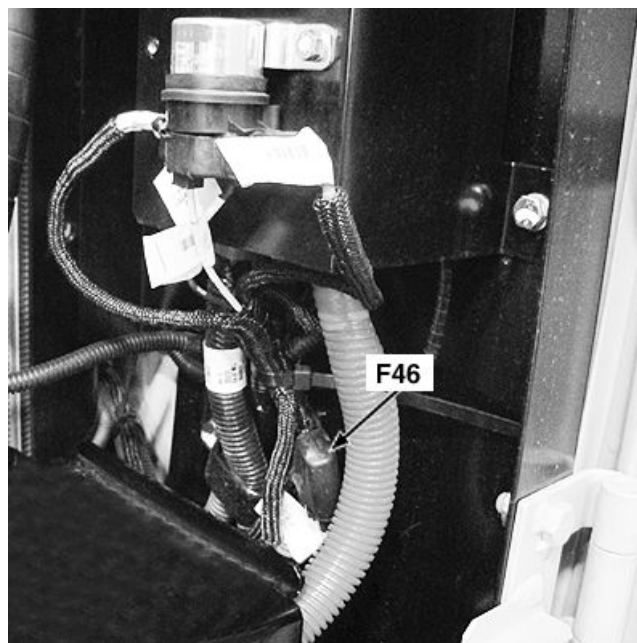
Open left rear service door to access the engine light in-line 7.5 A fuse (F46).

Open left front service door to access the fuel transfer pump in-line 10 A fuse (F5002) and flex power converter (FPC) in-line 10 A fuse (F5004).

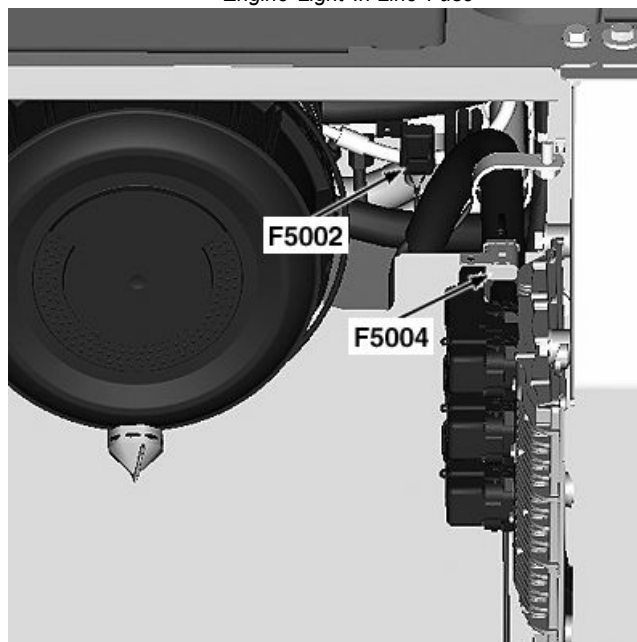
F46— Engine Light In-Line 7.5 A Fuse

F5002—Fuel Transfer Pump In-Line 10 A Fuse

F5004—Flex Power Converter (FPC) In-Line 10 A Fuse



Engine Light In-Line Fuse



In-Line Fuses

TX1200707A —UN—01SEP15

TX1157846 —UN—14APR14

TD48962,0000076 -19-08FEB18-3/3

Replacing Seat Belt

Examine seat belt frequently. Check that webbing is not cut or torn. Replace seat belt immediately if any part is damaged or does not function properly.

NOTE: The complete seat belt assembly should be replaced every 3 years, regardless of appearance.

NOTE: The same replacement seat belt is used, regardless of the installed seat option.

1. Park machine on a solid, level surface.
2. Place pilot shutoff lever in locked (UP) position and stop engine.
3. Slide seat forward.
4. Remove left seat belt-to-seat cap screw (1).
5. Remove right seat belt latch-to-seat cap screw (2).
6. Remove seat belt.
7. Clean and inspect parts. Repair or replace as necessary.
8. Install left seat belt-to-seat cap screw. Tighten to specification.

Specification

Left Seat Belt-to-Seat	
Cap Screw (1)—Torque.....	49.0 N·m 36.1 lb·ft

9. Install right seat belt latch-to-seat cap screw. Tighten to specification.

Specification

Right Seat Belt	
Latch-to-Seat Cap Screw	
(2)—Torque.....	49.0 N·m 36.1 lb·ft

**1— Left Seat Belt-to-Seat Cap
Screw**

**2— Right Seat Belt
Latch-to-Seat Cap Screw**



Left Seat Belt-to-Seat Cap Screw (components removed for visibility)



Right Seat Belt Latch-to-Seat Cap Screw (components removed for visibility)

TX1291469A —UN—22JAN20

TX1291470A —UN—22JAN20

TD48962.00001E4 -19-05FEB20-1/1

Replacing Bucket Teeth

⚠ CAUTION: Guard against injury from flying pieces of metal; wear goggles or safety glasses.

IMPORTANT: Angle the drift toward the bucket to avoid damaging the rubber pin lock.

Check bucket teeth periodically so that wear does not extend to the bucket tooth shank.

1. Use a hammer and drift to drive out locking pin.

NOTE: Alternate buckets may use different tooth assemblies.

2. Remove tooth.
3. Inspect rubber pin lock (A) for damage. Replace if necessary.
4. If rubber pin lock has moved, reposition in slot in adapter tooth shank.
5. Position the new tooth over the tooth shank.
6. Drive the locking pin into the hole fully.

A—Rubber Pin Lock



Bucket Teeth



Rubber Pin Lock



Tooth Shank

T95784 —UN—10NOV88

T95785 —UN—10NOV88

T95786 —UN—10NOV88

04T,90,M16 -19-05JAN16-1/1

Replacing Bucket Tooth Tip—Heavy-Duty Bucket

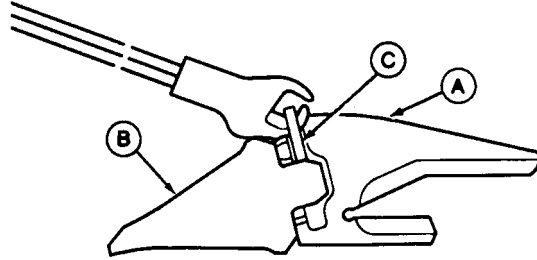
1. Clean tooth (A) and tooth tip (B).
2. Insert lock removal tool under U-shaped pin (C).

CAUTION: Avoid possible injury. Pin may fly after pin is released from tooth tip. Keep a firm grip on pin to prevent injury.

3. Remove pin.
4. Turn tooth tip counterclockwise and pull tooth tip up to remove.
5. Clean tooth shank.
6. Replace U-shaped pin and tooth tip at the same time.
7. Insert tooth tip on shank turning tip clockwise.
8. Install U-shaped pin. The side of the pin with the FRONT mark (D) must face tooth tip. Make sure pin is firmly engaged over tooth tip.

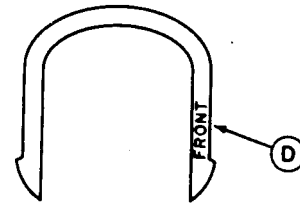
A—Tooth
B—Tooth Tip

C—Pin
D—FRONT Mark



T6879EE

Bucket Tooth Tip



U-Shaped Pin

04T,90,K273 -19-30MAR16-1/1

T6879EE —UN—06DEC88

T7527DO —UN—27JUN91

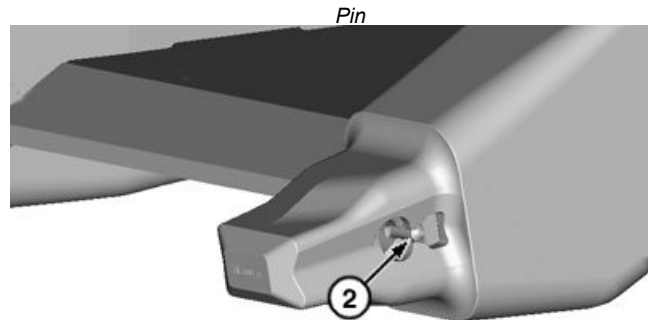
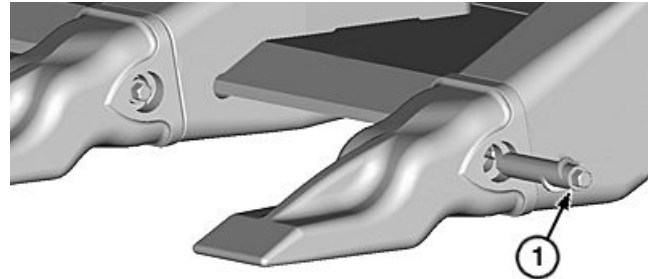
Replacing Bucket Teeth—TK Series

IMPORTANT: Prevent machine damage. Check bucket teeth periodically so that wear does not extend to the bucket tooth shank.

1. Remove pin (1) by rotating counterclockwise 180° using a ratchet and socket.
2. Remove tooth.
3. Inspect pin and rubber locks (2) for damage. Replace if necessary.
4. Position the new tooth over the tooth shank.
5. Install pin by rotating clockwise 180°. Install pin in same orientation as removed. Check alignment of pin.

1—Pin

2—Rubber Lock (2 used)



Pin

Rubber Lock

DB84312,00000BC -19-24OCT18-1/1

TX1150806 —UN—10JAN14

TX1150895 —UN—10JAN14

Bucket Remove and Install

SPECIFICATIONS

Bucket Link and Arm End Play	0.5—1.5 mm 0.020—0.060 in
Split O-Ring Seal Nut Torque	6 N·m 53 lb·in
Split O-Ring Seal Retainer Cap Screw Length	10—20 mm 0.394—0.787 in

PIN WEIGHT SPECIFICATIONS (APPROXIMATE)

130G Bucket Pin Weight	12 kg 26 lb
160GLC, 180GLC, 200G, 210G, and 210GLC Bucket Pin Weight	20 kg 44 lb
250GLC, 290GLC, and 300GLC Bucket Pin Weight	34 kg 75 lb
350GLC and 380GLC Bucket Pin Weight	46 kg 101 lb
470GLC Bucket Pin Weight	61 kg 134 lb

REMOVAL

1. Park and prepare machine for service safely. See Prepare Machine for Maintenance. (Section 3-2.)

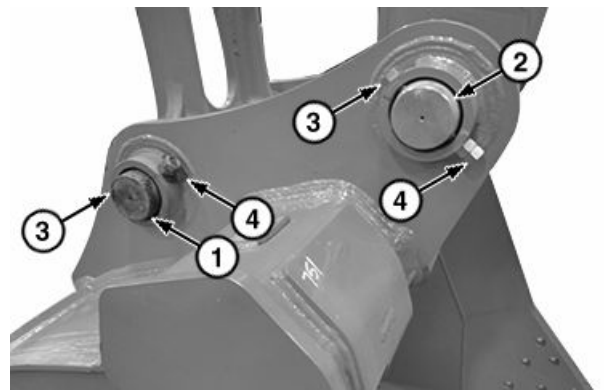
CAUTION: Prevent possible crushing injury from heavy component. Bucket could possibly roll. Secure bucket position with appropriate blocking.

2. Position bucket flat side down and use appropriate blocking to stabilize.
3. Remove nuts (4) and cap screws (3).

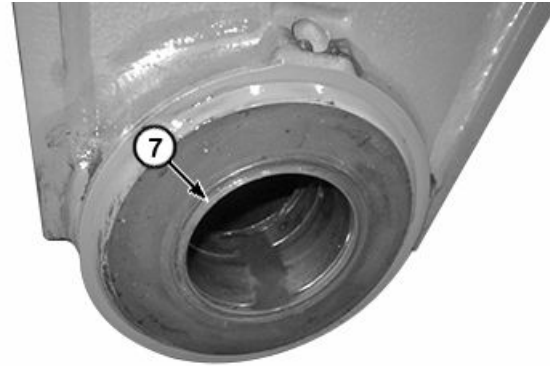
CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

4. Use appropriate lifting device to remove bucket link pin (1) and bucket arm pin (2). See pin weight specification table for approximate bucket pin weights.
5. Separate bucket from arm and link.
6. Remove 2MAD™ seals, O-ring seals, or split O-ring seals. Clean, inspect, and replace as necessary.

2MAD is a trademark of ESP International



Bucket Arm and Bucket Link Pins



Dust Seal

- 1— Bucket Link Pin
- 2— Bucket Arm Pin
- 3— Cap Screw (2 used)
- 4— Nut (4 used)
- 7— Dust Seal (4 used)

IMPORTANT: Prevent possible damage to pins, bushings, and bosses. Dirt and debris can prematurely wear components. Clean all components thoroughly.

7. Clean contaminated grease, dirt, and debris from bucket link pin and bucket arm pin pivot areas.
8. Inspect dust seals (7) for wear or damage. Replace as necessary.
9. Inspect pins and bushings for wear or damage. Replace as necessary.

Continued on next page

DH10862,0000008 -19-07MAY20-1/4

TX1237262A—UN—12APR17

TX1237052A—UN—12APR17

INSTALLATION—2MAD™ Seal

1. Install 2MAD™ seals (8) by securing seal with one hand, sliding fingers under seal, and pulling seal onto bucket boss (5) as shown.
2. Apply grease to pins and bores.
3. Align machine arm and link with bucket.

IMPORTANT: Prevent possible machine damage.
Using a larger diameter shim than recommended does not allow 2MAD seal to seat properly.
2MAD seal must seat properly to keep out dirt and debris.

4. Measure bucket link and arm end play and add shims (6) as necessary. If multiple shims are used, divide the shims equally on each side of boom arm and bucket link.

Specification

Bucket Link and	
Arm—End Play.....	0.5—1.5 mm
	0.020—0.060 in

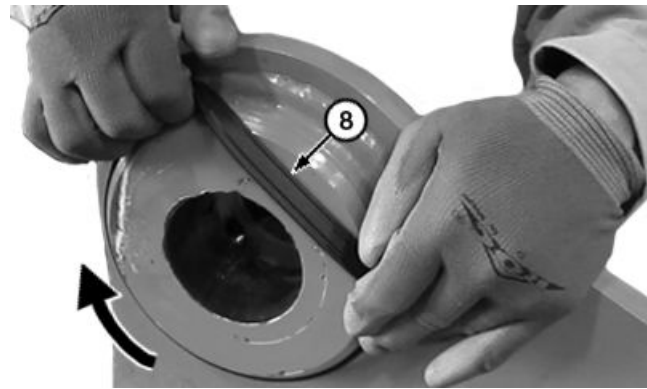
⚠ CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

5. Use appropriate lifting device to install bucket link pin and bucket arm pin. See pin weight specification table for approximate bucket pin weights.

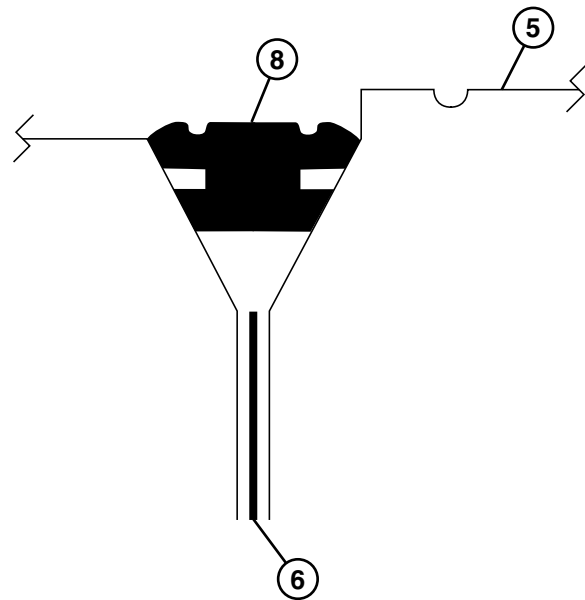
NOTE: Tighten nuts against each other, not against retainer. Cap screw must be free to turn in hole.

6. Install cap screws and tighten nuts against each other.
7. Slide 2MAD seals from bucket boss into bucket link and bucket arm pivot points as shown.
8. Grease bucket link and bucket arm pivot points.

5— Bucket Boss 8— 2MAD Seal (4 used)
 6— Shim (as needed)



2MAD Seal



2MAD Seal Correctly Installed



Measuring Bucket Link and Arm End Play

2MAD is a trademark of ESP International

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DH10862.0000008 -19-07MAY20-2/4

TX1237624A —UN—01MAY17

TX1237908 —UN—27APR17

TX1237625A —UN—19APR17

INSATLLATION—O-Ring Seal

1. Install O-ring seals (9) over bucket boss (5).
2. Apply grease to pins and bores.
3. Align machine arm and link with bucket.

IMPORTANT: Prevent possible machine damage.
Using a larger diameter shim than recommended does not allow O-ring seal to seat properly.
O-ring seal must seat properly to keep out dirt and debris.

4. Measure bucket link and arm end play and add shims (6) as necessary. If multiple shims are used, divide the shims equally on each side of boom arm and bucket link.

Specification

Bucket Link and	
Arm—End Play.....	0.5—1.5 mm
	0.020—0.060 in

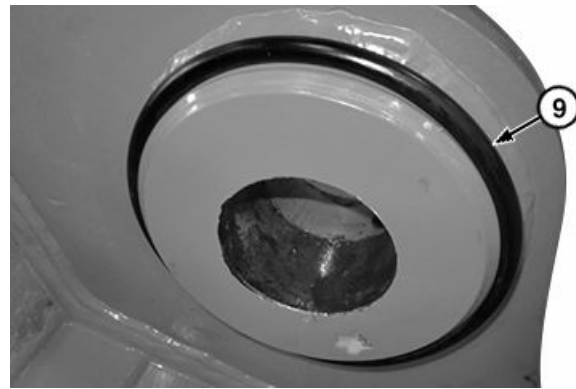
⚠ CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

5. Use appropriate lifting device to install bucket link pin and bucket arm pin. See pin weight specification table for approximate bucket pin weights.

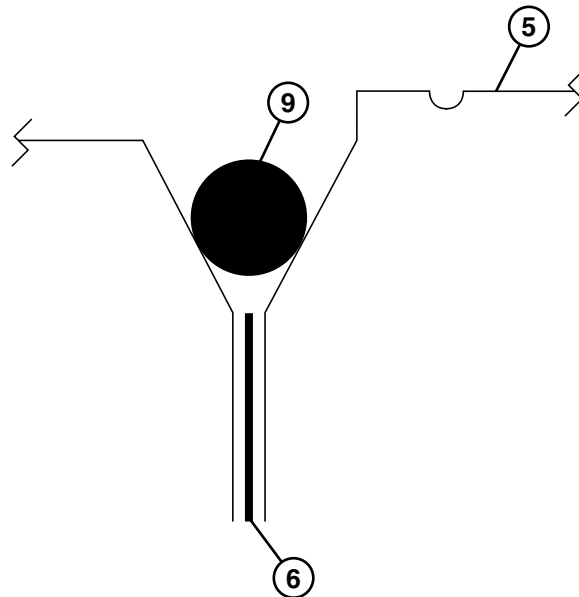
NOTE: *Tighten nuts against each other, not against retainer. Cap screw must be free to turn in hole.*

6. Install cap screws and tighten nuts against each other.
7. Roll O-ring seals into bucket link and bucket arm pivot points as shown.
8. Grease bucket link and bucket arm pivot points.

5— Bucket Boss
 6— Shim (as needed)
 9— O-Ring Seal (4 used)



O-Ring Seal



O-Ring Seal Correctly Installed



Measuring Bucket Link and Arm End Play

Continued on next page

DH10862,0000008 -19-07MAY20-3/4

TX1237202A —UN—12APR17

TX1237913 —UN—27APR17

TX1237625A —UN—19APR17

INSTALLATION—Split O-Ring Seal

1. Apply grease to pins and bores.
2. Align machine arm and link with bucket.

IMPORTANT: Prevent possible machine damage.

Using a larger diameter shim than recommended does not allow split O-ring seal to seat properly. Split O-ring seal must seat properly to keep out dirt and debris.

3. Measure bucket link and arm end play and add shims (6) as necessary. If multiple shims are used, divide the shims equally on each side of boom arm and bucket link.

Specification

Bucket Link and	
Arm—End Play.....	0.5—1.5 mm
	0.020—0.060 in

⚠ CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device.

4. Use appropriate lifting device to install bucket link pin and bucket arm pin. See pin weight specification table for approximate bucket pin weights.

NOTE: Tighten nuts against each other, not against retainer. Cap screw must be free to turn in hole.

5. Install cap screws and tighten nuts against each other.
6. Install split O-ring seals (10) into bucket link and bucket arm pivot points as shown. Tighten split O-ring seal nut to specification.

Specification

Split O-Ring Seal	
Nut—Torque.....	6 N·m
	53 lb·in

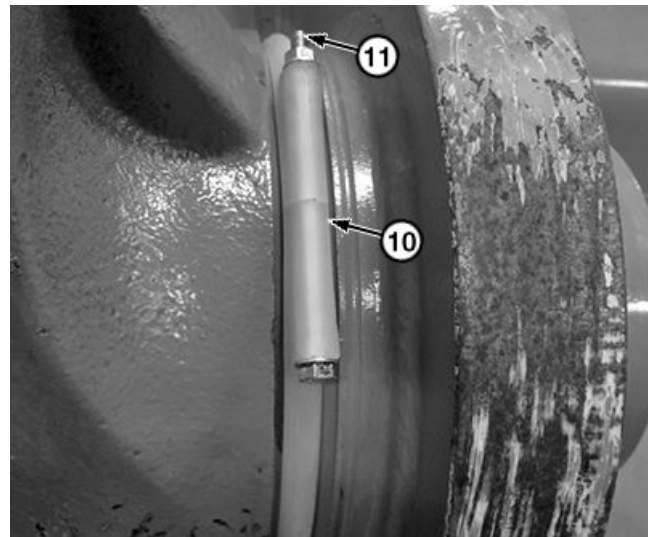
7. Trim excess split O-ring seals retainer cap screw (11) to specification.

Specification

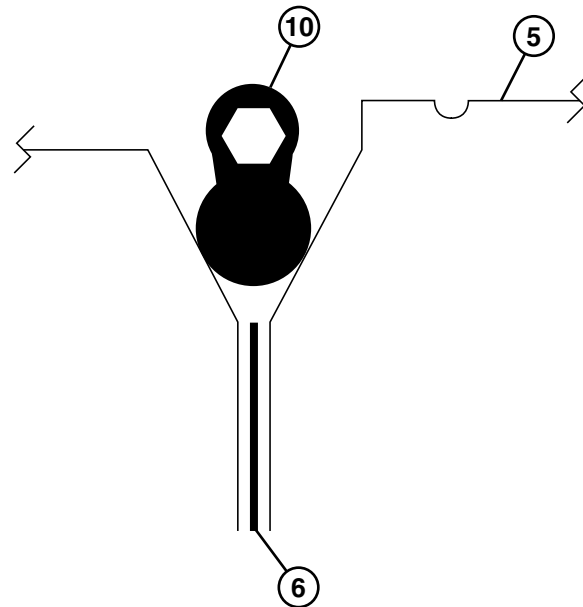
Split O-Ring Seal	
Retainer Cap	
Screw—Length.....	10—20 mm
	0.394—0.787 in

8. Grease bucket link and bucket arm pivot points.

5—Bucket Boss	10—Split O-Ring Seal (4 used)
6—Shim (as needed)	11—Split O-Ring Seal Retainer Cap Screw (4 used)



Split O-Ring Seal



Split O-Ring Seal Correctly Installed



Measuring Bucket Link and Arm End Play

TX1237242A —UN—12APR17

TX1237984 —UN—27APR17

TX1237625A —UN—19APR17

DH10862,0000008 -19-07MAY20-4/4

Track Sag General Information

To maximize undercarriage life, keep track sag within specification. Tracks may require adjustment several times during a working day due to changing soil type and moisture content.

Adjust tracks in the actual operating conditions.

TIGHT TRACK: Packing causes a tight track. If material packs in the undercarriage, adjust tracks with the material packed in the components.

While the track spring will recoil and the machine can continue to operate with a tight track, continued operation will result in excessive pin and bushing wear, sprocket

popping, tooth tip wear, and excessive loads on the entire undercarriage and travel drive system.

Machine productivity and fuel consumption are also adversely affected because increased horsepower is needed to move the machine.

LOOSE TRACK: A loose track has more side to side motion, increasing side wear on the links, rollers, and front idler. An excessively loose track will slap at high ground speeds, resulting in high impact loads on the sprocket teeth, bushings, and carrier rollers.

VD76477,00001F7 -19-28AUG09-1/1

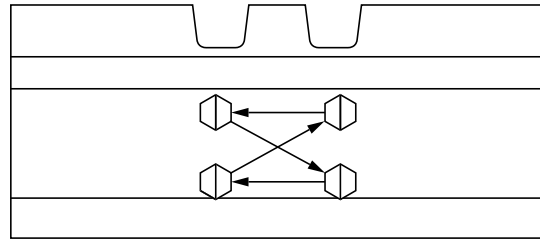
Check Track Shoe Hardware

Check track shoes periodically for loose or missing cap screws and nuts. For shoes with missing or loose cap screws and nuts, remove shoes and clean the mating surface of shoes and links before tightening cap screws and nuts. Replace cap screws when they have been stretched to yield previously.

Operating a machine with loose shoes can cause the cap screws and holes in the shoes and links to wear, making it difficult to keep the shoes tight. Loose shoes can also cause hardware malfunction and loss of shoes.

1. Clean the mating surface of shoe and links. Install shoes.
2. Apply a light coating of oil to cap screw threads before installing.
3. Install nuts with the rounded corners against milled surface of link and chamfered side away from link.

Check that nuts are square with the milled surface of link and there is full contact between nut and milled surface. As necessary, hold the nut so it does not turn.



Cap Screw Tightening Sequence

4. Starting at any cap screw, tighten all cap screws in sequence shown to the torque specification, then tighten an additional 1/2 turn (180°).

TX1255661 —UN—19APR18

TX,TRACKSHOE -19-10MAR22-1/1

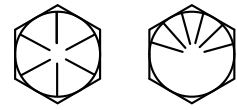
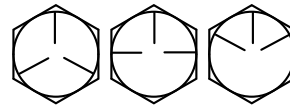
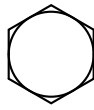
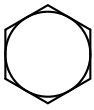
Hardware Torque Specifications

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.

TX,90,FF1225 -19-15MAR93-1/1

Unified Inch Bolt and Screw Torque Values

TS1671 —UN—01MAY03



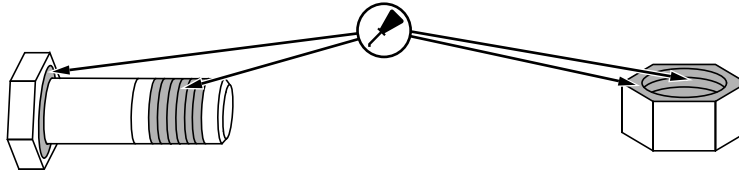
Bolt or Screw Size	SAE Grade 1 ^a				SAE Grade 2 ^b				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d		Hex Head ^c		Flange Head ^d	
	N-m	lb-in	N-m	lb-in	N-m	lb-in	N-m	lb-in	N-m	lb-in	N-m	lb-in	N-m	lb-in	N-m	lb-in
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	N-m	lb-ft	N-m	lb-ft
													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



^aGrade 1 applies for hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

^bGrade 2 applies for hex cap screws (not hex bolts) up to 6 in (152 mm) long.

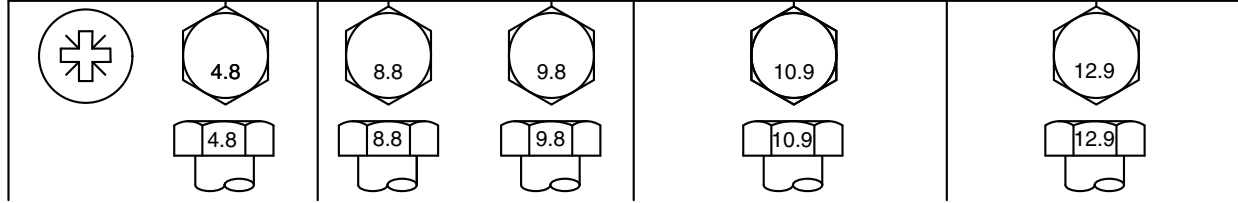
^cHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^dHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ1 -19-30MAY18-1/1

Metric Bolt and Screw Torque Values

TS1742 —UN—31MAY18



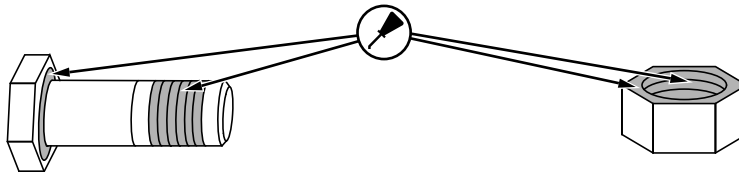
Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b		Hex Head ^a		Flange Head ^b	
	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in	N·m	lb·in
M6	3.6	31.9	3.9	34.5	6.7	59.3	7.3	64.6	9.8	86.7	10.8	95.6	11.5	102	12.6	112
									N·m	lb·ft	N·m	lb·ft	N·m	lb·ft	N·m	lb·ft
M8	8.6	76.1	9.4	83.2	16.2	143	17.6	156	23.8	17.6	25.9	19.1	27.8	20.5	30.3	22.3
			N·m	lb·ft	N·m	lb·ft	N·m	lb·ft								
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
	N·m	lb·ft														
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



^aHex head column values are valid for ISO 4014 and ISO 4017 hex head, ISO 4162 hex socket head, and ISO 4032 hex nuts.

^bHex flange column values are valid for ASME B18.2.3.9M, ISO 4161, or EN 1665 hex flange products.

DX,TORQ2 -19-30MAY18-1/1

Miscellaneous—Operational Checkout

Operational Checkout

This procedure is used to check operation of machine. It is designed so an operator can perform a walk around inspection, check machine operation, and perform specific checks from the operator seat.

If there is a problem with the machine, diagnostic information in this checkout helps pinpoint the probable cause. This information may allow an operator to perform a simple adjustment to correct the problem. Use the table of contents to help find adjustment procedures.

A level location with adequate space is required to complete checks. No tools or equipment are needed to perform checkout.

Complete necessary visual checks (oil levels, oil condition, external leaks, loose hardware, linkage, wiring) prior

to doing checkout. The machine must be at operating temperature for many of the checks.

Read each check completely before performing. If no problem is found, the operator will be instructed to go to the next check. If a problem is indicated, the operator will be referred to a procedure for adjustment, repair, or replacement.

The monitor can be used to perform diagnostic and operational checks. The monitor can display engine speed, pressures, and diagnostic trouble codes (DTCs).

Before performing any check or test below, verify that battery disconnect is turned to the ON position.

KR46761,0000C3E -19-13FEB18-1/52

Diagnostic Trouble Code Check

KR46761,0000C3E -19-13FEB18-2/52

Display and Clear Trouble Codes

Always check for diagnostic trouble codes and correct them before performing operational checkout.

Diagnostic trouble codes can be displayed by using one of the following methods:

- Monitor
- With Service ADVISOR™
- MPDr

LOOK: Are diagnostic trouble codes present?

YES: Correct all diagnostic trouble codes before proceeding.

NO: Proceed with operational checkout.

Service ADVISOR is a trademark of Deere & Company

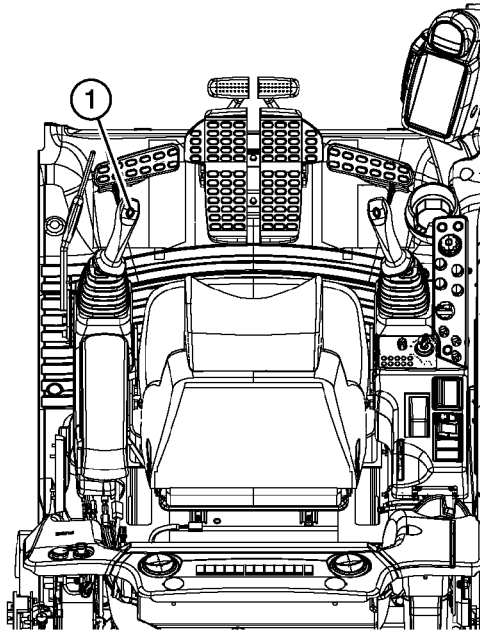
KR46761,0000C3E -19-13FEB18-3/52

Operational Checks—Key Switch Off, Engine Off Checks

Continued on next page

KR46761,0000C3E -19-13FEB18-4/52

Horn Circuit Check



TX1159741 —UN—02MAY14

Horn Circuit

1—Horn Button

Key switch in OFF position.

Press horn button (1) on top of left pilot control lever.

LISTEN: Does horn sound?

YES: Go to next check.

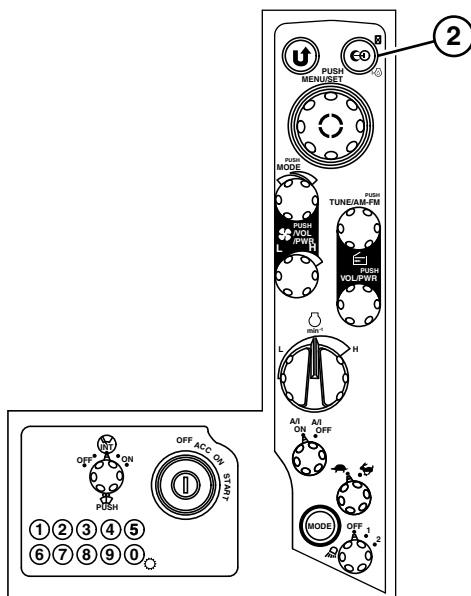
NO: Check horn 10 A fuse (F19) (marked HORN). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

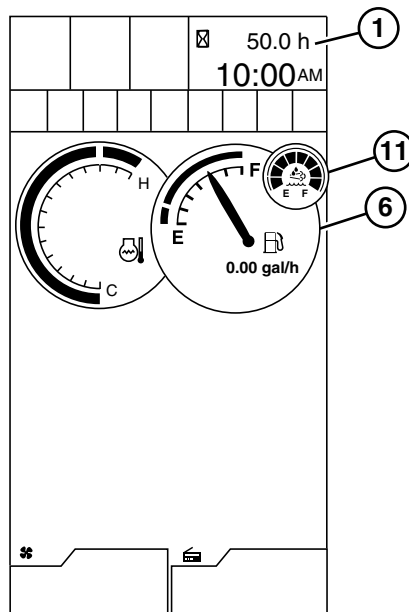
KR46761,0000C3E -19-13FEB18-5/52

Hour Meter and Fuel Gauge Checks



TX1086727 —UN—11JAN11

Switch Panel



TX1160748 —UN—15MAY14

Hour Meter and Fuel Gauge Screen

- 1— Hour Meter
- 2— Home Button
- 6— Fuel Gauge
- 11— Diesel Exhaust Fluid (DEF) Gauge

Press and hold home button (2) until default screen appears.

YES: Go to next check.

LOOK: Does hour meter (1) display machine hours?

LOOK: Does fuel gauge (6) display correct fuel level?

NO: Check information controller and main controller battery power 5 A fuse (F10) (marked CONTROLLER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

KR46761,0000C3E -19-13FEB18-7/52

Operational Checks—Key Switch On, Engine Off Checks

Continued on next page

KR46761,0000C3E -19-13FEB18-8/52

Monitor Start-Up Check



TX1086287A —UN—28DEC10

System Starting Screen



TX1160713A —UN—15MAY14

Default Screen

1— System Starting Screen

2— Default Screen

NOTE: The exhaust filter auto cleaning disabled indicator will display on the monitor when the key switch is in ON position. Once the engine is started, the indicator will disappear unless exhaust filter auto cleaning has been disabled by the operator through the monitor.

When the key switch is turned to the ON position, the system starting screen (1) displays for approximately 2 seconds and then the default screen (2) is displayed.

Turn key switch to ON position.

LOOK: Does monitor display system starting screen?

LOOK: Does default screen with hour meter appear after system starting screen disappears?

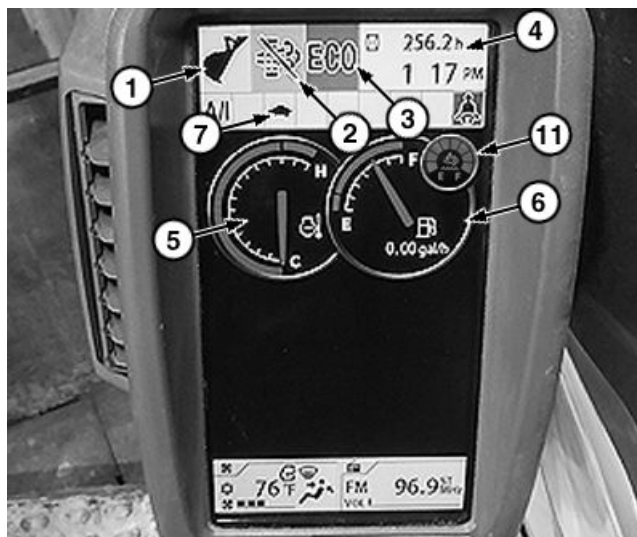
YES: Go to next check.

NO: Check information controller and main controller battery power 5 A fuse (F10) (marked CONTROLLER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

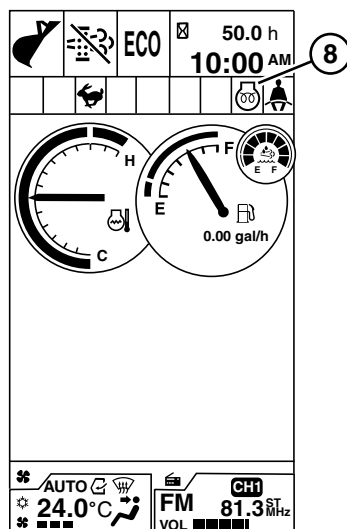
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KR46761,0000C3E -19-13FEB18-9/52

Monitor, Gauges, and
Battery Relay Checks

TX1160749A —UN—15MAY14

Default Screen



TX1160750 —UN—15MAY14

Engine Preheat Indicator

- 1—Work Mode Indicator
- 2—Exhaust Filter Auto Cleaning Disabled Indicator
- 3—Power Mode Indicator
- 4—Hour Meter
- 5—Engine Coolant Temperature Gauge
- 6—Fuel Gauge
- 7—Travel Mode Indicator
- 8—Engine Preheat Indicator
- 11— Diesel Exhaust Fluid (DEF) Gauge

IMPORTANT: This machine is equipped with glow plugs. Glow plugs are automatically controlled by the engine controller when the key is turned ON. Do not start the engine until the engine preheat indicator (8) disappears on the monitor. Indicator will not appear if ambient air temperature is above 0°C (32°F).

NOTE: The exhaust filter auto cleaning disabled indicator will display on the monitor when the key switch is in ON position. Once the engine is started, the indicator will disappear unless exhaust filter auto cleaning has been disabled by the operator through the monitor.

NOTE: If engine coolant temperature is below 30°C (86°F) engine temperature gauge needle may not move.

Turn key switch to ON.

Continued on next page

KR46761,0000C3E -19-13FEB18-10/52

***LISTEN:** Does battery relay click?*

***LOOK:** Does engine coolant temperature gauge (5) display correct engine coolant temperature?*

***LOOK:** Does fuel gauge (6) display correct fuel level?*

***LOOK:** Does diesel exhaust fluid (DEF) gauge (11) display correct fluid level?*

***LOOK:** Does hour meter (4) display machine hours?*

***LOOK:** Does work mode indicator (1) display correct work mode (bucket or attachment)?*

***LOOK:** Does travel mode indicator (7) display correct travel mode?*

***LOOK:** Does power mode indicator (3) display correct power mode?*

***LOOK:** Does engine preheat indicator (8) appear on monitor and then disappear after glow plugs reach specific temperature?*

YES: Go to next check.

NO: Battery relay does not click. Verify that battery disconnect is turned to the ON position. See Battery Disconnect Switch. (Section 2-3.)

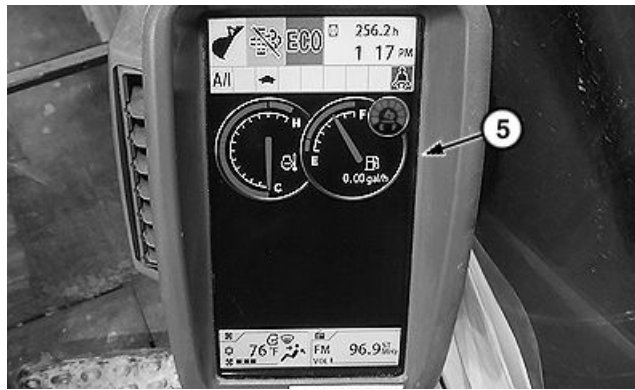
NO: Monitor does not come ON. Check monitor 5 A fuse (F14) (marked MONITOR). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-11/52

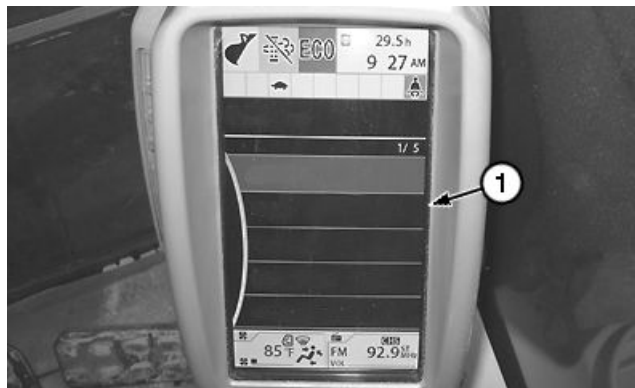
Rear Camera Check



TX1160715A —UN—15MAY14

Default Screen

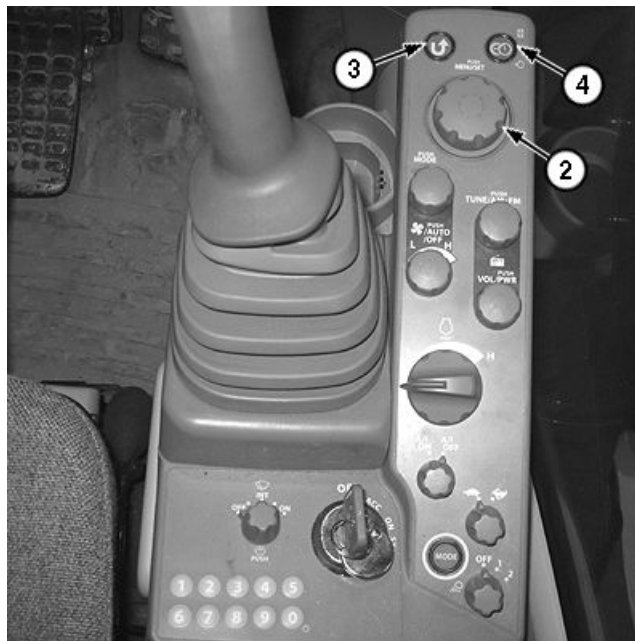
5— Default Screen



TX1086306A —UN—28DEC10

Main Menu Screen

1— Main Menu Screen



TX1086272A —UN—27DEC10

Switch Panel

- 2— Monitor Dial
- 3— Back Button
- 4— Home Button

Continued on next page

KR46761,0000C3E -19-13FEB18-12/52

⚠ CAUTION: To avoid possible injury or death to operator or others, the rear view camera image is designed to supplement other safety practices and is not intended to be the sole method of collision avoidance. Always be alert and aware of the surroundings when operating this machine.

Turn key ON.

When the default screen (5) is displayed, press monitor dial (2) on the switch panel.

LOOK: Does main menu screen (1) display?

Rotate monitor dial to highlight settings menu.

Press monitor dial.

LOOK: Does settings menu display?

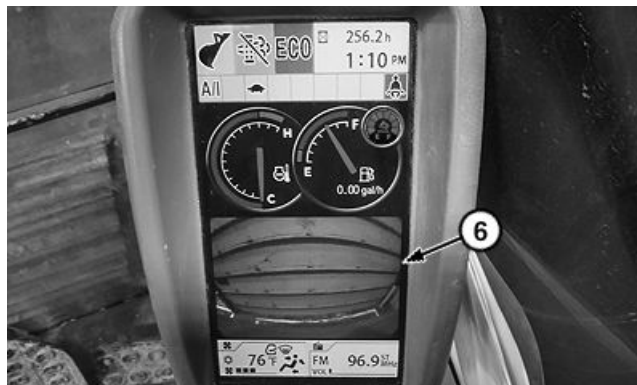
At settings menu, rotate monitor dial to highlight rear view camera monitor.

Press monitor dial to display rear view camera monitor menu.

LOOK: Does rear view camera monitor menu display?

Press monitor dial to turn camera ON (enable).

Press home button (4).



TX1160752A —UN—15MAY14

Rear View Image

6—Rear View Image

LOOK: Does rear view image (6) display on default screen?

Repeat above steps.

At rear view camera monitor menu, press monitor dial to turn camera OFF (disable).

Press home button.

LOOK: Does default screen appear without rear view image?

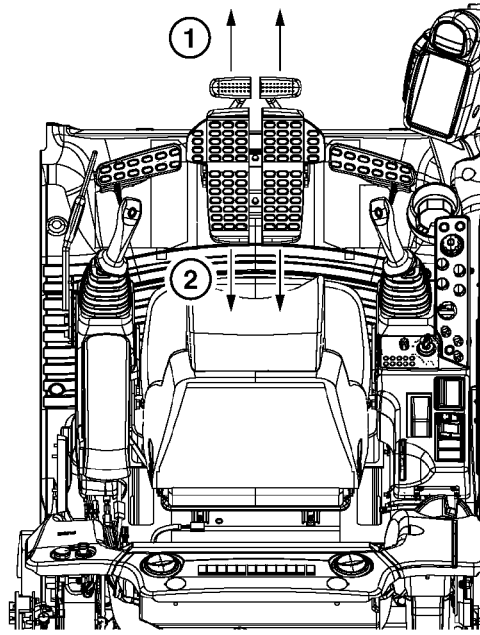
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-13/52

**Travel Lever and Pedal
Neutral Checks**



TX1157583 —UN—09APR14

Travel Lever and Pedal

1— Forward

2— Rearward

Push both travel levers and pedals forward (1), then release.

Pull both travel levers and pedals rearward (2), then release.

FEEL: Do levers and pedals require equal effort to operate in forward and reverse?

LOOK: Do levers and pedals return to neutral at the same time when released?

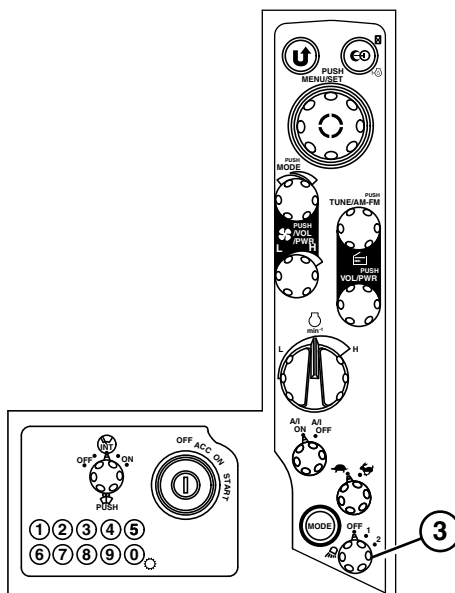
YES: Go to next check.

NO: See your authorized dealer.

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KR46761,0000C3E -19-13FEB18-14/52

Light Circuit Checks



TX1086747 —UN—11JAN11

Switch Panel

3— Work Light Switch

Turn work light switch (3) to 1st position.

LOOK: *Is monitor panel back light and base machine work light on?*

LOOK: *Does switch panel illuminate?*

Turn light switch to 2nd position.

LOOK: *Does base machine work light stay on and switch panel stay illuminated?*

LOOK: *Does boom work light and cab roof lights (if equipped) come on and monitor back panel light change to night mode?*

YES: Go to next check.

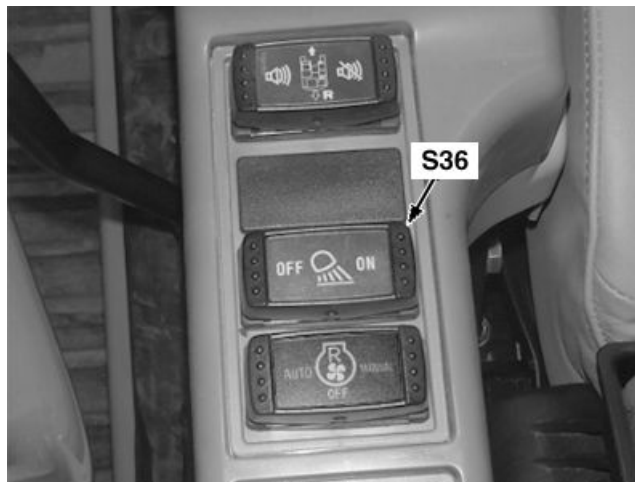
NO: Check work and boom lights 20 A fuse (F1) (marked LAMP) and information controller and main controller battery power 5 A fuse (F10) (marked CONTROLLER), front cab lights 1 10 A fuse (F22) (marked CAB LAMP FRONT), and front cab light 2 10 A fuse (F32) (marked CAB LAMP FRONT +2). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-15/52

Rear Cab Light (if equipped)



TX1250182A —UN—18JAN18

Rear Cab Light Switch

S36— Rear Cab Light Switch

NOTE: Rear cab light switch (S36) position may vary depending on machine configuration.

Turn rear cab light switch (S36) to the ON position.

LOOK: Is light illuminated on rear of cab?

YES: Go to next check.

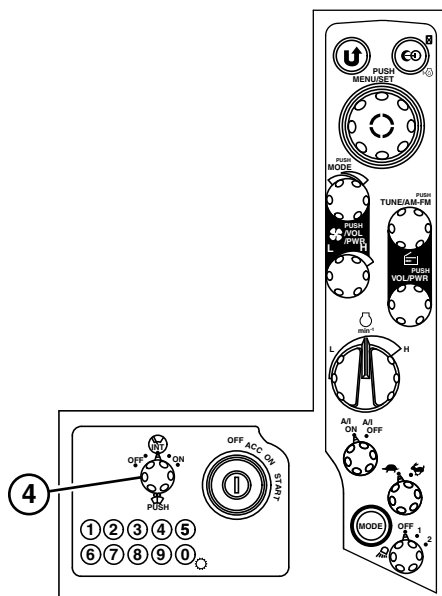
NO: Check rear cab light 10 A fuse (F23) (marked CAB LAMP REAR). See Replacing Fuses. (Section 4-1.)

IF OK: See an authorized John Deere dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-16/52

Windshield Wiper Control Check



TX1086748 —UN—11JAN11

Switch Panel

4—Windshield Wiper and Washer Switch

NOTE: Front window must be fully closed and latched for windshield wiper to operate.

Turn windshield wiper and washer switch (4) to 1st INT position.

LOOK: Does wiper operate intermittently (8 second interval)?

Turn windshield wiper and washer switch to 2nd INT position.

LOOK: Does wiper operate intermittently, but faster than when in first position (5 second interval)?

Turn windshield wiper and washer switch to 3rd INT position.

LOOK: Does wiper operate intermittently, but faster than when in second position (3 second interval)?

Turn windshield wiper and washer switch to ON position.

LOOK: Does wiper operate continuously?

Turn windshield wiper and washer switch to OFF position.

LOOK: Does wiper arm stop and retract to left side of windshield?

YES: Go to next check.

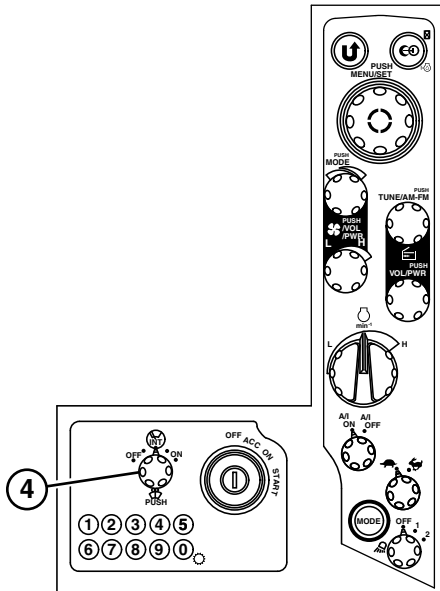
NO: Check windshield wiper and washer 10 A fuse (F2) (marked WIPER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-17/52

Windshield Washer Control Check



TX1086748 —UN—11JAN11

Switch Panel

4—Windshield Wiper and Washer Switch

IMPORTANT: Washer motor may be damaged if washer switch is held for more than 20 seconds, or continually operated with no fluid in the washer fluid tank.

NOTE: While wiper is being operated in INT mode, when windshield wiper and washer switch is pressed, wiper mode is changed to continuous mode.

Press windshield wiper and washer switch (4).

LOOK: Is washer fluid supplied to windshield?

Press and hold windshield wiper and washer switch for 3 seconds.

LOOK: Does wiper start and continue operating until switch is released?

Release windshield wiper and washer switch.

LOOK: Does wiper stop and retract to left side of windshield?

YES: Go to next check.

NO: Check washer fluid level. See Check Windshield Washer Fluid Level. (Section 3-3.)

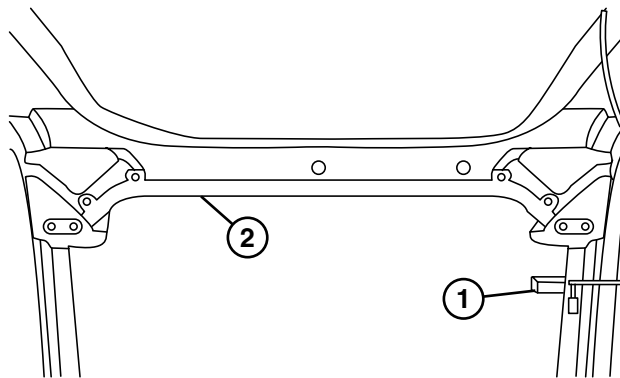
NO: Check windshield wiper and washer 10 A fuse (F2) (marked WIPER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-18/52

Windshield Wiper Circuit Check



TX1001270 —UN—14DEC05

Front Window Release Handle

- 1— Lock Pin
2— Lock Release Bar

CAUTION: Prevent possible injury from window closing. Upper front window comes down very forcefully. Close window only when sitting on operator seat. Guide window down slowly.

CAUTION: Prevent possible injury from window closing. Always lock the pin in cab frame boss hole.

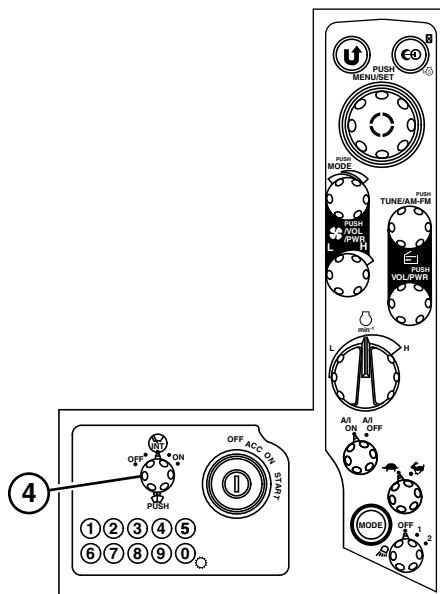
NOTE: The wiper cannot operate with the upper front window open. The washer can operate with the upper front window open. When closing window, check that window upper left corner makes good contact with the cab.

Slide lock pin (1) inward, then down into notch.

Pull lock release bar (2) toward operator seat.

While holding lower handle on window, pull up window and back as far as it can go.

Slide lock pin into cab frame boss hole and rotate downward into the locked position.



TX1086748 —UN—11JAN11

Switch Panel

4— Windshield Wiper and Washer Switch

Turn windshield wiper and washer switch (4) to ON position.

YES: Go to next check.

Continued on next page

KR46761,0000C3E -19-13FEB18-19/52

LISTEN: Does wiper circuit click?

LOOK: Does wiper remain stationary in park position?

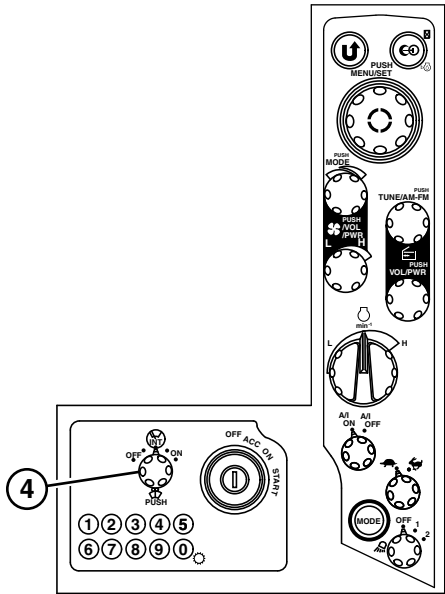
NO: Check windshield wiper and washer 10 A fuse (F2) (marked WIPER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

KR46761,0000C3E -19-13FEB18-20/52

**Windshield Washer
Circuit Check**

IMPORTANT: Washer motor may be damaged if washer switch is held for more than 20 seconds, or continually operated with no fluid in the washer fluid tank.



TX1086748 —UN—11JAN11

Switch Panel

4—Windshield Wiper and Washer Switch

Press windshield wiper and washer switch (4) and hold for 3 seconds.

LOOK: Is washer fluid supplied to windshield?

YES: Go to next check.

NO: Check washer fluid level. See Check Windshield Washer Fluid Level. (Section 3-3.)

NO: Check windshield wiper and washer 10 A fuse (F2) (marked WIPER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

KR46761,0000C3E -19-13FEB18-21/52

Operational Checks—Key Switch On, Engine On Checks

Continued on next page

KR46761,0000C3E -19-13FEB18-22/52

Monitor and Gauge Circuit Checks



TX1160754A —UN—15MAY14

Operating Screen

- 1— Power Mode Indicator
- 2— Hour Meter
- 3— Engine Coolant Temperature Gauge
- 4— Fuel Gauge
- 5— Alarm Indicator
- 11— Diesel Exhaust Fluid (DEF) Gauge

IMPORTANT: Engine damage could occur if the alarm indicator (5) or engine oil pressure alarm indicator comes on after engine starts. Turn off machine immediately.

NOTE: The exhaust filter auto cleaning disabled indicator will display on the monitor when the key switch is in ON position. Once the engine is started, the indicator will disappear unless exhaust filter auto cleaning has been disabled by the operator through the monitor.

Start engine.

LOOK: Do all alarm indicator displays remain off after engine starts?

LOOK: Does alarm indicator remain off after engine starts?

LOOK: Does engine coolant temperature gauge (3) display correct engine coolant temperature?

LOOK: Does fuel gauge (4) display correct fuel level?

LOOK: Does diesel exhaust fluid (DEF) gauge (11) display correct fluid level?

YES: Go to next check.

NO: Engine oil pressure alarm displayed. Immediately stop engine and check engine oil level. See Check Engine Oil Level. (Section 3-4.)

IF OK: See your authorized dealer.

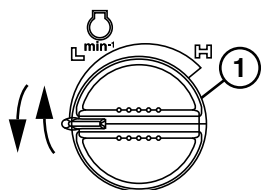
NO: Alternator alarm indicator displayed. Check alternator drive belt.

IF OK: See your authorized dealer.

Continued on next page

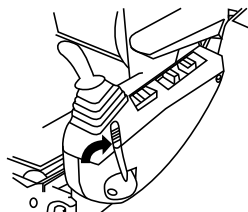
KR46761,0000C3E -19-13FEB18-23/52

Pilot Shutoff Circuit Check



TX1093762 —UN—28JUN13

Engine Speed Dial



TX1093763 —UN—19JUL11

Locked

1—Engine Speed Dial

CAUTION: Avoid possible injury. Machine may move during this check. Make sure that area is clear and large enough to operate all machine functions.

Turn engine speed dial (1) to L (slow idle) position.

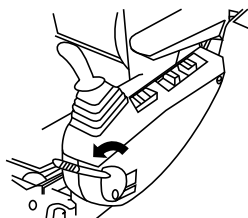
Place pilot shutoff lever in locked (UP) position.

Slowly actuate dig and travel functions.

LOOK: Do dig and travel functions operate?

YES: See your authorized dealer.

NO: Continue check.



TX1093764 —UN—19JUL11

Unlocked

Place pilot shutoff lever in unlocked (DOWN) position.

Slowly actuate dig and travel functions.

LOOK: Do dig and travel functions operate?

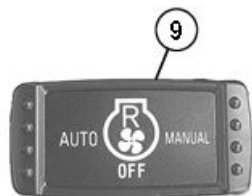
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

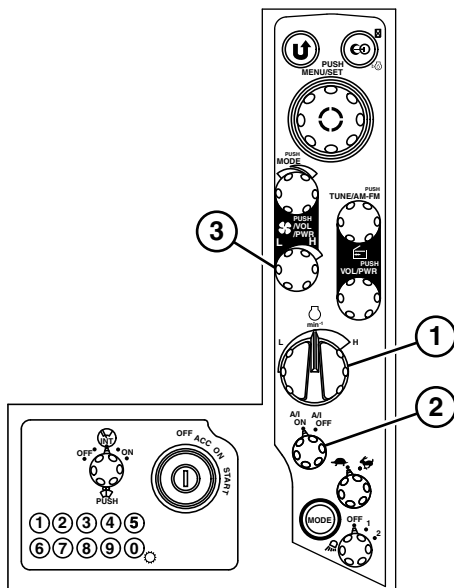
KR46761,0000C3E -19-13FEB18-24/52

Reversing Fan System—If Equipped



TX1015264A —UN—09JAN07

Reversing Fan Switch



TX1088406 —UN—21FEB11

Switch Panel

- 1—Engine Speed Dial**
- 2—Auto-Idle Switch**
- 3—Blower Speed Switch**
- 9—Reversing Fan Switch**

Place pilot shutoff lever in unlocked (DOWN) position.

Turn engine speed dial (1) to H (fast idle) position.

Warm hydraulic oil to greater than 12°C (54°F).

Turn auto-idle switch (2) to A/I OFF position.

Press blower speed switch (3) OFF.

Press reversing fan switch (9) to MANUAL position.

LISTEN: Does fan speed slow down?

LOOK/LISTEN: After approximately 20 seconds, does the fan speed increase and rotate in reverse direction for approximately 30 seconds?

LISTEN/LOOK: Does the fan speed slow for approximately 20 seconds? Does fan direction return to normal?

LISTEN: Does fan speed increase?

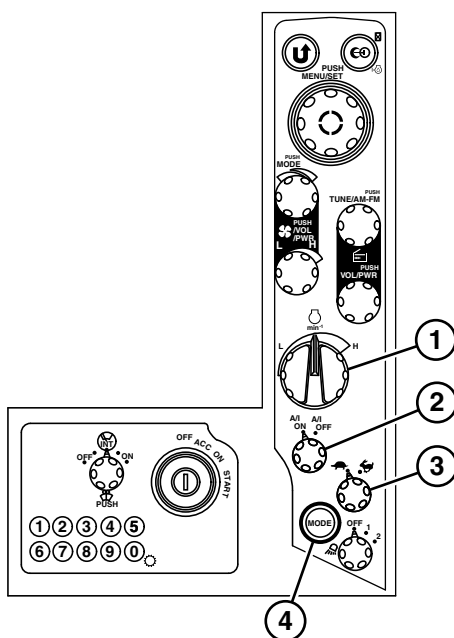
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-25/52

Engine Speed Dial Check



TX1086753 —UN—11JAN11

Switch Panel

- 1— Engine Speed Dial
- 2— Auto-Idle Switch
- 3— Travel Mode Switch
- 4— Power Mode Button

Turn auto-idle switch (2) to A/I OFF position.

Place pilot shutoff lever in locked (UP) position.

Turn engine speed dial (1) clockwise.

LISTEN: Does engine speed increase?

Turn engine speed dial counterclockwise.

LISTEN: Does engine speed decrease?

YES: Go to next check.

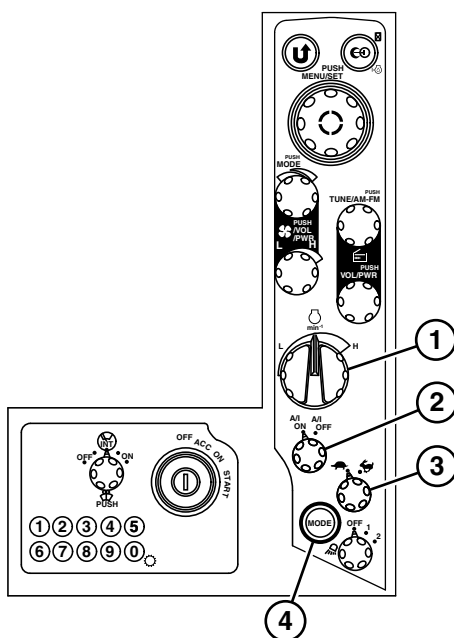
NO: Check information controller and main controller battery power 5 A fuse (F10) (marked CONTROLLER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-26/52

ECO (economy) Mode and PWR (power) Mode Checks



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial**
- 2—Auto-Idle Switch**
- 3—Travel Speed Switch**
- 4—Power Mode Button**

Turn auto-idle switch (2) to A/I OFF position.

Turn engine speed dial (1) to H (fast idle) position.

Press and release power mode button until ECO (economy) mode is displayed on monitor.

LOOK/LISTEN: Does engine speed decrease?

Press and release power mode button until PWR (power) mode is displayed on monitor.

LOOK/LISTEN: Does engine speed increase?

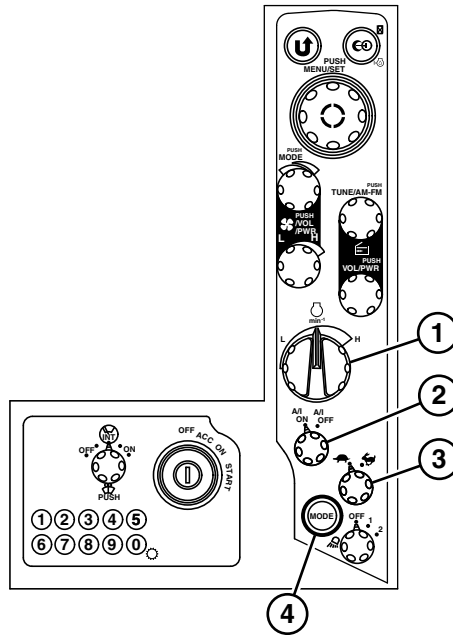
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-27/52

H/P (high power) Mode Check



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial**
- 2—Auto-Idle Switch**
- 3—Travel Speed Switch**
- 4—Power Mode Button**

Turn auto-idle switch (2) to A/I OFF position.

Turn engine speed dial (1) to H (fast idle) position.

Press and release power mode button until H/P (high power) mode is displayed on monitor.

Actuate arm in function over relief.

LOOK/LISTEN: Does engine speed increase as function goes over relief?

YES: Go to next check.

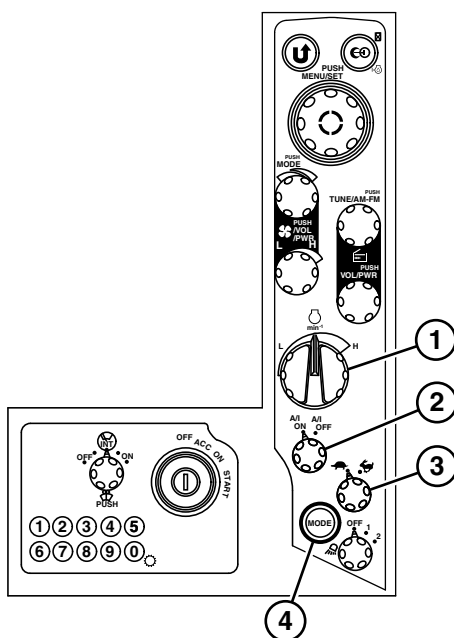
NO: Check information controller and main controller battery power 5 A fuse (F10) (marked CONTROLLER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-28/52

Auto-Idle Circuit Check



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial
- 2—Auto-Idle Switch
- 3—Travel Speed Switch
- 4—Power Mode Button

Turn engine speed dial (1) to H (fast idle) position.

Press and release power mode button (4) until H/P (high power) mode is displayed on monitor.

Turn auto-idle switch (2) to A/I OFF position.

Place pilot shutoff lever in unlocked (DOWN) position.

Turn auto-idle switch to A/I ON position.

LOOK/LISTEN: Does engine speed decrease after 4—6 seconds?

Slowly actuate dig function.

LOOK/LISTEN: Does engine speed return to fast idle?

YES: Go to next check.

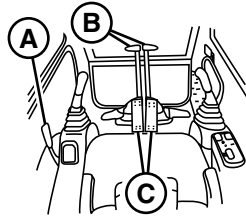
NO: Check solenoid 20 A fuse (F4) (marked SOLENOID). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-29/52

Travel Alarm Check



TX1095497 —UN—09AUG11

Travel Alarm

- A—Pilot Shutoff Lever
- B—Travel Lever and Pedal Forward
- C—Travel Lever and Pedal Rearward

CAUTION: Avoid possible injury. Machine will move during this check. Make sure that area is clear and large enough to operate machine.

Place pilot shutoff lever (A) in unlocked (DOWN) position.

Push travel pedals or levers forward (B).

LISTEN: Does travel alarm sound?

Push travel pedals or pull levers rearward (C).

LISTEN: Does travel alarm sound?

YES: Go to next check.

NO: Check travel alarm 5 A fuse (F5) (marked OPT. 1 ALT). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-30/52

Travel Alarm Cancel
Switch Circuit Check



TX1086700A —UN—08JAN11

Left Console

- 1—Reversing Fan Switch
- 2—Seat Heater Switch
- 3—Travel Alarm Cancel Switch

CAUTION: Avoid possible injury. Machine will move during this check.
Make sure that area is clear and large enough to operate machine.

NOTE: Travel alarm must operate for this check.

Place pilot shutoff lever in unlocked (DOWN) position.

Push travel pedals or levers and allow travel alarm to operate for a minimum of 12 seconds.

LISTEN: Does travel alarm sound?

While continuing travel, press travel alarm cancel switch (3).

LISTEN: Does travel alarm stop sounding?

YES: Go to next check.

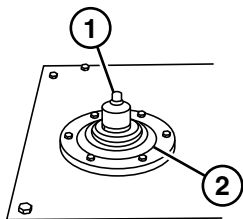
NO: Check travel alarm 5 A fuse (F5) (marked OPT. 1 ALT). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-31/52

Hydraulic Oil Tank Pressurization Check



TX1093766 —UN—28JUN13

Hydraulic Oil Tank Cover

- 1— Hydraulic Oil Tank Pressure Release Button
- 2— Hydraulic Oil Tank Cover

IMPORTANT: The pressurized oil tank creates pressure at the inlet to the hydraulic pumps. If tank cover does not seal, hydraulic pumps could cavitate and be damaged.

Raise boom to full height, then lower boom to ground.

Slowly depress pressure release button (1) on hydraulic oil tank cover.

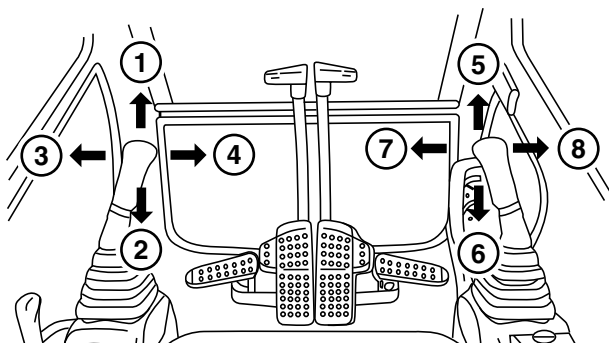
LISTEN: Is air heard escaping from the pressure release button on hydraulic oil tank cover?

YES: Go to next check.

NO: See your authorized dealer.

KR46761,0000C3E -19-13FEB18-32/52

Control Lever Pattern Check—Excavator Pattern



TX1093767 —UN—28JUN13

Control Lever Pattern Check—Excavator Pattern

- 1— Arm Out
- 2— Arm In
- 3— Swing Left
- 4— Swing Right
- 5— Boom Down
- 6— Boom Up
- 7— Bucket Load
- 8— Bucket Dump

CAUTION: Prevent possible injury from unexpected machine movement. Clear all persons from the area before operating machine.

Turn engine speed dial to L (slow idle) position.

Place pilot shutoff lever in unlocked (DOWN) position.

Slowly move hydraulic levers to all positions.

LOOK: Do bucket, boom, arm, and swing move according to pattern?

YES: Go to next check.

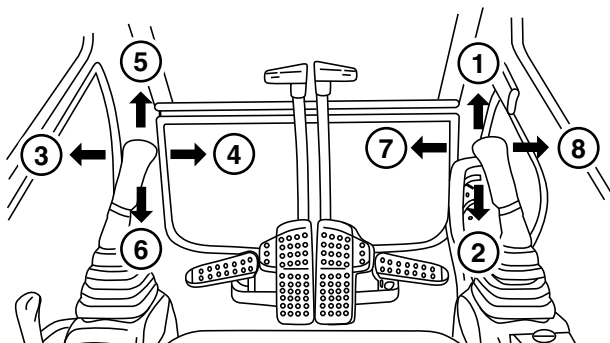
NO: See Control Lever Pattern Operation. (Section 2-3.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-33/52

**Control Lever Pattern
Check—Backhoe Pattern**



TX1093769 —UN—28JUN13

Control Lever Pattern Check—Backhoe Pattern

- 1— Arm Out
- 2— Arm In
- 3— Swing Left
- 4— Swing Right
- 5— Boom Down
- 6— Boom Up
- 7— Bucket Load
- 8— Bucket Dump

CAUTION: Prevent possible injury from unexpected machine movement.
Clear all persons from the area before operating machine.

Turn engine speed dial to L (slow idle) position.

Place pilot shutoff lever in unlocked (DOWN) position.

Slowly move hydraulic levers to all positions.

LOOK: Do bucket, boom, arm, and swing move according to pattern?

YES: Go to next check.

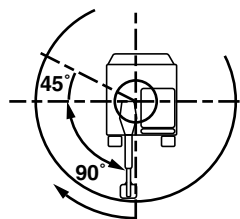
NO: See Control Lever Pattern Operation. (Section 2-3.)

IF OK: See your authorized dealer.

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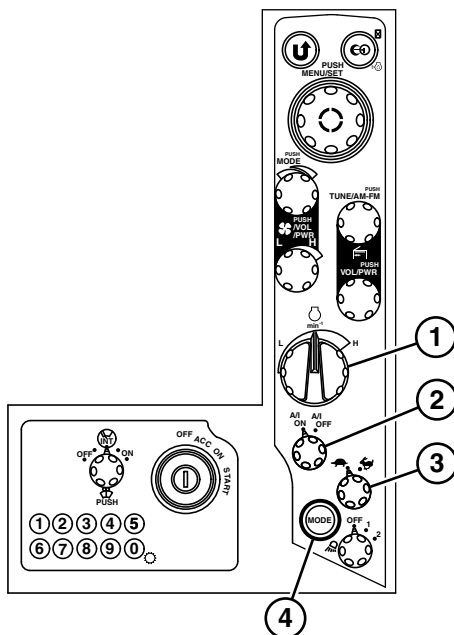
KR46761,0000C3E -19-13FEB18-34/52

Swing Dynamic Braking Check



TX1095482 —UN—28JUN13

Swing Dynamic Braking



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial
- 2—Auto-Idle Switch
- 3—Travel Speed Switch
- 4—Power Mode Button

CAUTION: Avoid possible injury. Make sure that area is clear and large enough to swing extended arm and bucket. Machine must be on level ground.

Position upperstructure with boom to the front.

Move arm to the extended position, bucket to the retracted position, and bucket-to-arm pivot pin at same level as boom-to-frame pivot pin.

Turn engine speed dial (1) to H (fast idle) position.

Press and release power mode button (4) until PWR (power) mode is displayed on monitor.

Fully actuate swing function. Swing clockwise 90 degrees and then release lever.

LOOK: Does upperstructure stop within 45 degrees (1/8 turn) or less after releasing lever?

Position upperstructure with boom to the front.

Fully actuate swing function. Swing counterclockwise 90 degrees and then release lever.

LOOK: Does upperstructure stop within 45 degrees (1/8 turn) or less after releasing lever?

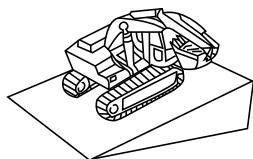
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-35/52

**Swing Park Brake and
Circuit Drift Checks**



TX1093770 —UN—28JUN13

Machine Position

Fill the bucket with dirt.

Position machine on a hillside with a slope of approximately 25%. If a hill is not available, raise one side of machine approximately 300 mm (1 ft) with the boom and insert a block under the track.

Move arm to the fully extended position.

Raise boom so arm-to-bucket pivot pin are the same height as boom-to-frame pivot pin.

Position upperstructure with cab over travel motors, perpendicular to tracks.

Turn engine speed dial to L (slow idle) position.

Wait approximately 5 minutes with all functions in neutral.

NOTE: Function does not need to be fully actuated to disengage the swing park brake.

Slowly actuate bucket load function to disengage the swing park brake. Do not hold the function over relief for more than 10 seconds.

LOOK: Does upperstructure hold position when swing park brake is engaged?

LOOK: Does upperstructure move only slightly when swing park brake is disengaged?

Swing upperstructure 180 degrees counterclockwise and repeat procedure.

Turn engine speed dial to L (slow idle) position.

Wait approximately 5 minutes with all functions in neutral.

Slowly actuate bucket load function to disengage the swing park brake. Do not hold the function over relief for more than 10 seconds.

LOOK: Does upperstructure hold position when swing park brake is engaged?

LOOK: Does upperstructure move only slightly when swing park brake is disengaged?

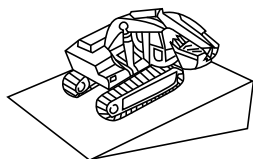
YES: Go to next check.

NO: See your authorized dealer.

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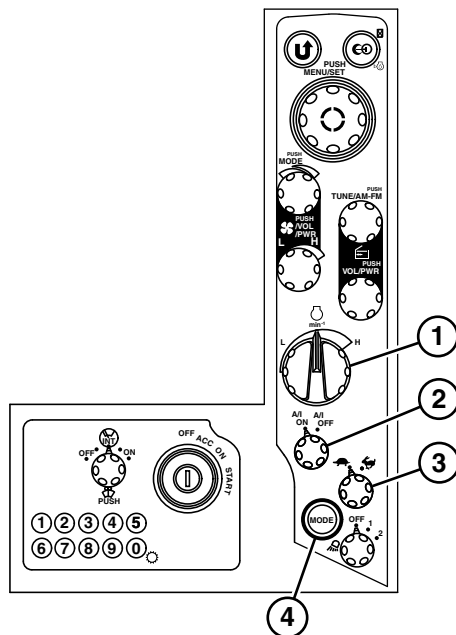
KR46761,0000C3E -19-13FEB18-36/52

Swing Power Check



TX1093770 —UN—28JUN13

Machine Position



TX1086753 —UN—11JAN11

Switch Panel

- 1— Engine Speed Dial
- 2— Auto-Idle Switch
- 3— Travel Speed Switch
- 4— Power Mode Button

Fill the bucket with dirt.

Position machine on a hillside with a slope of approximately 25%. If a hill is not available, raise one side of machine approximately 300 mm (1 ft) with the boom and insert a block under the track.

Move arm to the fully extended position. Raise boom so arm-to-bucket pivot pin is the same height as boom-to-frame pivot pin.

Swing upperstructure clockwise so it is 90 degrees to the slope.

Turn engine speed dial (1) to H (fast idle) position.

Press and release power mode button (4) until H/P (high power) mode is displayed on monitor.

Actuate the swing function to swing uphill.

LOOK: Does upperstructure swing uphill?

Swing upperstructure 180 degrees counterclockwise and repeat procedure.

Actuate the swing function to swing uphill.

LOOK: Does upperstructure swing uphill?

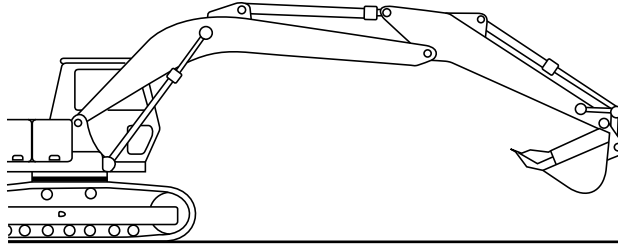
YES: Go to next check.

NO: See your authorized dealer.

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KR46761,0000C3E -19-13FEB18-37/52

**Dig Function Drift Check
(loaded bucket)**



TX1095487 —UN—28JUN13

Machine Position—Loaded Bucket

Fill bucket with material to specification.

Specification

Loaded Bucket—Weight (approximate)..... 1500 kg
3307 lb

Position bucket at maximum reach with bucket pivot pin at same height as boom pivot pin.

Retract arm cylinder, then extend about 50 mm (2 in).

Extend bucket cylinder, then retract about 50 mm (2 in).

Stop engine.

Measure amount cylinders extend or retract in 5 minutes.

Measure distance from bottom of bucket to ground.

Compare measurements to specifications.

Dig Function Drift Specifications (loaded bucket)—Specification

Boom Cylinder—Drift.....	20 mm
	0.79 in
Arm Cylinder—Drift.....	20 mm
	0.79 in
Bucket Cylinder—Drift.....	20 mm
	0.79 in
Bottom Of Bucket-To-Ground—Drift.....	150 mm
	5.91 in

LOOK: Is cylinder drift within specification?

YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-38/52

**Dig Function Drift Check
(empty bucket)**



TX1109902 —UN—28JUN13

Machine Position—Empty Bucket

Empty bucket of material.

Extend arm cylinder, then retract about 50 mm (2 in).

Extend bucket cylinder, then retract about 50 mm (2 in).

Lower boom until arm tip position above ground (1) is 1 m (40 in).

Stop engine.

Measure amount cylinders extend or retract in 5 minutes.

Measure distance from arm tip to ground.

Compare measurements to specifications.

Dig Function Drift Specifications (empty bucket)—Specification

Boom Cylinder—Bucket Empty—Drift.....	5 mm
	0.20 in
Arm Cylinder—Bucket Empty—Drift.....	15 mm
	0.59 in
Bucket Cylinder—Bucket Empty—Drift.....	10 mm
	0.39 in
Arm Tip-to-Ground—Drift.....	110 mm
	4.33 in

LOOK: *Is cylinder drift within specification?*

YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-39/52

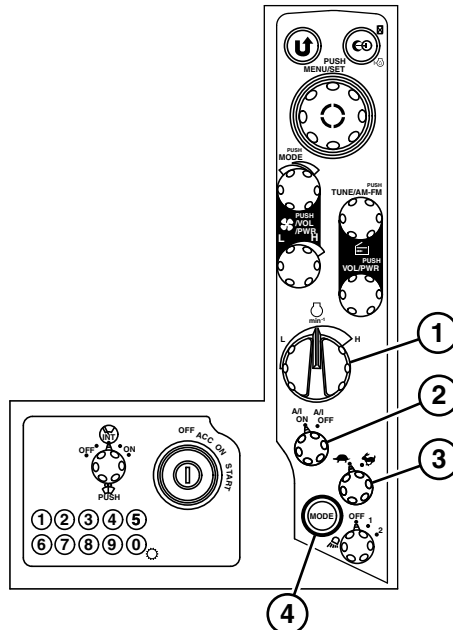
Swing Priority Circuit Check

CAUTION: Avoid possible injury. Make sure that area is clear and large enough to swing extended arm and bucket. Machine must be on level ground.



TX1095439 —UN—10AUG11

Swing Priority Check



TX1086753 —UN—11JAN11

Switch Panel

- 1— Engine Speed Dial
- 2— Auto-Idle Switch
- 3— Travel Speed Switch
- 4— Power Mode Button

IMPORTANT: Position machine as shown. Operate swing and arm in slowly a few times before attempting to perform check to ensure that bucket does not contact machine or ground.

Position machine as shown.

Turn engine speed dial (1) to H (fast idle) position.

Turn auto-idle switch (2) to A/I OFF position.

Press and release power mode button (4) until PWR (power) mode is displayed on monitor.

Operate swing function and from a running start record time required for 3 complete revolutions.

Divide that time by three to get an average time for 1 revolution.

Specification

Swing Function—Time (1 revolution)..... 4.00—5.00 sec.

Position machine as shown, arm extended, bucket curled, and upperstructure 90 degrees to tracks.

Turn engine speed dial (1) to H (fast idle) position.

Continued on next page

KR46761,0000C3E -19-13FEB18-40/52

Press and release power mode button (4) until PWR (power) mode is displayed on monitor.

Raise boom high enough so bucket does not contact the machine or ground during arm in and swing combined operation.

Operate swing function and slowly actuate arm in function when upperstructure is in line with tracks. Record time required for 1 complete revolution.

NOTE: Swing speed should not slow when actuating arm in.

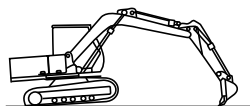
LOOK: Does swing speed remain unchanged when actuating arm in?

YES: Go to next check.

NO: See your authorized dealer.

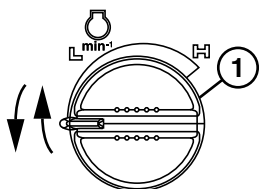
KR46761,0000C3E -19-13FEB18-41/52

Control Valve Lift Check Test



TX1095449 —UN—28JUN13

Control Valve Lift



TX1093762 —UN—28JUN13

Engine Speed Dial

1—Engine Speed Dial

Turn engine speed dial (1) to L (slow idle) position.

Position machine as shown.

Slowly lower boom, extend arm (retract cylinder), and dump bucket (retract cylinder).

LOOK: Do functions move in opposite direction as pilot control levers are first moved, then change direction as levers are moved farther?

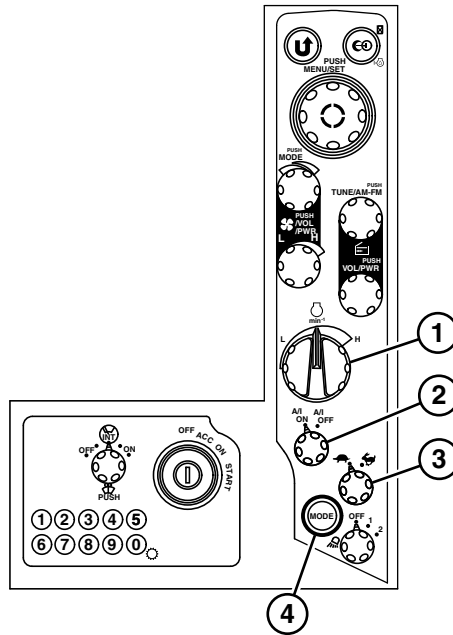
YES: See your authorized dealer.

NO: Go to next check.

Continued on next page

KR46761,0000C3E -19-13FEB18-42/52

Travel Speed Selection Check



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial**
- 2—Auto-Idle Switch**
- 3—Travel Speed Switch**
- 4—Power Mode Button**

Turn engine speed dial (1) to H (fast idle) position.

Turn travel speed switch (3) to slow speed (turtle) mode.

Actuate travel function to full speed.

Turn travel speed switch to fast speed (rabbit) mode.

LOOK: Does machine travel speed increase?

Actuate a dig function and then return to neutral.

LOOK: Does machine travel speed decrease and then increase as dig function is actuated and then released?

Turn travel speed switch to slow speed (turtle) mode.

LOOK: Does machine travel speed decrease?

YES: Go to next check.

NO: See your authorized dealer.

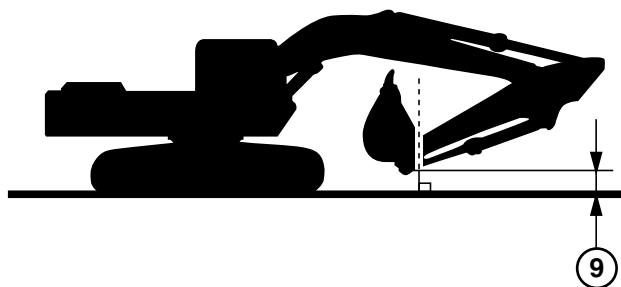
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KR46761,0000C3E -19-13FEB18-43/52

Travel System Tracking Check

CAUTION: Prevent possible injury from unexpected machine movement. Clear all persons from the area before operating machine.

Warm hydraulic oil to operating temperature for this check.



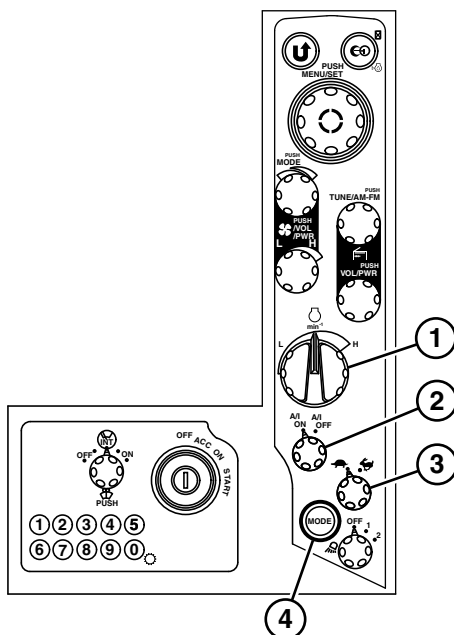
TX1120783 —UN—20AUG12

Machine Position

9— Bucket Height

Fully extend arm cylinder and bucket cylinder.

Position boom so bucket height (9) is approximately 400 mm (16 in) above ground.



TX1086753 —UN—11JAN11

Switch Panel

- 1— Engine Speed Dial
- 2— Auto-Idle Switch
- 3— Travel Speed Switch
- 4— Power Mode Button

Turn engine speed dial (1) to H (fast idle) position.

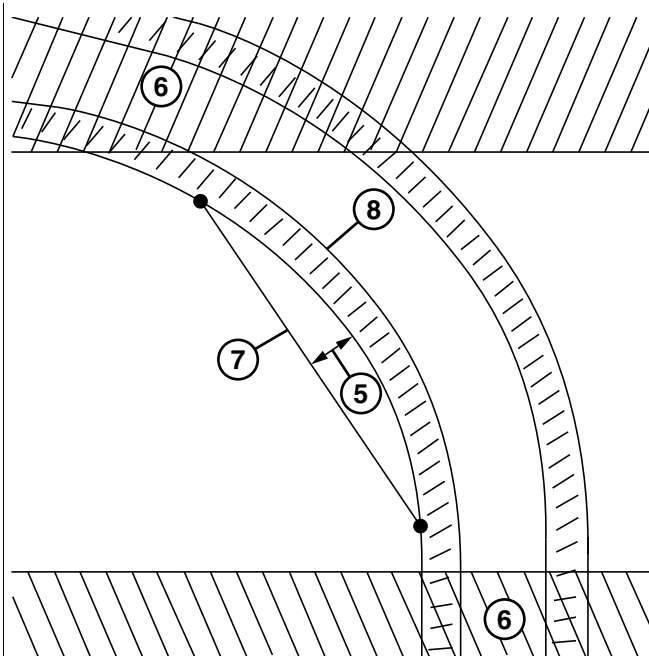
Turn auto-idle switch (2) to A/I OFF position.

Turn travel speed switch (3) to fast speed (rabbit) mode.

Press and release power mode button (4) until PWR (power) mode is displayed on monitor.

Continued on next page

KR46761,0000C3E -19-13FEB18-44/52



TX1120481 —UN—17AUG12

*Tracking Check***5— Distance of Mistrack****6— Acceleration and Deceleration Zone (approximate): 3—5 m (10—16 ft)****7— Test Line (distance): 20 m (66 ft)****8— Track Print**

Operate machine at full travel forward speed on a flat and level surface approximately 30 m (99 ft).

NOTE: When machine mistracks right, hydraulic pump 1 circuit oil flow may be less than specification. When machine mistracks left, hydraulic pump 2 circuit oil flow may be less than specification.

Observe direction of mistrack.

Create a straight test line 20 m (66 ft) (7) long between two points on track print (8).

Measure and record greatest distance of mistrack (5) between inside edge of track print and test line.

Repeat procedure in reverse travel.

LOOK: Does machine mistrack less than 200 mm (7.87 in)?

YES: Go to next check.

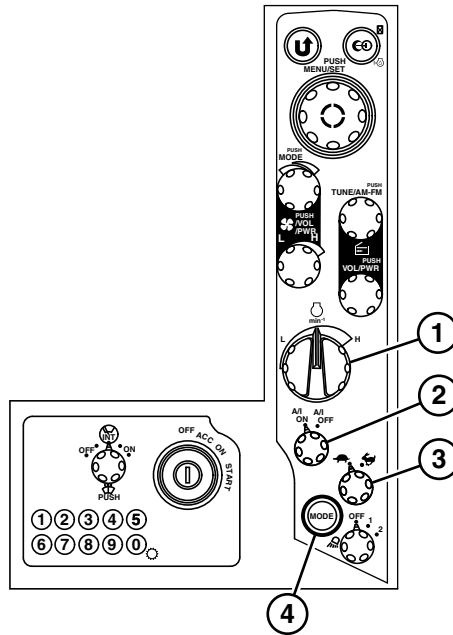
NO: Check track sag. See Check and Adjust Track Sag. (Section 3-3.)

IF OK: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-45/52

**Travel System Tracking
Checks While Operating
a Dig Function**



TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial**
- 2—Auto-Idle Switch**
- 3—Travel Speed Switch**
- 4—Power Mode Button**

NOTE: Machine will slow down during this test.

Turn engine speed dial (1) to H (fast idle) position.

Turn travel speed switch (3) to fast speed (rabbit) mode.

Operate machine at full speed forward on a flat and level surface.

After machine is moving, actuate arm out from neutral to full actuation and extend the arm.

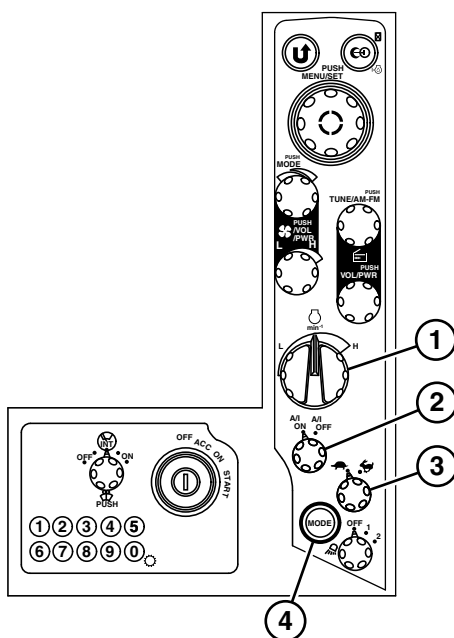
LOOK: Does machine mistrack excessively when the arm is extended?

YES: See your authorized dealer.

NO: Go to next check.

Continued on next page

KR46761,0000C3E -19-13FEB18-46/52

**Travel System
Maneuverability Check**


TX1086753 —UN—11JAN11

Switch Panel

- 1—Engine Speed Dial**
2—Auto-Idle Switch
3—Travel Speed Switch
4—Power Mode Button

Turn engine speed dial (1) to H (fast idle) position.

Turn travel speed switch (3) to fast speed (rabbit) mode.

Drive machine at full speed forward down a slope.

Turn in each direction.

LOOK: Does each track slow down in response to pedal or lever movement in order to turn?

Repeat the procedure in reverse travel.

Turn travel speed switch to fast speed (rabbit) mode.

Drive machine at full speed in reverse down a slope.

Turn in each direction.

LOOK: Does each track slow down in response to pedal or lever movement in order to turn?

YES: Go to next check.

NO: See your authorized dealer.

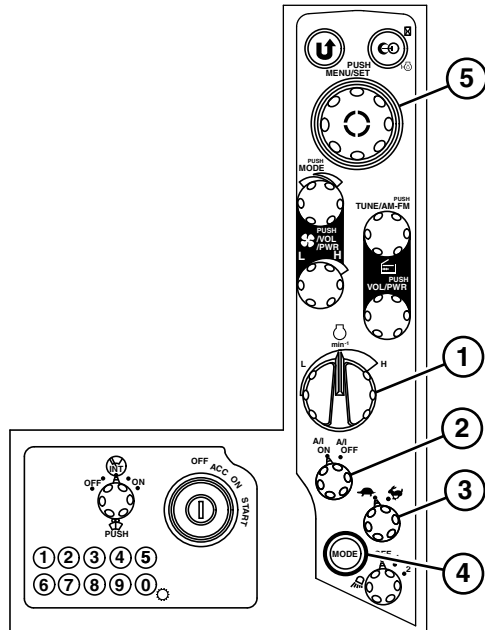
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KR46761,0000C3E -19-13FEB18-47/52

Cycle Times Check

CAUTION: Prevent possible injury from unexpected machine movement.
Clear all persons from the area before operating machine.

NOTE: For accurate cycle time readings, hydraulic oil must be at operating temperature.



TX1136301 —UN—10MAY13

Switch Panel

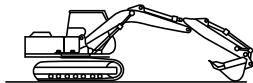
- 1— Engine Speed Dial
- 2— Auto-Idle Switch
- 3— Travel Speed Switch
- 4— Power Mode Button
- 5— Monitor Dial

Turn engine speed dial (1) to H (fast idle) position.

Turn auto-idle switch (2) to A/I OFF position.

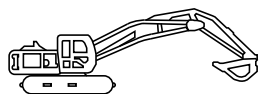
Press and release power mode button (4) until PWR (power) mode is displayed on monitor.

Rotate monitor dial (5) to highlight and select Bucket mode from Work Mode menu. See Main Menu—Work Mode. (Section 2-2.)



TX1095475 —UN—11AUG11

Boom



TX1095499 —UN—28JUN13

Arm, Bucket, Swing

Move machine to position shown for each test.

Continued on next page

KR46761,0000C3E -19-13FEB18-48/52

Record cycle time for each function.

Specification

Boom Raise (cylinder extend)—Cycle	
Time.....	3.2—3.8 sec.
Boom Lower (cylinder retract)—Cycle	
Time.....	2.0—2.6 sec.
Arm In (cylinder extend)—Cycle Time.....	3.2—3.8 sec.
Arm Out (cylinder retract)—Cycle Time.....	2.4—3.0 sec.
Bucket Load (cylinder extend)—Cycle	
Time.....	3.1—3.7 sec.
Bucket Dump (cylinder retract)—Cycle	
Time.....	2.1—2.7 sec.
Swing Left or Right, 3 Revolutions From	
a Running Start—Cycle Time.....	12.7—14.7 sec.
Drive 20 m (65 ft) From a Running Start	
(check in forward and reverse with travel	
speed switch in FAST position)—Cycle	
Time.....	12.0—14.4 sec.
Drive 20 m (65 ft) From a Running Start	
(check in forward and reverse with travel	
speed switch in SLOW position)—Cycle	
Time.....	19.4—23.4 sec.
Track Raised for 3 Revolutions From	
a Running Start (check in forward and	
reverse with travel mode switch in FAST	
position)—Cycle Time.....	17.1—21.1 sec.
Track Raised for 3 Revolutions From	
a Running Start (check in forward and	
reverse with travel mode switch in SLOW	
position)—Cycle Time.....	29.0—33.0 sec.

LOOK: Does machine perform within specifications?

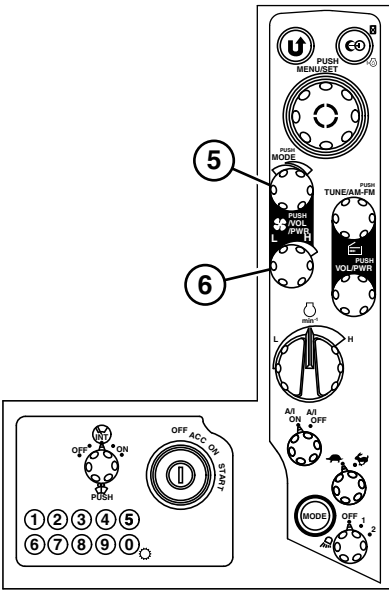
YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

KR46761,0000C3E -19-13FEB18-49/52

Heater and Air Conditioner Circuit Check



TX1086866 —UN—13JAN11

Switch Panel

- 5—Temperature Control/Mode Switch
6—Blower Speed Switch

Start engine and warm to normal operating temperature.

Turn temperature control/mode switch (5) clockwise to maximum heat position.

FEEL: Does warm air come from the vents?

Turn temperature control/mode switch counterclockwise to maximum cold position.

LISTEN: Does air conditioner compressor clutch solenoid “click”?

FEEL: Does cool air come from the vents?

YES: Checks complete.

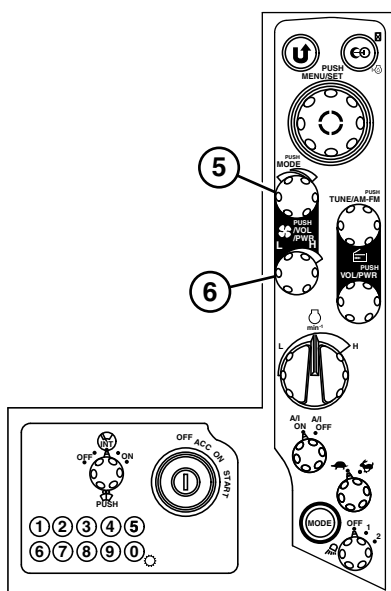
NO: Heater does not operate. Check air conditioner and heater 20 A fuse (F3) (marked HEATER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

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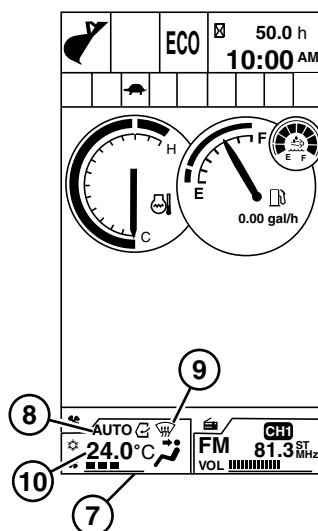
KR46761,0000C3E -19-13FEB18-50/52

Heater And Air Conditioning Controls Check (automatic temperature control)



TX1086866 —UN—13JAN11

Switch Panel



TX1160755 —UN—15MAY14

Monitor—Air Conditioner and Heater Display

- 5— Temperature Control/Mode Switch**
- 6— Blower Speed Switch**
- 7— Fan Speed**
- 8— AUTO Display**
- 9— Vent Position**
- 10— Temperature Setting**

Key ON, press blower speed switch (6).

Start engine and warm to normal operating temperature.

Press blower speed switch.

LISTEN: Does air conditioner compressor clutch solenoid “click”?

LOOK: Does AUTO display (8), display on monitor?

LOOK: Does monitor display vent position (9), fan speed (7), and temperature setting (10)?

Turn temperature control/mode switch (5) clockwise to maximum heat position.

Continued on next page

KR46761,0000C3E -19-13FEB18-51/52

LOOK: Does vent position change?
LOOK: Does temperature setting increase?
FEEL: Does warm air come from the vents?
 Turn temperature control/mode switch counterclockwise to maximum cold position.
LOOK: Does vent position change?
LOOK: Does temperature setting decrease?
FEEL: Does cool air come from the vents?
 Press blower speed switch.
LISTEN: Does air conditioner compressor clutch solenoid "click"? (Air conditioner and heater are ON in manual mode.)
LOOK: Does AUTO display go OFF?
 Turn temperature control/mode switch clockwise to maximum heat position.
LOOK: Does vent position change?
LOOK: Does temperature setting increase?
FEEL: Does warm air come from the vents?
 Turn temperature control/mode switch counterclockwise to maximum cold position.
LOOK: Does vent position change?
LOOK: Does temperature setting decrease?
FEEL: Does cool air come from the vents?
 Press temperature control/mode switch.
LOOK: Does vent position change?
 Repeat for all four vent positions.
LOOK: Does vent position change each time switch is pressed?
 Press blower speed switch.

LOOK: Are air conditioner and heater OFF? (Press blower speed switch to start air conditioner and heater).

YES: Checks complete.

NO: Heater fan does not blow air. Check air conditioner and heater 20 A fuse (F3) (marked HEATER). See Replacing Fuses. (Section 4-1.)

IF OK: See your authorized dealer.

KR46761,0000C3E -19-13FEB18-52/52

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 Crank	Low battery power	Charge or replace battery.
	Corroded or loose battery connections	Clean battery terminals and connections.
	Fuse	Check ECU P1 20 A fuse (F8). Check POWER ON 5 A fuse (F17). Replace if necessary.
Engine Cranks but Will Not Start or Hard to Start	Low battery power	Charge or replace battery.
	No fuel	Add correct fuel. Bleed air. See Bleed Fuel System. (Section 4-1.)
	Incorrect fuel	Drain fuel tank and refill with correct fuel.
	Fuel filters restricted	Replace filters. Bleed air. Clean fuel tank inlet screen.
	Primary fuel filter and water separator restricted or not primed	Check primary fuel filter and water separator. Replace filter, prime filter, and bleed air from fuel system.
	Fuel filter not installed correctly	Install new filter and O-ring. Ensure proper O-ring seal. Bleed air.
	Fuel shutoff valve (if equipped) closed	Open fuel shutoff valve.
	Water in fuel tank	Check, drain, and refill fuel tank.
	Leaks in fuel system	Locate source of leak and repair as required.
	Contaminated fuel	Drain fuel tank. Replace primary fuel filter and water separator. Bleed air. Add clean fuel.
	Air in fuel system	Bleed air. See Bleed Fuel System. (Section 4-1.)
	Slow cranking speed (poor electrical connection)	Clean and tighten battery and starter connections.
	Incorrect engine oil	Drain crankcase and refill with correct oil.

Continued on next page

KR46761,0000C35 -19-10JUL18-1/5

Symptom	Problem	Solution
Engine Knocks, Runs Irregularly, or Stops	Air filters restricted or dirty	Replace air filter elements.
	Starter	Repair or replace starter. See an authorized John Deere dealer.
	Air filters restricted or dirty	Replace air filter elements.
	Fuel filters restricted	Replace filters. Bleed air. Clean fuel tank inlet screen.
	Fuel filter not installed correctly	Install new filter and O-ring. Ensure proper O-ring seal. Bleed air.
	Fuel shutoff valve (if equipped) closed	Open fuel shutoff valve.
	Air in fuel system	Bleed air. See Bleed Fuel System. (Section 4-1.)
	Contaminated fuel	Drain fuel tank. Replace primary fuel filter and water separator. Bleed air. Add clean fuel.
	Low crankcase oil level	Fill crankcase to proper oil level.
	Coolant temperature low	Check for proper thermostat temperature and operation. Replace if necessary.
Excessive Fuel Consumption	Cold oil	Perform hydraulic warm-up procedure.
	Injection pump	See an authorized John Deere dealer.
	Engine speed control system	See an authorized John Deere dealer.
	Air filters restricted or dirty	Replace air filter elements.
	Incorrect fuel	Drain fuel tank and refill with correct fuel.
	Poor fuel quality	Drain fuel and replace with quality fuel of the proper grade.
	Leaks in fuel system	Locate source of leak and repair as required.
	Exhaust filter restricted	See an authorized John Deere dealer.

Continued on next page

KR46761,0000C35 -19-10JUL18-2/5

Symptom	Problem	Solution
Excessive Oil Consumption	Incorrect engine oil	Drain crankcase and refill with correct oil.
	Oil leaks	Locate source of leak and repair as required.
	Poor fuel quality	Drain fuel and replace with quality fuel of the proper grade.
	Engine temperature too high	Check cooling system.
	Air filters restricted or dirty	Replace air filter elements.
	Worn engine	See an authorized John Deere dealer.
Engine Idles Poorly	Poor fuel quality	Drain fuel and replace with quality fuel of the proper grade.
	Air in fuel system	Bleed air. See Bleed Fuel System. (Section 4-1.)
	Air filters restricted or dirty	Replace air filter elements.
	Fuel filters restricted	Replace filters. Bleed air. Clean fuel tank inlet screen.
	Fuel filter not installed correctly	Install new filter and O-ring. Ensure proper O-ring seal. Bleed air.
	Diesel exhaust fluid tank empty	Refill diesel exhaust fluid (DEF) tank. See Refilling Diesel Exhaust Fluid (DEF) Tank. (Section 3-1.)
	Engine speed control system	See an authorized John Deere dealer.
	Exhaust filter restricted	See an authorized John Deere dealer.
	Worn engine	See an authorized John Deere dealer.
Auto-Idle Does Not Work	Auto-idle is off	Turn auto-idle switch to the A/I ON position.
	Idle is not above 1000 rpm	Advance engine speed dial to fast idle.
	Hydraulic functions operating	Release hydraulic functions for 10 seconds.
Engine Not Developing Full Power	Air filters restricted or dirty	Replace air filter elements.

Continued on next page

KR46761,0000C35 -19-10JUL18-3/5

Symptom	Problem	Solution
	Fuel filters restricted	Replace filters. Bleed air. Clean fuel tank inlet screen.
	Fuel filter not installed correctly	Install new filter and O-ring. Ensure proper O-ring seal. Bleed air.
	Contaminated fuel	Drain fuel tank. Change primary fuel filter and water separator. Bleed air. Add clean fuel.
	Incorrect fuel	Drain fuel tank and refill with correct fuel.
	Incorrect engine oil	Drain crankcase and refill with correct oil.
	Diesel exhaust fluid tank empty	Refill diesel exhaust fluid (DEF) tank. See Refilling Diesel Exhaust Fluid (DEF) Tank. (Section 3-1.)
	Exhaust filter restricted	See an authorized John Deere dealer.
	Incorrect valve clearance	See an authorized John Deere dealer.
	Worn engine	See an authorized John Deere dealer.
	Hydraulic issue	See an authorized John Deere dealer.
Engine Oil Pressure Low	Low crankcase oil level	Fill crankcase to proper oil level.
	Incorrect engine oil	Drain crankcase and refill with correct oil.
	Oil filter restricted	Replace oil filter.
	Oil leaks	Locate source of leak and repair as required.
	Excessive oil temperature	See an authorized John Deere dealer.
	Worn engine	See an authorized John Deere dealer.
Engine Oil Pressure High	Incorrect engine oil	Drain crankcase and refill with correct oil.
Engine Coolant Temperature Above Normal	Lack of coolant in cooling system	Fill cooling system to proper level.
	Radiator and/or cooler cores restricted or dirty	Clean radiator and cooler cores as required.

Continued on next page

KR46761,0000C35 -19-10JUL18-4/5

Symptom	Problem	Solution
	Loose surge tank cap	Secure cap properly.
	Air filters restricted or dirty	Replace air filter elements.
	Low crankcase oil level	Fill crankcase to proper oil level.
	Incorrect engine oil	Drain crankcase and refill with correct oil.
	Engine overloaded	Reduce engine load.
Engine Emits Excessive Black or Gray Exhaust Smoke	Incorrect fuel	Drain fuel tank and refill with correct fuel.
	Restricted or dirty air intake or exhaust system	Clean air intake and exhaust system.
	Coolant temperature low	Check for proper thermostat temperature and operation. Replace if necessary.
	Exhaust filter is cracked or damaged	See an authorized John Deere dealer.
Engine Emits Excessive White Exhaust Smoke	Incorrect fuel	Drain fuel tank and refill with correct fuel.
	Cold engine	Run engine until warm.
	Exhaust filter is cracked or damaged	See an authorized John Deere dealer.

KR46761,0000C35 -19-10JUL18-5/5

Hydraulic System

Symptom	Problem	Solution
No Hydraulic Functions	Pilot shutoff lever	Place pilot shutoff lever in unlocked (DOWN) position.
	Low hydraulic oil level	Fill tank to proper oil level.
	Suction screen restricted	Inspect and clean.
	Fuse	Check SOLENOID 20 A fuse (F4). Replace if necessary.
Hydraulic Functions are Slow or Have Little or No Power	Low hydraulic oil level	Fill tank to proper oil level.
	Cold oil	Perform hydraulic oil warm-up procedure.
	Incorrect oil	Drain hydraulic tank and refill with correct oil.
	Suction screen restricted	Inspect and clean.
	Hydraulic tank cap/cover	Replace cap/cover.
	Engine speed too slow	Increase engine speed.
Hydraulic Oil Overheats	Incorrect oil	Drain hydraulic tank and refill with correct oil.
	Low hydraulic oil level	Fill tank to proper oil level.
	Contaminated oil	Drain hydraulic tank and refill with clean oil.
	Restricted radiator or oil cooler	Clean and straighten fins.
	Cooler cores restricted	Clean cooler cores.
	Restricted filters	Install new filters.
Oil Foams	High or low oil level	Correct level.
	Incorrect oil	Drain hydraulic tank and refill with correct oil.
	Contaminated oil	Drain hydraulic tank and refill with clean oil.

Continued on next page

KR46761,0000C45 -19-19MAY16-1/2

Symptom	Problem	Solution
	Water in oil	Drain hydraulic tank and refill with oil.
	Air leak in oil line from reservoir	Repair leak.
	Kinks or dents in oil lines	Inspect and correct.
No Swing Function	Pilot shutoff lever	Place pilot shutoff lever in unlocked (DOWN) position.
Swing Function is Jerky	Pilot control valve hoses pinched or kinked	Inspect and correct.
	Lack of grease in swing bearing	Fill with grease.
Slow Travel Speed Only	Rocks or mud jammed in track frame	Remove and repair.
	Pilot control valve hoses pinched or kinked	Inspect and correct.
	Cold oil	Perform hydraulic warm-up procedure.
Travel is Jerky	Engine speed too slow	Increase engine speed.
	Track sag adjustment	Adjust track sag.
	Rocks or mud jammed in track frame	Remove and repair.
Engine Stops When Travel or Control Lever Actuated	Air filters restricted or dirty	Replace air filter elements.
	Fuel filters restricted	Replace filters. Bleed air. Clean fuel tank inlet screen.
	Air in fuel system	Bleed air. See Bleed Fuel System. (Section 4-1.)

KR46761,0000C45 -19-19MAY16-2/2

Electrical System

Symptom	Problem	Solution
No Electrical Functions	Battery disconnect switch is in the OFF position	Turn battery disconnect switch to the ON position. See Battery Disconnect Switch. (Section 2-3.)
	Batteries undercharged or dead	Recharge or replace.
	Fuse	Check ALT 65-amp fuse (F60). Check BAT 45-amp fuse (F61). Replace if necessary.
Batteries Undercharged	Loose or corroded connections	Clean and tighten connections or replace batteries.
Batteries Will Not Take a Charge	Loose or corroded connections	Clean and tighten connections or replace batteries.
	Weak batteries	Replace both batteries.
Battery Uses Too Much Water	Cracked battery case	Replace battery.
	High ambient temperature	Refill with distilled water and recharge battery.
Cracked Battery Case	No battery hold-down clamp	Replace battery and install hold-down clamp.
	Loose battery hold-down clamp	Replace battery and tighten hold-down clamp.
	Frozen battery	Replace battery. Keep batteries fully charged in cold weather.
Low Battery Output	Low water level	Add distilled water and recharge battery.
	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 both batteries.
Starter Will Not Turn	Battery disconnect switch is in the OFF position	Turn battery disconnect switch to the ON position. See Battery Disconnect Switch. (Section 2-3.)

Continued on next page

KR46761,0000C36 -19-04FEB16-1/3

Symptom	Problem	Solution
	Battery undercharged or dead	Recharge or replace.
	Battery cables making poor connections	Clean and tighten connections.
	Fuse	Check POWER ON 5-amp fuse (F17). Replace if necessary.
	Starter	Repair or replace starter. See an authorized dealer.
	Starter pinion jammed in flywheel gear	Repair or replace starter or ring gear. See an authorized dealer.
Starter Turns but Will Not Crank Engine	Starter	Repair or replace starter. See an authorized dealer.
Engine Cranks Slowly	Battery cables damaged or broken internally	Inspect and replace cables.
	Battery or starter cable connections loose or corroded	Clean and tighten connections.
	Batteries undercharged or dead	Recharge or replace.
	Low battery voltage	Recharge or replace.
	Starter	Repair or replace starter. See an authorized dealer.
Starter Continues to Run After Engine Starts	Starter	Repair or replace starter. See an authorized dealer.
	Key switch malfunction	Disconnect battery ground. See an authorized John Deere dealer.
	Starter relay	Disconnect battery ground. See an authorized John Deere dealer.
Charging Indicator Light On, Engine Running	Loose or corroded electrical connections on battery, ground strap, starter, or alternator	Inspect, clean, or tighten electrical connections.
	Worn drive belt	Replace belt.
	Fuse	Check CONTROLLER 5-amp fuse (F10). Check ECU P1 20-amp fuse (F8). Check ALT 65-amp fuse (F60). Replace if necessary.

Continued on next page

KR46761,0000C36 -19-04FEB16-2/3

Symptom	Problem	Solution
Noisy Alternator	Worn drive belt	Replace belt.
	Worn pulleys	Replace pulleys and belt.
	Pulley misaligned	Adjust alternator mount.
	Alternator bearing	Loosen alternator belts. Turn pulley by hand. If any roughness is felt, repair alternator.
No Monitor Panel Indicators or Gauges Work	Fuse	Check CONTROLLER 5-amp fuse (F10). Replace if necessary.
No Switch Panel Switches or Engine Speed Dial Work	Fuse	Check POWER ON 5-amp fuse (F17). Check MONITOR 5-amp fuse (F14). Check SOLENOID 20-amp fuse (F4). Check BACK UP 10-amp fuse (F9). Replace if necessary.

KR46761,0000C36 -19-04FEB16-3/3

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 the machine 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 buildup due to condensation.

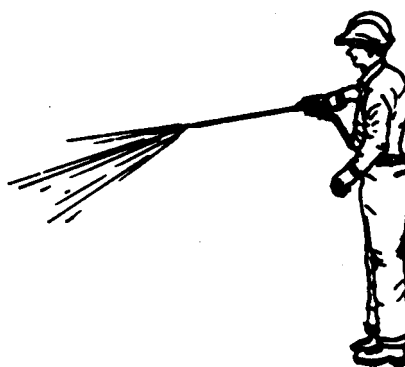
NOTE: For blends up to and including B20, it is recommended that biodiesel is used within 3 months of the manufacture date. For blends greater than B20, it is recommended that the biodiesel is used within 45 days. The poor oxidation stability characteristic of biodiesel can result in long-term storage problems. John Deere does not recommend using biodiesel in engines powering standby applications or machines operating on a seasonal basis. Consult an authorized John Deere dealer or fuel supplier for additives to improve fuel storage and performance of biodiesel fuels. For best results, additives need to be added to biodiesel when it is close to the time of production.

2. Repair worn or damaged parts. If necessary, install new parts to avoid needless delays later.
3. Replace air cleaner elements.
4. Drain water separator.

IMPORTANT: Prevent damage to painted surfaces. High-pressure washing greater than 1379 kPa (13.8 bar) (200 psi) can damage freshly painted finishes. Allow paint to air-dry for a minimum of 30 days after receipt of machine before cleaning parts or machines with high pressure. Use low-pressure wash operations until 30 days have elapsed.

5. Wash the machine. Use low-pressure wash operations (less than 1379 kPa [13.8 bar] [200 psi]) until 30 days after receipt of machine have elapsed. Paint areas to prevent rust. Replace decals where needed.
6. Apply oil to track chains. Run machine back and forth several times. Park machine on a hard surface to prevent tracks from freezing to ground.

LPS 3 is a trademark of Illinois Tool Works



Prepare Machine for Storage

IMPORTANT: Prevent damage to painted surfaces. LPS 3® Premier Rust Inhibitor can destroy painted finish. Do not spray LPS 3 Premier Rust Inhibitor on painted areas.

7. Retract all hydraulic cylinders if possible. If cylinders are not retracted, coat exposed cylinder rods with LPS 3 Premier Rust Inhibitor.
8. Lubricate all grease points.

NOTE: If the batteries are kept disconnected for more than 1 month or when the batteries are reconnected, resetting of the controllers may be required. Contact an authorized John Deere dealer.

9. If equipped with the battery disconnect switch, turn the switch to the OFF position. See Battery Disconnect Switch. (Section 2-3.)
10. Remove the batteries and store in a dry, protected place after charging fully. If battery is not removed, disconnect the negative battery cable from the negative (-) terminal.
11. Prevent condensation by adding a fuel stabilizer additive and top off fuel tank with fuel.
12. Store machine in a dry, protected place. If stored outside, cover with a waterproof material.
13. Place a DO NOT OPERATE tag on the right pilot control lever.
14. Remove keys and lock all covers and doors.

T5813AM —UN—09FEB89

KR46761,0000C07 -19-07APR20-1/1

Monthly Storage Procedure

NOTE: The following procedure is used monthly when the engine has not been prepared for long-term storage. See Preparing Engine for Long-Term Storage in this section.

⚠ CAUTION: Prevent possible injury or death from asphyxiation. Engine exhaust fumes can cause sickness or death. ONLY start engine in a well-ventilated area.

1. Clear area around machine to allow for movement
2. Charge and install batteries.
3. Turn battery disconnect switch to the ON position. See Battery Disconnect Switch. (Section 2-2.)
4. Remove LPS 3® Rust Inhibitor from cylinder rods with a cleaning solvent.
5. For machines with tires, check condition of tires and tire pressure. For machines with tracks, check condition of tracks and track sag. For non-sealed and lubricated track chains, apply oil to the pin-to-bushing joints.
6. Inspect engine compartment and remove any foreign material.
7. Check belts.

IMPORTANT: Prevent possible engine damage.
During cold temperatures, check fluidity of engine oil on dipstick. If the oil appears waxy and/or jelly like rather than liquid, DO NOT attempt to start engine. Use external heat source to warm the crankcase until oil appears fluid.

8. Check all fluid levels. If low, check for leaks and add oil as required.

9. Check condition of all hoses and connections.

⚠ CAUTION: Prevent possible injury from unexpected machine movement. Clear the area of all persons before operating the machine.

NOTE: If the batteries are kept disconnected for more than 1 month, resetting of the monitor may be required. Contact an authorized John Deere dealer.

Start engine and run until machine reaches normal operating temperature.

- If engine does not start or runs poorly after starting, change fuel filters. Bleed fuel system.

10. Operate all controls, levers, seat adjustments, etc.
 - If equipped, operate air conditioning system for 2 minutes.
11. Run machine back and forth several times.
12. Park the machine with cylinder rods retracted, if possible. Shut off engine.
13. Place a DO NOT OPERATE tag in operator's station
14. Check condition of all hoses and connections.
15. Drain water and sediment from fuel tank.
- IMPORTANT: LPS 3® Rust Inhibitor can destroy painted finish. DO NOT spray LPS 3® Rust Inhibitor on painted areas.**
16. Apply LPS 3 Rust Inhibitor to exposed cylinder rod areas.
17. Lock all covers and doors if equipped

TX,MONTHLY,STORE,PROC -19-01MAR21-1/1

Preparing Engine for Long-Term Storage

IMPORTANT: Any time the engine is not used for over 6 months, the following recommendations for storing and removing the engine from storage helps to minimize corrosion and deterioration.

IMPORTANT: Long-term storage is not advised when using biodiesel. For storage longer than 1 year, use straight hydrocarbon fuel.

If biodiesel must be used, it is recommended the blend not exceed B7 and a high-quality fuel stabilizer be used. Storage should not exceed 1 year.

For more information, see **BioDiesel Fuel**. (Section 3-1.)

NOTE: The following storage preparations are used for long-term engine storage up to 1 year. After that, the engine should be started, warmed up, and retreated for an extended storage period.

1. Change engine oil and replace filter. Used oil does not give adequate protection. Add 30 mL of rust preventive oil to the engine crankcase for every 1 L of engine oil, or 1 oz of rust preventative oil per 1 qt of engine oil. This rust preventive oil should be a SAE 10 oil with 1%—4% morpholine or equivalent vapor corrosion inhibitor such as NOX RUST VCI-10 OIL from Daubert Chemical Company, Inc.
2. Replace air cleaner.
3. Draining and flushing of cooling system is not necessary if the engine is only stored for less than 1 year. However, for extended storage periods of 1 year or longer, the recommendation is that the cooling system be drained, flushed, and refilled. Refill with appropriate coolant. See Diesel Engine Coolant (engine with wet sleeve cylinder liners). (Section 3-1.)
4. Prepare a solution of diesel fuel and rust preventive oil in a temporary container, add 78 mL of rust preventive oil per 1 L of diesel fuel (10 oz of rust preventive oil per 1 gal of diesel fuel).
5. Remove existing lines and plugs as required. Run a temporary line from the temporary container to the engine fuel intake located before the fuel filters. Run another temporary line from the fuel return to the temporary container. This set up allows rust preventive oil solution to circulate through the injection system during cranking.
- IMPORTANT:** Prevent possible damage to starter. Do not operate starter more than 30 seconds at a time. Wait at least 2 minutes for starter to cool before trying again.
6. Crank the engine several revolutions with starter. Do not allow the engine to start. Cranking the engine without starting allows rust preventive oil solution to circulate.

See an authorized John Deere dealer for the proper procedure.
7. Remove temporary lines installed in step 5 and replace any lines or plugs previously removed.
8. Loosen (or remove) and store fan and alternator poly-vee belt.
9. Remove and clean batteries. Store them in a cool, dry place and keep them fully charged.
10. Disengage the clutch for any driveline.
11. For extended storage periods of 1 year or longer, drain or siphon diesel exhaust fluid (DEF) from DEF tank (if equipped).
12. Clean the exterior of the engine with salt-free water and touch up any scratched or chipped painted surfaces with a high-quality paint.
13. Coat all exposed bare metal surfaces with grease or corrosion inhibitor if not feasible to paint.
14. Seal all openings on engine with plastic bags and tape.
15. Store the engine in a dry, protected place. If engine must be stored outside, cover it with a waterproof canvas or other suitable protective material and use a strong, waterproof tape.

TX,PREP,ENG,STOR2 -19-23JUN20-1/1

Removing Engine From Long-Term Storage

NOTE: The following storage removal procedure is used for long-term engine storage up to 1 year. After that, the engine should be started, warmed up, and retreated for an extended storage period.

Refer to the appropriate section for detailed services listed below or have an authorized servicing dealer or engine distributor perform unfamiliar services.

1. Remove all protective coverings from engine. Unseal all openings in engine and remove covering from electrical systems.
2. Remove grease from all exposed metal surfaces.
3. Remove the batteries from storage. Install batteries (fully charged) and connect the terminals.
4. Install fan and alternator poly-vee belt if removed.
5. Fill fuel tank.
6. If drained, fill diesel exhaust fluid tank with new DEF. See Diesel Exhaust Fluid (DEF)—Use in Selective Catalytic Reduction (SCR) Equipped Engines. (Section 3-1.)

If not drained, DEF must pass visual, smell, and concentration checks before the engine can be ran. See Selective Catalytic Reduction (SCR) System Overview. (Section 2-3.)

7. Perform all appropriate prestarting checks. See Inspect Machine Daily Before Starting. (Section 2-3.)

IMPORTANT: Prevent possible damage to starter. DO NOT operate starter more than 30 seconds at a time. Wait at least 2 minutes for starter to cool before trying again.

8. Crank engine for 20 seconds with starter. Do not allow the engine to start. Wait 2 minutes and crank engine an additional 20 seconds to ensure bearing surfaces are adequately lubricated.

See an authorized John Deere dealer for the proper procedure.
9. Start engine and run at low idle and no load for 15 minutes.
10. Shut engine off. Change engine oil and replace filter.
11. Warm up engine and check all gauges before placing engine under load.
12. On the first day of operation after storage, check overall engine for leaks and check all gauges for correct operation.

NOTE: If using biodiesel blends after long-term storage, frequency of fuel filter plugging can increase initially.

TX,REMOV,ENG,STOR2 -19-23JUN20-1/1

Miscellaneous—Machine Numbers

Record Product Identification Number (PIN)

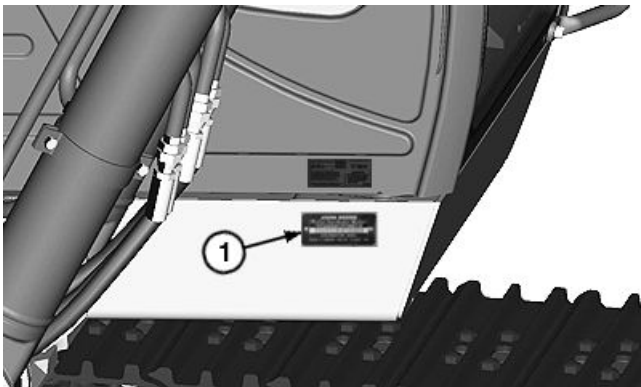
Purchase Date:

Product Identification Number (PIN):

Record all 17 characters of the product identification number (PIN).

The PIN plate (1) is located on the front right corner of the operator's station frame.

1— PIN Plate



Product Identification Number (PIN) Plate

KR46761,0000C38 -19-01MAR18-1/1

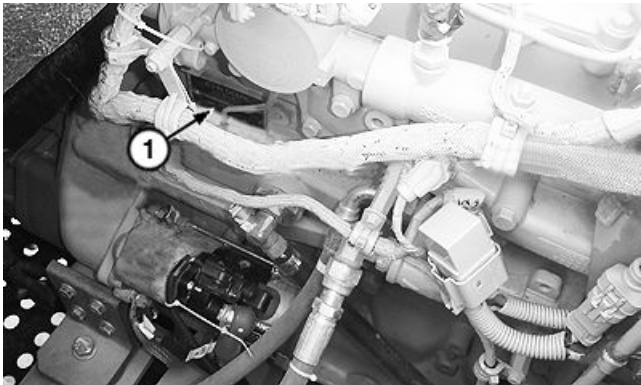
TX1156411 —UN—27MAR14

Record Engine Serial Number

Engine Serial Number

The engine serial number plate (1) is located on the engine above the starter.

1— Engine Serial Number Plate



Engine Serial Number Plate

KR46761,0000BAD -19-29JAN15-1/1

TX1157041A —UN—01APR14

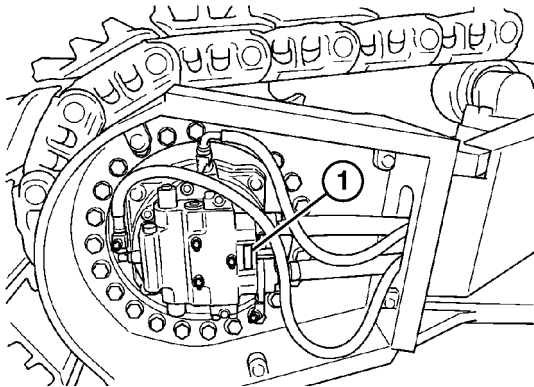
Record Travel Motor Serial Numbers

Travel Motor Serial Number:

Travel Motor Serial Number:

Remove covers on travel motors to access travel motor serial number plates (1).

1— Travel Motor Serial Number Plate (2 used)



Travel Motor Serial Number Location

CN93077,0000600 -19-22DEC15-1/1

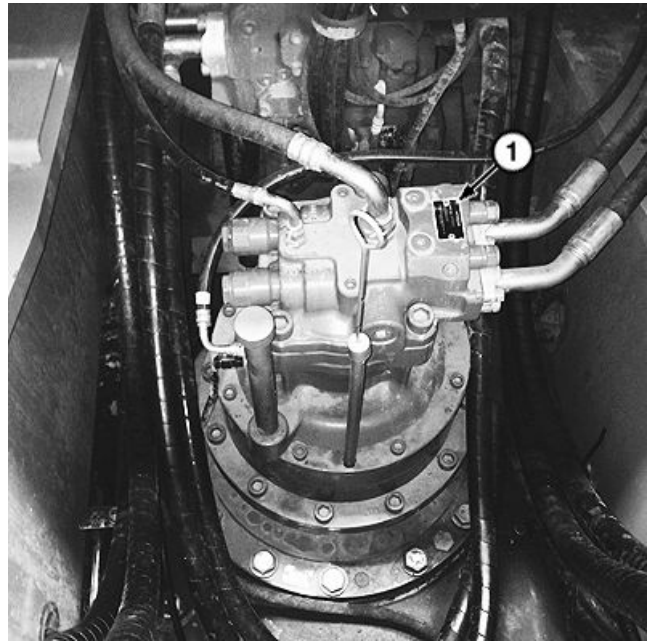
TX1195473 —UN—09JUN15

Record Swing Motor Serial Number

Swing Motor Serial Number

The swing motor serial number plate (1) is located on top of the swing motor.

1—Swing Motor Serial Number
Plate



Swing Motor Serial Number

TX1156473A —UN—18MAR14

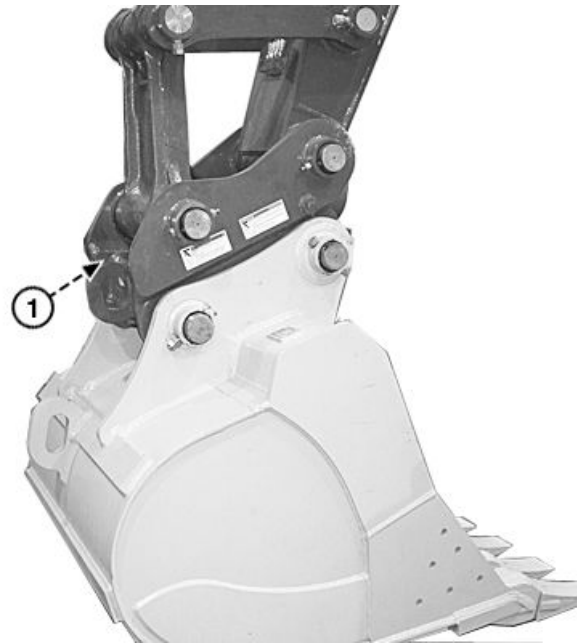
KR46761,0000BFC -19-29JAN15-1/1

Record Hydraulic Coupler Serial Number—If Equipped

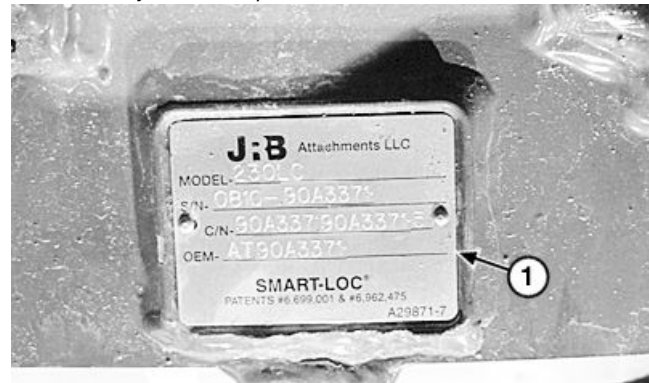
Hydraulic Coupler Serial Number:

The hydraulic coupler serial number plate (1) is located on the front side of the coupler.

1— Hydraulic Coupler Serial Number Plate



Hydraulic Coupler Serial Number Plate Location



Hydraulic Coupler Serial Number Plate

ER79617,0000D8F -19-05JAN16-1/1

TX1086497A —UN—04JAN11

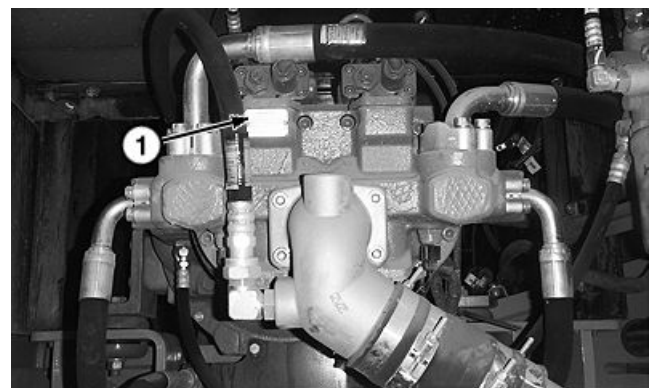
TX1086500A —UN—04JAN11

Record Hydraulic Pump Serial Number

Hydraulic Pump Serial Number

Open the right rear service door to access the hydraulic pump. The hydraulic pump serial number plate (1) is located on the front of the hydraulic pump.

1— Hydraulic Pump Serial Number Plate



Hydraulic Pump Serial Number

KR46761,0000BF5 -19-11DEC17-1/1

TX1156402A —UN—17MAR14

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 you can take:
 - Mark your machine with your own numbering system
 - Take color photographs from several angles of each machine

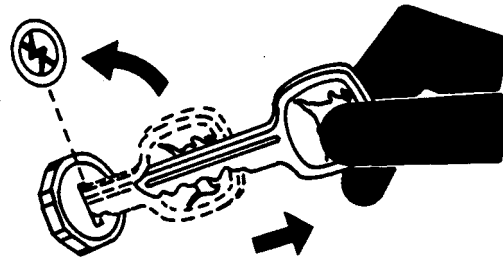


TS1680 —UN—09DEC03

DX,SECURE1 -19-18NOV03-1/1

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 any keys and batteries
3. When parking indoors, put large equipment in front of exits and lock your 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 your John Deere dealer of any losses.



TS230 —UN—24MAY89

DX,SECURE2 -19-18NOV03-1/1

Miscellaneous—Specifications

Engine Specifications

Item	Measurement	Specification
John Deere PowerTech PVS 6.8 L	Type	Turbocharged with air-to-air charge air cooler
	Bore And Stroke	106 x 127 mm 4.17 x 5.0 in.
	Cylinders	6
	Displacement	6.8 L 415 cu in.
	Net Torque @ 1200 RPM	768.0 N·m 566.4 lb.-ft.
	Compression Ratio	17:1
	Power At 2100 RPM	140 kW 188 hp
	Cooling Fan	Variable Hydraulic Suction
	Electrical system	24 Volt
	Batteries (2) 12 volt	320 Minutes Reserve Capacity

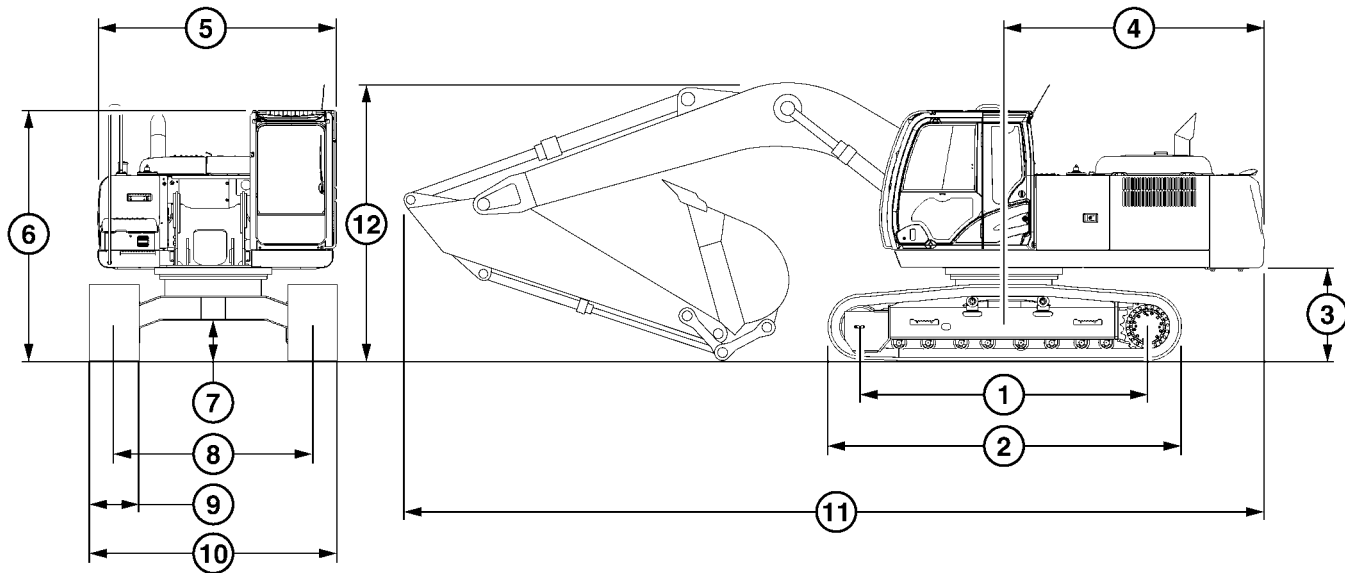
KR46761,0000BAE -19-07MAY15-1/1

Drain and Refill Capacities

Item	Measurement	Specification
Fuel Tank	Capacity	500.0 L 132.0 gal.
Diesel Exhaust Fluid (DEF) Tank (S.N. —610421)	Capacity	35.0 L 9.3 gal.
Diesel Exhaust Fluid (DEF) Tank (S.N. 610422—)	Capacity	35.6 L 9.4 gal.
Cooling System	Capacity	23.0 L 6.0 gal.
Engine	Oil Capacity, Including Filter Change	19.5 L 5.2 gal.
Hydraulic Reservoir	Oil Capacity	147.6 L 39.0 gal.
Hydraulic System	Oil Capacity	240.0 L 63.4 gal.
Swing Gear Case	Oil Capacity	7.0 L 1.8 gal.
Travel Gear Case (each)	Oil Capacity	6.2 L 1.6 gal.
Pump Drive Gear Case	Oil Capacity	1.1 L 1.2 qt.

KR46761,0000C0C -19-17NOV16-1/1

Machine Specifications



TX1156814

Excavator

- | | | | |
|-----------------------------------|----------------------------|--|---------------------|
| 1—Sprocket Center To Idler Center | 4—Rear End Swing Radius | 8—Center Of Sprocket To Center Of Sprocket | 11—Overall Length |
| 2—Undercarriage Length | 5—Upperstructure Width | 9—Track Shoe Width | 12—Transport Height |
| 3—Counterweight Clearance | 6—Cab Height | 10—Overall Width | |
| | 7—Minimum Ground Clearance | | |

NOTE: Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with PCSA and SAE standards. Except where otherwise noted these specifications are based on a machine equipped with 800 mm

(32 in.) shoes, 5112 kg (11 270 lb.) counterweight, 3.61 m (11 ft. 10 in.) arm, 1107 kg (2440 lb.) 1.06 m³ (1.38 yd³) bucket, full fuel tank, 79 kg (175 lb.) operator and standard equipment.

Item	Measurement	Specification
1—Sprocket Center To Idler Center	Distance	3840 mm 12 ft. 7 in.
2—Undercarriage	Length	4640 mm 15 ft. 3 in.
3—Counterweight Clearance	Distance	1090 mm 3 ft. 7 in.
4—Rear End Swing Radius	Distance	3140 mm 10 ft. 4 in.
5—Upperstructure	Width	2890 mm 9 ft. 6 in.
6—Cab	Height	3010 mm 9 ft. 11 in.
7—Minimum Ground Clearance	Distance	460 mm 1 ft. 6 in.
8—Center Of Sprocket To Center Of Sprocket	Distance	2590 mm 8 ft. 6 in.

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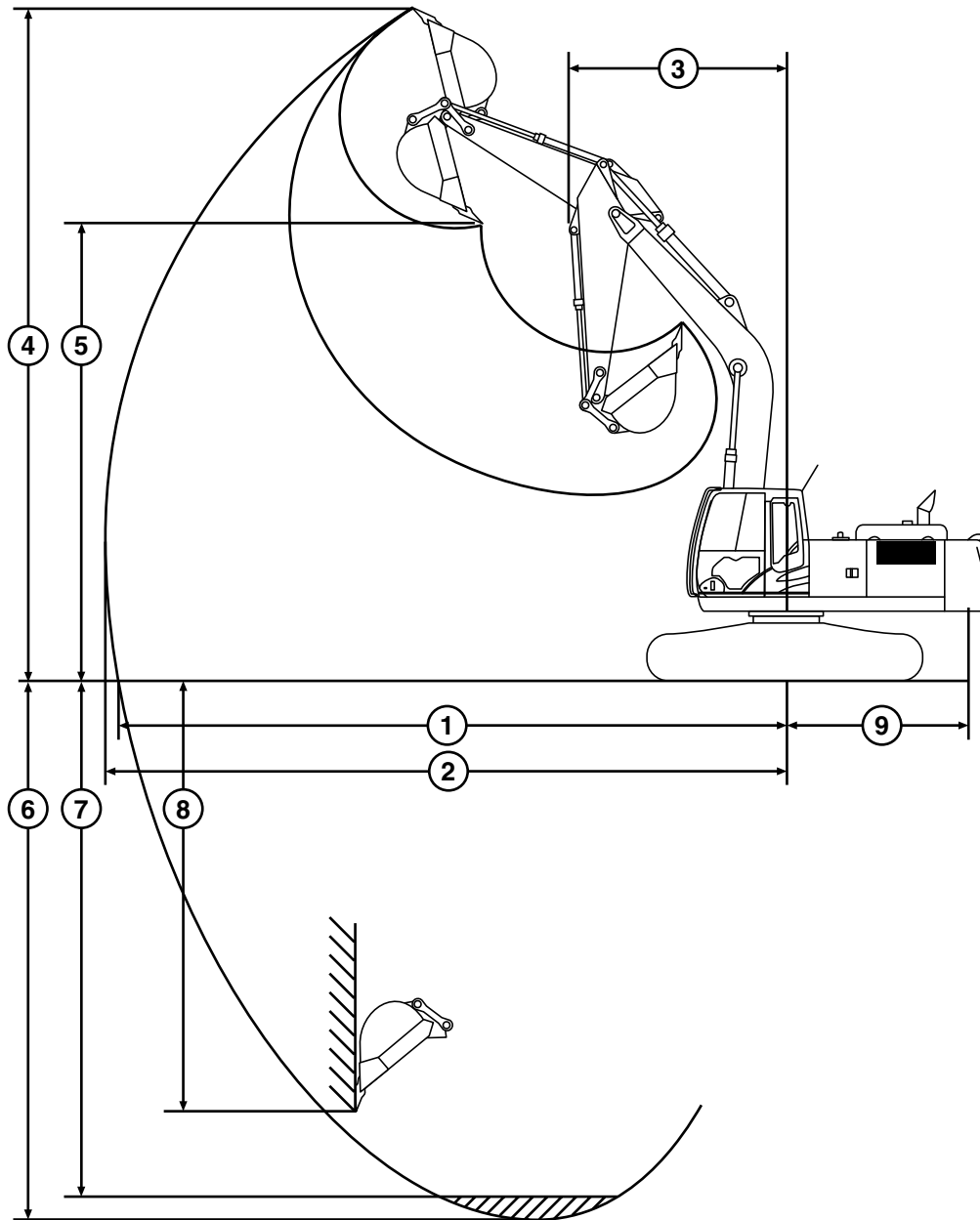
KR46761,0000C08 -19-24JAN18-1/2

TX1156814 —UN—02APR14

Item	Measurement	Specification
9—Track Shoe	Width	600 mm 24 in. 700 mm 28 in. 800 mm 32 in.
10—Machine	Overall Width	With 600 mm shoes: 3190 mm With 24 in. shoes: 10 ft. 6 in. With 700 mm shoes: 3290 mm With 28 in. shoes: 10 ft. 10 in. With 800 mm shoes: 3390 mm With 32 in. shoes: 11 ft. 3 in.
11—Machine	Overall Length	With 2.50 m arm: 10 470 mm With 8 ft. 2 in. arm: 34 ft. 4 in. With 2.96 m arm: 10 350 mm With 9 ft. 9 in. arm: 33 ft. 11 in. With 3.61 m arm: 10 410 mm With 11 ft. 10 in. arm: 34 ft. 2 in.
12—Machine	Transport Height	With 2.50 m arm: 3370 mm With 8 ft. 2 in. arm: 11 ft. 1 in. With 2.96 m arm: 3070 mm With 9 ft. 9 in. arm: 10 ft. 1 in. With 3.61 m arm: 3140 mm With 11 ft. 10 in. arm: 10 ft. 4 in.
Machine	Operating Weight (approximate)	26 453 kg 58 319 lb.

KR46761,0000C08 -19-24JAN18-2/2

Working Ranges



TX1156820

Working Ranges

- | | | | |
|--|---------------------------|--|--------------------------|
| 1— Maximum Digging Reach At Ground Level | 3— Minimum Swing Radius | 6— Maximum Digging Depth | 8— Maximum Vertical Wall |
| 2— Maximum Digging Reach | 4— Maximum Cutting Height | 7— Maximum Digging Depth (flat bottom) | 9— Tail Swing Radius |
| | 5— Maximum Dumping Height | | |

NOTE: Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with PCSA and SAE standards. Except where otherwise noted these specifications are based on a machine equipped with 700 mm (28 in.) shoes, 5112 kg (11 270 lb.) counterweight, 2.96 m (9 ft. 9 in.) arm, 1107 kg (2440 lb.) 1.06

m^3 (1.38 yd^3) bucket, full fuel tank, 79 kg (175 lb.) operator and standard equipment.

Continued on next page

KR46761,0000C09 -19-02OCT20-1/2

TX1156820 —UN—28MAR14

Working Ranges—equipped with a 2.96 m (9 ft. 9 in.) Arm

Item	Measurement	Specification
1—Maximum Digging Reach At Ground Level	Distance	10 110 mm 33 ft. 2 in.
2—Maximum Digging Reach	Distance	10 290 mm 33 ft. 9 in.
3—Minimum Swing Radius	Radius	3440 mm 11 ft. 3 in.
4—Maximum Cutting Height	Height	10 160 mm 33 ft. 4 in.
5—Maximum Dumping Height	Height	7200 mm 23 ft. 7 in.
6—Maximum Digging Depth	Depth	6960 mm 22 ft. 10 in.
7—Maximum Digging Depth (flat bottom)	Depth	6750 mm 22 ft. 2 in.
8—Maximum Vertical Wall	Depth	6030 mm 19 ft. 9 in.
9—Tail Swing Radius	Radius	3140 mm 10 ft. 4 in.

KR46761,0000C09 -19-02OCT20-2/2

Lift Capacity—Arm: 2.50 m (8 ft. 2 in.); Bucket: 851 kg (1876 lb.); Shoe 600 mm (28 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 2.50 m (8 ft. 2 in.)	Bucket: 851 kg (1876 lb.)		Shoe: 600 mm (28 in.)	
Power Dig: On				
LIFTING OVER FRONT				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	6214* (13 700*)	5647* (12 450*)
3.0 (10)		9866* (21 750*)	7212* (15 900*)	5693 (12 550)
1.5 (5)		11 657* (25 700*)	7983 (17 600)	5534 (12 200)
Ground Line		12 292* (27 100*)	7779 (17 150)	5420 (11 950)
-1.5 (-5)	9163* (20 200*)	12 020* (26 500*)	7711 (17 000)	
-3.0 (-10)	15 150* (33 400*)	10 886* (24 000*)	7824 (17 250)	
-4.5 (-15)	11 521* (25 400*)	8255* (18 200*)		
LIFTING OVER SIDE				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	5511 (12 150)	3697 (8150)
3.0 (10)		8210 (18 100)	5194 (11 450)	3561 (7850)
1.5 (5)		7620 (16 800)	4899 (10 800)	3402 (7500)
Ground Line		7394 (16 300)	4717 (10 400)	3311 (7300)
-1.5 (-5)	9163* (20 200*)	7371 (16 250)	4672 (10 300)	
-3.0 (-10)	15 150* (33 400*)	7507 (16 550)	4763 (10 500)	
-4.5 (-15)	11 521* 25 400*)	7847 (17 300)		

* Hydraulically Limited Capacities

KR46761,0000C0D -19-26MAR14-1/1

Lift Capacity—Arm: 2.50 m (8 ft. 2 in.); Bucket: 851 kg (1876 lb.); Shoe 700 mm (28 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 2.50 m (8 ft. 2 in.)	Bucket: 851 kg (1876 lb.)		Shoe: 700 mm (28 in.)	
Power Dig: On				
LIFTING OVER FRONT				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	6214* (13 700*)	5647* (12 450*)
3.0 (10)		9866* (21 750*)	7212* (15 900*)	5783 (12 750)
1.5 (5)		11 657* (25 700*)	8142 (17 950)	5625 (12 400)
Ground Line		12 292* (27 100*)	7915 (17 450)	5534 (12 200)
-1.5 (-5)	9163* (20 200*)	12 020* (26 500*)	7870 (17 350)	
-3.0 (-10)	15 150* (33 400*)	10 886* (24 000*)	7938* (17 500*)	
-4.5 (-15)	11 521* (25 400*)	8255* (18 200*)		
LIFTING OVER SIDE				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	5625 (12 400)	3765 (8300)
3.0 (10)		8346 (18 400)	5284 (11 650)	3629 (8000)
1.5 (5)		7756 (17 100)	4990 (11 000)	3493 (7700)
Ground Line		7530 (16 600)	4808 (10 600)	3379 (7450)
-1.5 (-5)	9163* (20 200*)	7530 (16 600)	4763 (10 500)	
-3.0 (-10)	15 150* (33 400*)	7643 (16 850)	4853 (10 700)	
-4.5 (-15)	11 521* (25 400*)	7983 (17 600)		

* Hydraulically Limited Capacities

KR46761,0000C0E -19-26MAR14-1/1

Lift Capacity—Arm: 2.50 m (8 ft. 2 in.); Bucket: 851 kg (1876 lb.); Shoe 800 mm (32 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 2.50 m (8 ft. 2 in.)	Bucket: 851 kg (1876 lb.)		Shoe: 800 mm (32 in.)	
Power Dig: On				
LIFTING OVER FRONT				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	6214* (13 700*)	5647* (12 450*)
3.0 (10)		9866* (21 750*)	7212* (15 900*)	5851 (12 900)
1.5 (5)		11 657* (25 700*)	8165* (18 000*)	5715 (12 600)
Ground Line		12 292* (27 100*)	8029 (17 700)	5602 (12 350)
-1.5 (-5)	9163* (20 200*)	12 020* (26 500*)	7961 (17 550)	
-3.0 (-10)	15 150* (33 400*)	10 886* (24 000*)	7938* (17 500*)	
-4.5 (-15)	11 521* (25 400*)	8255* (18 200*)		
LIFTING OVER SIDE				
Load Point Height	Horizontal Distance from Centerline of Rotation			
m (ft.)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)			5534* (12 200*)	
4.5 (15)		7575* (16 700*)	5670 (12 500)	3810* (8400*)
3.0 (10)		8437 (18 600)	5352 (11 800)	3674 (8100)
1.5 (5)		7847 (17 300)	5058 (11 150)	3538 (7800)
Ground Line		7620 (16 800)	4876 (10 750)	3425 (7550)
-1.5 (-5)	9163* (20 200*)	7620 (16 800)	4831 (10 650)	
-3.0 (-10)	15 150* (33 400*)	7734 (17 050)	4899 (10 800)	
-4.5 (-15)	11 521* (25 400*)	8074 (17 800)		

* Hydraulically Limited Capacities

KR46761,0000C0F -19-26MAR14-1/1

Lift Capacity—Arm: 2.96 m (9 ft. 9 in.); Bucket: 871 kg (1920 lb.); Shoe: 700 mm (28 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 2.96 m (9 ft. 9 in.)		Bucket: 871 kg (1920 lb.)		Shoe: 700 mm (28 in.)	
Power Dig: On					
LIFTING OVER FRONT					
Load Point Height	Horizontal Distance from Centerline of Rotation				
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)				5126* (11 207*)	4261*
4.5 (15)			7138* (15 343*)	5939* (12 881*)	5358* (11 712*)
3.0 (10)			9529* (20 456*)	7053* (15 254*)	5900* (12 831*)
1.5 (5)			11 578* (24 945*)	8135* (17 591*)	6109 (13 128)
Ground Line			12 543* (27 129*)	8576 (18 423)	5973 (12 839)
-1.5 (-5)		8446* (19 259*)	12 551* (27 188*)	8471 (18 196)	5919 (12 733)
-3.0 (-10)	9964* (22 420*)	14 599* (33 304*)	11 732* (25 372*)	8509 (18 290)	
-4.5 (-15)		13 748* (29 522*)	9758* (20 866*)		
LIFTING OVER SIDE					
Load Point Height	Horizontal Distance from Centerline of Rotation				
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)				5126* (11 207*)	4218
4.5 (15)			7138* (15 343*)	5939* (12 881*)	4155 (8903)
3.0 (10)			9253 (19 947)	5839 (12 571)	4012 (8610)
1.5 (5)			8596 (18 513)	5515 (11 872)	3852 (8276)
Ground Line			8277 (17 798)	5295 (11 393)	3728 (8013)
-1.5 (-5)		8446* (19 259*)	8201 (17 622)	5203 (11 192)	3679 (7916)
-3.0 (-10)	9964* (22 420*)	14 599* (33 304*)	8282 (17 803)	5237 (11 275)	
-4.5 (-15)		13 748* (29 522*)	8530 (18 366)		

* Hydraulically Limited Capacities

KR46761,0000C10 -19-27MAR14-1/1

Lift Capacity—Arm: 2.96 m (9 ft. 9 in.); Bucket: 871 kg (1920 lb.); Shoe: 800 mm (32 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 2.96 m (9 ft. 9 in.)		Bucket: 871 kg (1920 lb.)		Shoe: 800 mm (32 in.)	
Power Dig: On					
LIFTING OVER FRONT					
Load Point Height	Horizontal Distance from Centerline of Rotation				
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)				5126* (11 207*)	4261*
4.5 (15)			7138* (15 343*)	5939* (12 881*)	5358* (11 712*)
3.0 (10)			9529* (20 456*)	7053* (15 254*)	5900* (12 831*)
1.5 (5)			11 578* (24 945*)	8135* (17 591*)	6182 (13 286)
Ground Line			12 543* (27 129*)	8676 (18 639)	6046 (12 998)
-1.5 (-5)		8446* (19 259*)	12 551* (27 188*)	8571 (18 413)	5993 (12 891)
-3.0 (-10)	9964* (22 420*)	14 599* (33 304*)	11 732* (25 372*)	8588* (18 506)	
-4.5 (-15)		13 748* (29 522*)	9758* (20 866*)		
LIFTING OVER SIDE					
Load Point Height	Horizontal Distance from Centerline of Rotation				
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)
6.0 (20)				5126* (11 207*)	4261*
4.5 (15)			7138* (15 343*)	5939* (12 881*)	4203 (9007)
3.0 (10)			9347 (20 149)	5902 (12 708)	4059 (8714)
1.5 (5)			8690 (18 716)	5578 (12 009)	3900 (8380)
Ground Line			8371 (18 001)	5358 (11 530)	3776 (8116)
-1.5 (-5)		8446* (19 259*)	8295 (17 825)	5266 (11 329)	3727 (8019)
-3.0 (-10)	9964* (22 420*)	14 599* (33 304*)	8376 (18 005)	5300 (11 412)	
-4.5 (-15)		13 748* (29 522*)	8624 (18 568)		

* Hydraulically Limited Capacities

KR46761,0000C11 -19-26MAR14-1/1

Lift Capacity—Arm: 3.61 m (11 ft. 10 in.); Bucket: 871 kg (1920 lb.); Shoe: 700 mm (28 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 3.61 m (11 ft. 10 in.)		Bucket: 871 kg (1920 lb.)			Shoe: 700 mm (28 in.)	
Power Dig: On						
LIFTING OVER FRONT						
Load Point Height	Horizontal Distance from Centerline of Rotation					
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)	9.0 (30)
6.0 (20)				4380* (9584*)	4073* (8643*)	
4.5 (15)				5228* (11 347*)	4823* (10 535*)	
3.0 (10)		(29 360*)	8377* (17 995*)	6404* (13 856*)	5440* (11 830*)	3825* (7436*)
1.5 (5)			10 707* (23 066*)	7613* (16 465*)	6104* (13 196)	4493 (8810*)
Ground Line		4492* (10 371*)	12 136* (26 233*)	8537* (18 478*)	5970 (12 828)	4417 (8130*)
-1.5 (-5)	4381* (9836*)	7698* (17 525*)	12 576* (27 229*)	8438 (18 120)	5872 (12 622)	
-3.0 (-10)	8049* (18 103*)	12 146* (27 656*)	12 165* (26 317*)	8413 (18 073)	5876 (12 649)	
-4.5 (-15)	12 636* (28 581*)	15 638* (33 670*)	10 774* (23 160*)	7773* (16 579*)		
-6.0 -(20)			7472*			
LIFTING OVER SIDE						
Load Point Height	Horizontal Distance from Centerline of Rotation					
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)	9.0 (30)
6.0 (20)				4380* (9584*)	4073* (8643*)	
4.5 (15)				5228* (11 347*)	4236 (9080)	
3.0 (10)		(29 360*)	8377* (17 995*)	5954 (12 814)	4066 (8728)	2875 (6140)
1.5 (5)			8785 (18 917)	5589 (12 027)	3877 (8327)	2792 (5971)
Ground Line		4492* (10 371*)	8327 (17 907)	5314 (11 431)	3720 (7992)	2721 (5829)
-1.5 (-5)	4381* (9836*)	7698* (17 525*)	8149 (17 510)	5167 (11 111)	3631 (7804)	
-3.0 (-10)	8049* (18 103*)	12 146* (27 656*)	8158 (17 531)	5145 (11 070)	3635 (7828)	
-4.5 (-15)	12 636* (28 581*)	15 638* (33 670*)	8328 (17 916)	5263 (11 351)		
-6.0 -(20)			7472*			

* Hydraulically Limited Capacities

KR46761,0000C12 -19-26MAR14-1/1

Lift Capacity—Arm: 3.61 m (11 ft. 10 in.); Bucket: 871 kg (1920 lb.); Shoe: 800 mm (32 in.)

Ratings are at bucket lift hook, using standard counterweight, situated on firm, level, uniform supporting surface.

marked with an asterisk (*) are hydraulically-limited capacities. Remaining figures are stability-limited capacities.

Figures do not exceed 87 percent of hydraulic capacity or 75 percent of weight needed to tip machine. Figures

Arm: 3.61 m (11 ft. 10 in.)		Bucket: 871 kg (1920 lb.)			Shoe: 800 mm (32 in.)	
Power Dig: On						
LIFTING OVER FRONT						
Load Point Height	Horizontal Distance from Centerline of Rotation					
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)	9.0 (30)
6.0 (20)				4380* (9584*)	4073* (8643*)	
4.5 (15)				5228* (11 347*)	4823* (10 535*)	
3.0 (10)		(29 360*)	8377* (17 995*)	6404* (13 856*)	5440* (11 830*)	3825* (7436*)
1.5 (5)			10 707* (23 066*)	7613* (16 465*)	6104* (13 251*)	4503* (8810*)
Ground Line		4492* (10 371*)	12 136* (26 233*)	8537* (18 478*)	6043 (12 986)	4438* (8130*)
-1.5 (-5)	4381* (9836*)	7698* (17 525*)	12 576* (27 229*)	8538 (18 336)	5945 (12 780)	
-3.0 (-10)	8049* (18 103*)	12 146* (27 656*)	12 165* (26 317*)	8513 (18 290)	5950 (12 807)	
-4.5 (-15)	12 636* (25 581*)	15 638* (33 670*)	10 774* (23 160*)	7773* (16 579*)		
-6.0 (-20)			7472*			
LIFTING OVER SIDE						
Load Point Height	Horizontal Distance from Centerline of Rotation					
m (ft.)	1.5 (5)	3.0 (10)	4.5 (15)	6.0 (20)	7.5 (25)	9.0 (30)
6.0 (20)				4380* (9584*)	4073* (8643*)	
4.5 (15)				5228* (11 347*)	4284 (9184)	
3.0 (10)		(29 360*)	8377* (17 995*)	6018 (12 951)	4114 (8831)	2914 (6223)
1.5 (5)			8879 (19 119)	5652 (12 164)	3925 (8431)	2830 (6055)
Ground Line		4492* (10 371*)	8421 (18 109)	5378 (11 568)	3768 (8095)	2759 (5912)
-1.5 (-5)	4381* (9836*)	7698* (17 525*)	8243 (17 712)	5230 (11 248)	3679 (7907)	
-3.0 (-10)	8049* (18 103*)	12 146* (27 656*)	8252 (17 734)	5209 (11 207)	3683 (7932)	
-4.5 (-15)	12 636* (28 581*)	15 638* (33 670*)	8422 (18 118)	5327 (11 488)		
-6.0 (-20)			7472*			

* Hydraulically Limited Capacities

KR46761,0000C13 -19-26MAR14-1/1

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