524K
4WD Loader

(PIN: 1DW524K_ _ _F670311—677548)

OPERATOR'S MANUAL

524K 4WD Loader

OMT337787X19 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

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.

TS204 —UN—15APR13

Battery Explosions

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

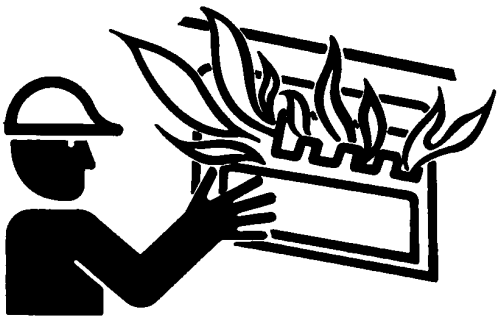
Clean Debris from Machine

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

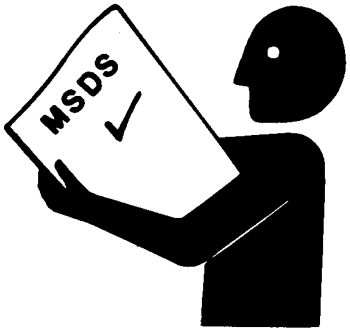
Handle Chemical Products Safely

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

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

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

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



TS1132 —UN—15APR13

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

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:

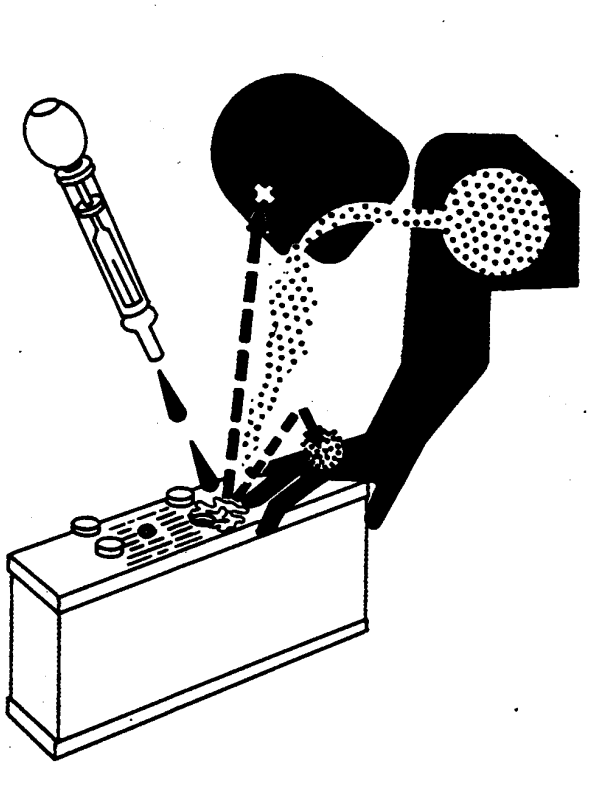
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

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

10. **WARNING, Avoid Injury From Release of High Pressure Oil**

    AVOID INJURY FROM RELEASE OF HIGH PRESSURE OIL

    Always discharge ride-control accumulator before disassembly of hydraulic lines.

    See Operator's Manual for instructions.

    This safety label is located on or near the ride control accumulator.

TX1151287 —19—23JAN14

WARNING, Avoid Injury From Release of High Pressure Oil

MB60223,0005014 -19-08SEP16-12/18

11. **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 removal and installation procedure.

    2. This accumulator is charged with DRY NITROGEN by the manufacturer and is NOT rechargeable.

    This safety label is located on or near the pilot accumulator.

TX1130532 —19—08FEB13

WARNING, Avoid Injury From Escaping Fluid

MB60223,0005014 -19-08SEP16-13/18

12. **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 removal and installation procedure.

    2. This accumulator is charged with DRY NITROGEN by the manufacturer and is NOT rechargeable.

    This safety label is located on or near the brake accumulator.

TX1130532 —19—08FEB13

WARNING, Avoid Injury From Escaping Fluid

Continued on next page

MB60223,0005014 -19-08SEP16-14/18

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

When a communication fault occurs between SSM and vehicle control unit (VCU) or a stuck button condition occurs, marker lights, drive lights, and backlighting turn on.

21—Lockup Torque Converter (if equipped): Press switch (LED is illuminated) to enable the lockup torque converter feature on machines equipped with the optional 5-speed transmission. Press switch again to disable feature (LED is off).

The lockup torque converter, when engaged, provides better fuel economy during material transport and more torque and speed when climbing steep inclines. The feature is physically controlled by the transmission control unit.

22—Rear Axle Disconnect Switch (if equipped): Feature not available on this model.

23—Rear Washer Switch: Press and hold switch to spray washer fluid on rear window and activate low speed rear wiper operation. Wiper blade swipes five times and turns off.

24—Rear Wiper Switch: This switch has four settings:

- Press and release switch (one LED is illuminated) for intermittent rear wiper operation.
- Press and release switch again (two LEDs are illuminated) for low-speed rear wiper operation.
- Press and release switch again (three LEDs are illuminated) for high-speed rear wiper operation.
- Press and release switch again to turn off rear wipers (all LEDs are off).

Powerllel is a trademark of Deere & Company

25—Cab Work Light Switch: This switch has three or four settings, depending on whether or not rear machine work light option is enabled.

If rear machine work light option is **not** enabled:

- Press and release switch (one LED is illuminated) to turn on front work lights and marker and tail lights.
- Press and release switch again (two LEDs are illuminated) to turn on four front cab work lights, two rear cab work lights, and marker and tail lights.
- Press and release switch again to turn all lights off (all LEDs are off).

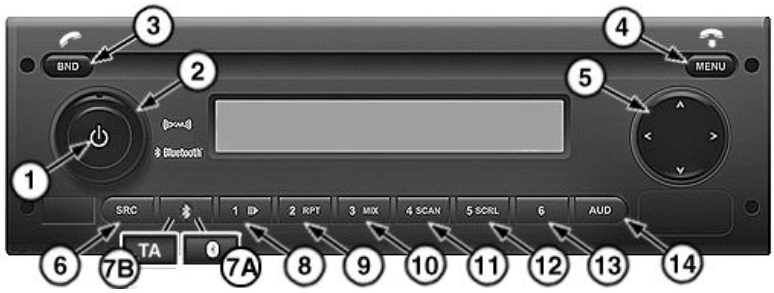
If rear machine work light option is enabled:

- Press and release switch (one LED is illuminated) to turn on front work lights and marker and tail lights.
- Press and release switch again (two LEDs are illuminated) to turn on four front cab work lights, two rear machine work lights, and marker and tail lights.
- Press and release switch again (three LEDs are illuminated) to turn on four front cab work lights, two rear cab work lights, two rear machine work lights along with marker and tail lights.
- Press and release switch again to turn all lights off (all LEDs are off).

NOTE: For courtesy light option to activate, engine must be running and marker lights turned on when light duration selection is made in the monitor. When the engine is turned off, the courtesy lighting shall activate and expire at the selected time. To set a duration time, see Display Unit—Main Menu—Settings—Courtesy Lights. (Section 2-3.)

WC20922,000516B -19-22APR15-3/3

Radio—If Equipped



XJ1269111 —UN—04DEC18

Radio (premium radio shown)

1— Power Button
2— Volume Control Dial
3A— BND Button
3B— Pickup Call Button (if equipped)
4A— MENU Button
4B— Hang-Up Call Button (if equipped)
5— Multi-Function Rocker Switch
6— Source Button
7A— Bluetooth® Button (if equipped)
7B— TA Button
8— Preset Button 1
9— Preset Button 2
10— Preset Button 3
11— Preset Button 4
12— Preset Button 5
13— Preset Button 6
14— Audio Button

NOTE: The radio can be turned on using the power button (1) even when the ignition is off. The radio is then turned off automatically after a preset time to preserve the vehicle battery (see Adjust Turn-Off Time in this section).

1. Power—Press power button (1) to turn radio on. Press and hold power button to turn radio off.

   Adjust Turn-Off Time:
   - Press MENU button (4a) until HOUR and the current turn-off time setting is displayed.
   - Turn volume control dial (2) counterclockwise or clockwise to adjust the turn-off time from 1—60 minutes.
   - Press the MENU button several times to exit the menu.

2. Mute—Press power button to silence radio audio. Turn radio audio on by pressing power button or turning volume control dial.
3. AM/FM—Press BND button (3a) to change between AM bands (AM1 and AMT) and FM bands (FM1, FM2, and FMT).
4. Preset Stations—Six numbered preset buttons (8—13) store and recall stations for each AM and FM band. To store a station, select a band and then select a station. Press and hold preset button for 3 seconds. Current station will be stored and corresponding preset number will appear in display. To recall a station, select a band and then press preset button. Radio will automatically tune to stored station.

   NOTE: Radio will only change sources if media is plugged in and available.

5. Press source button (6) to select between radio, USB, AUX, and SiriusXM® Satellite Radio.

Audio and Menu Adjustment:

Audio Adjustment—Press audio button (14) to step through the following audio adjustment options: Bass, Treble, Balance (left to right), and restore radio to factory settings. When desired option appears on display, rotate volume control dial to adjust audio feature. When no adjustments have been made for 3 seconds, radio will resume normal operation.

Menu Adjustment—Press MENU button to enter menu adjustment mode and adjust any of the menu options.

When desired option appears on display, rotate volume control dial to adjust that option. When no adjustments have been made for 3 seconds, the radio will resume normal operation.

The following menu options may be adjusted using this feature:

1. Beep Confirm (on and off)—Determines if a beep will be heard each time a button is pressed.
2. Display Brightness (-5 min to +5 max)—Determines brightness level of display.
3. Turn on Volume (5—25)—Selects desired volume level for radio to assume when turned on.

Volume Adjustment:

Increase Volume—Turn volume control dial clockwise to increase volume setting.

Decrease Volume—Turn volume control dial counterclockwise to decrease volume setting.

Tuning Radio:

Increase Manual Tune Frequency—Press up on multi-function rocker switch (5) to tune frequency one notch higher.

Decrease Manual Tune Frequency—Press down on multi-function rocker switch to tune frequency one notch lower.

Press right side of multi-function rocker switch to seek next strong station.

Press left side of multi-function rocker switch to seek previous strong station.

Continued on next page

RE59955,0001135 -19-27MAR19-1/4

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.

Break-In is a trademark of Deere & Company

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

Joystick Bucket and Boom 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.

NOTE: To lower boom with engine stopped, pilot enable/boom down switch (9) must be pressed and held down while moving control lever forward.

Move control lever forward to boom lower position (1) to lower boom.

Move control lever rearward to boom raise position (3) to raise boom.

Move control lever right to bucket dump position (5) or to fast bucket dump position (6) to dump bucket.

Move control lever left to bucket rollback position (7) to roll back bucket backward.

Some boom and bucket functions can be operated simultaneously by moving lever between positions. For example: to lower boom and dump bucket, move lever between positions (1) and (5). Other functions will not operate together. For example: raising boom and rolling bucket back.

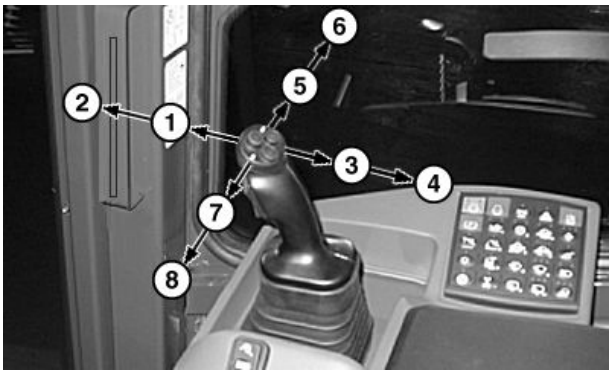
Return-to-Carry (RTC)—Set RTC switch (10) to ON (LED illuminated). Push control lever fully forward to detented boom float position (2). The boom stops at a preset height and lever returns to neutral position automatically.

NOTE: RTC mode overrides boom float mode. Push RTC switch to OFF setting to allow boom float to operate. Boom float does not work when boom height is less than preset distance from ground.

Boom Float—This function allows oil to flow in and out both ends of cylinders so the bucket can follow the contour of the ground. Set RTC switch to OFF. Push control lever fully forward to detented boom float position (2) to activate boom float function. Manually release lever from this position when desired.

Return-to-Dig (RTD)—Set RTD switch (11) to ON (left LED illuminated). Move control lever fully left to detented RTD position (8). Bucket returns to preset dig position.

Boom Height Kickout—Set boom height kickout switch (12) to ON (LED illuminated). Pull control lever fully rearward to detented boom height kickout position (4).



TX1039916A —UN—07APR08

Single Lever Hydraulic Control

TX1039917A —UN—08APR08

Hydraulic Switches

1— Boom Lower Position
2— Boom Float Position
3— Boom Raise Position
4— Boom Height Kickout Position
5— Bucket Dump Position
6— Fast Bucket Dump Position
7— Bucket Rollback Position
8— RTD Position
9— Pilot Enable/Boom Down Switch
10— RTC Switch
11— RTD Switch
12— Boom Height Kickout Switch

Lever remains in this position until boom reaches a preset height, then returns to neutral automatically.

OUT4001,0000635 -19-21OCT13-1/1

Qualified Emergency Use — SCR Override Option

NOTE: This is a US EPA only option. Engine must have a US EPA and EU emission label. Option is not available for engine with EU only emission label.

IMPORTANT: Operating the engine without emissions related derates could damage the aftertreatment system.

Description: Qualified Emergency Use – SCR Override Option

Under the US EPA's regulations the Qualified Emergency SCR Override Option (Emergency SCR 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 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 Override Activation / Reporting

The operator can activate the Emergency SCR 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 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 Override is activated.

When the Emergency SCR 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 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 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 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 Override is activated.

LEGAL Notification

The following actions by the operator are an improper use of the Emergency SCR Override and are prohibited by the Clean Air Act and US EPA regulations:

- Activating the Emergency SCR Override for something other than a qualified emergency situation;
- Failing to disable the Emergency SCR 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 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 Override.

US EPA regulations governing the Emergency SCR Override can be found at 40 CFR §1039.665, as may be amended.

DX,SCR,EMRGNCY,OVERIDE -19-21DEC16-1/1

Return-to-Dig Adjustment for Z-Bar Linkage

NOTE: The machine hydraulic system must be at operating temperature before making this adjustment. Cycle boom and bucket cylinders through full travel at least four times to ensure hydraulic oil in the cylinders is warm. Do not set return-to-dig (RTD) with a cold hydraulic system.

1. With engine running and pilot enable/boom down switch (1) ON, raise boom to allow clearance for full bucket dump position.
2. Press and release RTD switch (2) to turn ON function (left LED illuminated).
3. With the engine operating between 1500—1700 rpm, move loader control lever to RTD detent position and release. Bucket will roll back and stop at current RTD setting.

1— Pilot Enable/Boom Down Switch

2— RTD Switch

TX1041060A —UN—22APR08

Return-to-Dig (RTD) Switch

Continued on next page

WC20922,0005173 -19-26MAR15-1/2

Towing Procedure

IMPORTANT: Engine cannot be started by towing.

Tow the machine off-road to the nearest location where repair work can be done. Haul the machine if it must be moved farther than 460 m (500 yd.).

Never tow machine faster than 3.2 km/h (2 mph) to avoid transmission damage.

If the engine or the transmission hydraulic system is nonfunctional, the park brake will be ON.

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

1. Place blocks at front and rear of tires.
2. Connect the towed and towing machines together.

CAUTION: Prevent possible injury from unexpected machine movement. Install articulation locking bar to prevent weaving as machine is towed.

3. Start engine if possible, and install articulation locking bar.
4. Move forward, neutral, and reverse (FNR) lever or switch to (N) neutral position.
5. If park brake indicator does not illuminate, the park brake is OFF. Go to step 12.

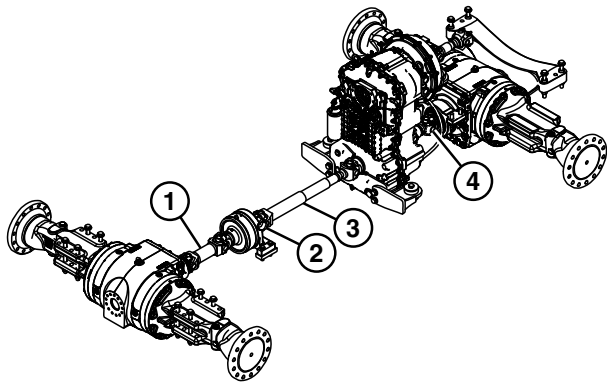
   If park brake indicator illuminates, the park brake is ON. Go to step 6.
6. Stop engine.
7. Disconnect park brake hose from park brake fitting (2). Close hose with plug.
8. Connect hose from hand-operated hydraulic pump to park brake fitting.

NOTE: Keep hand-operated hydraulic pump filled with oil.

CAUTION: Prevent possible injury from unexpected machine movement. Sit in operator's seat when pumping the hydraulic pump. When towing the machine, maintain at least 1379 kPa (13.8 bar) (200 psi). If pressure is below 1379 kPa (13.8 bar) (200 psi), park brake may engage.

9. Place hydraulic hand pump on left side of operator's station floor.

IMPORTANT: Do not pump pressure up to more than 2068 kPa (20.7 bar) (300 psi) to avoid damage to the park brake.



TX1189172 —UN—27MAR15

Drive Train

1— Front Drive Shaft
2— Park Brake Fitting
3— Telescoping Drive Shaft
4— Rear Drive Shaft

10. Pump handle until gauge needle indicates 1379 kPa (13.8 bar) (200 psi), which will be required to disengage park brake.

    To engage the park brake, open the valve in the hand-operated pump to relieve pressure.

CAUTION: Prevent possible injury from unexpected machine movement. Never attempt to remove drive shafts without blocking front and rear tires.

11. Remove drive shafts if a hand operated pump is not available to release the park brake.

    Disconnect drive shafts (1, 3, and 4) at axle and transmission and remove from machine.

NOTE: Limit tow to 460 m (500 yd.) maximum.

12. Tow the machine slowly.

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

13. Place blocks at front and rear of tires.
14. Reapply park brake or reinstall drive shafts if they were removed. See your authorized dealer for installation information.

WC20922,0005177 -19-13APR15-1/1

Display Unit—Main Menu—Settings—Stopwatch

The stopwatch is a resettable meter that is used to time various tasks to the nearest tenth of a second. The maximum time displayed is 99 hours, 99 minutes, and 99.9 seconds. The stopwatch stops and the value is set to zero when it exceeds 99 hours, 99 minutes, and 99.9 seconds. Once started, the stopwatch runs even when **STOPWATCH** menu is hidden. If engine stop switch is pressed, the stopwatch turns off and resets to zero.

At SETTINGS menu, press UP button or DOWN button to highlight STOPWATCH.

Press SELECT button to display STOPWATCH menu.

If stopwatch is off, press SELECT button to start the stopwatch. If stopwatch is on, press SELECT button to stop the stopwatch.

Press DOWN button to reset stopwatch to zero.

Press BACK button to return to previous menu.

OUT4001,0000598 -19-19APR10-1/1

Display Unit—Main Menu—Settings—Ride Control—If Equipped

The **RIDE CONTROL** menu allows the operator to adjust the speed at which ride control becomes active in ON mode or AUTO mode if the option is enabled. If the feature is not installed, then "- - -" shall be displayed.

The range of adjustment is from 1.5 kph to 24.0 kph (1.0 mph to 15.0 mph) in increments of 0.5 units.

At SETTINGS menu, press UP button or DOWN button to highlight RIDE CONTROL.

Press SELECT button to display RIDE CONTROL menu.

Press UP button to increase the speed setpoint by 0.5. If the value displayed is 3.5 kph (3.0 mph), pressing the UP button will take the value to 4.0 kph (3.5 mph). If the value displayed is 24.0 kph (15.0 mph), pressing the UP button will take the value back to 1.5 kph (1.0 mph).

Press DOWN button to decrease the speed setpoint by 0.5. If the value displayed is 3.5 kph (3.0 mph), pressing the DOWN button will take the value to 3.0 kph (2.5 mph). If the value displayed is 1.5 kph (1.0 mph), pressing the DOWN button will take the value to 24.0 kph (15.0 mph).

NOTE: Changing the speed setpoint without storing the value with the SELECT button affects the setting only until the engine is shut off. The previously stored value is used when the ignition is turned on again.

Press SELECT button to store new speed setpoint.

Press BACK button to return to previous menu.

OUT4001,000095D -19-24AUG15-1/1

Display Unit—Main Menu—Settings—Counters

The **COUNTERS** menu provides the operator with a means to select multiple counters for use when loading more than one product. Up to five counters can be selected.

On machines equipped with the payload scale system, a running total of the weight added for each counter selection is maintained.

At SETTINGS menu, press UP button or DOWN button to highlight MORE, then press SELECT button to display SETTINGS menu page 2.

Press UP button or DOWN button to highlight COUNTERS.

Press SELECT button to display COUNTERS menu.

Press UP button to increase the number of counters selected.

Press DOWN button to decrease the number of counters selected.

Press SELECT button to store the desired number of counters.

Press BACK button to return to previous menu.

OUT4001,000059A -19-30APR10-1/1

Display Unit—Main Menu—Diagnostics—Park Brake Test

The **PARK BRAKE TEST** menu allows the operator or technician to test the machine's park brake.

At DIAGNOSTICS menu, press UP button or DOWN button to highlight MORE, then press SELECT button to display DIAGNOSTICS menu page 2.

At DIAGNOSTICS menu page 2, press UP button or DOWN button to highlight MORE, then press SELECT button to display DIAGNOSTICS menu page 3.

Press UP button or DOWN button to highlight PARK BRAKE TEST.

Press SELECT button to display PARK BRAKE TEST menu.

PARK BRAKE TEST menu will display the following warning and conditions that must be met before starting the test:

WARNING!

MACHINE MAY MOVE DURING TEST
- **PARK BRAKE APPLIED**
- **FNR IN NEUTRAL**
- **TRANS IN MANUAL/GEAR X** (“X”= “D” for machines equipped with lockup torque converter and “3” for non-lockup.)
- **SERVICE BRAKES NOT APPLIED**

“SELECT” TO START

“BACK” TO EXIT

If SELECT is pressed and any of the conditions are NOT met, pop-ups will appear on the monitor directing what must be done before continuing.

If all conditions are met and SELECT is pressed, the following screen will appear stating instructions to perform the test:

- **RAISE IMPLEMENT OFF GROUND**
- **PLACE MACHINE INTO FORWARD**
- **GRADUALLY APPLY MAX THROTTLE**
- **HOLD MAX THROTTLE FOR 3 SEC**

WHEN COMPLETE
“BACK” TO EXIT

When throttle is above 2%, the next screen will display:

- **HOLD MAX THROTTLE FOR 3 SEC**
- **IF MACHINE MOVES CONTACT JOHN DEERE DEALERSHIP**

RPM: XXXX
GEAR X

If machine does not move, park brake test is complete and acceptable to continue operation.

Press BACK button to return to previous menu.

OUT4001,00006B9 -19-03NOV10-1/1

Display Unit—Main Menu—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 level before beginning exhaust filter parked cleaning.

Parked cleaning is performed when the operator chooses to have the machine actively clean the exhaust filter while it is in a predetermined safe state. This safe state includes three conditions:

- park brake applied
- FNR in neutral
- engine running at idle

An exhaust filter parked cleaning can only be initiated if the filter restriction is at HIGH or VERY HIGH soot levels.

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). 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 can result in exhaust filter temperatures exceeding 550°C (1022°F). The cleaning process will continue until one of the following conditions exist:

- exhaust filter restriction level is back to LOW
- 45 minutes has elapsed causing a timeout
- operator cancels the parked cleaning procedure by releasing park brake, moving FNR out of neutral, or increasing engine speed
- parked cleaning is aborted due to a fault
- engine runs out of fuel due to not following ADU suggestions
- engine is shut off by operator (not recommended)

If operator tries to initiate a parked cleaning when the filter restriction is at LOW or MODERATE soot levels, the vehicle control unit (VCU) will not activate a parked cleaning and a pop-up will appear on the monitor stating EXHAUST FILTER CLEANING NOT REQUIRED. This will be displayed for 3 seconds accompanied by an alarm and then return to EXHAUST FILTER menu.

If operator tries to initiate a parked cleaning when the filter restriction is at the SERVICE soot level, the VCU will not activate a parked cleaning and a pop-up will appear on the monitor stating SERVICE FILTER CLEANING REQUIRED. This will be displayed for 3 seconds accompanied by an alarm and then return to EXHAUST FILTER menu. Contact your authorized dealer for exhaust filter cleaning at this soot level.

The **PARKED CLEANING** menu allows the operator to initiate a parked cleaning.

At EXHAUST FILTER menu, press UP button or DOWN button to highlight PARKED CLEANING.

Press SELECT button to display PARKED CLEANING menu.

PARKED CLEANING menu will first display:

- DO YOU WISH TO SHUTDOWN AFTER CLEANING?
- NO
- YES
  IF YES
  MACHINE WILL SHUTDOWN AFTER CLEANING IS COMPLETE

Once a choice is made, monitor will display the next screen with warnings and checklist to ensure machine is in a safe state for parked cleaning to take place. If any of the safe state conditions are not met, another screen will appear on the monitor telling the operator what condition is not met and will remain on until operator satisfies condition.

- HIGH EXHAUST TEMPERATURE WILL EXIST
- ELEVATED ENGINE IDLE SPEED WILL EXIST
- HYDRAULICS WILL BE DISABLED DURING CLEANING

  - PARK BRAKE APPLIED
  - FNR IN NEUTRAL
  - ENGINE SPEED AT IDLE

Press SELECT button to start.

Press BACK button to exit.

If SELECT button is pressed to start parked cleaning, but fuel level is low, a screen is displayed to warn the operator of this and give the operator the choice to continue cleaning by pressing the SELECT button or cancel cleaning by pressing BACK button.

NOTE: Once parked cleaning is started, operator can go back and forth between the runtime screen and the menu screen by pressing the INFO button. All other monitor buttons will be inactive during the parked cleaning process until it is completed.

If SELECT button is pressed, the first stage of the parked cleaning process will be displayed to show preparation status:

Continued on next page

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:

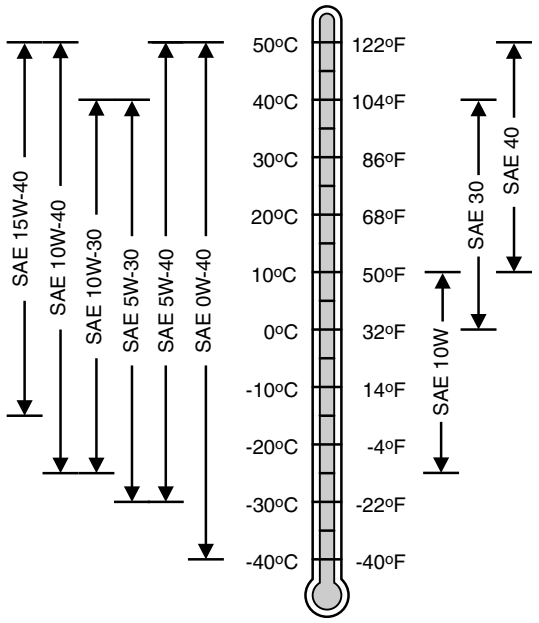
- API Service Category CK-4
- API Service Category CJ-4
- ACEA Oil Sequence E9
- ACEA Oil Sequence E6

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.

Plus-50 is a trademark of Deere & Company



Oil Viscosities for Air Temperature Ranges

IMPORTANT: Use only ultra low sulfur diesel (ULSD) fuel with a maximum sulfur content of 15 mg/kg (15 ppm).

DX,ENOIL14 -19-23APR19-1/1

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

□ Replace hydraulic reservoir breather filter	□ Take engine coolant sample
Every 1000 Hours	
□ Replace axle oil filters (if equipped)	□ Check coolant condition
□ Replace air cleaner dust unloader valve	□ Lubricate frame hinge pivots
□ Replace engine air cleaner elements	□ Drain and refill park brake oil
□ Replace fuel tank breather filter	
Every 2000 Hours	
□ Replace open crankcase ventilation (OCV) filter	□ Clean front and rear axle oil recirculation screens (if equipped)
□ Replace diesel exhaust fluid (DEF) dosing unit filter	□ Drain and refill front and rear axle oil
□ Replace outer pin seals (if equipped)	□ Drain and refill transmission oil and replace filter[2]
□ Clean diesel exhaust fluid (DEF) tank (S.N. —675480)	□ Rerun transmission clutch calibration (cab monitor)
□ Replace diesel exhaust fluid (DEF) header suction screen and baffle (S.N. —675480)	□ Check and adjust engine valve lash
Every 4000 Hours	
□ Clean hydraulic system fill strainer	□ Replace diesel exhaust fluid (DEF) tank breather filter
□ Clean hydraulic pump case drain in-line screen	□ Drain, flush, and refill hydraulic system oil
□ Replace hydraulic system return filter	□ Clean diesel exhaust fluid (DEF) tank (S.N. 675481—)
□ Replace diesel exhaust fluid (DEF) header suction filter and baffle (S.N. 675481—)	
Every 5000 Hours	
□ Check driveline damper for cracks	
Every 6000 Hours	
□ Drain and refill cooling system	

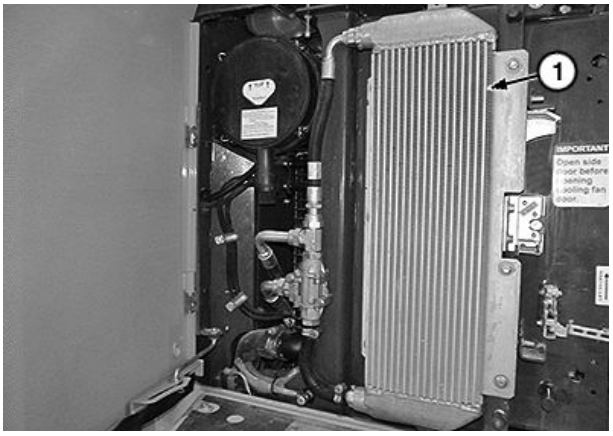
[1]*Perform initial service once after the first 250 hours of operation.*
[2]*Reduce service intervals to 1500 hours in severe applications, which run the torque converter at high loads for more than approximately 25% of the time.*

SP66632,0004BAA -19-05SEP17-2/2

Clean Cooler Cores

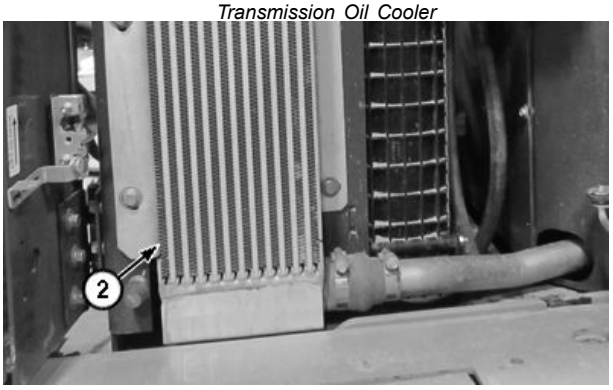
1. Park machine on level surface and stop engine.
2. Open left and right cooler doors, fan grille door, and top cooler door. See Cooling System Doors. (Section 3-2.)
3. Behind the left cooler door is the transmission oil cooler (1).
4. Behind the right cooler door is the charge air cooler (2).
5. Behind 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 (7) is on the left, and the front axle oil cooler (8) is on the right.

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



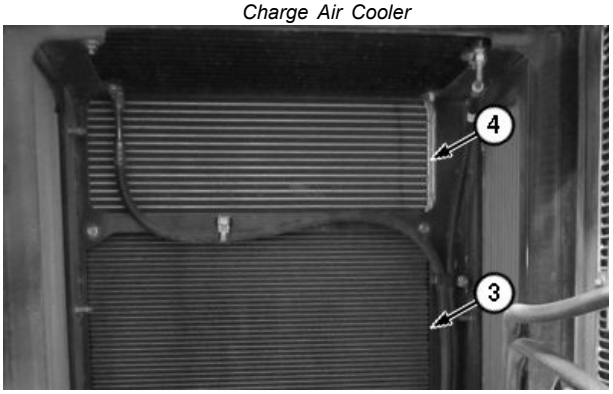
Transmission Oil Cooler

TX1188709A —UN—24MAR15



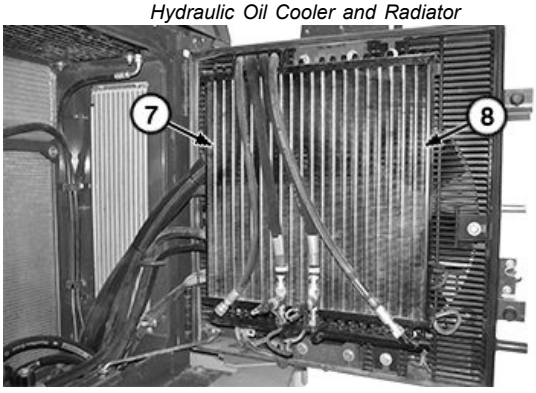
Charge Air Cooler

TX1100167A —UN—31OCT11



Hydraulic Oil Cooler and Radiator

TX1100164A —UN—31OCT11



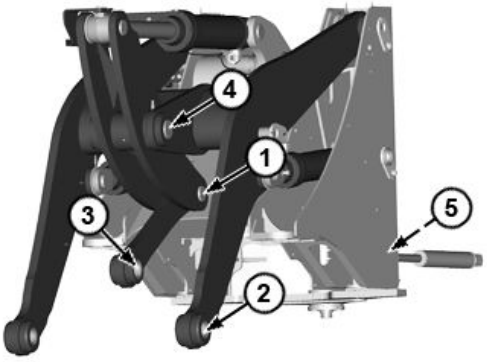
Axle Oil Coolers—If Equipped

TX1191679A —UN—28APR15

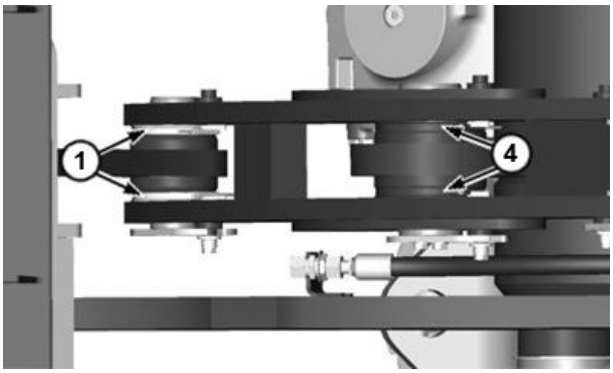
Continued on next page

AA40007,0006BE3 -19-28APR15-1/2

Inspect Outer Pin Seals—If Equipped



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.

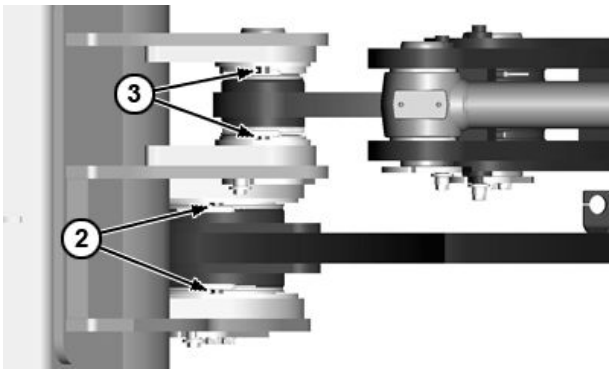
All outer pin seals must be replaced at 2000 hour intervals.

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:

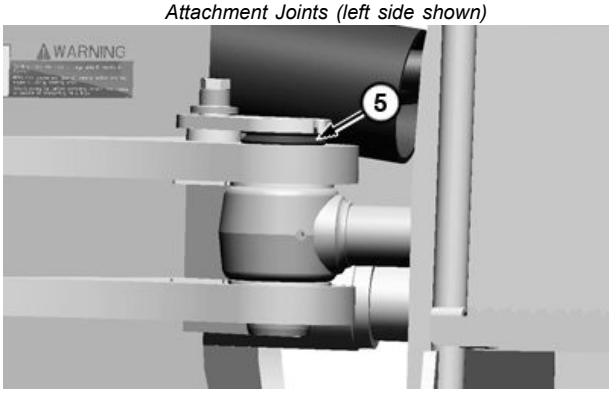
- **Boom to attachment joints**
- **Attachment to bucket link joints**
- **Bucket link to bellcrank joints**
- **Bellcrank to boom joints**
- **Steering cylinder joints:** Steering cylinder joints are located at both front and back of steering cylinder. Steering cylinder joint outer pin seals (5) are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

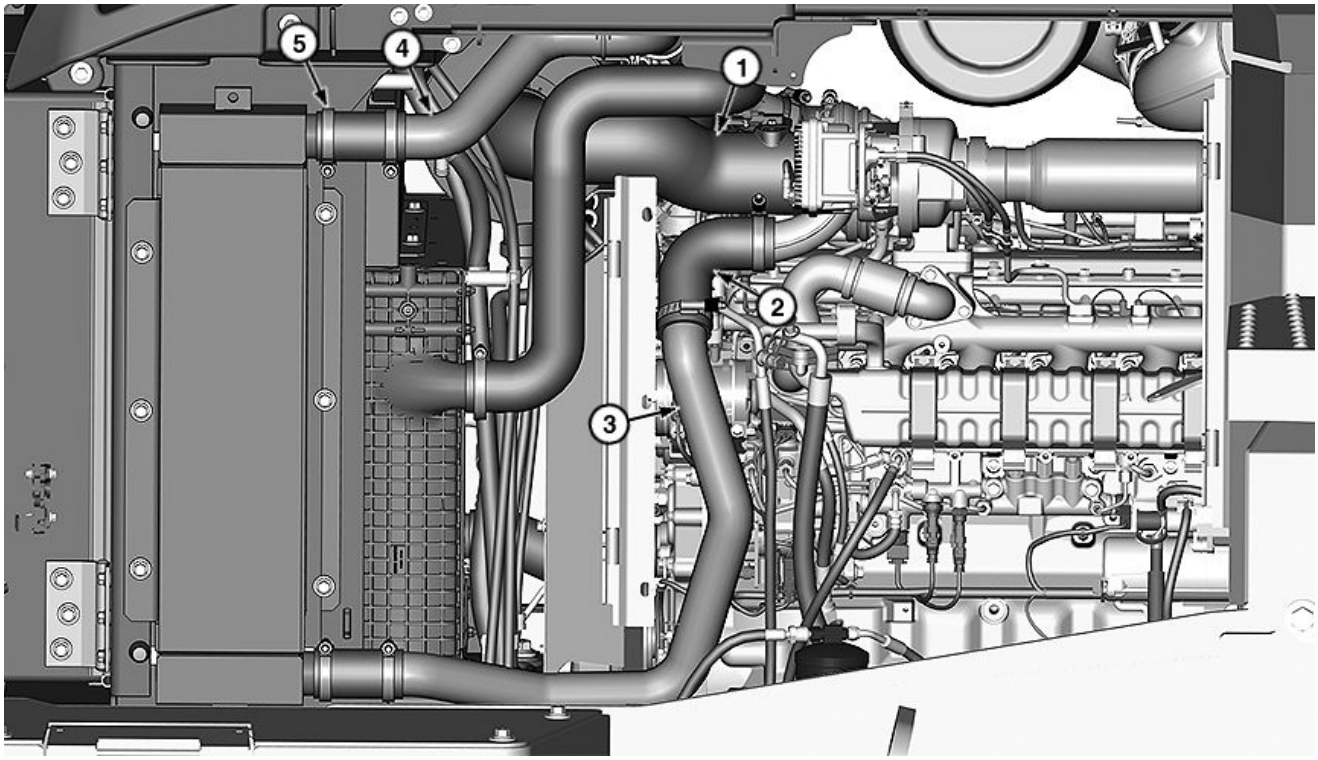


TX1128903A —UN—03JAN13

Steering Cylinder Joint Outer Pin Seal (front left shown)

SP66632,0004BC6 -19-31MAR16-1/1

Check Air Intake Hoses and Charge Air Cooler Tube Couplings



Air Intake Hoses and Charge Air Cooler

1— Air Intake Hose
2— Hose Coupling (4 used)
3— Compressor Outlet Tube
4— Cooler Outlet Tube
5— Clamp (10 used)

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. Replace as required.
3. Tighten all clamps (5).

AA40007,0006C34 -19-09APR15-1/1

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.

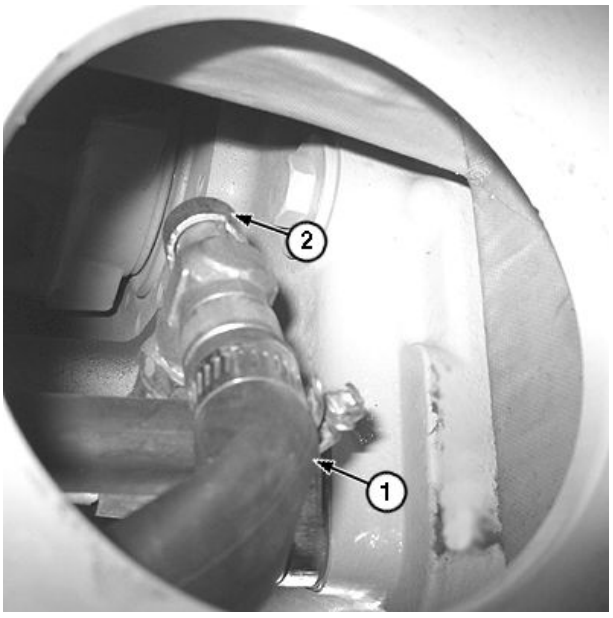
The following chart shows the appropriate service interval in hours based on application and type of oil used.

	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).

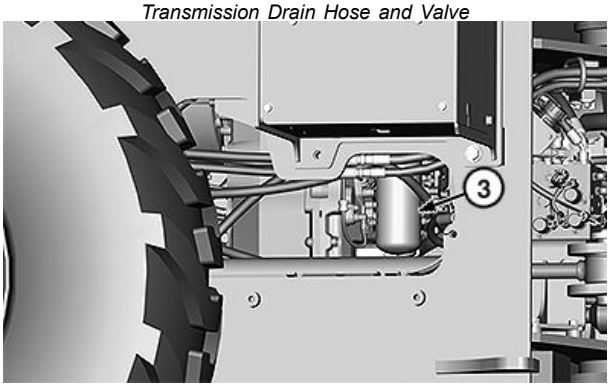
CAUTION: Prevent possible injury from unexpected machine movement. Machine can unexpectedly roll or move under power, resulting in death or serious injury. Install frame locking bar and shut off engine before changing oil.

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

Continued on next page

AA40007,0006C4B -19-16APR15-1/2

Replace Hydraulic System Return Filter

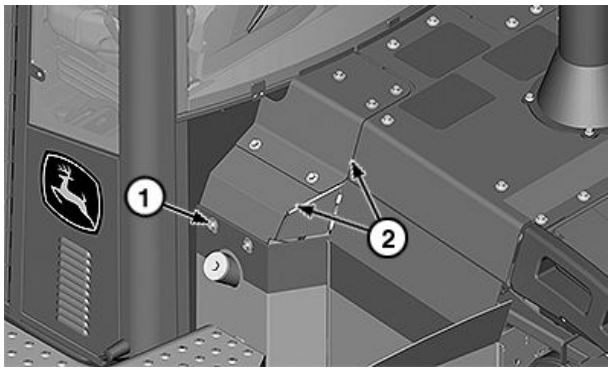
1. Park machine on level surface and stop engine.
2. Remove cap screws (1) and hydraulic reservoir service panels (2).
3. Unscrew filter cover (4) from return filter assembly (3).
4. Remove filter cover and lift filter element (5) out of filter housing.
5. Install new filter element into housing.
6. Install filter cover. Tighten to specification.

Specification

Hydraulic Return Filter Cover—Torque.....75 N·m
55 lb.-ft.

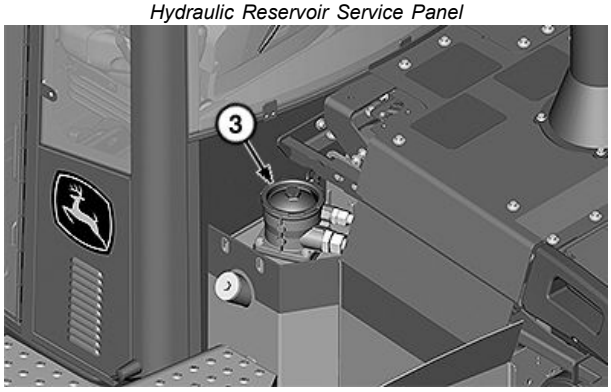
7. Install hydraulic reservoir service panels and retain with cap screws.

1— Cap Screw
2— Hydraulic Reservoir Service Panel
3— Return Filter Assembly
4— Filter Cover
5— Filter Element



Hydraulic Reservoir Service Panel

TX1189422A —UN—31MAR15



Return Filter Cover

TX1189425A —UN—31MAR15

Return Filter

TX1189426A —UN—31MAR15

AA40007,0006CE8 -19-29APR15-1/1

JS93577,0000479 -19-04OCT18-2/2

Using Booster Batteries—24-Volt System

Before boost starting, machine must be properly shut down and secured 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.

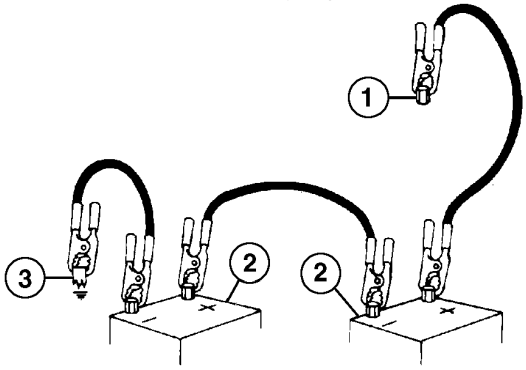
IMPORTANT: The machine electrical system is a 24-volt negative (-) ground. Connect two 12-volt booster batteries together in series as shown for 24 volts.

1. Connect one end of the positive (+) cable to the lug on starter (1) and the other end to the positive (+) terminal of booster batteries (2).
2. Connect one end of the negative (-) cable to the negative (-) terminal of booster batteries. Then connect the other end of negative (-) cable to the machine frame (3) as far away from the machine batteries as possible.
3. Start the engine.
4. Immediately after starting the engine, disconnect the end of negative (-) cable from the machine frame first. Then disconnect the other end of negative (-) cable from the negative (-) terminal of booster batteries.
5. Disconnect the positive (+) cable from the booster batteries and lug on starter.

1— Lug on Starter
2— Booster Battery (2 used)
3— Machine Frame

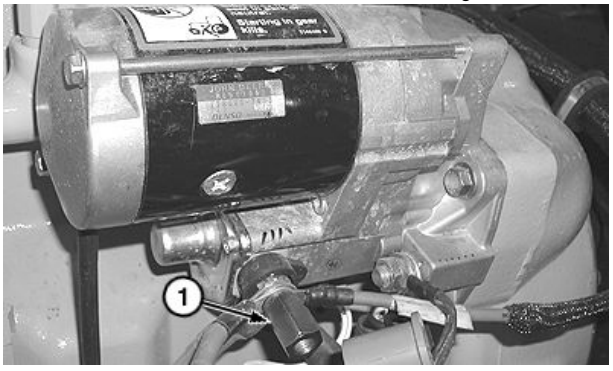
Battery Explosions

TS204 —UN—15APR13



Booster Batteries to Starter Lug

TX1014128 —UN—16NOV06



Lug on Starter

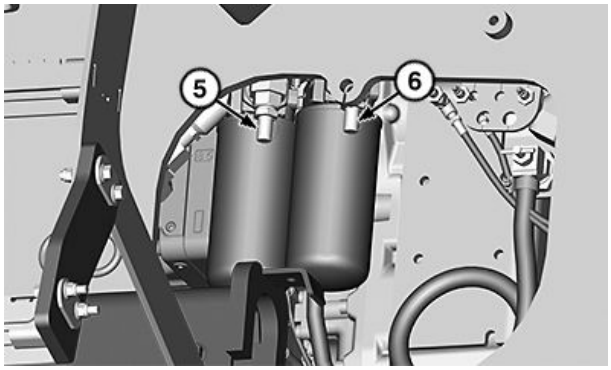
TX1015327A —UN—21NOV06

OUT4001,0000058 -19-19FEB15-1/1

Front and Rear Axle Oil Sampling Test Ports—If Equipped

Front axle oil test port (5) and rear axle oil test port (6) are located behind the entrance stairs on the left side of machine. Green banded hoses identify the front axle and red banded hoses identify the rear axle.

5— Front Axle Oil Test Port **6— Rear Axle Oil Test Port**



TX1189688A —UN—08APR15

Front and Rear Axle Oil Sampling Test Ports

WC20922,0005189 -19-08MAY15-4/4

Air Conditioning System Service

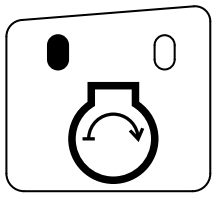
CAUTION: Escaping refrigerant under pressure can penetrate eyes and skin causing serious injury. Do not attempt to repair or service refrigerant system. Special equipment and procedures are required. See your John Deere dealer.

The air conditioning system contains self-resetting thermal overload devices which will open in the event of a compressor overload and shut the system off. If thermal overload devices open, press air conditioner switch OFF and wait a few minutes to allow system to cool down. If the overload device does not reset or opens repeatedly, see your authorized dealer.

If air conditioner runs but does not cool, or cooling is intermittent, check the following:

1. Check compressor clutch engagement.
2. Check evaporator core for clogging.
3. Check air intake filters for clogging.
4. Check blowers for proper operation.
5. Check the condenser core to see that it is not clogged with dirt or trash. Clean with compressed air or water when needed.
6. Run air conditioning system for several minutes.

WC20922,00051D4 -19-22APR15-1/1



TX1028777 —UN—30AUG07

Engine Start Switch

Push engine start switch once to enable ignition ON mode.

Observe ADU display, gauges, and warning lights as ADU powers up.

NOTE: A gauge pointer that deflects to far left side of scale indicates loss of electronic communication or an active sensor malfunction. The associated warning light will not come on if this happens.

LOOK/LISTEN: Does backlighting come ON and does alarm sound?

LOOK: Do all warning lights on lower row come on?

LOOK: After approximately 3 seconds, do all lights on lower row go off except STOP and park brake indicator lights?

LOOK: Does STOP indicator light flash?

LOOK: Does display screen populate with normal display items?

LOOK: Do gauges indicate current machine status?

LOOK: Does display show hour meter reading?

LOOK: Does engine oil pressure gauge read (0) with red flashing background?

If equipped with rear camera, push INFO button.

LOOK: Does ADU screen display rear camera view?

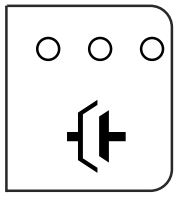
YES: Go to next check.

NO: Check ADU, monitor alarm, turn signal, and counter switch ignition power 5 A fuse (F13). See Replacing Fuses. (Section 4-1.)

Continued on next page

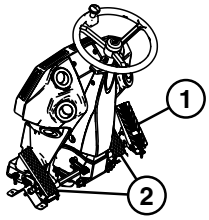
WC20922,00051AB -19-01MAY15-9/46

Torque Converter and Engine Power Check (If Equipped)



T194311 —UN—11SEP03

Clutch Cut-Off Enable Switch



TX1076771 —UN—23APR10

Accelerator and Brake Pedals

1— Accelerator Pedal
2— Brake Pedal (2 used)

CAUTION: Prevent possible injury from machine movement. Perform this check in an open area away from other people and machinery.

Wear seat belt while operating machine.

Fasten seat belt.

Release park brake.

Disable clutch cut-off by pushing clutch cut-off enable switch on sealed switch module (SSM) (LEDs off).

Using advanced display unit (ADU), set fan speed to 100%. To set fan speed, see your authorized John Deere dealer.

Apply service brakes so machine does not move.

Shift transmission to third gear forward.

Push accelerator pedal until it contacts stop bolt. Record engine speed that appears in display window.

LOOK: Is torque converter stall speed approximately 2115 rpm?

YES: Go to next check.

Put transmission in neutral and run for 15 seconds to cool oil.

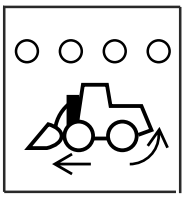
NO: If stall speed is significantly different, see your authorized John Deere dealer.

Continued on next page

WC20922,00051AB -19-01MAY15-23/46

Spin Control Check (If Equipped)

CAUTION: Prevent possible injury from machine movement. Perform this check in an open area away from other people and machinery.



T194320 —UN—11SEP03

Spin Control Enable Switch

Push spin control enable switch until mode 1 is enabled (left LED on).

Release park brake and shift transmission into first gear forward.

Drive machine in an open clear area with engine at fast idle.

Hold hydraulic control lever in bucket roll back position. Observe engine speed drop.

NOTE: The engine fast idle speed will remain at lower speed setting until transmission is shifted to neutral or spin control is disabled (LEDs off).

Release hydraulic control lever and push spin control switch until function is disabled (LEDs off).

Hold hydraulic control lever in bucket roll back position. Observe engine speed drop as hydraulic system is at high standby pressure.

Repeat check with spin control switch at modes 2—4.

LOOK/LISTEN: Does engine fast idle speed decrease to specification for each mode?

Spin Control—Specification

Engine—Mode 1 (one LED on)—Speed	1965 rpm
Engine—Mode 2 (two LEDs on)—Speed	1860 rpm
Engine—Mode 3 (three LEDs on)—Speed	1735 rpm
Engine—Mode 4 (four LEDs on)—Speed	1610 rpm

YES: Go to next check.

NO: See your authorized John Deere dealer.

WC20922,00051AB -19-01MAY15-38/46

Proportional Fan Check

Using advanced display unit (ADU), manually set fan speed to 0%. To set fan speed, see your authorized John Deere dealer.

LOOK/FEEL: Observe fan speed.

Push BACK button, then push SELECT, to manually set fan speed to 100%.

LOOK/FEEL: Is fan speed higher than at 0%?

YES: Go to next check.

NO: See your authorized John Deere dealer.

Continued on next page

WC20922,00051AB -19-01MAY15-39/46

Symptom	Problem	Solution
	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.
	Air leak on suction side of air intake system	Check hose and pipe connections for tightness; repair as required.
	Electronic control system problem or basic engine problem	See your authorized dealer.
	Exhaust filter restricted	See your authorized dealer.
Excessive Fuel Consumption	Engine overloaded	Reduce load.
	Restricted or plugged air filters	Replace air filters. See Inspect Engine Air Cleaner Elements. (Section 3-3.)
	Improper type of fuel	Use proper type of fuel. See Diesel Fuel. (Section 3-1.)
	Poor fuel quality	Drain fuel and replace with quality fuel of the proper grade. See Diesel Fuel. (Section 3-1.)
	Leaks in fuel supply system	Locate source of leak and repair as needed. See your authorized dealer if necessary.
	Fuel delivery system malfunction	See your authorized dealer.
	Exhaust filter restricted	See your authorized dealer.
Engine Overheats	Engine overloaded	Reduce load.
	Low coolant level	Fill surge tank to proper level. Check radiator and hoses for loose connections or leaks. See Check Coolant Level at Surge Tank. (Section 3-4.)
	Faulty radiator cap	Replace cap.

Continued on next page

AA40007,0006CEF -19-22SEP15-3/4

Symptom	Problem	Solution
	Water in hydraulic oil	Drain hydraulic oil from reservoir and cylinders. Fill with recommended hydraulic oil. See Drain, Flush, and Refill Hydraulic System Oil. (Section 3-11.)
	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

Keep Machines Secure

1. Install vandal-proof devices.
2. When machine is in storage:
   - Lower equipment to the ground
   - Set wheels to widest position to make loading more difficult
   - Remove batteries
3. When parking indoors, put large equipment in front of exits and lock storage buildings.
4. When parking outdoors, store in a well-lighted and fenced area.
5. Make note of suspicious activity and report any thefts immediately to law enforcement agencies.
6. Notify an authorized John Deere dealer of any losses.

OUT4001,000063D -19-27JAN16-1/1

Continued on next page