540H, 548H, 640H, 648H, 748H, and 848H Skidder

(Serial No. 630436 -)

OPERATOR'S MANUAL

540H, 548H, 640H, 648H, 748H, and 848H Skidders (S.N. 630436—)

OMT255825 ISSUE J1 (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.

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Emissions Control Warranty Statement 2022 through 2024

DXLOGOV1 —UN—28APR09

JOHN DEERE

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT
YOUR WARRANTY RIGHTS AND OBLIGATIONS

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

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

CALIFORNIA EMISSIONS CONTROL WARRANTY STATEMENT:

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

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

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

EMISSIONS WARRANTY EXCLUSIONS:

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

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

RG32758 —UN—19AUG20

Continued on next page

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

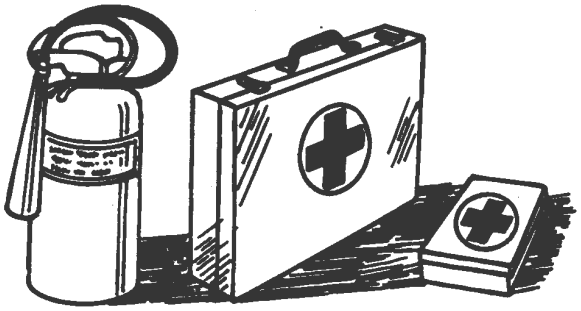
Page

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

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



TS291 —UN—15APR13

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

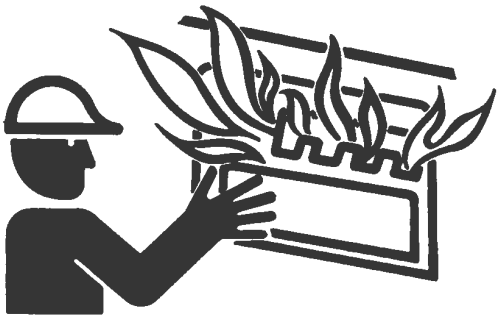
Clean Debris from Machine

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

Clean any oil spills or fuel spills on machine surfaces.

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

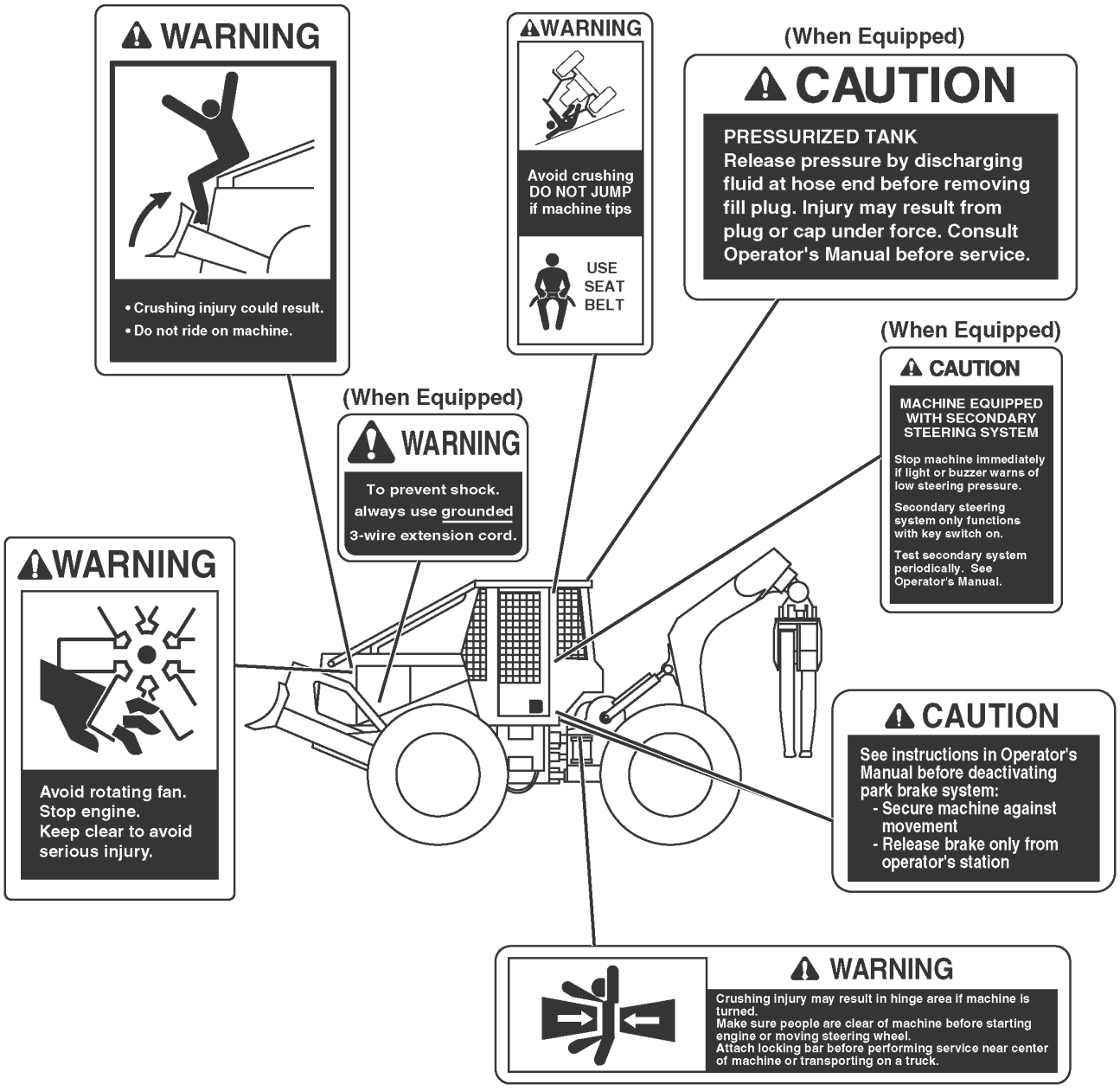
Open access door(s) to cool the engine faster, and clean engine compartment.



T6669AG —UN—15APR13

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

Skidder Safety Signs



TX1077983

TX1077983—19—26MAY10

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OU90V02,00004A1 -19-27MAY10-1/3

13. **Fuel Level Gauge:** Gauge indicates fuel level in tank. Always fill fuel tank at end of day to eliminate condensation in fuel tank. If gauge is in yellow zone, fuel level is low and will light. If the icon flashes and a reminder audible alarm sounds, fill fuel tank.

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

14. **Transmission Oil Temperature Gauge:** Gauge indicates temperature of transmission oil. Normal operating temperature is indicated by the green zone. If indicator points to red zone, the icon will flash, the STOP indicator will turn ON, and a warning audible alarm will sound. TRANSMISSION OIL OVER TEMPERATURE will appear in the display window. Stop machine and operate engine at fast idle under no load until transmission cools. If indicator still points to red zone after several minutes, stop engine. See your authorized dealer.

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

15. **Engine Coolant Temperature Gauge:** Gauge indicates temperature of engine coolant. Normal operating temperature is indicated by the green zone. If indicator points to red zone, the STOP indicator will turn ON and a warning audible alarm will sound. ENGINE COOLANT OVER TEMPERATURE will appear in the display window. Stop machine and operate engine at fast idle under no load until engine cools. If indicator still points to red zone after several minutes, stop engine. See your authorized dealer.

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

16. **STOP Indicator:** Red LED indicator will flash and the warning alarm will sound when a DTC is detected that requires the engine to be immediately stopped. Diagnostic trouble codes that trigger the STOP indicator include:

    - Low engine oil pressure
    - High engine coolant temperature
    - High transmission oil temperature
    - High hydraulic oil temperature
    - Water in fuel
    - Fuel injection pump solenoid problems
    - Fuel pressure problems
    - Selected problems with sensor supply voltages, electronics, and data communication

    Stop machine and see your authorized dealer.

17. **Engine Oil Pressure Indicator:** Red LED indicator will turn ON and a warning alarm will sound when engine oil pressure is low. LOW ENGINE OIL PRESSURE will appear in the display window. Stop machine and attend to warning.

18. **Dual Mode Steering Indicator (If Equipped):** Green LED indicator will turn ON when dual mode steering is in quick steer mode.

19. **Engine Air Filter Restriction Indicator:** Amber LED indicator will turn ON when air filter elements are restricted. ENGINE AIR FILTER RESTRICTION will appear in the display window. Stop machine and attend to caution.

20. **Wait to Start Indicator:** Amber LED indicates glow plugs are operating. When starting engine in cold weather, turn ignition switch to ON. Indicator will light. After indicator goes out, turn ignition switch to START to crank engine.

    In warm weather, wait to start indicator may not light at all.

21. **Alternator Voltage Indicator:** Red LED indicator will turn ON when alternator output voltage is low. Battery requires attention. HIGH SYSTEM VOLTAGE or LOW SYSTEM VOLTAGE will appear in the display window. Stop machine and attend to warning.

22. **Fasten Seat Belt Indicator:** Red LED indicator will turn ON for 5 seconds when engine is started.

Audible Alarms

There are six audible alarms that may sound.

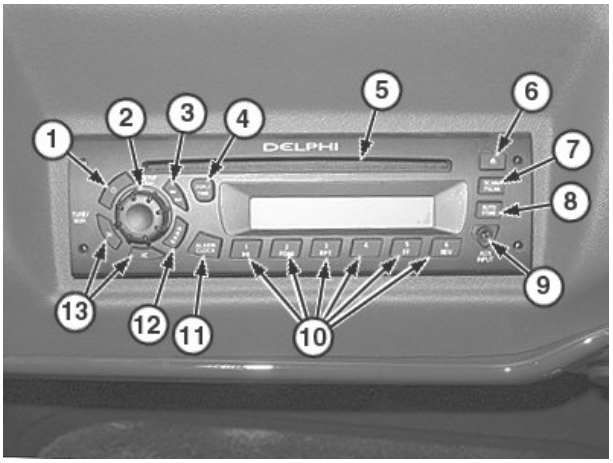
- Continuous Alarm—will sound continuously until canceled.
- Warning Alarm—will sound ON for 1/2 second, OFF for 1/2 second, then repeat pattern every second. Flashing indicators will be synchronized with audible alarm.
- Button Feedback Alarm—will sound long pulse ON, short OFF, and long pulse ON pattern for 1 second and repeat every 15 seconds.
- Reminder Alarm—will sound long pulse ON, short OFF, and long pulse ON pattern for 1 second. It will not repeat.
- Low Priority Reminder (Pattern 2)—will sound short pulse ON, short OFF, short pulse ON, short OFF, short pulse ON, and long OFF pattern for 1 second and repeat every 15 seconds.
- Low Priority Reminder (Pattern 1)—will sound short pulse ON, short OFF, short pulse ON, short OFF, short pulse ON, and long OFF pattern for 1 second. It will not repeat.

OU90V02,000041A -19-21MAY10-2/2

Radio—If Equipped

The radio is located above the operator's seat.

1. **Power Button—**with ignition on, push power button to turn radio ON or OFF.
2. **Volume Control/Audio Control Knob—**adjusts volume and audio functions.
   - Volume Control—increase volume by turning volume knob to the right; decrease volume by turning volume knob to the left. Push volume control to turn the radio ON.
   - Audio Control—push knob to adjust bass, treble, balance, fader, two speaker or four speaker, and intensity of display light.
3. **SRC Button—**push to select the CD (if equipped), radio, or AUX sources.
4. **Display/Time Button—**push to display the time.
5. **CD Slot (If Equipped)—**insert CD into slot.
6. **CD Eject Button (If Equipped)—**push to eject CD.
7. **Scan Button—**push and hold for scan function.
8. **Auto Store Button—**push and hold for auto store function.
9. **Auxiliary Input—**used to plug in auxiliary source.
10. **Preset Button (6 used)—**push any of the six preset buttons for preset stations.
11. **Alarm Clock Button—**used to set the alarm clock.
12. **AM/FM/Weather Band Select Button—**push to select AM, FM, or weather band stations.



TX1069622A —UN—13JAN10

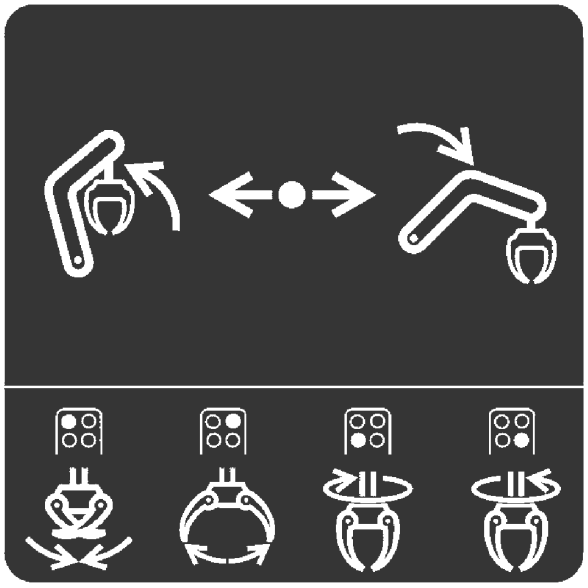
AM/FM/WB Stereo With CD Player Shown

1— Power Button
2— Volume Control/Audio Control Knob
3— SRC Button
4— Display/Time Button
5— CD Slot (If Equipped)
6— CD Eject Button (If Equipped)
7— Scan Button
8— Auto Store Button
9— Auxiliary Input
10— Preset Button (6 used)
11— Alarm Clock Button
12— AM/FM/Weather Band Select Button
13— Tune/Seek Button (2 used)

13. **Tune/Seek Button (2 used)—**push the LEFT or RIGHT arrow to manually change station. Push and hold down the LEFT or RIGHT arrow to use seek function.

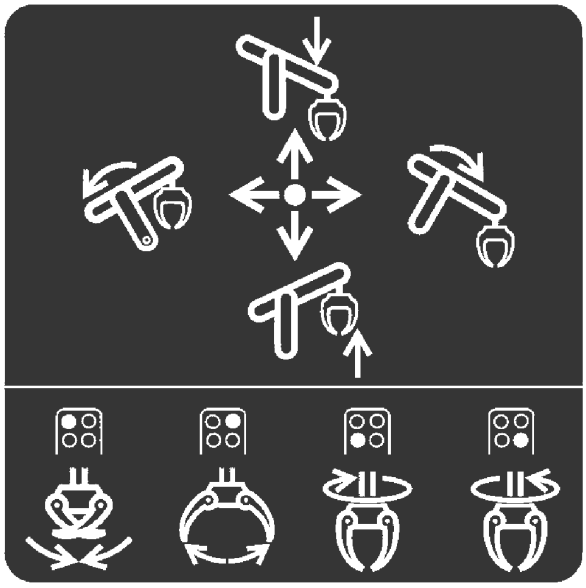
OU90V02,000043A -19-21APR10-1/1

Single Lever Pilot Control Operation—If Equipped



T133862 —UN—27SEP00

Pilot Control Lever—Single-Function



T134081 —UN—27SEP00

Pilot Control Lever—Dual-Function

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BB87125,0000012 -19-20MAY10-1/2

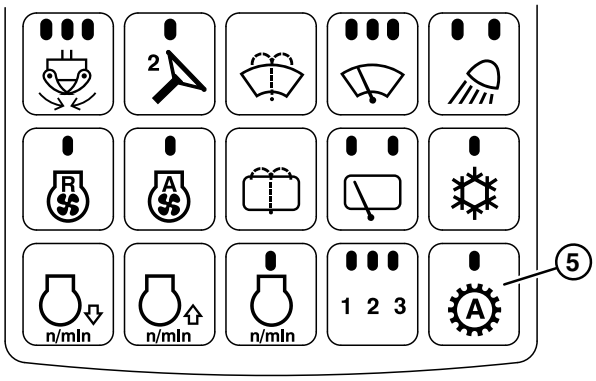
Autoshift Option—If Equipped

NOTE: Setting at machine shutdown is the default at machine start-up.

When Autoshift is enabled, the transmission control unit (TCU) automatically shifts gears to optimize power to the ground.

1. Press and release the Autoshift enable switch (5). The LED will turn ON indicating Autoshift is ENABLED.
2. Observe the SDM display for current gear setting. For example:
   - **3F/6:** current gear is 3rd forward with maximum gear setting of 6.
   - **3F/M:** current gear is 3rd forward and transmission is in manual mode.
   - The maximum gear setting is changed with the gear shifter. The current gear setting will also change on the display.
3. Once the maximum gear is set, Autoshift will not exceed it.

If throttle command is less than 95%, upshifts will not be allowed.



Autoshift Enable Switch

5— Autoshift Enable Switch

If inching pedal is not in its normal operating position, Autoshift commands will not be accepted and will prevent unwanted shifts.

BB87125,0000016 -19-17JUN14-5/5

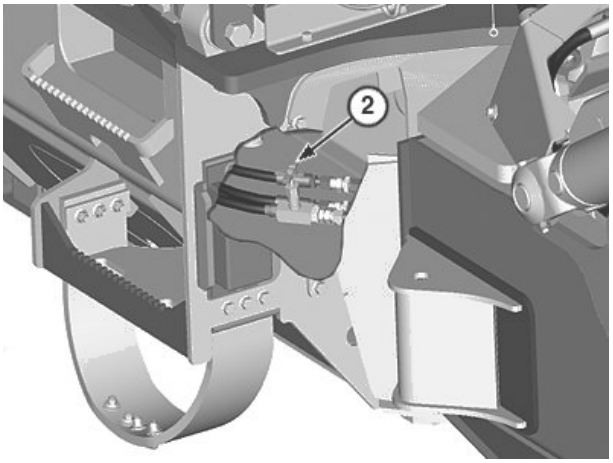
Grapple—To relieve grapple hydraulic pressure without engine power:

1. Rotate grapple lowering valve (2) counterclockwise to open valve.
2. Turn key switch to ON position. Do not start engine.
3. Move grapple control lever (3) rearward. Arch will extend until grapple touches the ground.
4. Press and hold grapple open button (4) for 4 seconds. Grapple tongs will release clamping force.
5. Turn key switch to OFF position.

NOTE: Close grapple lowering valve to prevent boom/arch drift while carrying a load.

6. Rotate grapple lowering valve clockwise to close valve.

2— Grapple Lowering Valve
3— Grapple Control Lever
4— Grapple Open Button



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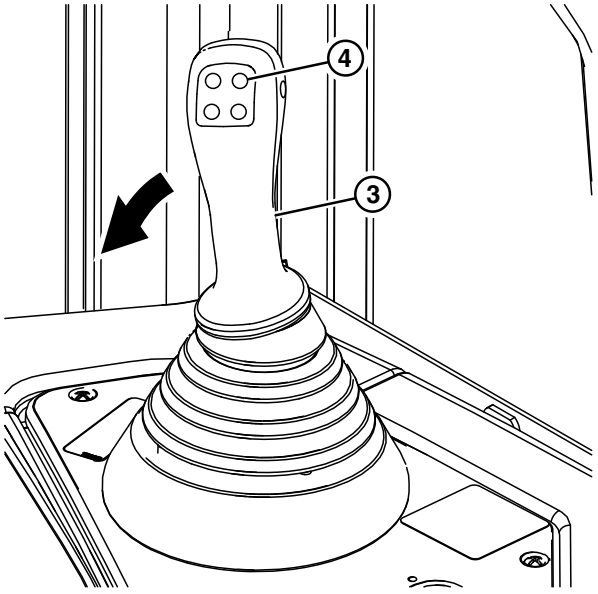
Grapple Lowering Valve



TX1076601 —UN—16APR10

Grapple Open Button

OU90V02,0000444 -19-25MAY10-2/2

8. Put hand-operated hydraulic (10) on left side of operator's station floor and connect hose to test port (6).

NOTE: To release the park brake manually, it is necessary to energize the park brake solenoid. If machine battery power is not available, see your authorized dealer.

9. Turn key switch to ON position and push park brake release switch on dash to energize park brake release solenoid (5).

   If machine battery power is not available, see your authorized dealer.

CAUTION: Prevent possible injury from unexpected machine movement. Sit in operator's seat with seat belt on when pumping the hydraulic pump.

When towing the machine, maintain between 1103 kPa (11 bar) (160 psi) and 1241 kPa (12.4 bar) (180 psi). If pressure drops below 1103 kPa (11 bar) (160 psi), park brake may engage.

10. Pump handle (8) until gauge needle (9) indicates required pressure.

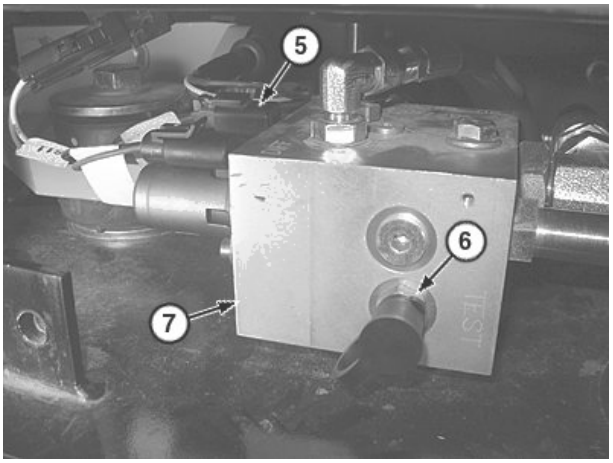
Specification	
Park Brake Release—Pressure	1103—1241 kPa 11—12.4 bar 160—180 psi

NOTE: Depending on condition of machine, it may be necessary to periodically pump the handle to maintain hydraulic pressure.

11. To engage park brake, open pressure relief valve on hand-operated hydraulic pump.
12. When finished, disconnect hand-operated hydraulic pump from test fitting.
13. Install side cover.
14. Start engine, if operational, to aid in steering and brake operation while being towed. Go to step 16.

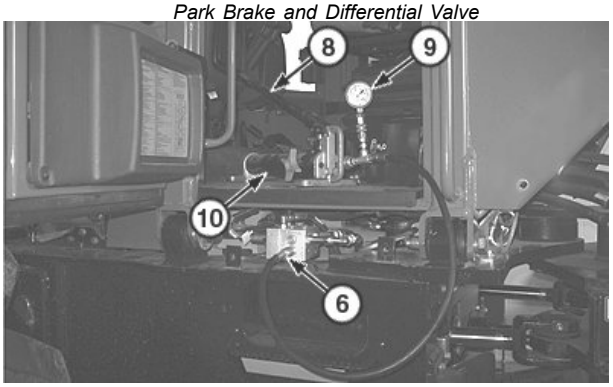
CAUTION: Prevent possible injury from unexpected machine movement. Never attempt to remove drive shafts without blocking front and rear tires.

15. Remove drive shafts if a hand-operated hydraulic pump is not available to release park brake.



Park Brake and Differential Valve

TX1078265A —UN—27MAY10



Hydraulic Pump

TX1078266A —UN—27MAY10

5— Park Brake Release Solenoid
6— Test Port
7— Park Brake and Differential Valve
8— Pump Handle
9— Pump Gauge Needle
10— Hand-Operated Hydraulic Pump

To disconnect the drive shafts connecting the transmission output shaft to the front and rear differentials, see your authorized dealer.

16. Remove wheel chocks and tow machine slowly.

CAUTION: Prevent possible injury from unexpected machine movement. Put wheel chocks at front and rear of tires to prevent machine from rolling.

17. When finished towing, apply park brake and put wheel chocks at front and rear of tires.
18. Install drive shafts, if removed. See your authorized dealer.

BB87125,000001E -19-27MAY10-3/3

Minimizing the Effect of Cold Weather on Diesel Engines

John Deere diesel engines are designed to operate effectively in cold weather.

However, for effective starting and cold-weather operation, a little extra care is necessary. The following information outlines steps that can minimize the effect that cold weather may have on starting and operation of your engine. See your John Deere dealer for additional information and local availability of cold-weather aids.

Use Winter Grade Fuel

When temperatures fall below 0°C (32°F), winter grade fuel (No. 1-D in North America) is best suited for cold-weather operation. Winter grade fuel has a lower cloud point and a lower pour point.

Cloud point is the temperature at which wax begins to form in the fuel. This wax causes fuel filters to plug. **Pour point** is the lowest temperature at which movement of the fuel is observed.

NOTE: On average, winter grade diesel fuel has a lower Btu (heat content) rating. Using winter grade fuel may reduce power and fuel efficiency, but should not cause any other engine performance effects. Check the grade of fuel being used before troubleshooting for low-power complaints in cold-weather operation.

Air Intake Heater

An air intake heater is an available option for some engines to aid cold weather starting.

Ether

An ether port on the intake is available to aid cold weather starting.

CAUTION: Ether is highly flammable. Do not use ether when starting an engine equipped with glow plugs or an air intake heater.

Coolant Heater

An engine block heater (coolant heater) is an available option to aid cold weather starting.

Seasonal Viscosity Oil and Proper Coolant Concentration

Use seasonal grade viscosity engine oil based on the expected air temperature range between oil changes and a proper concentration of low silicate antifreeze as recommended. (See DIESEL ENGINE OIL and ENGINE COOLANT requirements in this section.)

Diesel Fuel Cold Flow Additive

Use John Deere Fuel-Protect Diesel Fuel Conditioner (winter formula), which contains anti-gel chemistry, or equivalent fuel conditioner to treat non-winter grade fuel (No. 2-D in North America) during the cold-weather season. This generally extends operability to about 10°C (18°F) below the fuel cloud point. For operability at even lower temperatures, use winter grade fuel.

IMPORTANT: Treat fuel when outside temperature drops below 0°C (32°F). For best results, use with untreated fuel. Follow all recommended instructions on label.

Biodiesel

When operating with biodiesel blends, wax formation can occur at warmer temperatures. Begin using John Deere Fuel-Protect Diesel Fuel Conditioner (winter formula) or equivalent at 5°C (41°F) to treat biodiesel fuels during the cold-weather season. Use B5 or lower blends at temperatures below 0°C (32°F). Use only winter grade petroleum diesel fuel at temperatures below -10°C (14°F).

Winterfronts

Use of fabric, cardboard, or solid winterfronts is not recommended with any John Deere engine. Their use can result in excessive engine coolant, oil, and charge air temperatures. This can lead to reduced engine life, loss of power and poor fuel economy. Winterfronts may also put abnormal stress on fan and fan drive components potentially causing premature failures.

If winterfronts are used, they should never totally close off the grill frontal area. Approximately 25% area in the center of the grill should remain open at all times. At no time should the air blockage device be applied directly to the radiator core.

Radiator Shutters

If equipped with a thermostatically controlled radiator shutter system, this system should be regulated in such a way that the shutters are completely open by the time the coolant reaches 93°C (200°F) to prevent excessive intake manifold temperatures. Manually controlled systems are not recommended.

If air-to-air aftercooling is used, the shutters must be completely open by the time the intake manifold air temperature reaches the maximum allowable temperature out of the charge air cooler.

For more information, see your John Deere dealer.

DX,FUEL10 -19-13JAN18-1/1

Drain Intervals for Diesel Engine Coolant

Drain and flush the cooling system and refill with fresh coolant at the indicated interval, which varies with the coolant used.

John Deere COOL-GARD™ II Premix, COOL-GARD II PG Premix and COOL-GARD II Concentrate are maintenance free coolants for up to six years or 6000 hours of operation, provided that the cooling system is topped off using only John Deere COOL-GARD II Premix or COOL-GARD II PG Premix.

Test the coolant condition annually with Coolant Test Strips designed for use with John Deere COOL-GARD II coolants. If the test strip chart indicates that additive is required, add John Deere COOL-GARD II Coolant Extender as directed.

COOL-GARD is a trademark of Deere & Company

If John Deere COOL-GARD™ II Premix, COOL-GARD II PG Premix, or COOL-GARD II Concentrate is used, but the coolant is not tested OR additives are not replenished by adding John Deere COOL-GARD II Coolant Extender, the drain interval is four years or 4000 hours of operation. This drain interval only applies to COOL-GARD II coolants that have been maintained within a 40—60% mixture of concentrate with quality water.

If a coolant other than COOL-GARD II, or COOL-GARD II PG is used, reduce the drain interval to two years or 2000 hours of operation.

DX,COOL11 -19-14APR11-1/1

John Deere COOL-GARD™ II Coolant Extender

Some coolant additives gradually deplete during engine operation. For COOL-GARD™ II pre-mix and COOL-GARD II Concentrate, replenish coolant additives between drain intervals by adding COOL-GARD II Coolant Extender.

COOL-GARD II Coolant Extender should not be added unless indicated by COOL-GARD II Test Strips. These test strips provide a simple, effective method to check the freeze point, additive levels, and pH of your engine coolant.

Test the coolant solution at intervals of 12 months and whenever excessive coolant is lost through leaks or overheating.

IMPORTANT: Do not use COOL-GARD II Test Strips with COOL-GARD II PG.

COOL-GARD II Coolant Extender is a chemically matched additive system for use with all COOL-GARD II coolants.

COOL-GARD is a trademark of Deere & Company

COOL-GARD II Coolant Extender is not intended for use with nitrite-containing coolants.

IMPORTANT: Do not add a supplemental coolant additive when the cooling system is drained and refilled with any of the following:

- **John Deere COOL-GARD II**
- **John Deere COOL-GARD II PG**

The use of non-recommended supplemental coolant additives can result in additive drop-out, gelation of the coolant, or corrosion of cooling system components.

Add the recommended concentration of COOL-GARD II Coolant Extender. DO NOT add more than the recommended amount.

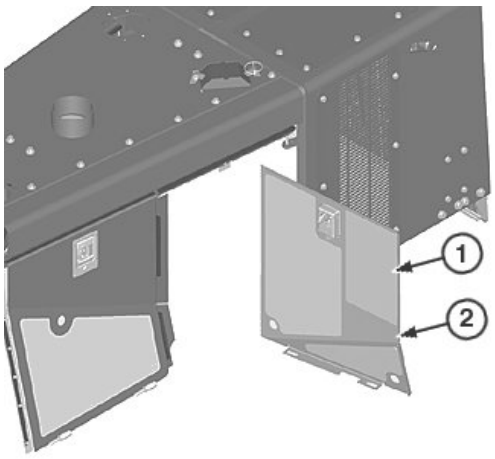
DX,COOL16 -19-15MAY13-1/1

Service Your Machine at Specified Intervals

Lubricate, make service checks, and make adjustments at intervals shown on the periodic maintenance decal (1) (located on the inside of the right front engine side shield (2)), and on the following pages. Use your hour meter to determine when your machine needs maintenance.

IMPORTANT: Refer to the Maintenance—Machine Section when performing maintenance on your machine. Engine must be shut off before servicing.

1— Periodic Maintenance Decal
2— Right Front Engine Side Shield



TX1076550A —UN—20APR10

OU90V02,000042E -19-15APR10-1/1

Check the Hour Meter Regularly

Check hour meter on the standard display monitor (SDM) to determine when your machine needs periodic maintenance.

Intervals on the periodic maintenance chart are for operating in normal conditions. If machine is operated in difficult conditions, service it at shorter intervals.

OU90V02,000042F -19-12APR10-1/1

Fuel Tank

CAUTION: Handle fuel carefully. If the engine is hot or running, do not fill the fuel tank. Do not smoke while you fill fuel tank or work on fuel system.

To avoid condensation, fill the fuel tank at the end of each day's operation.

For fuel capacities, see (specific model)—Drain and Refill Capacities. (Section 4-6.)

TS185 —UN—23AUG88

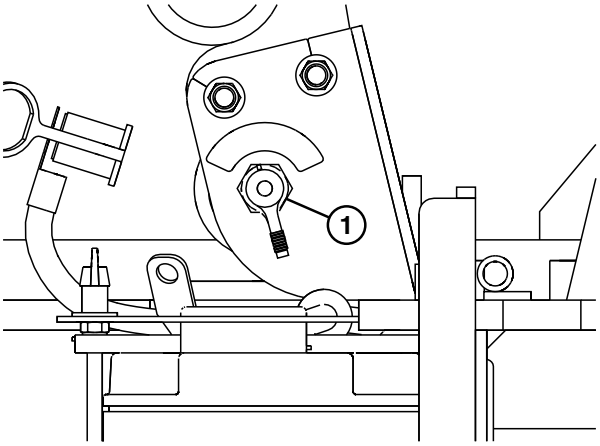
OU90V02,00003E5 -19-15AUG11-1/1

Battery Disconnect

IMPORTANT: Avoid damage to the alternator. Do not turn the battery disconnect switch OFF when the engine is running.

Move battery disconnect switch (1) to OFF position when servicing or storing machine.

1— Battery Disconnect Switch



TX1076760 —UN—26APR10

OU90V02,0000430 -19-20APR10-1/1

Inspecting and Cleaning Dusty Primary and Secondary Element

IMPORTANT: A damaged or dirty element may cause engine damage.

Install new elements:

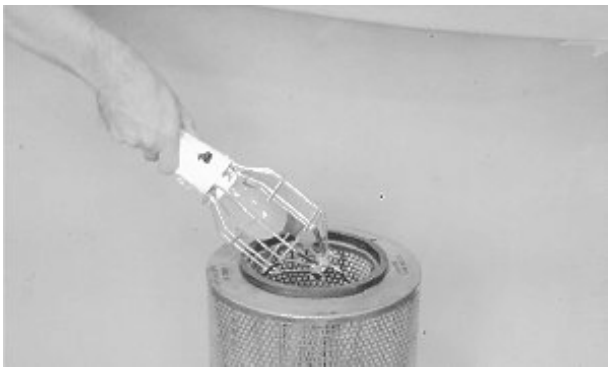
- **If the element shows damage and needs to be replaced.**
- **If element is visibly dirty and will not clean.**
- **After 1000 hours service or annually.**

DO NOT clean a secondary element. Install a new element carefully centering it in the canister.

NOTE: Air restriction indicator will not signal correctly if an element has a break or is not correctly sealed in air cleaner housing. Throw away element that has the slightest damage. If gasket is broken or missing, install a new element.

1. Tap element with the palm of your hand, NOT ON A HARD SURFACE.

CAUTION: Reduce compressed air to less than 210 kPa (2.1 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.



T90684 —UN—10NOV88

T47764 —UN—09NOV88

2. If this does not remove dust, use compressed air under 210 kPa (2.1 bar) (30 psi).
3. Be careful not to make a break in the element.

MD46667,00001D2 -19-14JUN07-1/1

Check Engine Oil Level

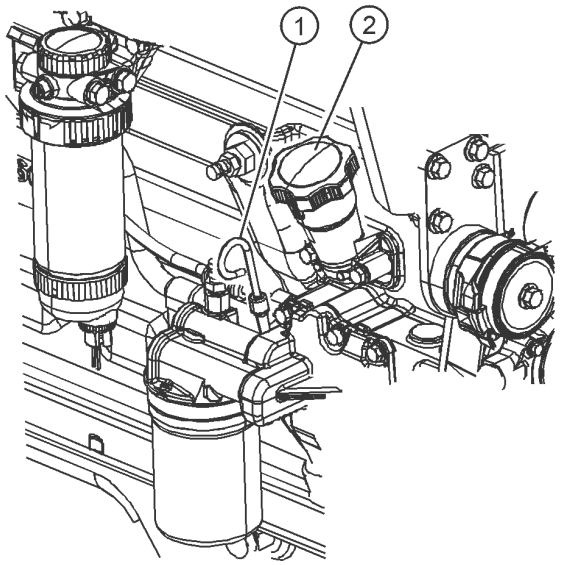
IMPORTANT: If oil level is low, the engine can be damaged. DO NOT operate the engine when oil level is below the ADD mark.

The most accurate oil level reading is obtained when the engine is cold before starting the engine for the day's operation.

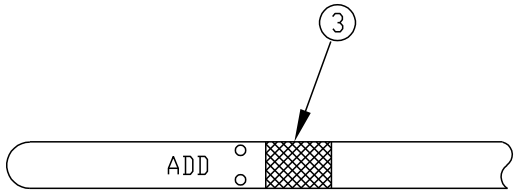
1. Park machine on a level surface.
2. Engage park brake.
3. Turn key switch to OFF.
4. Make sure engine oil dipstick (1) is fully seated.
5. Remove engine oil dipstick wipe off excess oil before checking oil level.

   BEFORE THE ENGINE IS STARTED: The engine is full when oil level is in the crosshatch area (3). It is acceptable to run the engine when the oil level is above the ADD mark.

   AFTER THE ENGINE HAS BEEN RUN: Allow the oil to drain into the oil pan for 10 minutes before checking the oil level. Ten minutes after shutdown, the engine oil level must be above the ADD mark.
6. If necessary, remove engine oil fill cap (2) to add oil. For engine oil specification, see Diesel Engine Oil. (Section 3-1.)



T208519 —UN—16FEB05



T159890 —UN—02OCT02

T159890

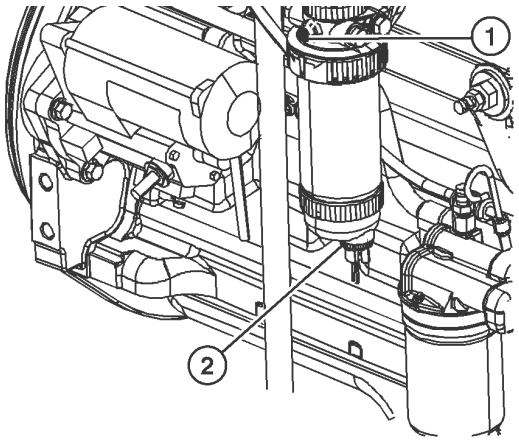
1— Engine Oil Dipstick
2— Engine Oil Fill Cap
3— Dipstick Crosshatch Area

MD46667,00001DA -19-15APR07-1/1

Check and Drain Primary Fuel Filter Water Separator

IMPORTANT: Position bottom of drain hose outside engine frame.

1. Put suitable container under drain hose.
2. Loosen bleed screw (1) and drain screw (2). Drain water and sediment into container. Dispose of waste properly.
3. Tighten drain screw.
4. Bleed fuel system.
5. Tighten bleed screw finger-tight.
6. Operate engine and check for leaks.



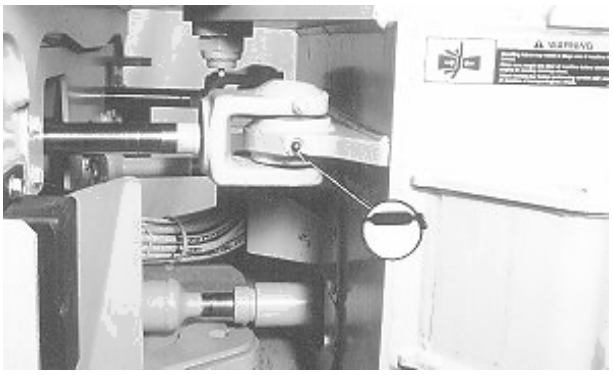
TX1018924 —UN—10APR07

1— Bleed Screw
2— Drain Screw

OU90V02,00003EB -19-26APR10-1/1

Lubricate Rear Steering Cylinder Pins

Lubricate two points with four shots of grease. For grease specification, see Grease. (Section 3-1.)



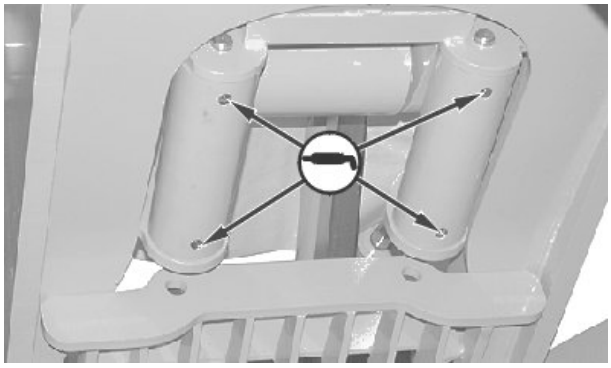
T8409AU —UN—02FEB95

Rear Steering Cylinder Pin—Left Side Shown

MD46667,00001EA -19-26JUL11-1/1

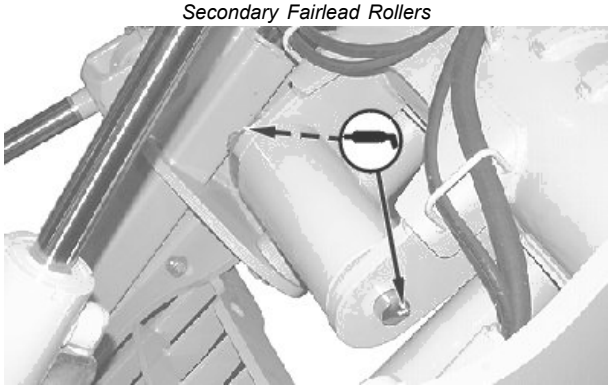
Lubricate Winch Fairlead Rollers

Lubricate at six points until grease escapes at joints. For grease specification, see Grease. (Section 3-1.)



T129377B —UN—28MAR00

Secondary Fairlead Rollers



T129376B —UN—28MAR00

Primary Fairlead Roller

MD46667,00001EB -19-26JUL11-1/1

Change Engine Oil and Replace Filter

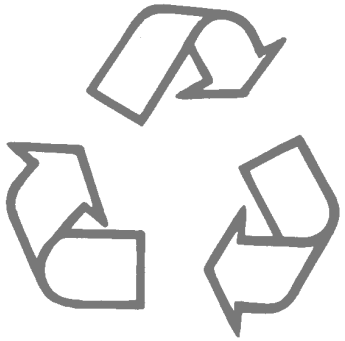
IMPORTANT: Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment includes such items as oil, fuel, coolant, brake oil, and batteries. Do not pour waste onto the ground, down a drain, or into any water source.

If fuel sulphur content exceeds 0.5 percent, engine oil drain interval must be reduced by 1/2.

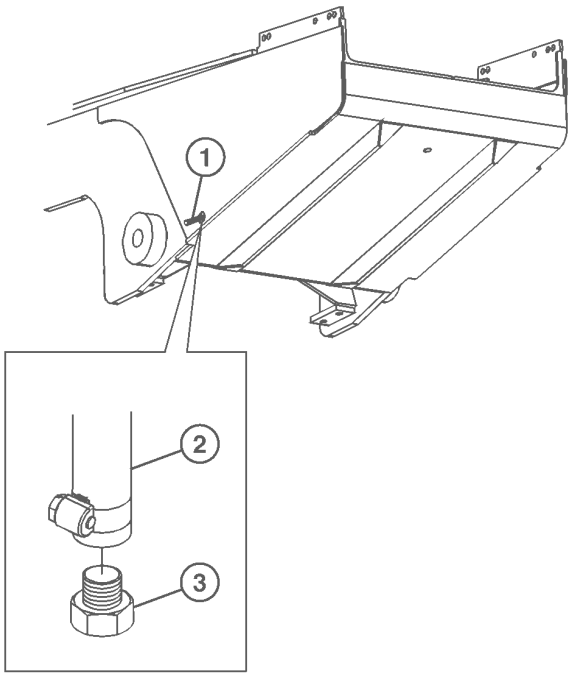
NOTE: Engine oil sample should be taken before replacing engine oil and filter. See Take Engine Oil Sample. (Section 3-7.)

1. Park machine on a level surface.
2. Lower equipment to ground.
3. Run engine to operating temperature.
4. Turn key switch to OFF.
5. Open right side engine side shields. See Opening Engine Side Shields. (Section 3-2.)

   Route oil drain hose though hole in frame (1) located near decking blade lug.
6. Remove plug (3) from end of drain hose (2) and put hose into a suitable container.



TS1133 —UN—15APR13



TX1019084 —UN—30MAR07

1— Frame Hole
2— Oil Drain Hose
3— Plug

Continued on next page

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Replace Air Cleaner Unloader Valve

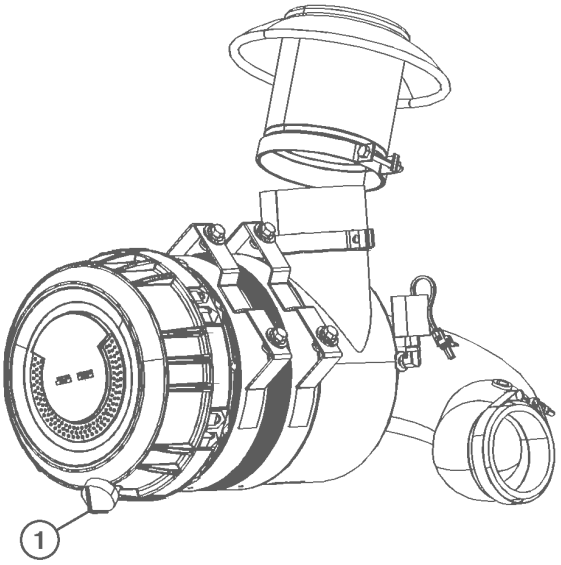
IMPORTANT: A missing, damaged or hardened air cleaner unloader valve will make pre-cleaner ineffective, causing very short element life. Air cleaner unloader valve should suck closed above 1/3 engine speed.

To remove air cleaner unloader valve, pry collar of unloader valve (1) from tube of air cleaner housing.

Install new unloader valve by stretching collar over flange on tube of air cleaner housing. Be sure there are no gaps between valve collar and tube. For unloader valve part number, see Required Parts. (Section 3-2.)

Valve should remain closed above 1/3 engine speed.

1— Air Cleaner Unloader Valve



TX1018925 —UN—30MAR07

MD46667,00001FE -19-11APR07-1/1

Change Front Axle Oil

See Change Front Axle Oil. (Section 3-6.)

OU90V02,00003F2 -19-19MAR10-1/1

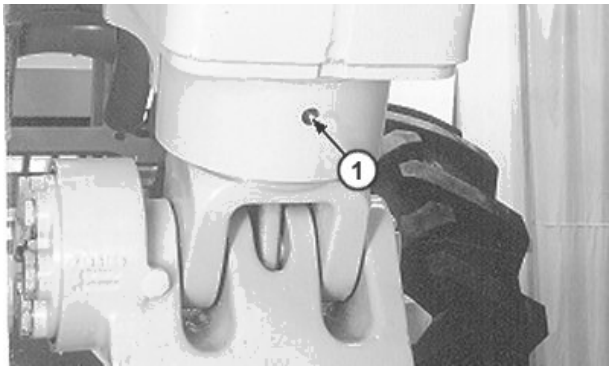
Change Rear Axle Oil

See Change Rear Axle Oil. (Section 3-6.)

OU90V02,00003F3 -19-19MAR10-1/1

Lubricate Grapple Rotate Bearing—If Equipped

Lubricate fitting with 10 shots of grease. For grease specification, see Grease. (Section 3-1.)



TX1019181A —UN—14MAR07

OU90V02,00003F4 -19-12AUG11-1/1

Check Coolant

See Check Coolant. (Section 3-3.)

OUT4001,0000365 -19-28JUL14-1/1

Draining the Cooling System

CAUTION: Prevent possible injury from hot spraying fluids. Shut off engine. Remove filler cap only when cool enough to touch with bare hands. Slowly loosen cap to relieve pressure before removing completely.

IMPORTANT: Avoid mixing different brands or types of coolant. Coolant manufacturers engineer their coolants to meet certain specifications and performance requirements. Mixing different coolant types can degrade coolant and machine performance.

John Deere COOL-GARD™ II Pre-Mix coolant is recommended when adding new coolant to cooling system.

Follow directions on container for correct mixture ratio.

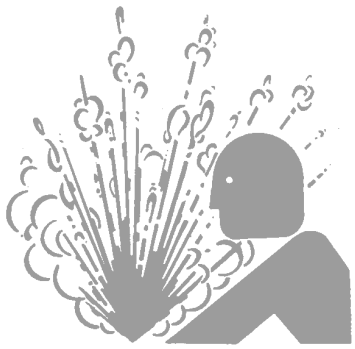
1. Remove two cap screws (1) and access cover (2) on bottom of frame.
2. Route drain hose (4) through hole in frame below radiator.
3. Turn radiator drain cock (3) counterclockwise to open.

Specification	
Cooling System—540H, 548H, 640HDD, 648HDD—Capacity	23.0 L 6.1 gal.
Cooling System—640HTC, 648HTC, 748H, 848H—Capacity	37.0 L 9.8 gal.

NOTE: Allow coolant to drain into a suitable container. Dispose of waste coolant properly.

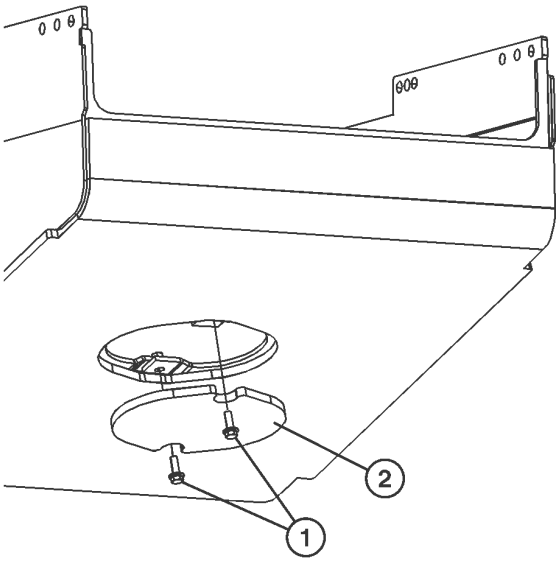
4. Drain coolant into a suitable container. Close drain cock.
5. Dispose of used coolant properly.

1— Cap Screw (2 used)
2— Access Cover
3— Radiator Drain Cock
4— Drain Hose

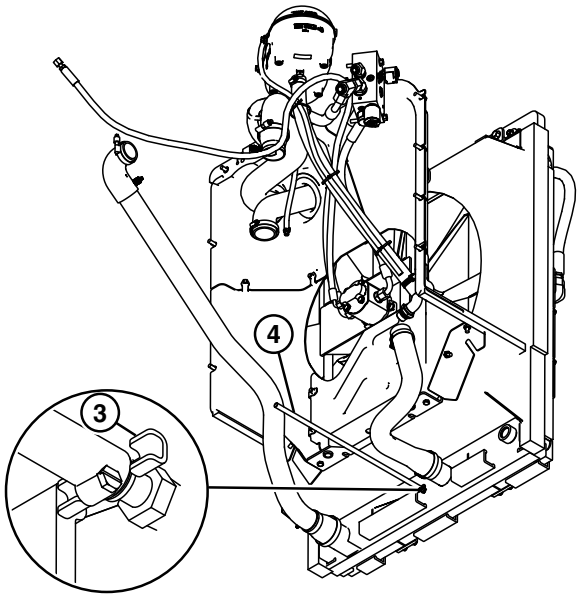


Service Cooling System Safely

TS281 —UN—15APR13



TX1019270 —UN—30MAR07



TX1076735 —UN—22APR10

COOL-GARD is a trademark of Deere & Company

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Bleed Fuel System

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.

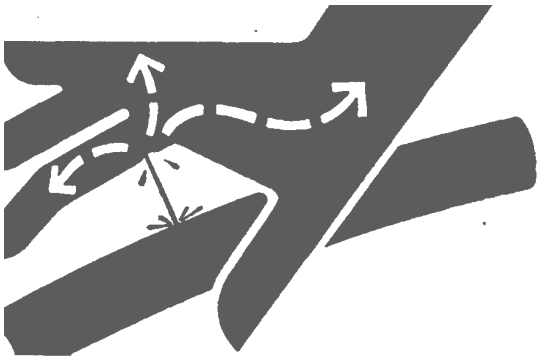
IMPORTANT: For John Deere Tier 3 engines and beyond: Do NOT prefill fuel filters. Debris in unfiltered fuel will damage fuel system components. For engine identification, see Engine Identification. (Section 3-2.)

Any time the fuel system has been opened up for service (lines disconnected or filters removed), it is necessary to bleed air from the system.

NOTE: The bleed is automatically preformed by the bleed valve in the final fuel filter. The fuel line joined to the air bleed valve connects to the fuel takeoff line. The system allows air to continually escape when the key is ON.

1. Engine key switch ON.

NOTE: The electronic transfer pump primes the fuel system for 60 seconds when the key switch is turned ON. It runs continuously after the engine is started.

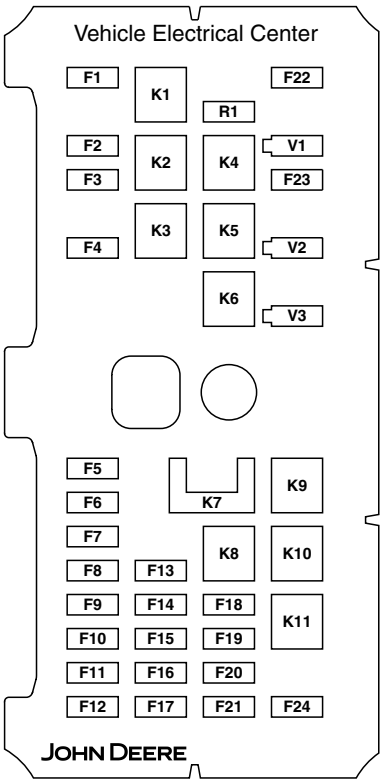


X9811 —UN—23AUG88

2. Allow 60 seconds for the electronic transfer pump to complete priming.
3. If engine does not start after 15 seconds cranking, wait 15 seconds and crank engine for another 15 seconds.
4. If further bleeding is required, turn key OFF. Wait 20 seconds.
5. Turn ignition ON allow for the system to prime another 60 seconds before checking again.
6. Stop engine. Check for leaks. Tighten leaking connections only enough to stop leaks.
7. Restart engine and check again.
8. If leakage cannot be stopped, STOP ENGINE. Do not operate machine.
9. See your authorized dealer.

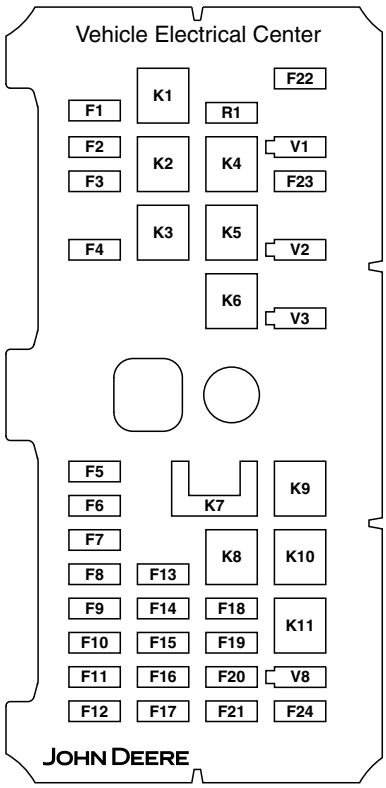
If engine did not start or did not “run smooth” within 5 minutes, stop engine. See your authorized dealer.

ER79617,0000E35 -19-07MAR11-1/1



TX1082551 —UN—01OCT10

VEC (S.N. —631453)



TX1082220 —UN—29SEP10

VEC (S.N. 631454—)

F1— HVAC Supply Power #1 20-Amp Fuse
F2— Power Outlet and Accessory Connector 15-Amp Fuse
F3— Spare Accessory Power 7.5-Amp Fuse
F4— Fuel Heater 20-Amp Fuse
F5— Front Inner Lights 15-Amp Circuit Breaker
F6— Transmission Control Unit (TCU) Switched Power 30-Amp Fuse
F7— Front Outer Lights 15-Amp Circuit Breaker
F8— Start Aid 10-Amp Fuse (G-III models only)
F9— Rear Inner Lights 15-Amp Circuit Breaker
F10— JDLink™ (return) Ground 7.5-Amp Fuse
F11— Rear Outer Lights 15-Amp Circuit Breaker
F12— Spare 7.5-Amp Fuse
F13— Transmission Control Unit (TCU) Unswitched Power 10-Amp Fuse
F14— Air Seat 20-Amp Fuse
F15— Service ADVISOR™ and Standard Display Monitor (SDM) Unswitched Power 7.5-Amp Fuse
F16— Dome Light and Radio Unswitched Power 7.5-Amp Fuse
F17— Horn 5-Amp Fuse
F18— Sealed Switch Module (SSM), Standard Display Monitor (SDM), and JDLink™ Switched Power 7.5-Amp Fuse
F19— HVAC Supply Power #2 20-Amp Fuse
F20— Fuel Transfer Pump 7.5-Amp Fuse (H models only)
F21— JDLink™ and DFCH Timer (if equipped) Unswitched Power 7.5-Amp Fuse
F22— Keyswitch 7.5-Amp Fuse
F23— Alternator Excitation 5-Amp Fuse
F24— Engine Control Unit (ECU), Park Brake, Shifter and DFCH Timer (if equipped) 7.5-Amp Fuse
K1—HVAC Supply Relay #1
K2—Accessory Power Relay
K3—Fuel Heater Relay
K4—Park Start Relay
K5—Neutral Start Relay
K6—Park Brake Reset Relay
K7—Transmission Control Unit (TCU) Switched Power Relay
K8—Fuel Transfer Pump Relay (H models only)
K9—Front Lights Relay
K10— Rear Lights Relay
K11— HVAC Supply Relay #2
R1—Alternator Excitation Resistor (not used on G-III models)
V1—Alternator Excitation Diode
V2—Start Relay Suppression Diode
V3—Park Brake Reset Diode
V8—ACC Blocking Diode [all G-III models; H models (S.N. 631454—)]

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Service ADVISOR is a trademark of Deere & Company

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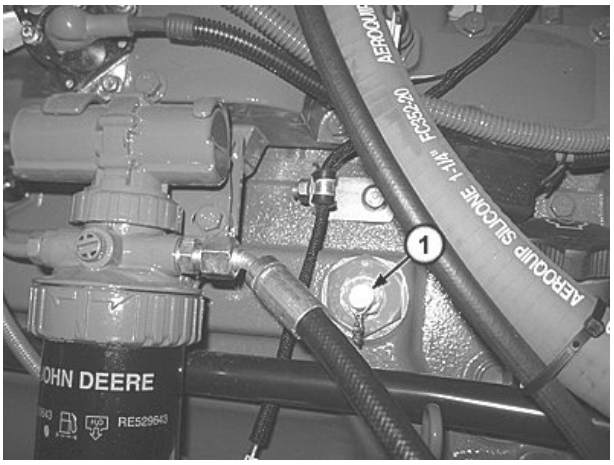
OU90V02,000042B -19-19JUL11-2/4

Fluid Sampling Test Ports

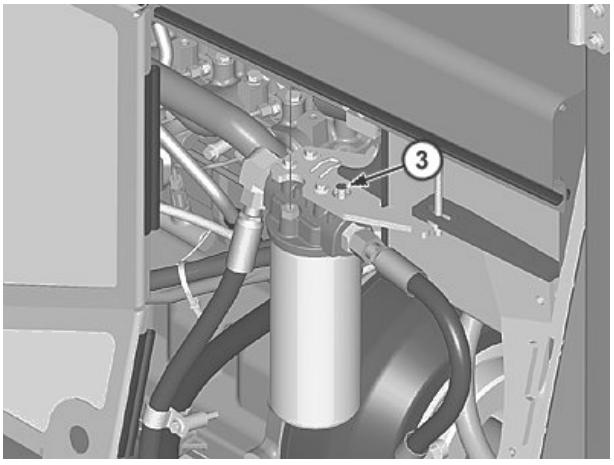


TX1077237A —UN—04MAY10

Engine Coolant Fluid Sampling Test Port

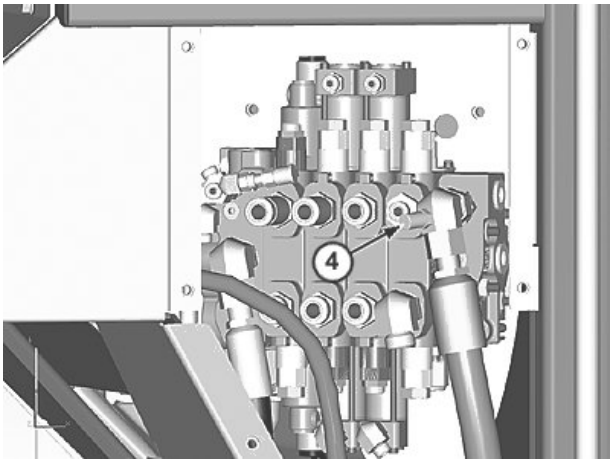
TX1077238A —UN—04MAY10

Engine Oil Fluid Sampling Test Port



TX1077270A —UN—04MAY10

Transmission Oil Sampling Test Port



TX1077271A —UN—04MAY10

Hydraulic Oil Sampling Test Port

1— Engine Coolant Fluid Sampling Test Port

2— Engine Oil Fluid Sampling Test Port

3— Transmission Oil Sampling Test Port

4— Hydraulic Oil Sampling Test Port

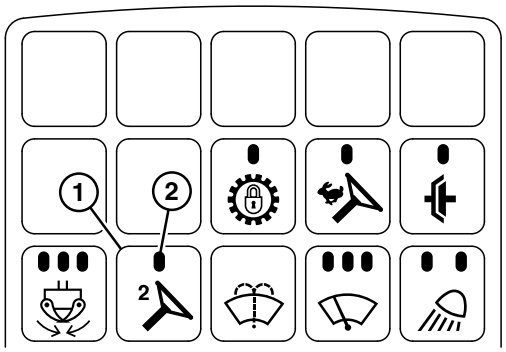
OU90V02,0000456 -19-12AUG11-1/1

Hardware Torque Specifications

Check cap screws and nuts to be sure they are tight. If hardware is loose, tighten to torque shown on the following charts unless a special torque is specified.

TX,90,FF1225 -19-15MAR93-1/1

Secondary Steering System Check—If Equipped



TX1077527 —UN—11MAY10

Secondary Steering Test Switch

1— Secondary Steering Test Switch
2— Secondary Steering Test Indicator

Park machine on a hard, level surface.

Key switch ON. Engine OFF.

Push and release secondary steering test switch (1).

Turn steering wheel to right and left to check steering movement.

LOOK: Does machine turn approximately 5 degrees in both directions relatively easily?

LOOK: Does LED on secondary steering test switch come on for 3 seconds, then go off?

YES: Check complete.

LISTEN: Does secondary steering motor activate for 3 seconds, then turn off?

NO: See your authorized John Deere dealer.

OU90V02,0000472 -19-29JAN13-17/74

Hydraulic Unloading Valve Check

Remove fuse (F24). This will allow the engine to crank but not start. See Replacing Fuses. (Section 4-1.)

Pull blade lever and hold in UP position while cranking engine for 5 seconds.

LOOK: Does blade rise while engine is cranking?

YES: See your authorized John Deere dealer.

Replace fuse (F24).

NO: Check complete.

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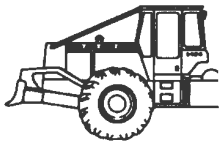
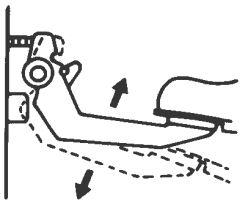
OU90V02,0000472 -19-29JAN13-18/74

Brake Accumulator Precharge Check



T7374AV —UN—25OCT90

Stacking Blade



T7397AG —UN—25OCT90

Pump Service Brake Pedal

Position machine on flat level surface.

Transmission in neutral. Park brake off.

Operate engine at slow idle.

Raise blade to upper stop.

CAUTION: If indicator comes ON with ONE application of brake, accumulator has lost its gas charge. This may cause park brake to stop machine when service brakes and a hydraulic function are both used at same time. Bodily injury may occur from uncontrolled machine movement.

Lower blade while pumping the service brake pedal no faster than once per second until blade raises front of machine.

LOOK: Does park brake indicator come on?

YES: Brake accumulator precharge is low. Replace accumulator. See your authorized John Deere dealer.

NO: Check complete.

Continued on next page

OU90V02,0000472 -19-29JAN13-31/74

Blade and Grapple Control Valve Functional Check	Start and operate engine at slow idle. Activate equipment control levers while watching equipment for movement. *LOOK: Does the direction indicated on the controls correspond with equipment movement?* *LOOK: Is the equipment movement continuous and smooth?*	**YES:** Check complete. **NO:** If function moves in different direction from control valve movement, check hose routing to see that hoses are not reversed. See your authorized John Deere dealer.

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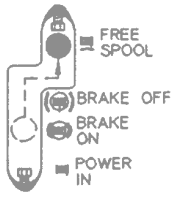
OU90V02,0000472 -19-29JAN13-45/74

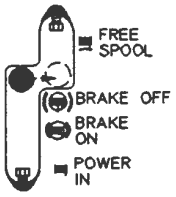
Winch Brake Off Adjustment Check

Move winch control lever to FREE SPOOL position detent.



T7374AY —19—30OCT90

FREE SPOOL Position



T7397AZ —19—30OCT90

Lever Movement

Pull lever right with approximately 7 N (5 lb-force), then move lever to forward side of gate.

FEEL: Does lever move freely through the gate and not rub against slot surfaces?

Release lever. Observe lever movement.

LOOK: Does lever not pull out of detent or move from BRAKE OFF to BRAKE ON position?

YES: Check complete.

NO: See your authorized John Deere dealer.

Continued on next page

OU90V02,0000472 -19-29JAN13-62/74

Fuel Tank Strainer Check

T7437AD —UN—13DEC90

Fuel Tank Strainer

Remove fuel tank filler cap.

Rotate fuel strainer to notch.

Remove fuel strainer and inspect.

LOOK: Is strainer screen in good condition and clean?

YES: Check complete.

NO: Clean or replace strainer. See Clean Fuel Tank Filler Screen. (Section 3-3.)

OU90V02,0000472 -19-29JAN13-74/74

Service Decal Check

Remove right front engine side shield.

Check service decal on of side shield.

LOOK: Is service decal legible?

YES: Check complete.

NO: Replace service decal.

OU90V02,0000472 -19-29JAN13-75/74

Transmission and Park Brake Troubleshooting

NOTE: If any problems are encountered which require special tools or machine knowledge to correct, see your authorized dealer.

Symptom	Problem	Solution
Transmission Shifts to NEUTRAL	Electrical malfunction	Shift to NEUTRAL. Shift to desired gear.
Gear Selector Shifts from NEUTRAL to Gear, but Transmission Remains in NEUTRAL	Not using gear enable button	Press and hold gear enable button while moving gear selector out of neutral.
Machine "Creeps" in NEUTRAL	Transmission overfilled with oil	Check transmission oil level. See Check Transmission Oil Level. (Section 3-4.) Drain excess transmission oil if necessary. See Change Transmission Oil, Replace Filter, and Clean Suction Screen. (Section 3-10.)
Transmission Slippage	Low transmission oil level	Check transmission oil level. Add oil if necessary. See Check Transmission Oil Level. (Section 3-4.)
	Low transmission oil level (oil aerated)	Check transmission oil level. Add oil if necessary. See Check Transmission Oil Level. (Section 3-4.)
	Transmission oil filter restriction indicator ON	Change filter element. See Replace Transmission Oil Filter. (Section 3-6.)
	Suction tube fitting loose or suction screen plugged	Clean suction screen. Replace, if necessary. Check suction port for debris. Inspect suction tube for damage and clogging. Replace O-ring. Ensure screen, O-ring, and tube are properly installed. Ensure fittings are properly tightened. See Change Transmission Oil, Replace Filter, and Clean Suction Screen. (Section 3-10.)
Machine Lacks Power or Moves Slow	Air cleaner restriction indicator ON	Clean or change air cleaner elements. See Replace Air Cleaner Elements. (Section 3-9.)
	Low transmission oil level	Check transmission oil level. Add oil if necessary. See Check Transmission Oil Level. (Section 3-4.)

Continued on next page

Prepare Machine for Storage

IMPORTANT: Avoid machine damage, do not use biodiesel during machine storage. When using biodiesel blends, switch to petroleum diesel for long term storage.

1. Before storage, operate engine on at least one complete tank of petroleum diesel fuel to purge the fuel system. Ensure that the fuel tank is full during storage to prevent water build up due to condensation.

NOTE: For blends up to and including B20, it is recommended that biodiesel be used within three months of its manufacture. For blends greater than B20, it is recommended that the biodiesel be used within 45 days. The poor oxidation stability characteristic of biodiesel can result in long-term storage problems. John Deere does not recommend using biodiesel in engines powering standby applications or vehicles operating on a seasonal basis. Consult your John Deere dealer or fuel supplier for additives to improve fuel storage and performance of biodiesel fuels. These additives must be added to the biodiesel close to its time of production for them to be effective.

2. Repair worn or damaged parts. Install new parts, if necessary, to avoid needless delays later.
3. Replace air cleaner elements.

IMPORTANT: High pressure washing greater than 1379 kPa (13.8 bar) (200 psi) can damage freshly painted finishes. Paint should be allowed to air dry for 30 days minimum after receipt of machine before cleaning parts or machines with high pressure. Use low pressure wash operations until 30 days have elapsed.

4. Wash the machine. Use low pressure wash operations (less than 1379 kPa (13.8 bar) (200 psi) until 30 days after receipt of machine have elapsed. Paint areas to prevent rust. Replace decals, where needed.

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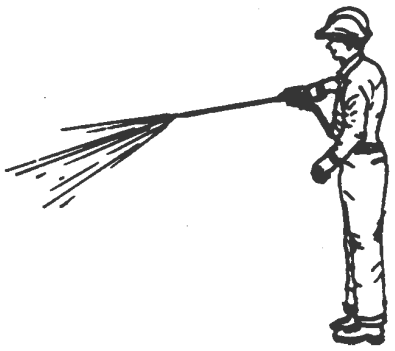

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5. Apply oil to track chains. Run machine back and forth several times. Park machine on a hard surface to prevent tracks from freezing to ground.
6. Store machine in a dry, protected place. If stored outside, cover with a waterproof material.

IMPORTANT: LPS 3 Rust Inhibitor can destroy painted finish. DO NOT spray LPS 3 Rust Inhibitor on painted areas.

7. Retract all hydraulic cylinders, if possible. If not, coat exposed cylinder rods with LPS ® 3 Rust Inhibitor.
8. Place a DO NOT OPERATE tag on the right control lever.
9. Lubricate all grease points.
10. Remove the batteries and store in a dry, protected place after charging fully. If not removed, disconnect the negative battery cable from the (—) terminal.
11. Add a fuel stabilizer additive and top off fuel tank with fuel to prevent condensation.
12. Drain water separator.
13. Remove keys and lock all covers and doors.

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540H—Ground Speeds

Machine Fitted With 28L-26 Tires

NOTE: Ground speeds subject to change without notice.

Ground Speeds	
Gear	
1 Forward	2.4 km/hr (1.5 mph)
2 Forward	3.1 km/hr (1.9 mph)
3 Forward	4.2 km/hr (2.6 mph)
4 Forward	5.5 km/hr (3.4 mph)
5 Forward	7.4 km/hr (4.6 mph)
6 Forward	9.8 km/hr (6.1 mph)
7 Forward	14.6 km/hr (9.1 mph)
8 Forward	19.4 km/hr (12.1 mph)
1 Reverse	2.4 km/hr (1.5 mph)
2 Reverse	3.1 km/hr (1.9 mph)
3 Reverse	4.2 km/hr (2.6 mph)
4 Reverse	5.5 km/hr (3.4 mph)
5 Reverse	7.4 km/hr (4.6 mph)
6 Reverse	9.8 km/hr (6.1 mph)
7 Reverse	14.6 km/hr (9.1 mph)

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Item	Measurement	Specification
Tire—30.5-32		
A—Ground Clearance	Height	615 mm 24.2 in.
B—Wheel Tread	Width	2.35 m 7 ft. 8.5 in.
C—Overall Width	Width	3.12 m 10 ft. 3 in.
Tire—35.5-32		
A—Ground Clearance	Height	677 mm 26.6 in.
B—Wheel Tread	Width	2.59 m 8 ft. 6 in.
C—Overall Width	Width	3.48 m 12 ft. 8 in.
Tire—73/44-32		
A—Ground Clearance	Height	605 mm 23.8 in.
B—Wheel Tread	Width	2.79 m 9 ft. 2 in.
C—Overall Width	Width	3.86 m 12 ft. 8 in.

OU90V02,0000487 -19-02JUN10-3/3

640H with Torque Converter—Winch Specifications—4000 Series

WINCH—4000 SERIES: The direct drive 4000 winch with wet multiple disk clutch and spring applied, hydraulically released brake is John Deere engineered and manufactured. Low friction drum seals and an adjustable free spool feature increase operating ease. It is controlled by a single lever that has been conveniently located for the operator.

Item	Measurement	Specification
8-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	77.4 m 254 ft
8-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	54.6 m 179 ft
8-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	39.3 m 129 ft
8-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	30.5 m 100 ft
10-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	60.6 m 100 ft
10-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	43 m 141 ft
10-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	30.8 m 101 ft
10-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	23.8 m 78 ft

NOTE: Cable capacity is calculated with no allowance made for loose or uneven spooling.

Item	Measurement	Specification
Linepull @ Peak Engine and 15.8 mm (0.625 in.) Cable		
Bare Drum—4000 (8-in. Drum—High Speed)	Force	166 kN 37 318 lb.
Bare Drum—4000 (8-in. Drum—Standard Speed)	Force	193.2 kN 43 433 lb.
Bare Drum—4000 (10-in. Drum)	Force	157 kN 35 295 lb.
Full Drum—4000 (8-in. Drum—High Speed)	Force	99.5 kN 22 375 lb.
Full Drum—4000 (8-in. Drum—Standard Speed)	Force	116 kN 26 078 lb.
Full Drum—4000 (10-in. Drum)	Force	116 kN 26 078 lb.
Line Speed @ 2,200 and 15.8 mm (0.625 in.) Cable		
Bare Drum—4000 (8-in. Drum—High Speed)	Rate	43.2 m/min 142 fpm
Bare Drum—4000 (8-in. Drum—Standard Speed)	Rate	37.1 m/min 122 fpm
Bare Drum—4000 (10-in. Drum)	Rate	45.7 m/min 150 fpm

Continued on next page

648H with Direct Drive—Winch Specifications—4000 Series

WINCH—4000 SERIES: The direct drive 4000 winch with wet multiple disk clutch and spring applied, hydraulically released brake is John Deere engineered and manufactured. Low friction drum seals and an adjustable free spool feature increase operating ease. It is controlled by a single lever that has been conveniently located for the operator.

Item	Measurement	Specification
8-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	77.4 m 254 ft.
8-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	54.6 m 179 ft.
8-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	39.3 m 129 ft.
8-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	30.7 m 100 ft.
10-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	60.6 m 199 ft.
10-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	43 m 141 ft.
10-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	30.8 m 101 ft.
10-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	23.8 m 78 ft.

NOTE: Cable capacity is calculated with no allowance made for loose or uneven spooling.

Item	Measurement	Specification
Linepull @ Peak Engine and 15.8 mm (0.625 in.) Cable		
Bare Drum—4000 (8-in. Drum—High Speed)	Force	166 kN 37 318 lb.
Bare Drum—4000 (8-in. Drum—Standard Speed)	Force	193.2 kN 43 433 lb.
Bare Drum—4000 (10-in. Drum)	Force	157 kN 35 295 lb.
Full Drum—4000 (8-in. Drum—High Speed)	Force	99.5 kN 22 375 lb.
Full Drum—4000 (8-in. Drum—Standard Speed)	Force	116 kN 26 078 lb.
Full Drum—4000 (10-in. Drum)	Force	116 kN 26 078 lb.
Line Speed @ 2,200 and 15.8 mm (0.625 in.) Cable		
Bare Drum—4000 (8-in. Drum—High Speed)	Rate	43.2 m/min 142 fpm
Bare Drum—4000 (8-in. Drum—Standard Speed)	Rate	37.1 m/min 122 fpm
Bare Drum—4000 (10-in. Drum)	Rate	45.7 m/min 150 fpm

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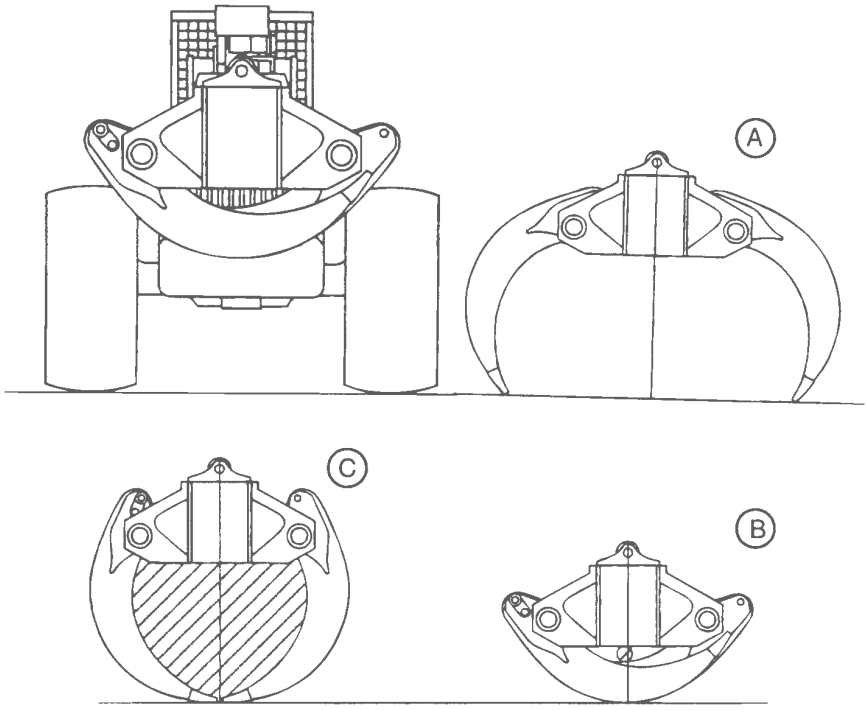
648H—Grapple Dimensions



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GRAPPLE: The grapple has been engineered to provide durability and performance. A grease-adjustable oscillation damper improves component life and reduces maintenance requirements. Constant pressure to keep the grapple closed on the load is a standard feature. Grapple shape and clamping force have been engineered to maximize load retention.

Item	Measurement	Specification
Standard Grapple Head		
A—Tong Opening at Tips	Distance	2921 mm 9 ft. 6 in.
B—Minimum Diameter of Stem	Diameter	140 mm 5.5 in.
C—Enclosure Area Tongs Tip-to-Tip	Area	0.97 sq. m 10.4 sq. ft.
High Capacity Grapple Head		
A—Tong Opening at Tips	Distance	3175 mm 10 ft. 5 in.
B—Minimum Diameter of Stem	Diameter	132 mm 5.2 in
C—Enclosure Area Tongs Tip-to-Tip	Area	1.16 sq. m 12.5 sq. ft.

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Item	Measurement	Specification
Bare Drum—4000 (10-in. Drum)	Rate	45.7 m/min 150 fpm
Full Drum—4000 (8-in. Drum—High Speed)	Rate	72 m/min 236 fpm
Full Drum—4000 (8-in. Drum—Standard Speed)	Rate	61.8 m/min 203 fpm
Full Drum—4000 (10-in. Drum)	Rate	61.8 m/min 203 fpm

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748H Grapple Skidder—Winch Specifications—6000 Series

WINCH—6000 SERIES: The direct drive 6000 winch with wet multiple disk clutch and spring applied, hydraulically released brake is John Deere engineered and manufactured. Low friction drum seals and an adjustable free spool feature increase operating ease. It is controlled by a single lever that has been conveniently located for the operator.

Item	Measurement	Specification
11-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	114 m 373 ft
11-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	80.2 m 263 ft
11-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	58 m 189 ft
11-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	45 m 147 ft
Linepull @ 1800 rpm and 15.8 mm (0.625 in.) Cable		
Bare Drum	Force	196.7 kN 44 230 lb.
Linepull @ Stall and 15.8 mm (0.625 in.) Cable		
Full Drum	Force	122.7 kN 27 604 lb.
Line Speed @ 2200 rpm and 15.8 mm (0.625 in.) Cable		
Bare Drum	Rate	42.6 m/min 140 fpm
Full Drum	Rate	68.2 m/min 224 fpm

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Item	Measurement	Specification
Bare Drum—4000 (8-in. Drum Standard Speed)	Rate	77.4 m/min 254 fpm
Bare Drum—4000 (10-in. Drum)	Rate	95.4 m/min 313 fpm
Full Drum—4000 (8-in. Drum High Speed)	Rate	150.2 m/min 493 fpm
Full Drum—4000 (8-in. Drum Standard Speed)	Rate	128.9 m/min 423 fpm
Full Drum—4000 (10-in. Drum)	Rate	128.9 m/min 423 fpm

OU90V02,000049F -19-27MAY10-2/2

848H Grapple Skidder—Winch Specifications—6000 Series

WINCH—6000 SERIES: The 6000 winch with wet multiple disk clutch and spring applied, hydraulically released brake is John Deere engineered and manufactured. Low friction drum seals and an adjustable free spool feature increase operating ease. It is controlled by a single lever that has been conveniently located for the operator.

Winch—6000 Series

Item	Measurement	Specification
11-in. Drum—15.8 mm (0.625 in.) Cable	Capacity (approximate)	114 m 373 ft
11-in. Drum—19.1 mm (0.75 in.) Cable	Capacity (approximate)	80.2 m 263 ft
11-in. Drum—22.2 mm (0.875 in.) Cable	Capacity (approximate)	58 m 189 ft
11-in. Drum—25.4 mm (1.0 in.) Cable	Capacity (approximate)	45 m 147 ft

NOTE: Cable capacity is calculated with no allowance made for loose or uneven spooling.

Item	Measurement	Specification
Linepull @ 1800 rpm and 15.8 mm (0.625 in.) Cable		
Bare Drum—6000	Force	71.68 kN 16 116 lb.
Linepull @ Stall and 15.8 mm (0.625 in.) Cable		
Full Drum—6000	Force	116.9 kN 26 227 lb.
Line Speed @ 2200 rpm and 15.8 mm (0.625 in.) Cable		
Bare Drum—6000	Rate	88.6 m/min 291 fpm
Full Drum—6000	Rate	142.3 m/min 467 fpm

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