

# 944K 4WD Loader

(PIN: E669456—690604)



JOHN DEERE

## OPERATOR'S MANUAL

### 944K 4WD Loader

OMT285908 ISSUE L3 (ENGLISH)



#### CALIFORNIA

##### Proposition 65 Warning

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

If this product contains a gasoline engine:

#### **WARNING**

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

The State of California requires the above two warnings.

**Worldwide Construction,  
And Forestry Division**

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**JOHN DEERE**

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

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

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

**JOHN DEERE'S WARRANTY RESPONSIBILITY**

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

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

Air-Induction System	Aftertreatment Devices
Fuel System	Crankcase Ventilation Valves
Ignition System	Sensors
Exhaust Gas Recirculation Systems	Engine Electronic Control Units

**EMISSION WARRANTY EXCLUSIONS**

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

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

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

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

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Emission\_CI\_EPA (18Dec09)

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

TS1721—UN—15JUL 13

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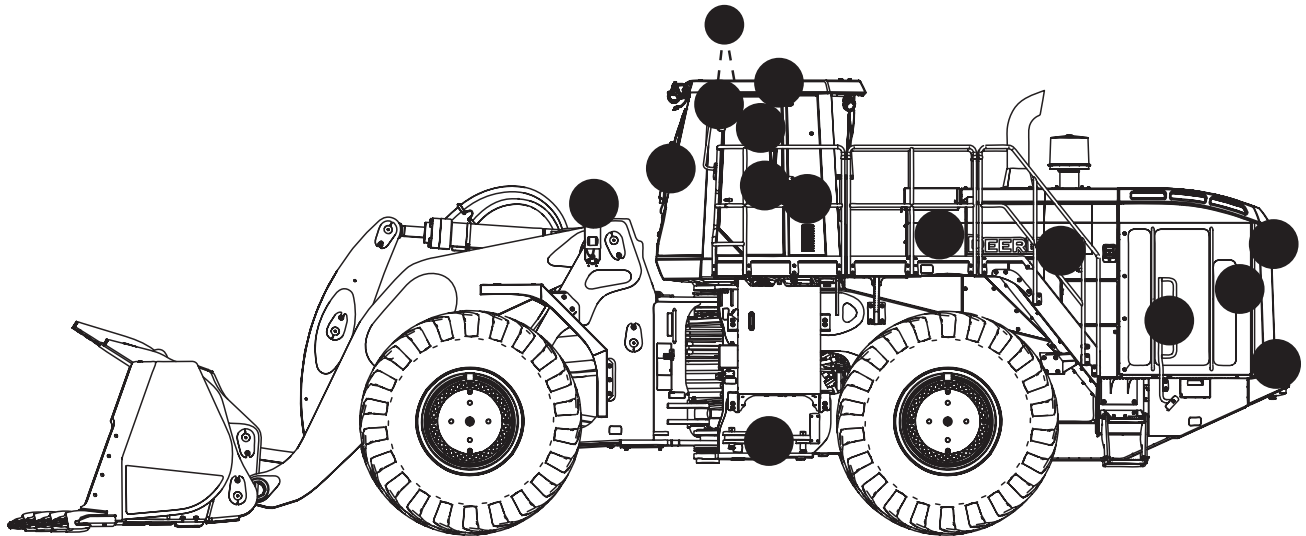
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# Safety—Safety and Operator Conveniences

## Safety and Operator Convenience Features



TX1183786

### Safety Features

TX1183786—UN—30JAN15

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

1. **Halogen Lights and Turn Signals.** High-intensity halogen drive/work lights and high-visibility turn signals are standard equipment.
2. **Large Windshield Wiper With Washer.** Extra-long wiper cleans large windshield area.
3. **Verified Anchor Points.** May be used for attaching job-specific devices.
4. **Mirrors.** Large exterior mirrors on both sides and an inside mirror offers operator a broad view of area behind machine.
5. **ROPS, FOPS, and OPS.** Structures designed to help protect the operator are certified to ISO and OSHA. Enclosures also deflect sun and rain.
6. **Pressurized Cab With Heater and Defroster.** Positive pressure ventilation system circulates both outside and inside air through filters for a clean working environment. Built in defroster vents direct air flow for effective window defogging/deicing.
7. **Horn.** Standard horn is useful when driving or signaling coworkers.
8. **Seat Belt Retractors.** Seat belt retractors help keep belts clean and convenient to use.
9. **Frame Locking Bar.** A self-storing mechanical lock is provided for transport or service.
10. **Power Cabinet.** Safely encloses power electronic inverters for electric drive system.
11. **Bypass Start Protection.** Shielding over the starter terminals helps prevent dangerous bypass starting.
12. **Handholds.** Large, conveniently placed handholds make it easy to enter or exit the operator's station or service area.
13. **Stop and Signal Lights.** Highly visible stop lights and turn signal lights are standard equipment.
14. **Engine Fan Guard.** A secondary fan guard inside the cooling compartment helps prevent contact with the rotating fan blades.
15. **Backup Alarm.** Alerts bystanders when reverse travel direction is selected by operator.

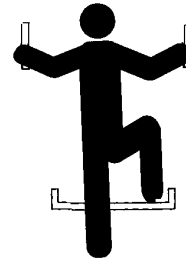
CN93077,000053A-19-13APR15-1/1

# Safety—Operating Precautions

## Use Steps and Handholds Correctly

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

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



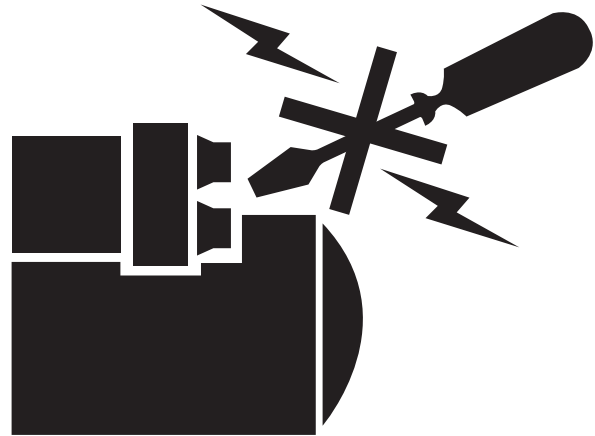
TX,STEPS-19-09FEB11-1/1

T133468—UN—15APR13

## Start Only From Operator's Seat

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

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



*Operate Only From Operators Seat*

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

TX1314398—UN—29JUN21

## Use and Maintain Seat Belt

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

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

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



# USE SEAT BELT

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

TX1165594—19—23JUL14

### Service Accumulator Systems Safely

Escaping fluid or gas from pressurized hydraulic accumulator systems can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut. Do not weld or use a torch near a pressurized accumulator or pressurized line.

Relieve pressure from the hydraulic system before removing accumulator. Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.

Accumulators cannot be repaired.



TS281—UN—15APR13

DX,WW,ACCLA-19-15APR03-1/1

### Remove Paint Before Welding or Heating

Avoid potentially toxic fumes and dust.

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

Remove paint before heating:

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

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

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

Dispose of paint and solvent properly.



TS220—UN—15APR13

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

### Make Welding Repairs Safely

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

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

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

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

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



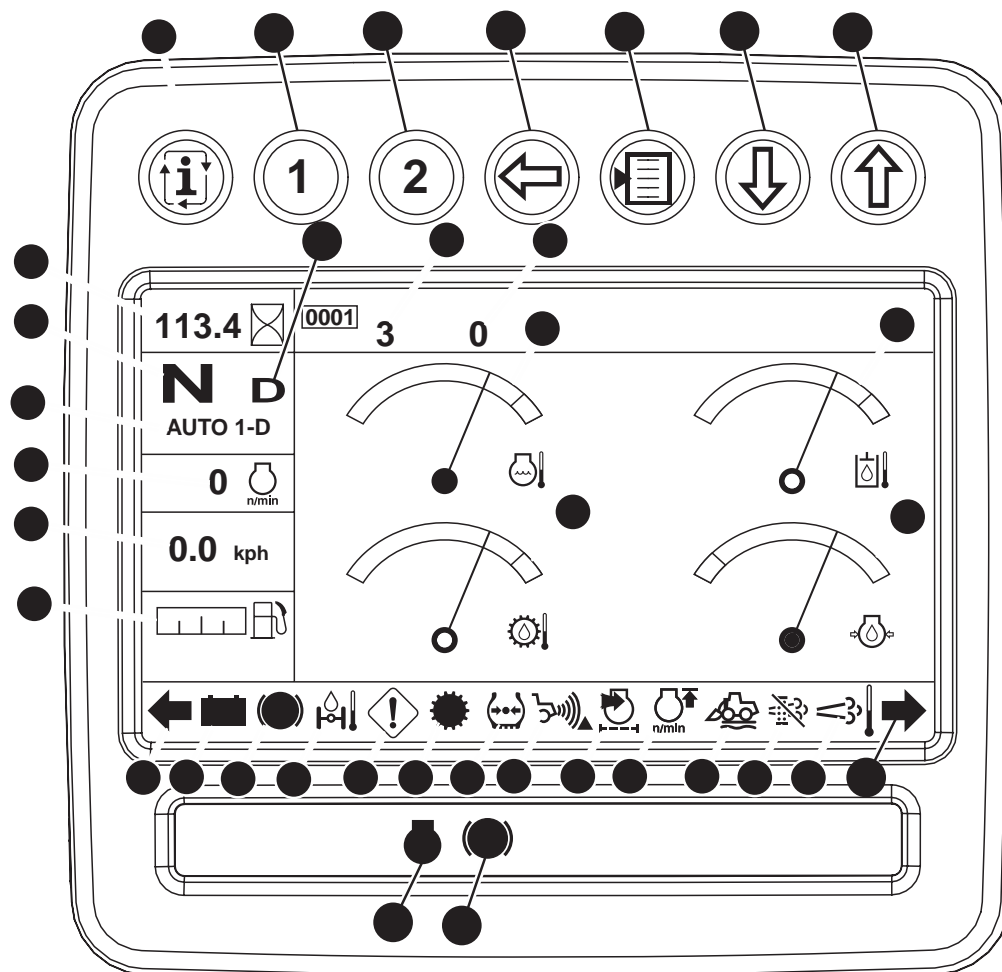
Heating Near Pressurized Fluid Lines

T133547—UN—15APR13

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

# Operation—Operator's Station

## Primary Display Unit (PDU) Functions



TX1183871

Primary Display Unit (PDU)

- |   |                                     |  |  |
|---|-------------------------------------|--|--|
| 1—INFO Button                                 | 12—Speedometer                      | 24—Axle Over Temperature Indicator                             | 29c—Fuel Filter Restriction Indicator              |
| 2—HOT KEY 1                                   | 13—Fuel Level Gauge                 | 25—CAUTION Indicator   | 29d—Axle Filter Restriction Indicator              |
| 3—HOT KEY 2                                   | 14—Requested Range                  | 26a—Check Drive Train Indicator                                | 30—Operator Engine Speed Setting Indicator         |
| 4—BACK Button                                 | 15—Material Counter                 | 26b—Check Engine Indicator                                     | 31—Ride Control Indicator (if equipped)            |
| 5—SELECT Button                               | 16—Truck Counter                    | 27—Tire Pressure Monitor (TPM) System Indicator (if equipped)  | 32—Exhaust Filter Auto Cleaning Disabled Indicator |
| 6—DOWN Button                                 | 17—Engine Coolant Temperature Gauge | 28—Radar Object Detection (ROD) System Indicator (if equipped) | 33—Exhaust Filter Cleaning Indicator               |
| 7—UP Button                                   | 18—Hydraulic Oil Temperature Gauge  | 29a—Engine Air Filter Restriction Indicator                    | 34—Right Turn Indicator                            |
| 8a—Hour Meter                                 | 19—Axle Oil Temperature Gauge       | 29b—Hydraulic Filter Restriction Indicator                     | 35—STOP Indicator                                  |
| 8b—Odometer                                   | 20—Engine Oil Pressure Gauge        |  | 36—Park Brake Indicator                            |
| 8c—Ambient Temperature                        | 21—Left Turn Indicator              |  |  |
| 8d—Average Fuel Consumption                   | 22—Low Battery Voltage Indicator    |  |  |
| 8e—Exhaust Filter Restriction Level Indicator | 23—Brake Pressure Indicator         |  |  |
| 9—Travel Range and Direction                  |                                     |  |  |
| 10—Drive Train Mode                           |                                     |  |  |
| 11—Engine Speed                               |                                     |  |  |

**1—INFO Button:** Press INFO button to return to normal display from menu display mode used to request reverse camera when camera setting is manual mode.

**2—HOT KEY 1:** Not used.

**3—HOT KEY 2:** Not used.

**4—BACK Button:** Press BACK button to move to the previous menu displayed.

**5—SELECT Button:** Press SELECT button to move from normal display to main menu display. In menu mode, press button to activate menu function currently highlighted. Press button to make selections on individual submenu

Continued on next page

CN93077,000052B-19-16MAR15-1/6

## Joystick Steering Armrest Adjustment

**IMPORTANT:** If armrest is loose when tilting downward, see an authorized John Deere dealer.

Loosen arm pad tilt adjustment lever (1) to tilt arm pad. Tighten levers when desired position is reached.

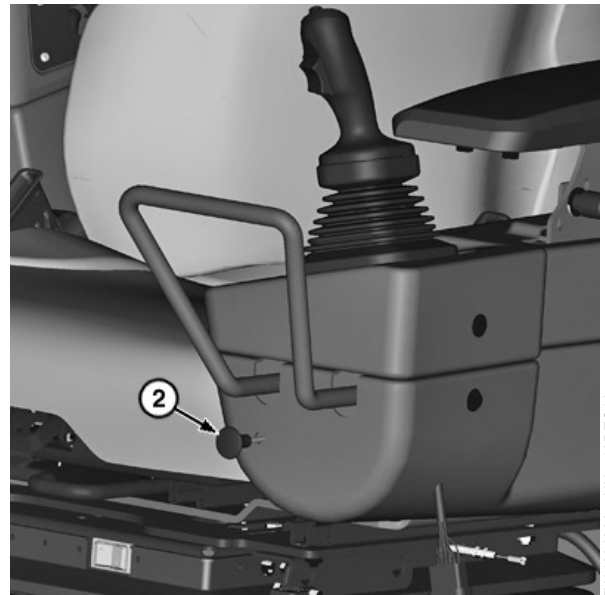
To raise or lower joystick armrest, pull armrest release knob (2) and raise armrest.

- 1—Arm Pad Tilt Adjustment Lever      2—Armrest Release Knob  
Lever



TX1180430A—UN—10DEC14

*Armrest Adjustment*



TX1180438A—UN—10DEC14

*Armrest Release Knob*

CN93077,0000568-19-16MAR15-1/1

# Operation—Operating the Machine

## Before Starting Work

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

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



Reading Operator's Manual

OUT4001,00005EB-19-29JUL13-1/1

T133556—UN—24AUG00

## Inspect Machine Daily Before Starting

Perform daily maintenance checks. See **Maintenance—Every 10 Hours or Daily**. (Section 3-4.)

- Inspect tires (1) and wheels (8) for cuts, bubbles, damaged rims, or missing retainer bolts. Pay special attention to any tire and rim assembly that has been run flat or underinflated.
- Clean operator's station (2), check pedals for freedom of movement, and check fire extinguisher charge (if equipped).
- Inspect air inlet cover (4) and clean as necessary.
- Clean engine shields (5) on each side of machine.
- Check fuel level. Remove fuel tank cap (6) and fill with proper fuel if necessary.
- Inspect fan guard (7) for obstructions.

Inspect the following before starting:

**ELECTRICAL SYSTEM:** Check for worn or frayed wires and loose or corroded connections.

**HYDRAULIC SYSTEM:** Check for leaks, missing or loose clamps, kinked hoses, and lines or hoses that are making contact with each other or other machine parts.

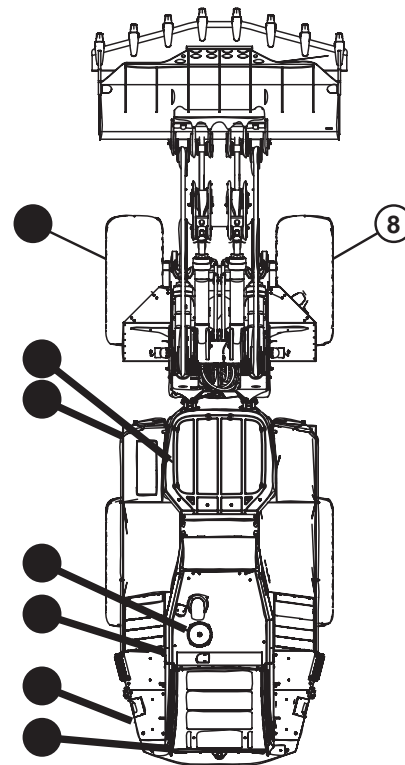
**FUEL SYSTEM:** Check for leaks, missing or loose clamps, kinked hoses, drain water and sediment from primary and auxiliary fuel filters, and lines or hoses that are making contact with each other or other machine parts.

**HARDWARE:** Check for loose or missing parts.

**LUBRICATION:** Check lubrication points on Periodic Maintenance Chart. See **Service Machine at Specified Intervals**. (Section 3-2.)

**SHEET METAL AND TIRES:** Check for bent, broken, loose, or missing parts.

**PROTECTIVE DEVICES:** Inspect guards, shields, roll-over protective structure (ROPS), and seat belt.



Machine Inspection

- |                         |                          |
|-------------------------|--------------------------|
| 1—Tire (4 used)         | 5—Engine Shield (2 used) |
| 2—Operator's Station    | 6—Fuel Tank Cap          |
| 3—Hydraulic Sight Glass | 7—Fan Guard              |
| 4—Air Inlet Cover       | 8—Wheel (4 used)         |

**SAFETY:** Walk around machine to be sure all persons are away from machine area.

CN93077,0000546-19-09FEB15-1/1

TX1184786—UN—09FEB15

## Coast Control Operation

**CAUTION:** Prevent possible injury. More aggressive deceleration settings (more LEDs illuminated) may create difficulties controlling the braking and steering functions on ice or in other slick conditions. The higher setting should only be used when traction conditions are good.

Coast control uses the electric drive system to help slow machine during operation.

### Coast control allows for:

- Minimal, if any, service brake application required when slowing to a stop.
- Reduced brake disc wear.
- Increased fuel economy.
- Increased productivity.

Coast control has four settings which can be selected by pressing and releasing the coast control switch (1) on the sealed switch module (SSM).

### To use coast control:

- Press and release coast control switch (left LED is illuminated) for moderately low deceleration setting.
- Press and release coast control switch again (left and middle LEDs are illuminated) for moderately high deceleration setting.
- Press and release coast control switch again (all three LEDs are illuminated) for highest deceleration setting.



Sealed Switch Module (SSM)

### 1—Coast Control Switch

- Press and release coast control switch again (all LEDs off) for lowest deceleration setting.

CN93077,0000560-19-10NOV22-1/1

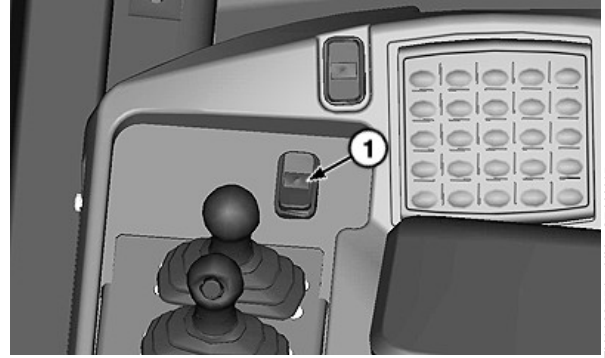
### Counter Switch Operation

This machine includes a counter switch (1), located on the right side of the operator's seat near the sealed switch module (SSM). The switch consists of three individual buttons. The ADD BUCKET button is only available with LOADRITE™ payload weighing system. For more information, see an authorized John Deere dealer.

The SELECT COUNTER button allows the operator to select from up to five different counters which can correspond to five different aggregates. The operator can choose how many counters are selected. See Setup—Machine Preferences. (Section 2-3.)

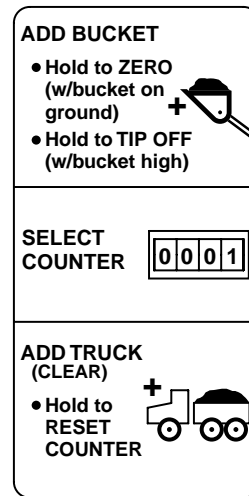
The counter currently selected is displayed on the display unit in the box to the right of the hour meter. Press and release the ADD TRUCK button to increment the counter by one. Press and hold the ADD TRUCK button to reset the counter.

1—Counter Switch



TX1183554—UN—27JAN15

Counter Switch



Counter Switch Label

TX1044805—19—10JUL08

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CN93077,000052E-19-10NOV22-1/1

### Boom Height Kickout (BHKO) Adjustment

**NOTE:** The boom height kickout (BHKO) position remains the same until a new position is set.

1. With engine running and pilot enable/boom down switch (1) on, raise boom to desired kickout height.
2. Press and release boom height kickout (BHKO) enable switch (2) to turn on function.
3. Press and hold boom height kickout (BHKO) enable switch until audible alarm sounds and LED on switch flashes to set new position.

1—Pilot Enable/Boom Down Switch

2—Boom Height Kickout (BHKO) Enable Switch



TX1110952A—UN—26MAR12

Sealed Switch Module (SSM)

CN93077,000053F-19-10NOV22-1/1

## Main Menu

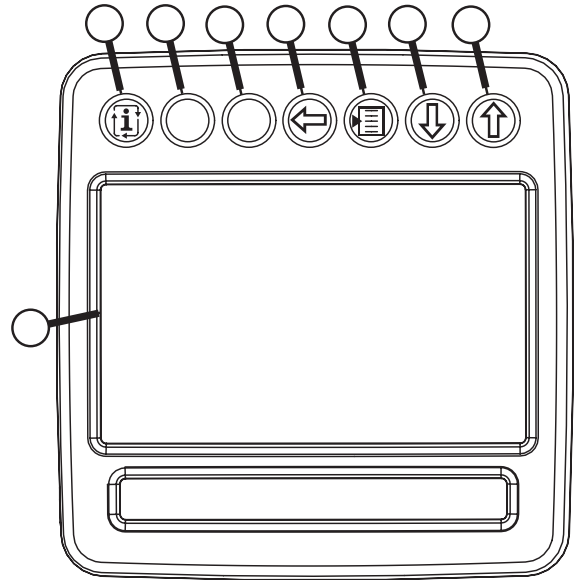
The MAIN MENU displays three submenus which can be selected to view diagnostic information or change various operating characteristics of machine or display unit.

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

Press SELECT button (5) to access MAIN MENU.

Navigate menu using UP (7), DOWN (6), SELECT, and BACK (4) buttons on primary display unit (PDU). For button operation, see Primary Display Unit (PDU) Functions. (Section 2-1.)

- |               |                 |
|---------------|-----------------|
| 1—INFO Button | 5—SELECT Button |
| 2—Not Used    | 6—DOWN Button   |
| 3—Not Used    | 7—UP Button     |
| 4—BACK Button | 8—Display       |



Primary Display Unit (PDU)

TX110923—UN—23MAR12

### MAIN MENU Items

Menu Items	Description
OPERATION	Allows operator to change various operating characteristics of machine.
DIAGNOSTICS	Provides a limited set of tools, and is intended to be used by machine operators and service personnel for diagnostic and troubleshooting functions.
SETUP	Allows operator to change various operating characteristics of machine and display unit.

CN93077,0000542-19-05MAR15-1/1

## Operation—Stop Watch

STOP WATCH menu contains a resettable stop watch that can be used to display time in hours, minutes, and seconds.

Navigate through menu: **MAIN MENU >> OPERATION >> STOP WATCH.**

- SELECT button starts and stops timer.
- DOWN button resets timer.
- BACK button exits stop watch screen.

CN93077,00002C9-19-10JUN14-1/1

## Operation—Job Timer

JOB TIMER menu contains a resettable timer that may be used to display hours to nearest tenth of an hour for a job.

Navigate through menu: **MAIN MENU >> OPERATION >> JOB TIMER.**

- SELECT button starts and stops timer.
- DOWN button resets timer.
- BACK button exits job timer screen.

Timer rolls over to 0 after 6400 hours have been reached.

CN93077,000054B-19-11FEB15-1/1

## Operation—Reverse Fan (If Equipped)

REVERSE FAN menu displays the reverse cycle state and fan speed.

Navigate through menu: **MAIN MENU >> OPERATION >> REVERSE FAN.**

- SELECT button begins reverse cycle.
- BACK button exits reverse fan screen.

JB3888,0000ADF-19-13FEB15-1/1

### Diagnostics—Joystick Steering

The JOYSTICK STEERING menu displays current data from machine sensors that provide input to machine controllers.

Navigate through menu: **MAIN MENU >> DIAGNOSTICS >> JOYSTICK STEERING.**

JOYSTICK STEERING Menu Items	
Submenu Items	Value
ARTICULATION ANGLE	DEGREE
ARMREST SWITCH A	<ul style="list-style-type: none"> <li>• UP</li> <li>• DOWN</li> <li>• NOT AVAILABLE</li> <li>• ERROR</li> </ul>
ARMREST SWITCH B	

JB3888,0000AF3-19-04MAR15-1/1

### Diagnostics—Machine Sensors

The MACHINE SENSORS menu displays current data from machine sensors that provide input to machine controllers.

Navigate through menu: **MAIN MENU >> DIAGNOSTICS >> MACHINE SENSORS.**

MACHINE SENSORS Menu Items	
Submenu Items	Value
FUEL LEVEL	%
BOOM POSITION	
BUCKET POSITION	
HORN SWITCH	<ul style="list-style-type: none"> <li>• OPEN</li> <li>• CLOSED</li> <li>• INVALID/FAULTED</li> </ul>
PLATFORM LIGHT SWITCH—ON	
PLATFORM LIGHT SWITCH—OFF	
ENGINE LIGHT SWITCH	<ul style="list-style-type: none"> <li>• OPEN</li> <li>• CLOSED</li> <li>• ERROR</li> <li>• NOT AVAILABLE</li> </ul>
FAN SPEED—COMMANDED	%
FAN SPEED—ACTUAL	RPM
AMBIENT TEMP	°C, °F
FAN CONTROLLED BY	<ul style="list-style-type: none"> <li>• NO SENSOR DRIVING</li> <li>• ENGINE COOLANT TEMP</li> <li>• TCU FAN SPEED RQST</li> <li>• HYDRAULIC OIL TEMP</li> <li>• CHARGE AIR COOLER</li> <li>• MT1 AXLE OIL TEMP</li> <li>• MT2 AXLE OIL TEMP</li> <li>• MT3 AXLE OIL TEMP</li> <li>• MT4 AXLE OIL TEMP</li> <li>• AC INPUT DRIVING</li> <li>• AMBIENT AIR TEMP</li> <li>• REVERSE FAN</li> <li>• GEAR BOX OIL TEMP</li> </ul>

JB3888,0000AF4-19-19FEB15-1/1

## Biodiesel Fuel

Biodiesel fuel is comprised of monoalkyl esters of long chain fatty acids derived from vegetable oils or animal fats. Biodiesel blends are biodiesel mixed with petroleum diesel fuel on a volume basis.

Before using fuel containing biodiesel, review the Biodiesel Use Requirements and Recommendations in this Operator's Manual.

Environmental laws and regulations can encourage or prohibit the use of biofuels. Operators should consult with appropriate governmental authorities prior to using biofuels.

### John Deere Stage V Engines Operating in the European Union

Where the engine is to be operated within the Union on diesel or non-road gas-oil, a fuel with a FAME content not greater than 8% volume/volume (B8) shall be used.

### John Deere Engines with Exhaust Filter Except Stage V Engines Operating in the European Union

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

Biodiesel concentrations above B20 can harm the engine's emission control systems and should not be used. Risks include, but are not limited to, more frequent stationary regeneration, soot accumulation, and increased intervals for ash removal.

John Deere Fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B20, and are recommended when using lower biodiesel blends.

### John Deere Engines Without Exhaust Filter

Biodiesel blends up to B20 can be used ONLY if the biodiesel (100% biodiesel or B100) meets ASTM D6751, EN 14214, or equivalent specification. Expect a 2% reduction in power and a 3% reduction in fuel economy when using B20.

These John Deere engines can operate on biodiesel blends above B20 (up to 100% biodiesel). Operate at levels above B20 ONLY if the biodiesel is permitted by law and meets the EN 14214 specification (primarily available in Europe). Engines operating on biodiesel blends above B20 might not fully comply with or be permitted by all applicable emissions regulations. Expect up to a 12% reduction in power and an 18% reduction in fuel economy when using 100% biodiesel.

John Deere fuel conditioners or equivalent, which contain detergent and dispersant additives, are required when using biodiesel blends from B10 to B100, and are recommended when using lower biodiesel blends.

## Biodiesel Use Requirements and Recommendations

The petroleum diesel portion of all biodiesel blends must meet the requirements of ASTM D975 (US) or EN 590 (EU) commercial standard.

Biodiesel users in the U.S. are strongly encouraged to purchase biodiesel blends from a BQ-9000 Certified Marketer and sourced from a BQ-9000 Accredited Producer (as certified by the National Biodiesel Board). Certified Marketers and Accredited Producers can be found at the following website: <http://www.bq9000.org>.

Biodiesel contains residual ash. Ash levels exceeding the maximums allowed in either ASTM D6751 or EN14214 can result in more rapid ash loading and require more frequent cleaning of the Exhaust Filter (if present).

The fuel filter can require more frequent replacement when using biodiesel fuel, particularly if switching from diesel. Check engine oil level daily prior to starting engine. A rising oil level can indicate fuel dilution of the engine oil. Biodiesel blends up to B20 must be used within 90 days of the date of biodiesel manufacture. Biodiesel blends above B20 must be used within 45 days from the date of biodiesel manufacture.

When using biodiesel blends up to B20, the following must be considered:

- Cold-weather flow degradation
- Stability and storage issues (moisture absorption, microbial growth)
- Possible filter restriction and plugging (usually a problem when first switching to biodiesel on used engines)
- Possible fuel leakage through seals and hoses (primarily an issue with older engines)
- Possible reduction of service life of engine components

Request a certificate of analysis from your fuel distributor to ensure that the fuel is compliant with the specifications provided in this Operator's Manual.

Consult your John Deere dealer for John Deere fuel products to improve storage and performance with biodiesel fuels.

The following must also be considered if using biodiesel blends above B20:

- Possible coking or blocked injector nozzles, resulting in power loss and engine misfire if John Deere fuel additives and conditioners or equivalent containing detergent/dispersants are not used
- Possible crankcase oil dilution (requiring more frequent oil changes)
- Possible lacquering or seizure of internal components
- Possible formation of sludge and sediments
- Possible thermal oxidation of fuel at elevated temperatures
- Possible compatibility issues with other materials

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### Grease—If Equipped with Auto Lube System

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

NLGI Performance Classification GC-LB greases containing 3 to 5% molybdenum disulfide are preferred.

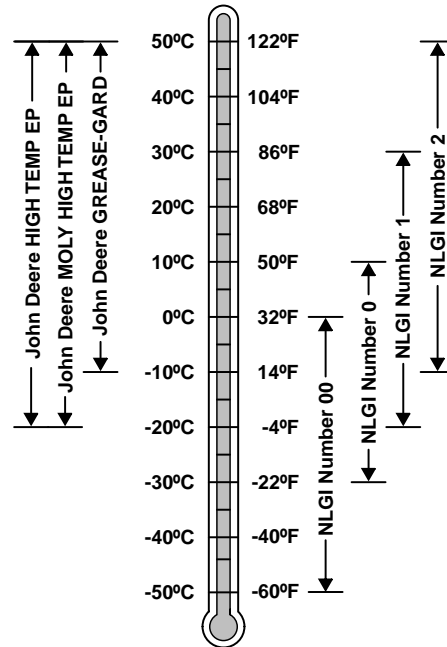
The following greases are recommended:

- NLGI No.1

Other greases may be used if they meet the following:

- Grease performance <1000 psig at 0°F.
- SAE multipurpose EP grease

**IMPORTANT: Some types of grease thickeners are not compatible with others. Consult your grease supplier before mixing different types of grease.**



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### Grease

Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

**John Deere MOLY HIGH TEMPERATURE EP GREASE** or SAE multipurpose EP grease containing 3 to 5% molybdenum disulfide are preferred.

The following greases are also recommended:

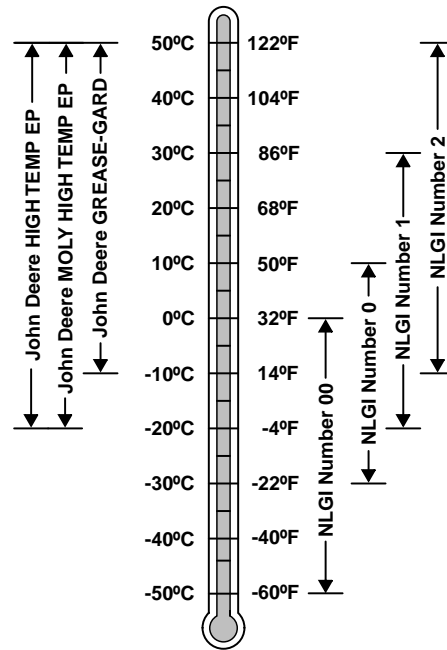
- John Deere HIGH TEMPERATURE EP GREASE
- John Deere GREASE-GARD™
- NLGI No.2
- NLGI No.1
- NLGI No.0
- NLGI No.00

Other greases may be used if they meet the following:

- SAE multipurpose EP grease
- NLGI Performance Classification GC-LB
- MIL-PRF-10924

**IMPORTANT: Some types of grease thickeners are not compatible with others. Consult your grease supplier before mixing different types of grease.**

*GREASE-GARD is a trademark of Deere & Company*



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## Service Intervals

<b>Model:</b>	<b>Hour Meter Reading:</b>
<b>PIN/Serial Number:</b>	
<b>SERVICE INTERVALS</b>	
Service machine at intervals shown on this chart. Also, perform service on items at multiples of the original requirement. For example, at 500 hours also service those items listed under 250 hours, 100 hours, 50 hours, and 10 hours or daily.	
<b>FLUID SAMPLING</b>	
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 supplied. Regular fluid sampling extends the operational life of machine.	
<b>As Required</b>	
<input type="checkbox"/> Inspect tires and check pressure	<input type="checkbox"/> Clean cooler cores
<input type="checkbox"/> Check wheel bolt/nut torque	<input type="checkbox"/> Drain primary fuel filter and water separator
<input type="checkbox"/> Service exhaust filter	<input type="checkbox"/> Inspect engine air cleaner elements
<input type="checkbox"/> Replace fuel tank breather filter	<input type="checkbox"/> Check windshield washer fluid level
<input type="checkbox"/> Replace fast fill fuel breather filter—if equipped	<input type="checkbox"/> Check cab fresh air filter
<input type="checkbox"/> Inspect accessory drive belt	<input type="checkbox"/> Check cab recirculating air filter
<input type="checkbox"/> Check rear camera and radar object detection (ROD) system—if equipped	<input type="checkbox"/> Clean gear case in-line screen
<b>Every 10 Hours or Daily</b>	
<input type="checkbox"/> Check coolant level at engine surge tank	<input type="checkbox"/> Check hydraulic system oil level
<input type="checkbox"/> Check coolant level at inverter surge tank	<input type="checkbox"/> Inspect outer pin seals
<input type="checkbox"/> Check engine oil level	
<b>Every 100 Hours</b>	
<input type="checkbox"/> Lubricate loader linkage and cylinder pivots (unless NeverGrease™ equipped)	<input type="checkbox"/> Check gear case oil level
<b>Initial Service—250 Hours<sup>1</sup></b>	
<input type="checkbox"/> Drain and refill axle oil	<input type="checkbox"/> Drain and refill gear case oil
<input type="checkbox"/> Replace axle oil filters	<input type="checkbox"/> Replace gear case oil filter
<input type="checkbox"/> Clean gear case in-line screen	<input type="checkbox"/> Clean axle suction screens
<sup>1</sup> Perform initial service once after the first 250 hours of operation	
<b>Every 250 Hours</b>	
<input type="checkbox"/> Take engine oil sample	
<b>Every 500 Hours</b>	
<input type="checkbox"/> Check ride control accumulator	<input type="checkbox"/> Replace final fuel filter
<input type="checkbox"/> Check auto-lube pump crankcase oil level—if equipped	<input type="checkbox"/> Replace hydraulic reservoir breather filter
<input type="checkbox"/> Check axle oil level	<input type="checkbox"/> Take axle oil sample
<input type="checkbox"/> Lubricate drive shaft	<input type="checkbox"/> Take hydraulic system oil sample
<input type="checkbox"/> Check air intake hoses and charge air cooler tube couplings	<input type="checkbox"/> Take gear case oil sample
<input type="checkbox"/> Check battery electrolyte level; clean and tighten terminals	<input type="checkbox"/> Take diesel fuel sample
<input type="checkbox"/> Drain and refill engine oil and replace filter	<input type="checkbox"/> Take engine coolant sample
<input type="checkbox"/> Replace in-line fuel strainer	<input type="checkbox"/> Take inverter coolant sample
<input type="checkbox"/> Replace primary fuel filter	
<b>Every 1000 Hours</b>	
<input type="checkbox"/> Check engine and inverter coolant condition	<input type="checkbox"/> Lubricate frame hinge pivots
<input type="checkbox"/> Clean hydraulic fan drive case in-line screen	<input type="checkbox"/> Replace engine air cleaner elements

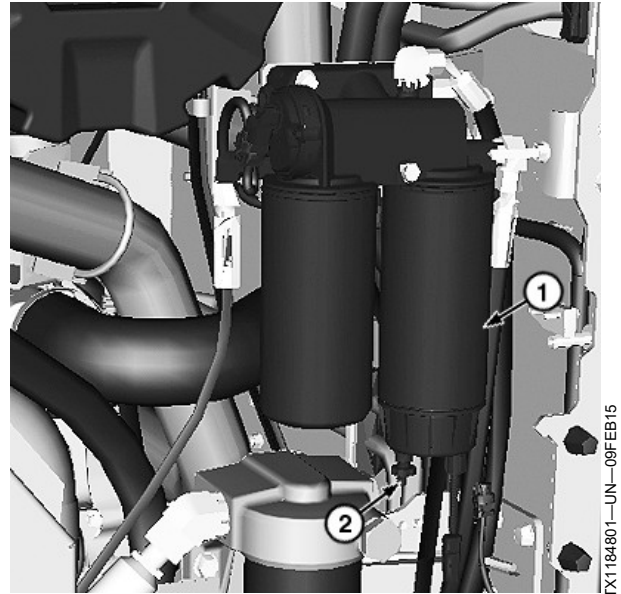
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### Drain Primary Fuel Filter and Water Separator

1. Park machine on a level surface and lower equipment to ground.
2. Shut engine off.
3. Open left engine service door and lower side shield. See Engine Service Doors and Side Shields. (Section 3-2.)
4. Thoroughly clean exterior of primary fuel filter and water separator assembly (1) and surrounding area.
5. Place suitable container under drain hose.
6. Open drain valve (2) and allow water and sediment to drain into suitable container.
7. Close drain valve. Dispose of waste properly.
8. Bleed fuel system. See Bleed Fuel System. (Section 4-1.)
9. Close lower side shield and engine service door.

1—Primary Fuel Filter and Water Separator Assembly      2—Drain Valve



Primary Fuel Filter and Water Separator

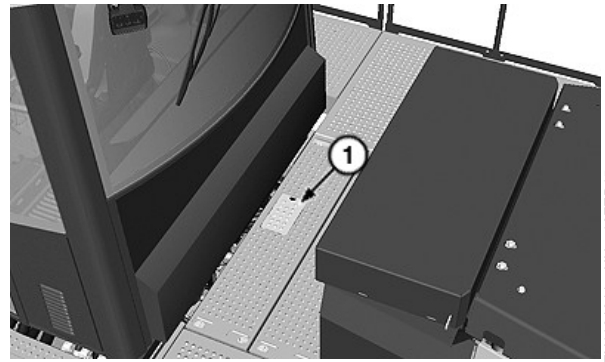
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### Check Gear Case Oil Level

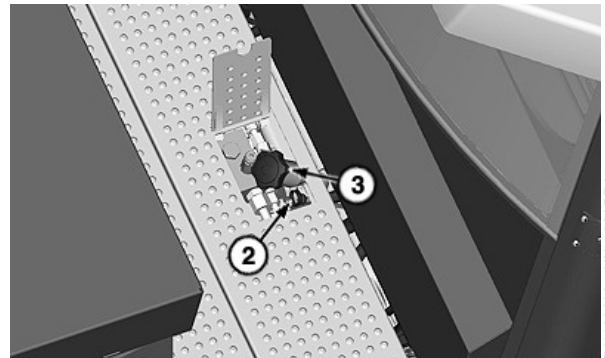
1. Park machine on a level surface and lower equipment to ground.
  2. On the platform behind the cab, open access cover (1).
  3. Run engine for at least 10 minutes.
  4. Shut engine off and remove dipstick (2). Wipe dipstick clean and replace completely into tube.
  5. Remove dipstick. Oil must be in the dipstick cross-hatch area.
  6. If necessary, remove fill cap (3) and add oil. See Axle and Gear Case Oil. (Section 3-1.)
- NOTE: If engine is off for more than 5 minutes between checking gear case oil level, machine should be cycled on for 30 seconds before checking again.*
7. Check oil level.
  8. Install fill cap and close access cover.

1—Access Cover  
2—Dipstick

3—Fill Cap



Access Cover



Gear Case Dipstick and Fill Cap

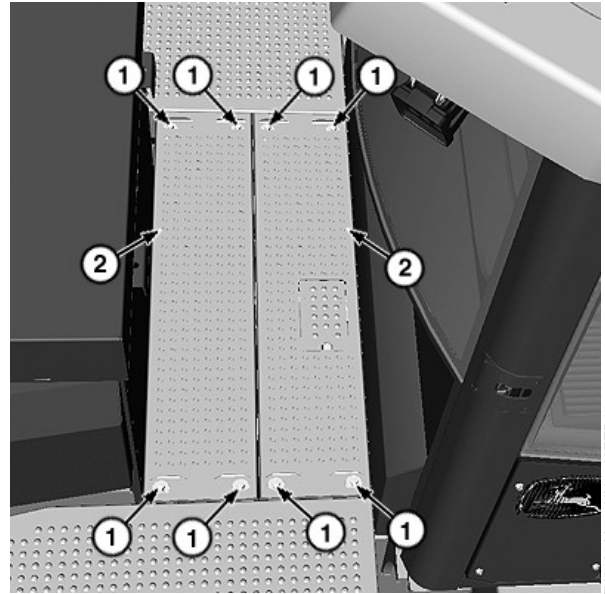
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## Lubricate Drive Shaft

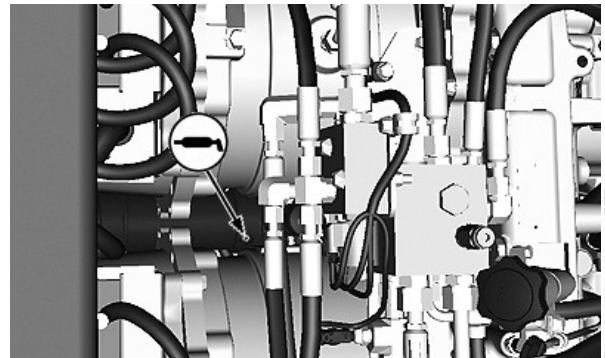
1. Park machine on a level surface and lower equipment to ground.
2. Shut engine off.
3. Rotate drive shaft until grease zerk is positioned as shown.
4. Remove cap screws (1) and access panels (2).
5. Lubricate drive shaft. See Grease. (Section 3-1.)
6. Install access panels and cap screws.

1—Cap Screw (8 used)

2—Access Panel (2 used)



Access Panels



Drive Shaft Position

KR46761,0000E7D-19-17FEB15-1/1

## Replace Engine Air Cleaner Elements

**IMPORTANT:** Prevent possible engine damage. Do not clean engine air cleaner elements. Replace filters when engine air filter restriction indicator is illuminated on primary display unit (PDU). To prevent dirt from being sucked into engine, do not remove filters when engine is running. Do not start engine without both primary and secondary filters installed.

If engine air filter restriction indicator on primary display unit (PDU) is illuminated, replace primary air cleaner element (3). Replace secondary air cleaner element (4) every other primary air cleaner element replacement.

If engine air filter restriction indicator on PDU remains illuminated after only primary air cleaner element is replaced, replace secondary engine air cleaner element.

1. Park machine on a level surface and lower equipment to ground.
2. Shut engine off.
3. Open left engine service door and lower side shield. See Engine Service Doors and Side Shields. (Section 3-2.)
4. Release latches (1) and remove engine air cleaner cover (2).
5. Remove primary air cleaner element (3) by gently moving end of element back and forth to break seal.
6. Remove secondary air cleaner element (4) by pulling straight out.

**IMPORTANT:** DO NOT use compressed air to clean debris from air cleaner housing. Debris can enter engine, causing internal engine damage.

7. Clean air cleaner housing.

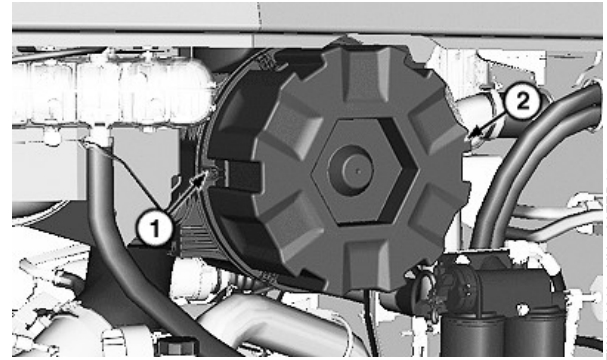
*NOTE:* Engine air filter restriction indicator will not signal correctly if an engine air cleaner element has a break or is not correctly sealed in air cleaner housing.

9. Install secondary air cleaner element into housing making sure it is centered in canister, then install primary air cleaner element.

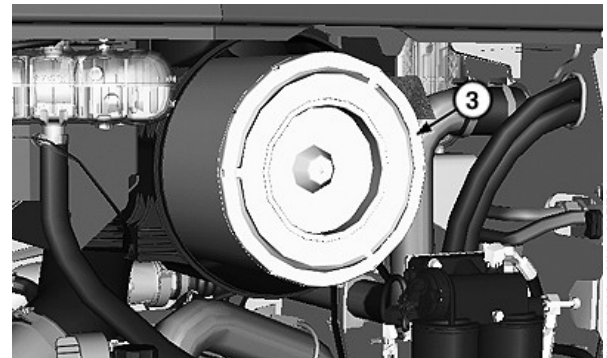
10. Inspect and clean engine air cleaner cover.

**IMPORTANT:** Prevent possible engine damage. If engine air cleaner cover does not fit flush to air filter housing, primary filter is not properly seated in housing.

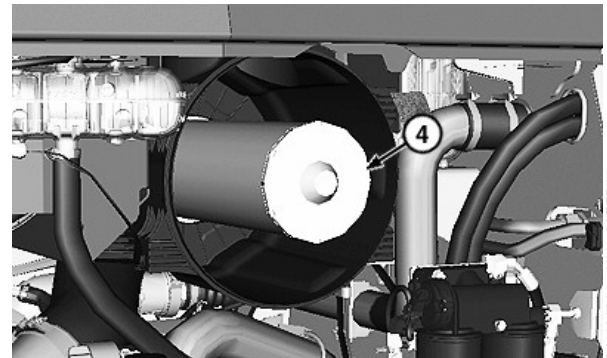
11. Install engine air cleaner cover and secure latches.



Engine Air Cleaner Element Cover



Primary Engine Air Cleaner Element



Secondary Engine Air Cleaner Element

- |                            |                                 |
|----------------------------|---------------------------------|
| 1—Latch (6 used)           | 3—Primary Air Cleaner Element   |
| 2—Engine Air Cleaner Cover | 4—Secondary Air Cleaner Element |

12. Close lower side shield and engine service door.
13. Start engine and check PDU for engine air filter restriction indicator to verify there is no restriction.

DB84312,000016D-19-03MAR15-1/1

## Clean Hydraulic Pump Case Drain In-Line Screen

1. Park machine on a level surface and lower equipment to ground.
2. Install frame locking bar. See Frame Locking Bar. (Section 3-2.)
3. Press engine stop switch (1).
4. Press and release engine start switch (2); DO NOT START engine.
5. Press return-to-carry (RTC) enable switch (3) to OFF setting (LED is off).

**⚠ CAUTION: Prevent possible injury from unexpected boom movement. Clear all bystanders from area around boom and bucket. Boom may move when ride control switch (4) is turned on.**

6. Make sure that area around boom and bucket is clear.

*NOTE: When ride control switch is in AUTO mode (both LEDs are on), ride control accumulator hydraulic pressure cannot be discharged.*

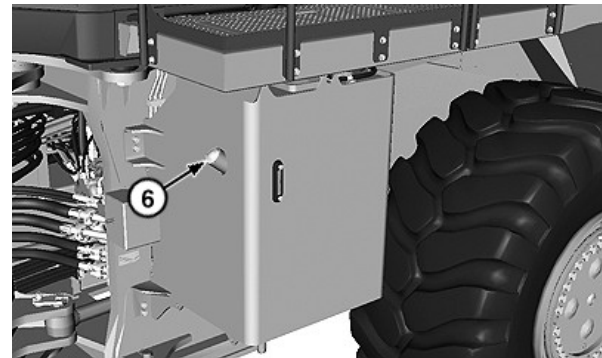
7. Cycle ride control switch (4) to OFF mode (both LEDs are off), then to ON mode (left LED is on).
8. Press and hold pilot enable/boom down switch (5) while holding boom control lever in the float position (fully forward) for 5 seconds.
9. While still holding pilot enable/boom down switch, cycle hydraulic control lever to relieve pressure.
10. Press engine stop switch.
11. Remove fill cap (6).

1—Engine Stop Switch  
2—Engine Start Switch  
3—Return-to-Carry (RTC) Enable Switch

4—Ride Control Switch  
5—Pilot Enable/Boom Down Switch  
6—Fill Cap



Sealed Switch Module (SSM)



Hydraulic Reservoir Fill Cap

Continued on next page

JB3888.0000AAC-19-10NOV22-1/2

### Bleed Fuel System

*NOTE: This procedure should be performed after each fuel filter change or when the engine has run out of fuel.*

Air can enter fuel system when changing fuel filters or when machine has run out of fuel. Air in the fuel system can prevent the engine from starting or cause rough idle. This machine is equipped with an electric priming pump. Prime fuel system and bleed air as follows:

1. Press and release engine start switch to energize ignition system and fuel pump. Let pump run for 60 seconds to prime fuel system.
2. After 60 seconds, press engine start switch to start the engine.
3. Run engine for 5 minutes at slow idle.

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### Do Not Service or Adjust Injection Nozzles or High-Pressure Fuel Pump

If injection nozzles are not working correctly or are dirty, the engine will not run normally. See an authorized John Deere dealer for service.

Changing the high-pressure fuel pump in any way not

approved by the manufacturer will end the warranty. See copy of the John Deere warranty on this machine.

Do not service a high-pressure fuel pump that is not operating correctly. See an authorized John Deere dealer.

VD76477,0000366-19-30MAR17-1/1

### Do Not Service Control Valves, Cylinders, Pumps, or Motors

Special tools and information are needed to service control valves, cylinders, pumps, or motors.

If these parts need service, see an authorized John Deere dealer.

TX,90,DH2537-19-13AUG20-1/1

### Precautions for Alternator and Regulator

When batteries are connected, follow these rules:

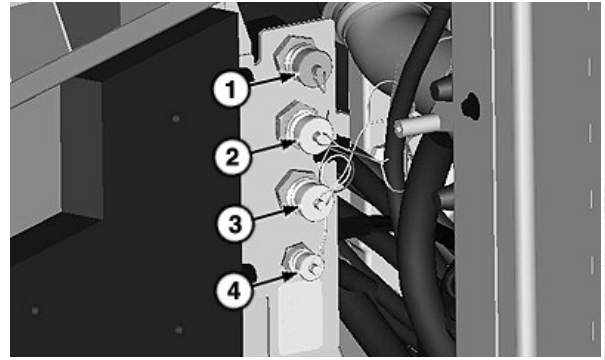
1. Disconnect negative (-) battery cable when working on or near alternator or regulator.
2. DO NOT TRY TO POLARIZE ALTERNATOR OR REGULATOR.
3. Be sure that alternator wires are correctly connected BEFORE connecting batteries.
4. Do not ground alternator output terminal.
5. Do not disconnect or connect any alternator or regulator wires while batteries are connected or while the alternator is operating.
6. Connect batteries or a booster battery in the correct polarity (positive [+] to positive [+] and negative [-] to negative [-]).
7. Do not disconnect the batteries when engine is running and alternator is charging.
8. Disconnect battery cables before connecting battery charger to the batteries. If machine has more than one battery, each battery must be charged separately.
9. Before washing machine, place a water repellent cover over the alternator.
10. To prevent component damage, the water jets need to be set at a 45-degree angle with reduced water pressure. Avoid direct contact with electrical and electronic connectors.

CED,OUO1021,185-19-04MAR20-1/1

### Quick Service Connectors—If Equipped

Open left engine service door and lower side shield to access quick service connectors.

- |  |  |
|--|--|
| 1—Transmission Oil Service Connection Port | 3—Engine Oil Service Connection Port     |
| 2—Hydraulic Oil Service Connection Port    | 4—Engine Coolant Service Connection Port |



Quick Service Connection Ports

CN93077,000054E-19-19FEB15-1/1

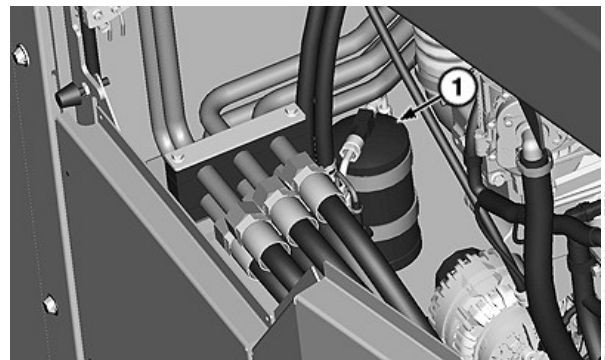
### Air Conditioning System Service

**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 an authorized 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 an authorized John Deere 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.



Receiver-Dryer

1—Receiver-Dryer

CN93077,0000550-19-16MAR15-1/1

### Service Brake Inspection

**IMPORTANT:** Check both front and rear axle during each inspection.

See an authorized John Deere dealer for service brake inspection.

CN93077,0000566-19-16MAR15-1/1

**Neutral Start Check**

Move joystick steering forward, neutral, and reverse (FNR) switch to forward or reverse position.

Press engine start switch to start engine (both LEDs are on).

*LOOK/LISTEN: Does engine start?*

*Does PDU indicate transmission is in neutral (N)?*

*LISTEN: Does audible alarm sound?*

*NOTE: Machine will not shift from neutral until FNR switch is moved back to neutral position and park brake is released.*

**YES:** Go to next check.


**NO:** See an authorized John Deere dealer.

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**Operational Checks—Ignition ON, Engine ON Checks**

CN93077,000055E-19-24APR18-15/36

**Power Train and Hydraulic Oil Warm-Up Procedure**

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

**Wear seat belt while operating machine.**

**IMPORTANT:** For following checks, all systems must be in operating temperature range for accurate test results.

**YES:** Go to next check.

Continued on next page

CN93077,000055E-19-24APR18-16/36

<p><b>Rear Camera Check (If Equipped)</b></p>	<p>Clean camera lens of any accumulation of dust, mud, snow, ice, or debris.</p> <p><i>NOTE: For more information on different camera modes of rear object detection (ROD) system, see Diagnostics—Rear Object Detection (If Equipped). (Section 2-3.)</i></p> <p>Display camera mode menu using primary display unit (PDU):</p> <ul style="list-style-type: none"> <li>• Press SELECT button to display MAIN MENU.</li> <li>• Press DOWN button until SETUP is highlighted.</li> <li>• Press SELECT button to display SETUP menu.</li> <li>• Press DOWN button until MACHINE PREFERENCES is highlighted.</li> <li>• Press SELECT button to display MACHINE PREFERENCES menu.</li> <li>• Press DOWN button until CAMERA MODE is highlighted.</li> <li>• Press SELECT button to display CAMERA MODE menu.</li> </ul> <p>Select MANUAL mode in CAMERA MODE menu.</p> <p>Press INFO button to return to normal display.</p> <p>Press INFO button to display image from rear camera.</p> <p><i>LOOK: Does PDU display image from rear camera?</i></p>	<p><b>YES:</b> Go to next step in this check.</p> <p><b>NO:</b> See an authorized John Deere dealer.</p>
	<p>Select OBJECT DETECTION to ON in MACHINE PREFERENCES menu.</p> <p>Select OBJECT mode in CAMERA MODE menu.</p> <p><b>IMPORTANT: To prevent possible property damage or damage to machine, DO NOT rely only on rear object detection system to judge distance to object. Turn and look to rear of machine to verify distance to object. Use rear view mirrors to assist as necessary.</b></p> <p>Select reverse on FNR switch.</p> <p>Slowly drive machine in reverse until rear of machine is within 4—5 m (12—15 ft) of a large, solid object.</p> <p><i>LOOK: Does PDU display image from rear camera?</i></p> <p>Select forward on FNR switch and drive machine forward until rear of machine is at least 6 m (20 ft) away from object.</p> <p><i>LOOK: Does PDU return to CAMERA MODE menu?</i></p>	<p><b>YES:</b> Go to next step in this check.</p> <p><b>NO:</b> See an authorized John Deere dealer.</p>
	<p>Select REVERSE mode in CAMERA MODE menu.</p> <p>Select reverse on FNR switch.</p> <p><i>LOOK: Does PDU display image from rear camera when reverse is selected on FNR lever?</i></p> <p>Select neutral on FNR switch.</p> <p><i>LOOK: Does PDU return to CAMERA MODE menu?</i></p>	<p><b>YES:</b> Go to next step in this check.</p> <p><b>NO:</b> See an authorized John Deere dealer.</p>
	<p>Select OBJECT DETECTION to ON in MACHINE PREFERENCES menu.</p> <p>Select IN REVERSE WITH OBJECT mode in CAMERA MODE menu.</p> <p>Select reverse on FNR switch.</p> <p>Slowly drive machine in reverse until rear of machine is within 4—5 m (12—15 ft) of a large, solid object.</p> <p><i>LOOK: Does PDU display image from rear camera?</i></p> <p>Select neutral on FNR switch.</p> <p><i>LOOK: Does PDU return to CAMERA MODE menu?</i></p>	<p><b>YES:</b> Go to next check.</p> <p><b>NO:</b> See an authorized John Deere dealer.</p>

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## Hydraulic System

Symptom	Problem	Solution
<b>No Hydraulic Functions</b>	Pilot enable/boom down switch OFF	Turn pilot enable/boom down switch ON.
	Pilot enable/boom down switch malfunction	See an authorized John Deere dealer.
<b>Poor Hydraulic System Performance</b>	Position sensors out of calibration	Reset boom and bucket position values. See Reset Boom and Bucket Position Values. (Section 2-2.)
	Electrohydraulic (EH) control system is out of calibration	See an authorized John Deere dealer.
<b>Slow Hydraulic Functions</b>	Cold hydraulic oil	Warm hydraulic oil. See Engine Warm-Up. (Section 2-2.)
	Slow engine speed	See Engine Does Not Develop Full Power in engine troubleshooting section.
	Low hydraulic oil level	Check hydraulic oil level. See Check Hydraulic System Oil Level. (Section 3-4.)
	Incorrect hydraulic oil	Drain and refill hydraulic oil. See Drain, Flush, and Refill Hydraulic System Oil. (Section 3-11.)
	Restricted hydraulic lines	Inspect lines. Repair or replace as required.
	Slow cycle times due to low hydraulic system pressures	See an authorized John Deere dealer.
	Diagnostic trouble code (DTC) related problem	See an authorized John Deere dealer.
<b>Noisy Hydraulic Pump</b>	Low hydraulic oil level	Check hydraulic oil level. See Check Hydraulic System Oil Level. (Section 3-4.)
	Plugged or pinched suction line	Clean or replace line.
	Loose or missing hydraulic line clamps	Tighten or replace clamps.
	Pressure sensor malfunction	See an authorized John Deere dealer.
<b>Return-to-Carry (RTC), Boom Height Kickout (BHKO), and/or Return-to-Dig (RTD) Detents Not Functioning</b>	Detent setpoint needs adjustment	Reset boom and bucket position values. See Reset Boom and Bucket Position Values. (Section 2-2.)
<b>Hydraulic Control Soft Stops (end of stroke cushioning) Not Functioning</b>	Position sensors out of calibration	Reset boom and bucket position values. See Reset Boom and Bucket Position Values. (Section 2-2.)

Continued on next page

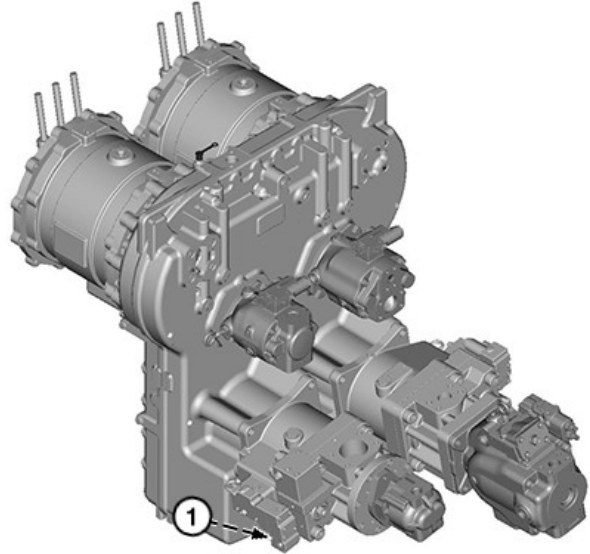
JB3888,0000A63-19-16MAR15-1/2

## Record Bucket Pump Serial Number

Bucket Pump Serial Number:

The bucket pump serial number plate (1) is located on the bucket pump.

1—Bucket Pump Serial Number Plate



TX1165291—UN—02FEB15

Bucket Pump Serial Number Plate Location

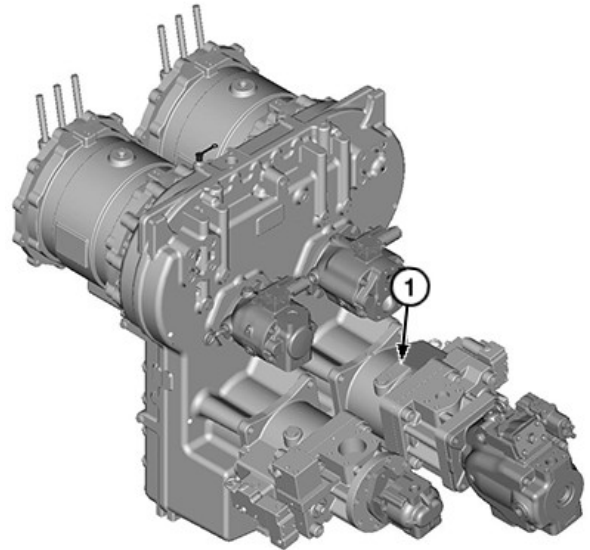
JB3888,0000A9E-19-02FEB15-1/1

## Record Boom Pump Serial Number

Boom Pump Serial Number:

The boom pump serial number plate (1) is located on the boom pump.

1—Boom Pump Serial Number Plate



TX1165250—UN—02FEB15

Boom Pump Serial Number Plate Location

JB3888,0000A9F-19-02FEB15-1/1

### Drain and Refill Capacities

Item	Measurement	Specification
Engine Cooling System	Capacity	128.2 L 33.9 gal
Fuel Tank	Capacity	761.0 L 201.0 gal
Engine Crankcase and Filter	Capacity	43.5 L 11.5 gal
Axle and Final Drive (each)	Capacity	53.0 L 14.0 gal
Hydraulic Reservoir and Filters	Capacity	378.5 L 100.0 gal
Inverter Cooling System	Capacity	17.0 L 4.5 gal
Gear Case	Capacity	34.1 L 9.0 gal
Auto-Lube Pump Crankcase (if equipped)	Capacity	0.5 qt 15.0 oz

JB3888,0000A5A-19-22JAN18-1/1

### Machine Design Life

This machine is designed and manufactured to provide a long life of productive operation, however actual attainable life depends on a number of factors including the severity of working conditions and completion of recommended maintenance. (See the Service section of this manual.)

Periodically inspect and review the machine in conjunction with your John Deere dealer. The review may result in recommendations for service, component repair,

remanufacture or replacement, or, if at the end of life, that the machine be removed from operation. (See separate decommissioning section of this manual for information on disposal and recycling of machine components.)

No machine should be operated if safety-related components are missing or in need of service. All missing or damaged safety-related components, including safety signs, should be repaired or replaced before operating.

DX,MACH,DESIGN,LIFE-19-14SEP15-1/1

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