544K
4WD Loader

(PIN: 1DW544K_ _ _D670308—677548)

OPERATOR'S MANUAL

544K 4WD Loader

OMT361499X19 ISSUE B2 (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.

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.

Continued on next page

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

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

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

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

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

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

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

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

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

16. Specific Exceptions.

Continued on next page

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

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

Sound and Vibration Specifications

Model	**544K**
Operator sound pressure and exterior sound power levels are:	
Cab	73 dB(A) and 107 dB(A) or less *
NOTE: Factors affecting listed values include operator performance, machine age, seat condition, the use of accessories, environment, and any machine movement. *(*) Data acquisition system precision values with a 2% technical uncertainty.* Sound levels were obtained using the test method specified per ISO 6396:2008 and ISO 6395:2008, respectively.	
Eurasian Economic Union Operator vibration levels are for properly maintained machines operating on a flat dirt area free of large objects such as trees and rocks. Whole body vibration levels were obtained using the test method specified per GOST 31191.1:2004.	
Whole Body	0.5 m/s^2 or less
Hand Arm	2.5 m/s^2 or less
NOTE: Factors affecting listed values include operator performance, machine age, the condition of window and door seals, the use of accessories, environment, and any machine movement.	
European Union Operator vibration levels are for properly maintained machines operating on a flat dirt area free of large objects such as trees and rocks. Vibration levels were obtained using the test method specified per ISO 2631-1:1997 or ISO TR 25398 where applicable.	
Whole Body	0.75 m/s^2 or less
Hand Arm	2.5 m/s^2 or less
NOTE: Factors affecting listed values include operator performance, machine age, the condition of window and door seals, the use of accessories, environment, and any machine movement.	

MB60223,0005023 -19-24APR18-2/2

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.

T133555 —UN—15APR13

T133588 —19—28AUG00

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

Prevent Unintended Machine Movement

Lower all equipment to the ground during work interruptions. Place transmission control in neutral, press park brake switch (1) to engage park brake, press pilot enable/boom down switch (2) to disable the hydraulics, and stop engine before allowing anyone to approach the machine.

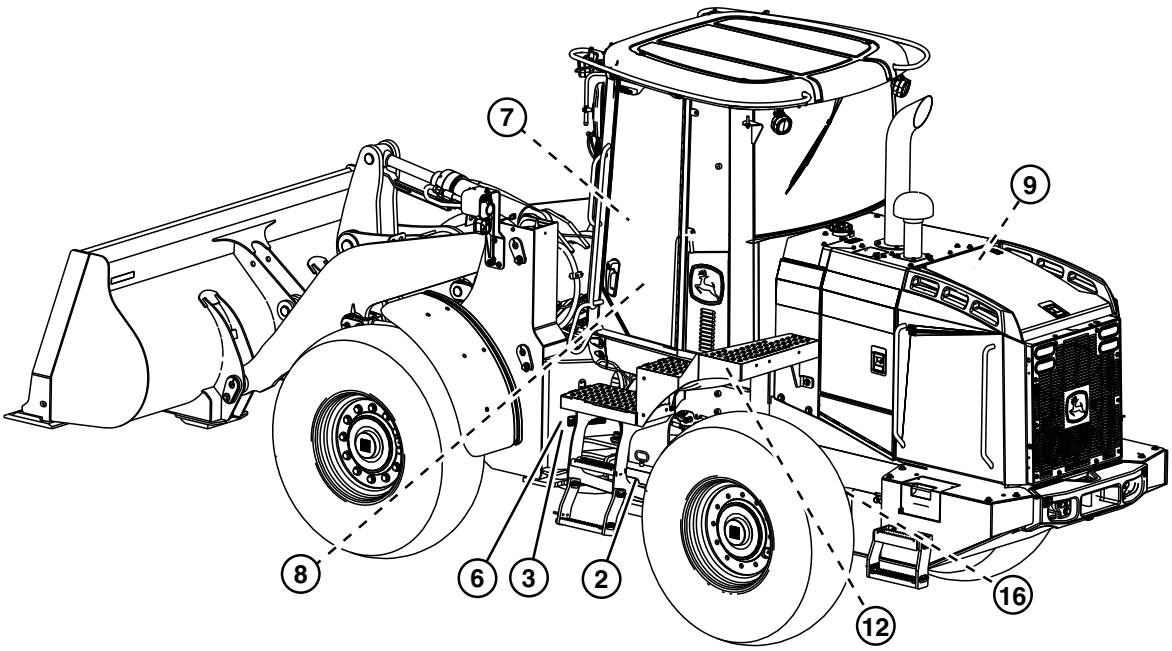
Follow these same precautions before standing up, leaving the operator's seat, or exiting the machine.

1— Park Brake Switch

2— Pilot Enable/Boom Down Switch

TX1041772A —UN—02MAY08

DP99999,00000A3 -19-28JUN12-1/1



TX1221578 —UN—08SEP16

TX1221578

Safety Sign and Other Instruction Label Locations (left side shown)

2— WARNING, Always Install Boom Lock
3— WARNING, Install Articulation Lock
6— WARNING, Prevent Machine Movement
7— WARNING, Use Seat Belt
8— CAUTION, Secondary Steering (if equipped)
9— WARNING, Pressurized System
12— WARNING, Avoid Injury From Escaping Fluid
16— Lifting Point (If Equipped)

MB60223,0005014 -19-08SEP16-2/18

1. **WARNING, Avoid Injury From Escaping Fluid**

   Avoid injury from escaping fluid. Contents of this accumulator are under pressure.

   1. Refer to proper machine model Technical Manual for disassembly or charging instructions and equipment required.

   2. Charge with DRY NITROGEN only.

   This safety label is located on or near the ride control accumulator (if equipped).

TX1151935 —19—23JAN14

WARNING, Avoid Injury From Escaping Fluid

Continued on next page

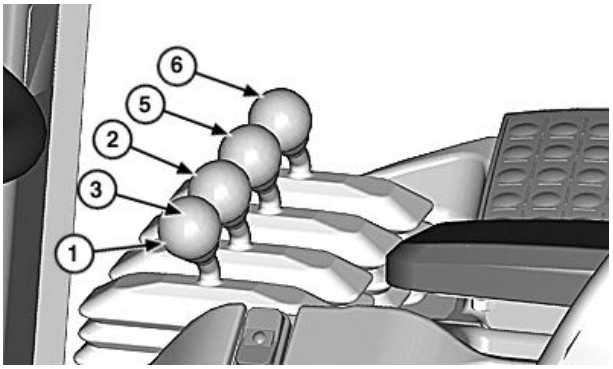
MB60223,0005014 -19-08SEP16-3/18

Levers—Four Function Hydraulic Control

NOTE: There are several control lever configurations available on John Deere four wheel drive loaders. Please verify the configuration of your machine before reviewing operating instructions.

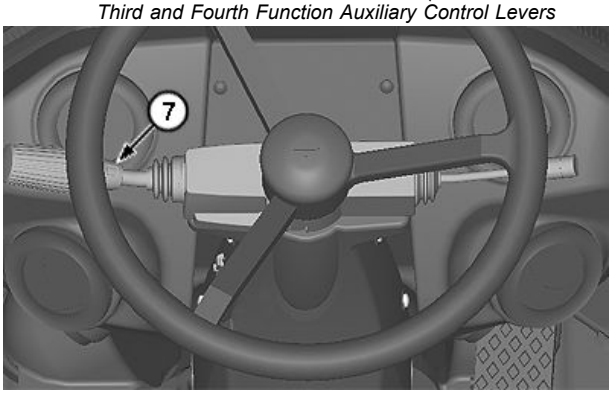
Two Lever Bucket and Boom Control With Quick Shift Switch, Steering Column FNR Lever, and Third and Fourth Function Auxiliary Control Levers

1— Bucket Control Lever
2— Boom Control Lever
3— Quick Shift Switch
5— Third Function Auxiliary Control Lever
6— Fourth Function Auxiliary Control Lever
7— Steering Column Forward, Neutral, or Reverse (FNR) Lever



TX1067333A —UN—05NOV09

Two Lever Bucket and Boom Control With Quick Shift Switch and Third and Fourth Function Auxiliary Control Levers



TX1097383A —UN—07SEP11

Steering Column FNR Lever

WC20922,00051D3 -19-21APR15-1/1

Pedals

Accelerator Pedal (1): Depress to increase speed of machine.

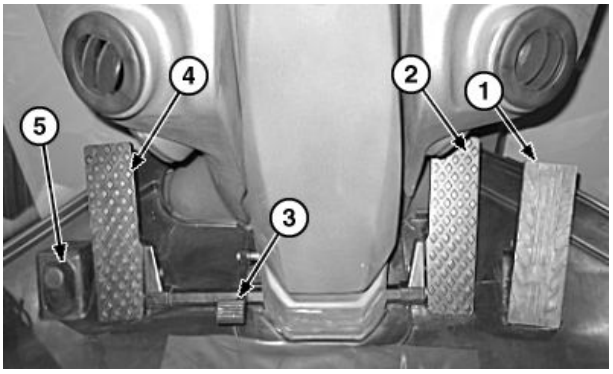
NOTE: Brake pedals also serve as clutch cut-off pedals (2 and 4) when clutch cut-off switch is in ON position.

Brake Pedals: Depress right brake pedal (2) or left brake pedal (4) to stop machine.

Steering Column Release Pedal (3): Depress pedal to release steering column and adjust column to desired tilt. Release pedal to lock column in position.

NOTE: Use differential lock only when conditions require traction. Avoid using differential lock when steering.

Differential Lock Switch (5): Depress switch to lock front axle differential and rear axle differential, if equipped. Release switch to unlock differentials.



TX1039887A —UN—04APR08

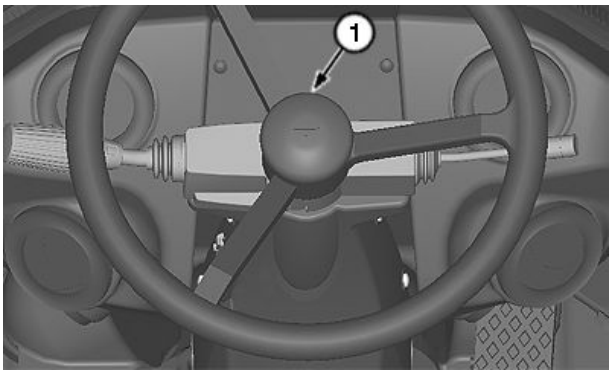
Pedals

1— Accelerator Pedal
2— Right Brake/Clutch Cut-Off Pedal
3— Steering Column Release Pedal
4— Left Brake/Clutch Cut-Off Pedal
5— Differential Lock Switch

OUT4001,00005CA -19-15NOV21-1/1

Horn Button

1— Horn Button



TX1097385A —UN—07SEP11

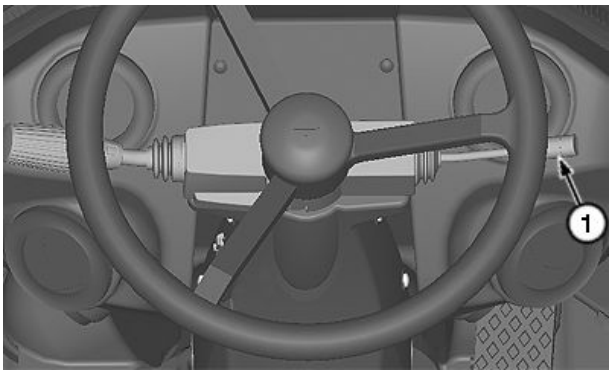
Horn Button on Steering Wheel

OUT4001,0000AE9 -19-18JAN12-1/1

Turn Signals

Push turn signal lever (1) forward to signal a left turn. Pull turn signal lever rearward to signal a right turn.

1— Turn Signal Lever



TX1097386A —UN—07SEP11

Turn Signal Lever

OUT4001,000091B -19-07SEP11-1/1

Fire Extinguisher Mounting Location

MOUNTING LOCATION:

The designated fire extinguisher mounting location (1) is inside the cab by the entrance door.

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 it according to the manufacturer's instructions.

TX1041664A —UN—01MAY08

Fire Extinguisher Mounting Location

1— Fire Extinguisher Mounting Location

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

OUT4001,00005EC -19-13DEC13-1/1

NOTE: Machine can be programmed for down/up or down only quick shift mode using the SETTINGS menu on the display unit.

Quick Shift Down/Up Mode

Press quick shift switch (1) to downshift from selected gear to next lower gear. Press switch again to return to previous gear.

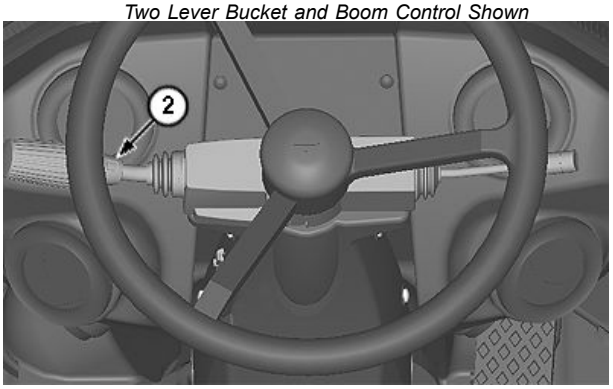
Quick Shift Down Only Mode

This mode allows the transmission to downshift one gear each time switch is pressed. Once a downshift is made by pressing the quick shift switch, the transmission will not shift up again unless a direction change is made using FNR lever (2) or FNR switch (3) or a gear change request is made by rotating FNR lever or pressing increase gear button (4).

1— Quick Shift Switch
2— FNR Lever
3— FNR Switch
4— Increase Gear Button

TX1039921A —UN—08APR08

Two Lever Bucket and Boom Control Shown



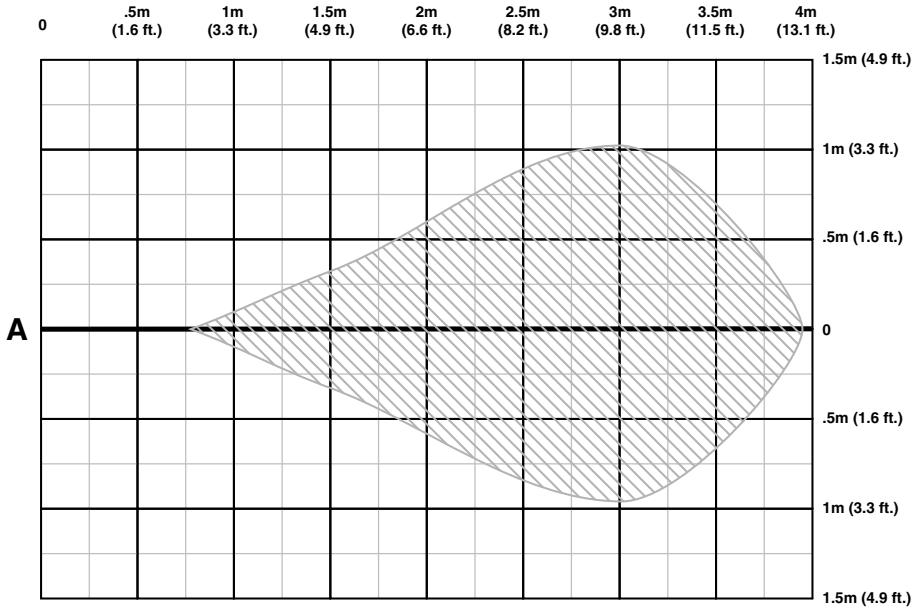
TX1097388A —UN—07SEP11

Steering Column FNR Lever

TX1039920A —UN—08APR08

Joystick Bucket and Boom Control Shown

LB82152,00009EB -19-31MAY18-2/2



TX1097835 —UN—20SEP11

TX1097835

Approximate Detection Zone Width and Rearward Distance

A—Centerline of Machine Rear

AA40007,0006CEB -19-30APR15-2/2

RTD CALIBRATION 2/4
- 4) DO NOT MOVE BUCKET LEVER
- 5) RAISE BOOM TO MAX HEIGHT
- 6) PRESS RTD BUTTON

Third pop up message:

RTD CALIBRATION 3/4
- 7) DO NOT MOVE BUCKET LEVER
- 8) LOWER BUCKET/FORKS UNTIL TOUCHING GROUND
- 9) PRESS RTD BUTTON

Fourth pop up message:

RTD CALIBRATION 4/4
- COMPLETE!

(This screen will disappear after 3 seconds and return to the runtime screen. Right LED will quit flashing.)

To turn OFF return-to-dig when in the 2nd position, press RTD switch again (both LEDs are off).

Powerllel is a trademark of Deere & Company

ML82895,000068D -19-13JAN12-2/2

Operating Loader Coupler—If Equipped

CAUTION: Prevent possible injury from unexpected machine motion. The attachment could fall if not properly installed to loader coupler. Operator must be aware of all bystanders at the worksite.

1. Position machine on firm, level ground. Lower boom. Stop machine.
2. Press pin disconnect switch (1) to retract coupler pins. LED illuminates, pin disconnect indicator on the display unit illuminates, and audible alarm sounds every 10 seconds.
3. Operate bucket control to move coupler frame forward.
4. Drive forward. Guide top of coupler frame into attachment mounting hooks.
5. Raise boom. Tilt mounting frame rearward until attachment is against coupler.
6. Press pin disconnect switch again to extend coupler pins. LED, audible alarm, and pin disconnect indicator on the display unit will turn off.

NOTE: If attachment is not properly latched, disconnect and attach again.

7. Raise boom. Visually inspect attachment to verify that loader coupler pin plate is pressed against the loader coupler structure and that the pins are engaged in attachment mounting holes.

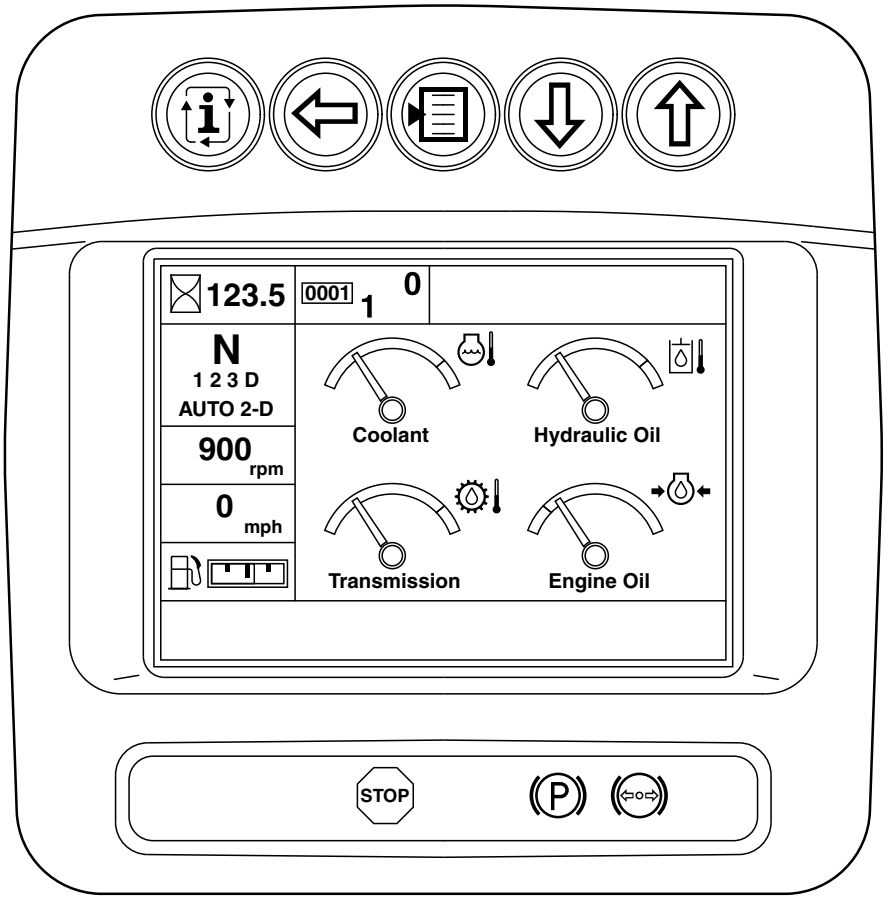
TX1067323A —UN—05NOV09

Pin Disconnect Switch

1— Pin Disconnect Switch

JH91824,00006A1 -19-18OCT11-1/1

Display Unit—Normal Display



TX1046105 —UN—02FEB10

TX1046105

Display Unit Normal Display

When the engine start switch is pressed the first time, ignition switch power is turned on and applied to the control units and the display unit. The display unit performs a display check sequence as follows:

1. Alarm sounds for approximately 3 seconds.
2. John Deere screen is displayed momentarily.
3. Eight indicators at the bottom of display unit light momentarily.
4. Backlighting on buttons at top of display unit comes on.
5. If security system has been enabled by owner, operator logon screen appears on display unit. Operator must enter valid personal identification number (PIN).
6. If radar object detection (ROD) system is enabled, display screen shows camera image for 2 seconds. If ROD system is not enabled, display screen will be black for 2 seconds.
7. Display screen populates with normal display items. Gauge pointers position to current input values.

After the display check is complete:

- Park brake indicator and STOP indicator remain on.
- STOP indicator flashes.
- Engine oil pressure gauge pointer indicates zero.
- Engine oil pressure gauge and warning indicator are highlighted in red and flash until engine is started.

OUT4001,000058D -19-26MAY10-1/1

Display Unit—Main Menu—Diagnostics—Machine ID

The **MACHINE ID** menu provides the means to view the part number and serial number for control units, and the part number and version of software installed.

At DIAGNOSTICS menu, press UP button or DOWN button to highlight MACHINE ID.

Press SELECT button to display page 1 of the MACHINE ID menu.

MACHINE ID menu items on display include:

1. **SSM SEALED SWITCH MODULE—**Displays SSM part number, serial number, software part number, and software version.
2. **VCU VEHICLE CONTROLLER UNIT—**Displays VCU part number, serial number, software part number, and software version.
3. **ADU ADVANCED DISPLAY UNIT—**Displays ADU part number, serial number, software part number, and software version.
4. **TCU TRANSMISSION CONTROLLER—**Displays TCU software identification.
5. **JSV JOYSTICK STEERING VALVE—**Displays JSV part number, software part number, and software version. This display is available only on machines equipped with joystick steering option. For machines without joystick steering, a pop-up menu will appear stating that the option is not enabled or installed.
6. **RDR GROUND SPEED RADAR—**Displays RDR part number, serial number, software part number, and software version. This display is available only on machines equipped with automatic differential lock option. For machines without automatic differential lock, a pop-up menu will appear stating that the option is not enabled or installed.

MORE...

MACHINE VIN—Displays vehicle identification number.

Press DOWN button to highlight MORE.

Press SELECT button to view page 2 of the MACHINE ID menu.

MACHINE ID menu items on page 2 display include:

1. **JDL JDLINK—**Displays JDL part number, serial number, software part number, and software version.
2. **TPM TIRE PRESSURE MONITOR—**Displays TPM model number, software part number, and software version.

MACHINE VIN—Displays vehicle identification number.

Press DOWN button to highlight the desired menu selection.

Press SELECT button to obtain information about the item selected.

Press BACK button to return to previous menu.

OUT4001,000059C -19-05DEC11-1/1

Display Unit—Main Menu—Diagnostics—Battery Monitor

The **BATTERY MONITOR** menu displays the current voltage values of the left (inboard) and right (outboard) batteries.

At DIAGNOSTICS menu, press UP button or DOWN button to highlight BATTERY MONITOR.

Press SELECT button to view the current voltage values of the left and right batteries.

Press BACK button to return to previous menu.

NOTE: If 12 V center tap wire is not connected to the right battery, left battery displays system voltage and right battery displays 0.0.

OUT4001,000059D -19-21APR10-1/1

Display Unit—Main Menu—Monitor Settings

The monitor settings menu allows the operator or technician to choose the desired measurement units (English or metric) and language (English, French, Spanish or Russian) used on the display.

At the main menu, press DOWN button to highlight MONITOR SETTINGS.

Press SELECT button to display the monitor settings menu.

Press DOWN button to highlight the desired menu selection.

Press SELECT button to change units or language.

Press BACK button to return to previous menu.

DP99999,0000055 -19-14JAN09-1/1

- 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

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 I 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

Service Intervals

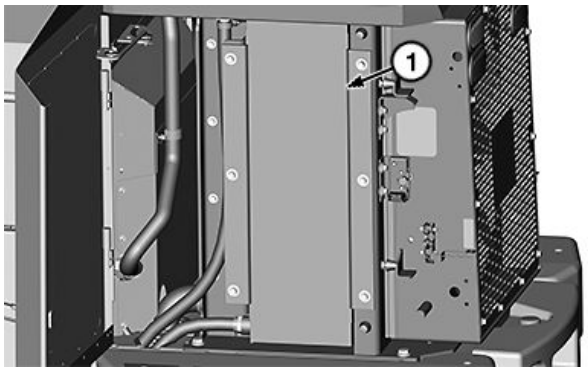
Model: 544K	**Hour Meter Reading:**
PIN/Serial Number:	
SERVICE INTERVALS	
Service your machine at intervals shown on this chart. Also, perform service on items at multiples of the original requirement. For example, at 500 hours also service those items listed under 250 hours, 100 hours, 50 hours, and 10 hours or daily.	
FLUID SAMPLING	
Take fluid samples from each system as indicated on this form. The manufacturer of the fluid analysis kits will provide maintenance recommendations based upon the results of the fluid analysis and the operating information you supply. Regular fluid sampling extends the operational life of your machine.	
As Required	
□ Inspect tires and check pressure	□ Check rear camera and radar object detection (ROD) system—if equipped
□ Check wheel bolt torque	□ Drain water from auxiliary fuel filter and water separator—if equipped
□ Inspect engine air cleaner elements	□ Drain water from primary fuel filter with water separator
□ Clean cooler cores	□ Drain water from final fuel filter
□ Inspect air conditioner compressor and alternator belt	□ Check and clean or replace cab fresh air filter
□ Check windshield washer fluid level	□ Check and clean or replace cab recirculating air filter
Every 10 Hours or Daily	
□ Clean engine air cleaner dust unloader valve	□ Check hydraulic system oil level
□ Check coolant level at surge tank	□ Check transmission oil level
□ Check engine oil level	□ Inspect outer pin seals—if equipped
Every 100 Hours	
□ Lubricate loader linkage and cylinder pivots	
Initial Service—250 Hours[1]	
□ Drain and refill front and rear axle oil	□ Replace axle oil filters—if equipped
[1]Perform initial service once after the first 250 hours of operation.	
Every 250 Hours	
□ Take engine oil sample	
Every 500 Hours	
□ Lubricate driveline upper and lower sliding joints and lower U-joints	□ Replace final fuel filter
□ Check front and rear axle oil level	□ Replace hydraulic reservoir breather filter
□ Check battery water level and terminals	□ Take diesel fuel sample
□ Check air intake hoses and charge air cooler tube couplings	□ Take hydraulic oil sample
□ Replace in-line fuel strainer	□ Take engine coolant sample
□ Replace auxiliary fuel filter with water separator—if equipped	□ Take axle oil sample
□ Drain and refill engine oil and replace filter	□ Take transmission oil sample
□ Replace primary fuel filter with water separator	□ Check park brake oil level
□ Check ride control accumulator—if equipped	□ Lubricate front and rear park brake shaft seals
□ Lubricate front and rear axle shaft seal	

Continued on next page

Clean Cooler Cores

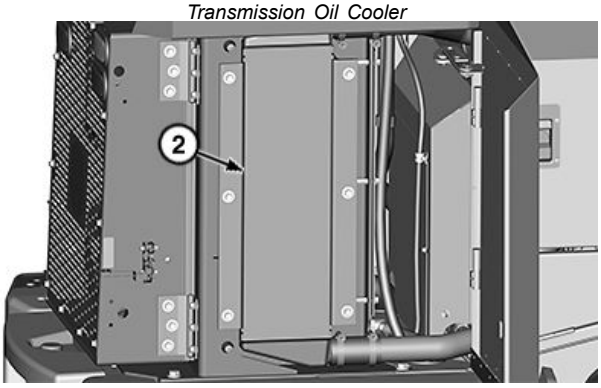
1. Park machine on level surface and stop engine.
2. Open left and right cooler doors, fan grille door, and top cooler door. See Cooling System Doors. (Section 3-2.)
3. Behind the left cooler door is the transmission oil cooler (1).
4. Behind the right cooler door is the charge air cooler (2).
5. Behind the fan grille door is the radiator (3) and the hydraulic oil cooler (4). If machine is equipped with axle oil coolers, they will be attached to the fan grille door. The rear axle oil cooler (6) is on the left, and the front axle oil cooler (7) is on the right.

1— Transmission Oil Cooler
2— Charge Air Cooler
3— Radiator
4— Hydraulic Oil Cooler
5— Air Conditioner Condenser
6— Rear Axle Cooler (if equipped)
7— Front Axle Cooler (if equipped)



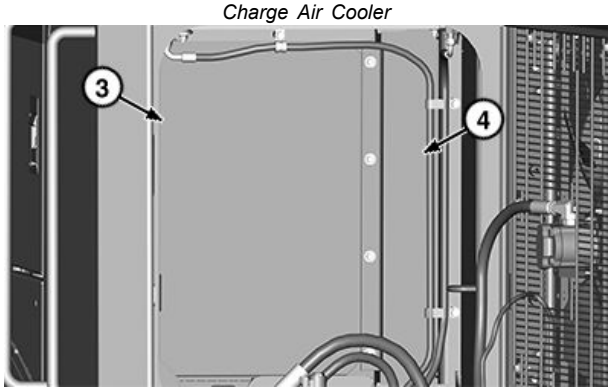
TX1189778A —UN—08APR15

Transmission Oil Cooler



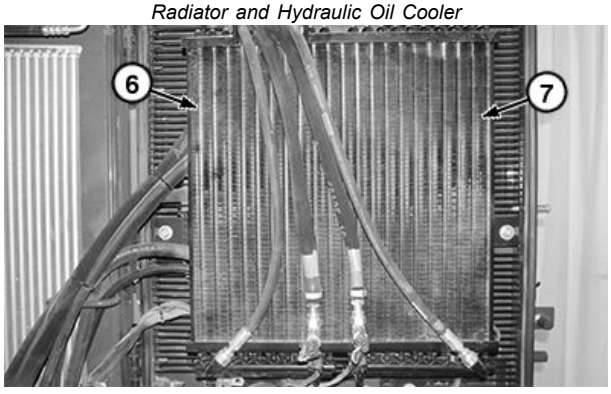
TX1189726A —UN—08APR15

Charge Air Cooler



TX1190241A —UN—10APR15

Radiator and Hydraulic Oil Cooler



TX1190231A —UN—10APR15

Axle Cooler

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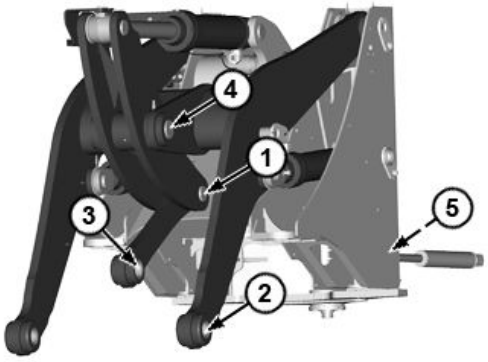
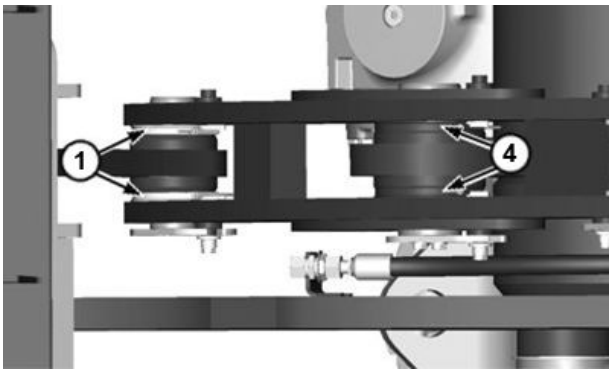
AA40007,0006C01 -19-29APR15-1/2

Inspect Outer Pin Seals



Outer Pin Seal Locations (left side shown)



TX1134287A —UN—03APR13

TX1134253A —UN—02APR13

Bellcrank Joints (left side shown)

Examine all outer pin seals. Replace all damaged or missing outer pin seals.

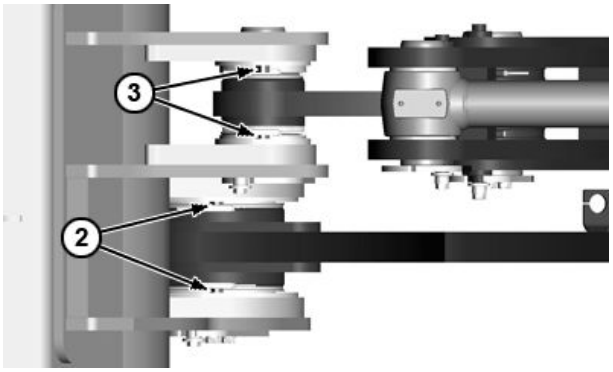
All outer pin seals must be replaced at 2000 hour intervals.

NOTE: Linkage configuration determines which locations utilize outer pin seals. Inspect these locations as required. For more information concerning outer pin seal locations, see Required Parts. (Section 3-2.)

Outer pin seal locations may include:

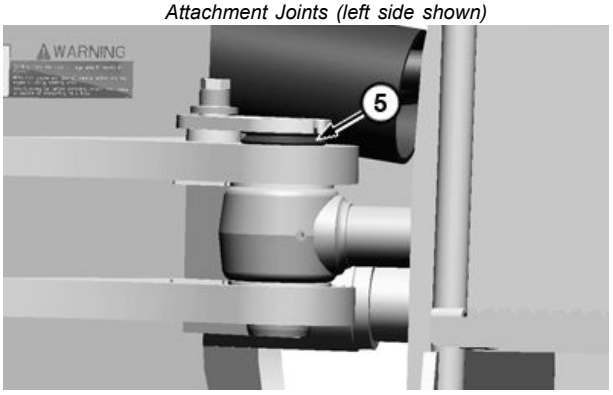
- **Boom to attachment joints**
- **Attachment to bucket link joints**
- **Bucket link to bellcrank joints**
- **Bellcrank to boom joints**
- **Steering cylinder joints:** Steering cylinder joints are located at both front and back of steering cylinder. Steering cylinder joint outer pin seals (5) are located on top portion of steering cylinder joints.

1— Bucket Link to Bellcrank Joint Outer Pin Seal
2— Boom to Attachment Joint Outer Pin Seal (2 used)
3— Attachment to Bucket Link Joint Outer Pin Seal
4— Bellcrank to Boom Joint Outer Pin Seal
5— Steering Cylinder Joint Outer Pin Seal (4 used)



TX1134306A —UN—03APR13

Attachment Joints (left side shown)

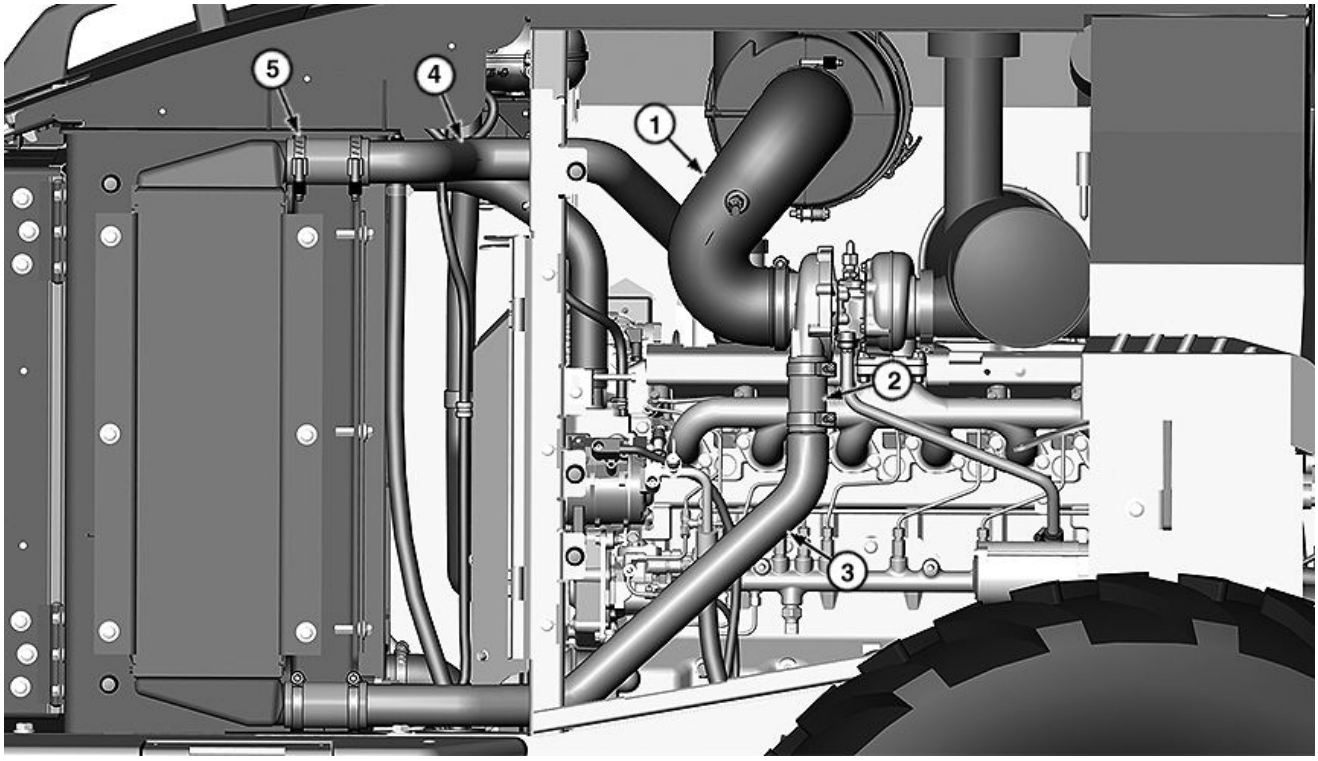


TX1128903A —UN—03JAN13

Steering Cylinder Joint Outer Pin Seal (front left shown)

AA40007,0006C48 -19-05MAY15-1/1

Check Air Intake Hoses and Charge Air Cooler Tube Couplings



Air Intake Hoses and Charge Air Cooler Tube Couplings

1— Air Intake Hose
2— Hose Coupling
3— Compressor Outlet Tube
4— Cooler Outlet Tube
5— Clamp

1. Check air intake hose (1) for cracks and replace as required.
2. Check hose couplings (2), compressor outlet tube (3), and cooler outlet tube (4) for cracks or leaks and replace as required.
3. Tighten all clamps (5).

AA40007,0006C69 -19-21APR15-1/1

Take Fluid Samples

See an authorized dealer for procedures and sampling equipment. For more information, see Fluid Sampling Test Ports—If Equipped. (Section 4-1.)

- Transmission Oil
- Hydraulic Oil
- Axle Oil
- Park Brake Oil
- Diesel Fuel
- Coolant

AA40007,0006CCE -19-16AUG16-1/1

Drain and Refill Transmission Oil and Replace Filter

NOTE: Shorten service intervals in severe applications which run the torque converter at high load more than approximately 25% of the time, such as basement digging or land clearing, or if using low viscosity oil.

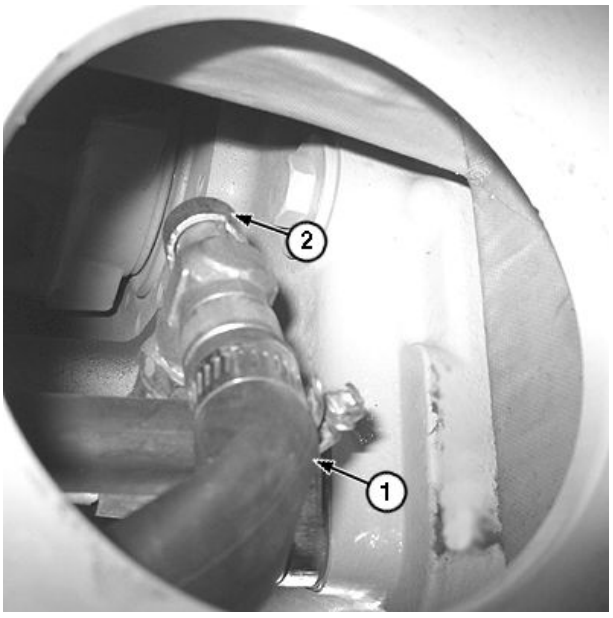
The following chart shows the appropriate service interval in hours based on application and type of oil used.

	Oil Type and Service Interval (hours)	
Application	-John Deere Hy-Gard™ -Oils meeting JDM J20C	-John Deere Low Viscosity Hy-Gard™ -Oils meeting JDM J20D
Normal	2000	1500
Severe	1500	1000

1. Operate machine under load until transmission oil reaches normal operating temperature of 80°C (175°F).
2. Park machine on a level surface.
3. Lower bucket to ground.
4. Move forward, neutral, and reverse (FNR) lever or FNR switch to N (neutral).
5. Press park brake switch on sealed switch module (SSM) (LED on switch and indicator on display unit are illuminated).

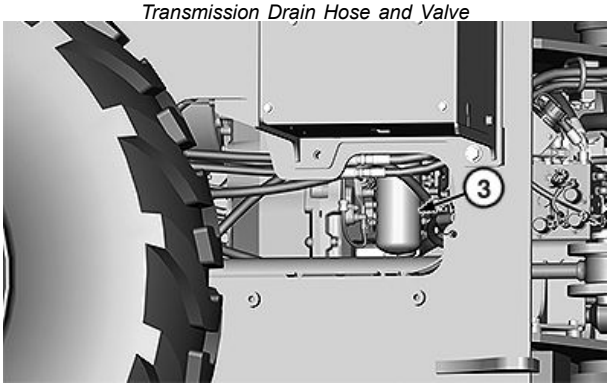
CAUTION: Prevent possible injury from unexpected machine movement. Machine can unexpectedly roll or move under power, resulting in death or serious injury. Install frame locking bar and shut off engine before changing oil.

6. Install frame locking bar. See Frame Locking Bar. (Section 3-2.)
7. Shut off engine. Let machine sit for approximately 10 minutes.
8. On left side, under the machine, remove tie band and route drain hose (1) through opening into a suitable container.
9. Open drain valve (2) and allow oil to drain into container. Dispose of waste oil properly.
10. Close drain valve. Fold up drain hose and retain with tie band.
11. Remove cover plate under right side of machine.



TX1085115A —UN—24NOV10

Transmission Drain Hose and Valve



TX1189419A —UN—31MAR15

Transmission Oil Filter

1— Drain Hose
2— Drain Valve
3— Transmission Oil Filter

12. Turn transmission oil filter (3) counterclockwise to remove.
13. Clean mounting surface. Apply thin film of oil to gasket of new filter.
14. Install new filter. Turn filter clockwise by hand until gasket touches mounting surface.
15. Tighten 3/4 of a full turn more.

Hy-Gard is a trademark of Deere & Company

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AA40007,0006CC9 -19-22APR15-1/2

Drain Cooling System

NOTE: If not using John Deere COOL-GARD™ II (even for top-off) or not conducting 1000 hour coolant test strip checks, change interval must be reduced.

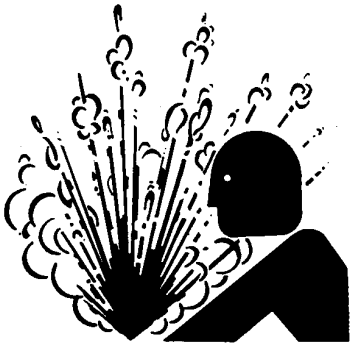
Every 6000 hours, drain and flush cooling system and refill with new coolant.

1. Park machine on level surface and stop engine.

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.

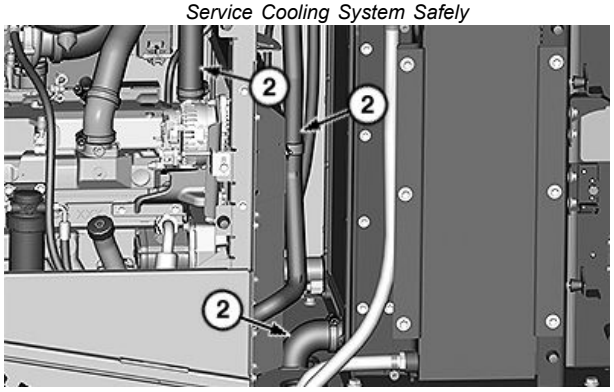
2. Remove surge tank cap.
3. Drain valve (4) and environmental drain hose (3) are located at bottom of radiator and accessed behind fan grille door.
4. Place end of coolant drain hose into a suitable container.
5. Open drain valve and allow coolant to drain into suitable container. Dispose of used coolant properly.
6. Flush system using a commercial product.
7. Close drain valve.
8. Check coolant hoses (2) for cracks and leaks. Replace hoses as required. Tighten hose clamps.
9. Clean radiator, oil coolers, and charge air cooler and check for damage, leaks, and loose or broken mountings. See Clean Cooler Cores. (Section 3-3.)

2— Coolant Hose (3 used)
3— Environmental Drain Hose
4— Drain Valve



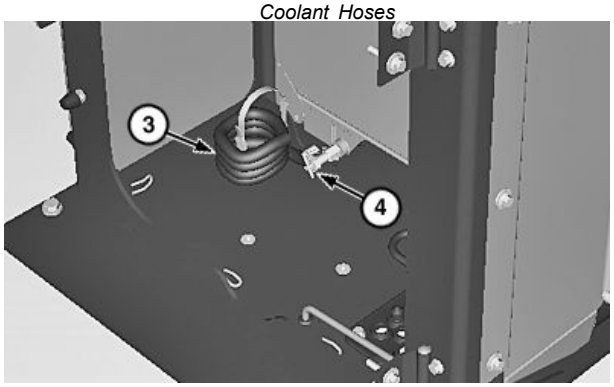
Service Cooling System Safely

TS281 —UN—15APR13



Coolant Hoses

TX1190969A —UN—21APR15



Drain Hose and Valve

TX1104597A —UN—03JAN12

COOL-GARD is a trademark of Deere & Company

AA40007,0006CC7 -19-22APR15-1/1

Remove and Install Halogen Bulbs

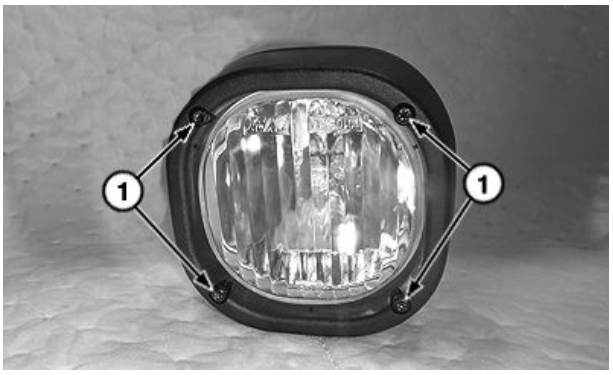
NOTE: LED lights (if equipped) are not repairable. LED lights are a replace only item.

1. Remove TORX® screws (1) and pull out lamp housing (2) from machine.
2. Disconnect harness connector (3).
3. Release retainer clip (4) to remove halogen bulb (5) from lamp.
4. Disconnect halogen bulb from connector (6).

IMPORTANT: Do not touch the halogen bulb with bare hands. Oil and moisture may cause premature bulb malfunction. If bulb is touched, clean bulb glass using an oil-free cloth with alcohol.

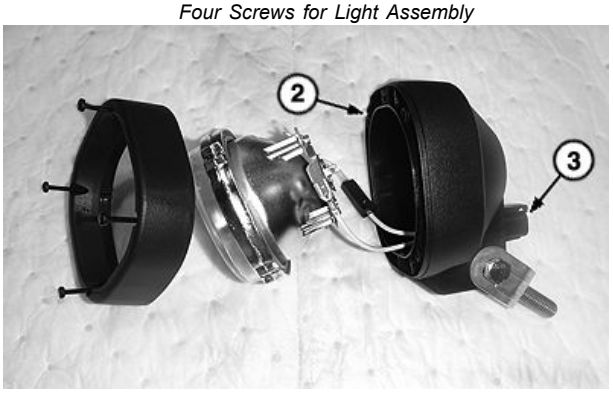
5. Connect new halogen bulb and install into lamp.
6. Install retainer clip.
7. Connect harness connector and install lamp housing back into machine.
8. Install TORX® screws.

1— TORX® Screw (4 used)
2— Lamp Housing
3— Harness Connector
4— Retainer Clip
5— Halogen Bulb
6— Connector



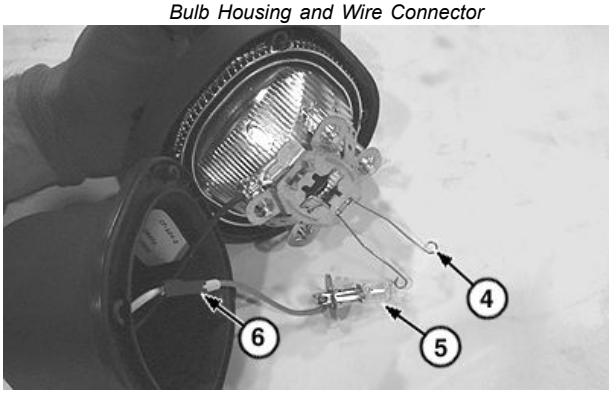
Four Screws for Light Assembly

TX1187580A —UN—10MAR15



Bulb Housing and Wire Connector

TX1187578A —UN—10MAR15



Retainer Clip and Halogen Bulb

TX1066043A —UN—13OCT09

TORX is a trademark of Camcar/Textron

WC20922,0005187 -19-01APR15-1/1

Ignition ON, Engine OFF Checks

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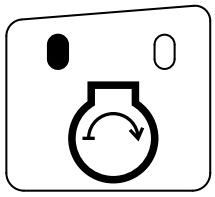
WC20922,00051E7 -19-04MAY15-7/46

Service Brake and Brake Accumulator Precharge Check



TX1028777 —UN—30AUG07

Engine Start Switch

Press engine stop switch to turn OFF engine.

Press engine start switch once.

Observe brake pressure using advanced display unit (ADU):

- Press SELECT button on ADU to access MAIN MENU.
- Press DOWN button until DIAGNOSTICS is highlighted.
- Press SELECT button to display DIAGNOSTICS menu.
- Press DOWN button until HYDRAULIC SENSORS is highlighted.
- Press SELECT button to display BRAKE PRESSURE.

Slowly pump brake pedal and count number of applications until brake pressure reading on ADU is zero.

Press and hold engine start switch to start machine.

With engine speed at slow idle, observe ADU until brake pressure reading stabilizes.

Press engine stop switch to turn OFF engine.

Press engine start switch once.

Slowly pump brake pedal and count number of applications until brake pressure indicator on ADU comes on.

LOOK:

TX1076768 —UN—30APR10

Brake Pressure Indicator

Are at least ten brake pedal applications needed before brake pressure indicator illuminates?

LOOK: Do brake lights come on at appropriate time during pedal application (reasonable pedal travel)?

YES: Go to next check.

NO: If low brake pressure indicator does not illuminate before brake pressure reading on ADU is at zero pressure, check service brake pressure sensor (B27). See your authorized dealer.

If fewer than 10 brake pedal applications cause brake pressure indicator to illuminate, accumulator charge pressure may be low. See your authorized dealer.

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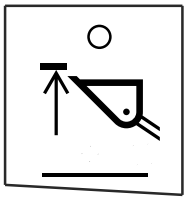
WC20922,00051E7 -19-04MAY15-21/46

Boom Height Kickout (BHKO) Check



T194316 —UN—11SEP03

Boom Height Kickout Switch

Lower boom to the ground.

Put bucket in dig position.

Enable boom height kickout (BHKO) function by pressing boom height kickout switch on sealed switch module (SSM) (LED on).

Put hydraulic control lever in boom up detent position.

LOOK/FEEL: Does hydraulic control lever stay in detented position?

LOOK: Does boom travel stop upon reaching boom height kickout position?

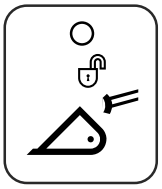
LOOK: Does hydraulic control lever return to neutral upon reaching boom height kickout position?

YES: Go to next check.

NO: See your authorized dealer.

WC20922,00051E7 -19-04MAY15-35/46

Pin Disconnect System Check (If Equipped)



T194317 —UN—11SEP03

Pin Disconnect Switch

Run engine at slow idle.

Position bucket flat on the ground.

Press pin disconnect switch on sealed switch module (SSM) (LED illuminates, pin disconnect indicator on display unit illuminates, and audible alarm sounds every 10 seconds).

LOOK: Does pin disconnect cylinder retract both pins when switch is pressed?

Press pin disconnect switch again to extend pin disconnect cylinder pins (LED off).

YES: Go to next check.

NO: See your authorized dealer.

Continued on next page

WC20922,00051E7 -19-04MAY15-36/46

Symptom	Problem	Solution
	Engine accessories cycling on and off	Check engine accessories, such as air conditioner, cycling on and off.
	Electronic interference	Check for improperly installed radios, etc.
	Electronic control system problem or basic engine problem	See your authorized dealer.
Engine Does Not Develop Full Power	Restricted or plugged air filters	Replace air filters. See Inspect Engine Air Cleaner Elements. (Section 3-3.)
	Restricted or plugged fuel filters	Replace fuel filters. See Replace Primary Fuel Filter With Water Separator and Replace Final Fuel Filter. (Section 3-8.)
	Fuel quality and quantity	If quality is poor, replace fuel with proper fuel. If quantity is low, fill fuel tank.
	Electronic control system problem or basic engine problem	See your authorized dealer.
	Exhaust filter restricted	See your authorized dealer.
Engine Emits Excessive White Exhaust Smoke	Low engine coolant temperature	Warm engine coolant. *NOTE: For temperatures below -20°C (-4°F), it may take up to 2 minutes for white exhaust smoke to clear.*
	Exhaust filter restricted	See your authorized dealer.
Engine Emits Excessive Black or Gray Smoke	Engine overloaded	Reduce load on engine.
	Fuel quality and quantity	If quality is poor, replace fuel with proper fuel. If quantity is low, fill fuel tank.
	Restricted or plugged air filters	Replace air filters. See Inspect Engine Air Cleaner Elements. (Section 3-3.)
	Electronic control system problem or basic engine problem	See your authorized dealer.
	Exhaust filter is cracked or damaged	See your authorized dealer.
Engine Idles Poorly	Fuel quality and quantity	If quality is poor, replace fuel with proper fuel. If quantity is low, fill fuel tank.

Continued on next page

Symptom	Problem	Solution
	Loose or faulty suction lines (air leak in system)	Tighten or install new lines.
Pin Disconnect Cylinders Will Not Retract	Electrical circuit failure	Hold a screwdriver against end of pin disconnect solenoid valve and check for magnetism with switch pushed. See your authorized dealer.
	Solenoid valve malfunction	Remove and inspect. See your authorized dealer.
	Cylinder binding	Inspect cylinder and adjust loads.

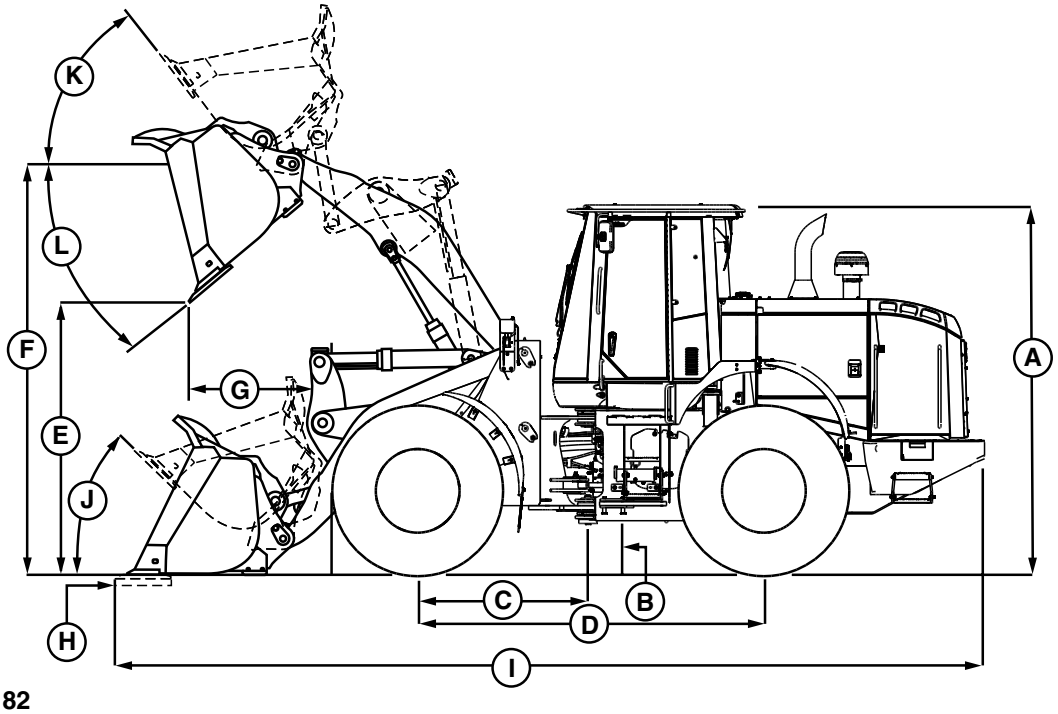
WC20922,00051E3 -19-04MAY15-3/3

Steering

Symptom	Problem	Solution
No Steering Functions	Articulation locking bar in place	Pin locking bar in unused position.
	Low hydraulic oil level	Add hydraulic oil. See Check Hydraulic System Oil Level. (Section 3-4.)
	Pinched steering line	Inspect and repair line.
Erratic Steering	Air in hydraulic oil	Check for foamy hydraulic oil.
	Low hydraulic oil level	Add hydraulic oil. See Check Hydraulic System Oil Level. (Section 3-4.)
Spongy or Soft Steering	Air in hydraulic oil	Check for foamy hydraulic oil.
	Low hydraulic oil level	Add hydraulic oil. See Check Hydraulic System Oil Level. (Section 3-4.)
Machine Turns in Opposite Direction	Lines to cylinders connected to wrong ports at steering valve	Connect lines to correct ports.

AA40007,0006CF2 -19-30APR15-1/1

Standard Z-Bar Specifications



TX1191182

TX1191182 —UN—22APR15

Standard Z-Bar Linkage

A—Overall Machine Height
B—Machine to Ground Clearance
C—Centerline to Front Axle Length
D—Wheelbase Length
E—Dump Clearance Height
F—Bucket Hinge Height
G—Dump Reach
H—Maximum Digging Depth
I— Overall Machine Length
J—Maximum Rollback at Ground Level
K—Maximum Rollback at Full Height
L—Bucket Dump at Full Height

NOTE: Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with ISO standards. Loader operating information is based on machine with identified linkage and standard equipment, ROPS cab, rear cast bumper/counterweight, transmission side-frame guards, bottom guards, standard tires, full fuel tank, (2.3 m³) 3.0 cu. yd. general purpose bucket with bolt-on edge, and (79 kg) 175-lb. operator. This information is affected by changes in tires, ballast, and different attachments.

Item	Measurement	Specification
A—Overall Machine	Height	3.24 m 10 ft. 8 in.
B—Machine to Ground	Clearance	0.40 m 1 ft. 4 in.
C—Centerline to Front Axle	Length	1.45 m 4 ft. 9 in.
D—Wheelbase	Length	2.93 m 9 ft. 7 in.
E—Dump Clearance	Height	2.76 m 9 ft. 1 in.
F—Bucket Hinge	Height	3.82 m 12 ft. 6 in.
G—Dump	Reach	0.99 m 3 ft. 3 in.

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