410G Backhoe Loader

JOHN DEERE

OPERATOR'S MANUAL

410G Backhoe Loader

OMT201153 ISSUE C3 (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

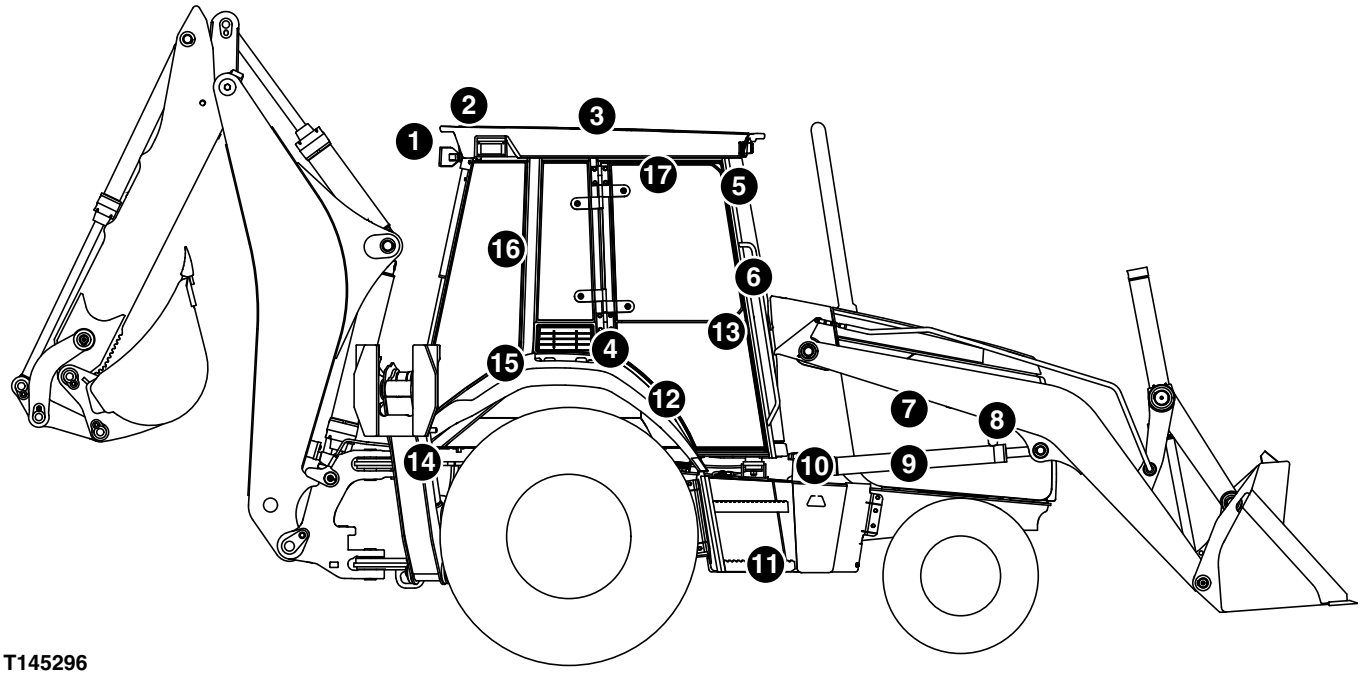
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

Worldwide Construction And Forestry Division

PRINTED IN U.S.A.

Safety And Operator Convenience Features



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

1. **Headlights/Taillights.** Two front halogen driving/work lights and two rear halogen work lights.
2. **Signal/Warning Lights.** Roof mounted turning signal lights and warning lights for on-road use.
3. **ROPS Protection.** Certified rollover protection structure surrounds the operator. Integral roof provides overhead protection.
4. **Seat Position Sensor.** An audio/visual warning alerts operator when Transmission Control Lever (TCL) is in forward/reverse and the seat turned toward the backhoe position.
5. **Interior Rearview Mirror.** Offers the operator a view of activity behind him.
6. **Handholds.** Large and conveniently placed, make it easy to enter or exit the operator's station.
7. **Loader Boom Service Lock.** Provided for working on or around this machine with the boom raised.
8. **Engine Fan Guard.** A secondary engine fan guard inside engine compartment encloses rotating fan blades.
9. **Bypass Start Protection.** Shielding over the starter solenoid helps prevent dangerous bypass starting.
10. **Ground-Level Fueling, Daily Service Checks.** Ground-level fueling feature eliminates the need to climb on the machine to fuel it.
11. **Steps.** Wide, skid-resistant steps provide excellent footing for getting in/out of operator's station.
12. **Independent Parking/Secondary Brake.** Independent, electrically controlled, parking brake electrically engages when the engine is stopped.
13. **Neutral Start.** Prevents the engine from being started unless TCL is in neutral.
14. **Backup Alarm.** Alerts bystanders when the machine is shifted into reverse.
15. **Seat Belt Retractors.** Seatbelt retractors help keep belts clean and convenient to use.
16. **Exceptional Visibility.** Views to either side and front or rear working tools are unrestricted.
17. **Operator Manual Holder.** A sealed manual holder keeps manual clean and dry.

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Inspect and Maintain ROPS

A damaged roll-over protective structure (ROPS) should be replaced, not reused.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting.

If ROPS was loosened or removed for any reason, inspect it carefully before operating the machine again.

To maintain the ROPS:

- Replace missing hardware using correct grade hardware.
- Check hardware torque.
- Check isolation mounts for damage, looseness or wear; replace them if necessary.
- Check ROPS for cracks or physical damage.

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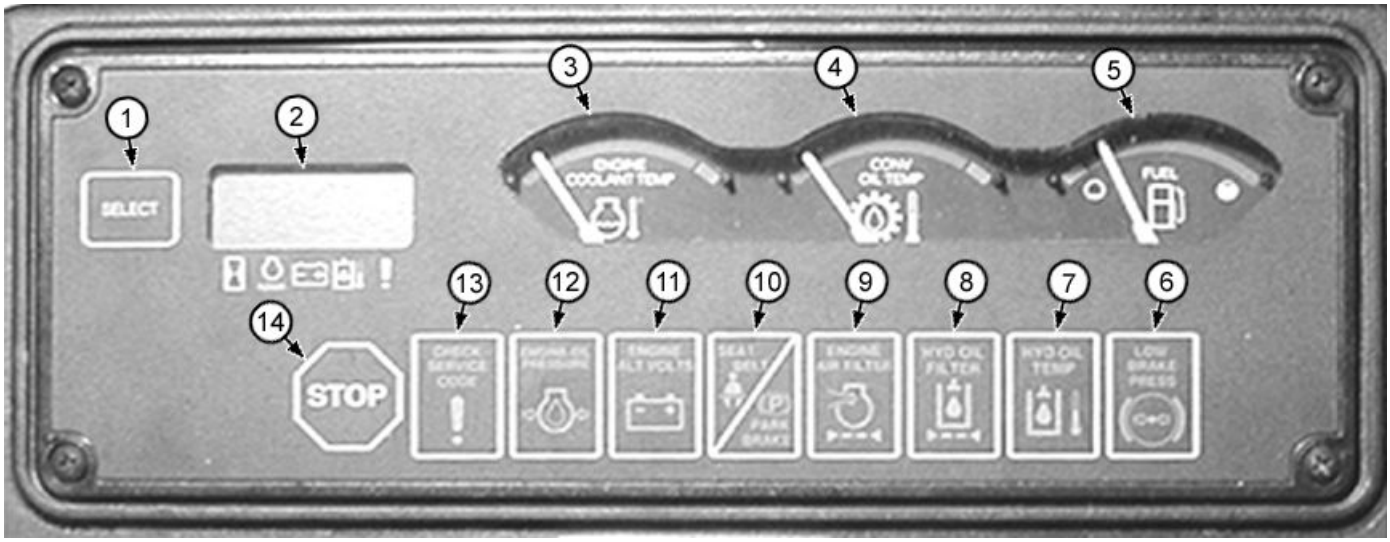
Display Monitor Functions —If Equipped With Pilot Controls



Display Monitor

1— Select Button
2— Display Window
3— Engine Coolant Temperature Gauge
4— Converter Oil Temperature Gauge
5— Fuel Level Gauge
6— Not Used
7— Hydraulic Oil Temperature Indicator
8— Hydraulic Oil Filter Indicator
9— Engine Air Filter Indicator
10— Seat Belt Indicator/Park Brake Indicator
11— Engine Alternator Voltage Indicator
12— Engine Oil Pressure
13— Check Service Code Indicator
14— Stop Indicator

The display monitor has three modes of operation:

IMPORTANT: Prevent possible machine damage. Do not operate machine when monitor is inoperable, malfunctioning, or does not successfully complete self test.

- BULB CHECK MODE: With the engine not running, turning the key switch to ON puts the display monitor in bulb check mode. In this mode, the monitor alarm beeps, all gauges and indicators light, and all gauge needles cycle from minimum to 12-o'clock positions before registering current readings. Bulb check mode lasts five seconds, to allow the operator time to verify that all display elements are functional.
- KEY SWITCH ON, ENGINE NOT RUNNING MODE: With key switch ON but the engine not running, all gauges (3—5), and the alternator voltage indicator (9) remain lit. Press and hold the select button to cycle the display window between three displays.
- ENGINE RUNNING MODE: Monitor panel enters engine running mode after bulb check mode when the engine is started. In engine running mode, current status of machine is displayed on the display window, gauges, and indicators. Press and hold the select button to cycle the display window between three displays.

1—Select Button: With key switch "On", press and hold the select button to cycle between displays on the display window.

2—Display Window: The display window has three displays. Press and hold the select button to cycle between displays on the display window when the monitor panel is active:

- Hour Meter
- Engine rpm
- Battery Voltage
- Hydraulic Oil Temperature
- Service Code

3—Engine Coolant Temperature Gauge: When engine coolant temperature is too high the gauge needle will enter red zone, STOP indicator will light, and alarm will sound. Do not stop engine. Reduce load and run engine at slow idle for 1—2 minutes. If gauge needle does not fall to an acceptable operating level, stop engine. See your authorized dealer.

4—Transmission and Torque Converter Oil Temperature Gauge: When transmission oil temperature is too high, gauge needle will enter red zone, STOP indicator will light, and alarm will sound. Reduce load immediately, shift into NEUTRAL and run engine at slow idle. Inspect for plugged oil cooler.

5—Fuel Level Gauge: This gauge shows the level of fuel in the tank. Fuel level gauge needle will enter red zone when fuel level in tank is low.

6—Not Used

7—Hydraulic Oil Temperature Indicator: Indicator will light when hydraulic oil temperature is high. Reduce load immediately and place control levers in neutral. Run engine at slow idle. Inspect cooler and radiator area for debris that could cause plugging of the cooler.

NOTE: No oil cooler flow when control valves are neutral.

8—Hydraulic Oil Filter Restriction Indicator:

Continued on next page

Inspect Machine Daily Before Starting

Perform periodic service checks.

- Check and lubricate loader pivot pins (A).
- Check engine oil level and air cleaner (B).
- Check precleaner (C).
- Check hydraulic oil level (D).
- Clean operator's station (E).
- Check and lubricate backhoe pivot pins (F).
- Check pedals and controls (G) for freedom of movement.
- Check inflation pressure of tires (H) and torque of wheel hardware.
- Clean radiator fins (I).

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 in areas that rub against each other or other parts.

BACKHOE AND LOADER: Check for loose, bent, broken or missing parts and hardware.

LUBRICATION: Check lubrication points.

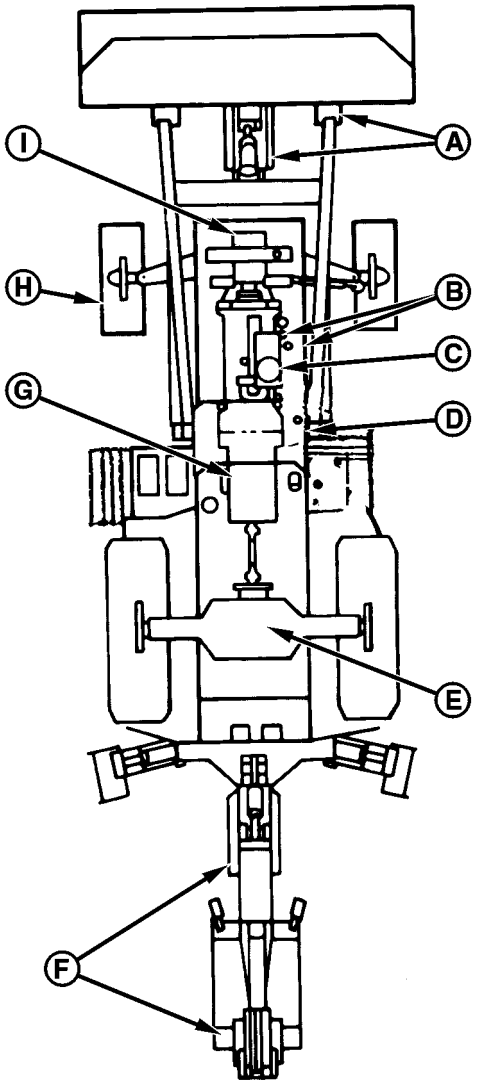
PROTECTIVE DEVICES: Check ROPS, guards, shields, covers, seat belt, and reverse warning alarm.

FIRE PREVENTION: Clean machine of debris.

PARK BRAKE: Check for correct operation.

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

A—Loader Pivot Pins
B—Engine Dipstick and Air Cleaner
C—Precleaner (if equipped)
D—Hydraulic Oil Level Sight Tube
E—Operator's Station
F—Backhoe Pivot Pins
G—Pedals and Controls
H—Tires
I— Radiator Fins



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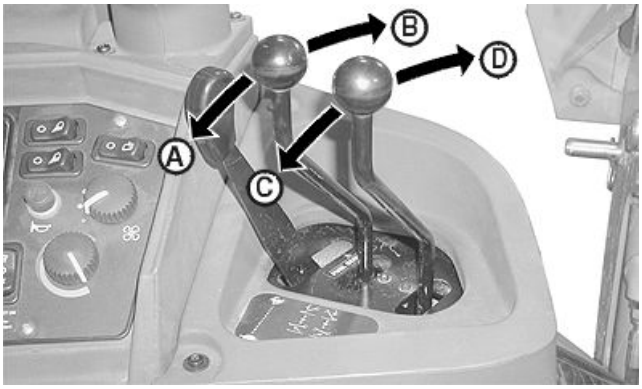
Operating Stabilizers

CAUTION: Prevent possible injury from unexpected machine movement. Stabilizers must be set on a firm surface. Do not dig under stabilizers. Be alert to possible machine movement when raising stabilizers and loader bucket.

Before operating the backhoe, use stabilizers to lift and level the machine. Use the levers to move stabilizers from raised position (A and C) to lowered position (B and D).

Stabilizer feet are reversible for use on paved and unpaved surfaces. See Reversing Stabilizer Feet. (Section 4-1.)

A—Left Stabilizer Up
B—Left Stabilizer Down
C—Right Stabilizer Up
D—Right Stabilizer Down



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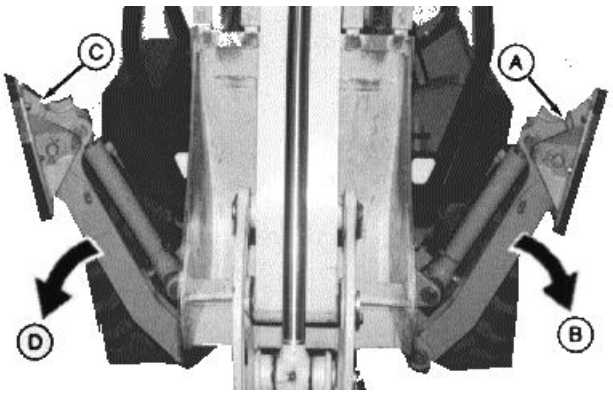

T102200 —UN—24AUG96

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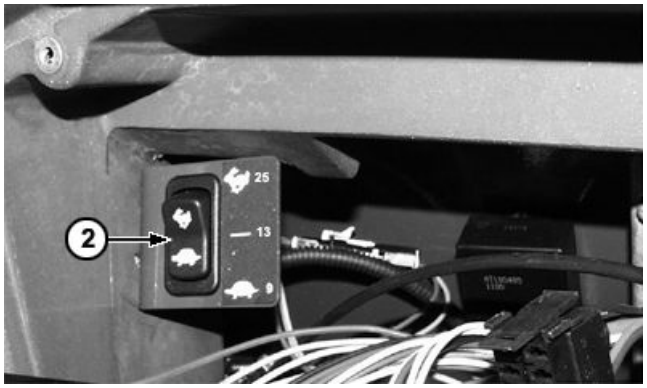
2. Remove four cap screws (1) from side console and lay console aside.

T134595B —UN—12OCT00



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NOTE: The valve selective oil flow setting is pre-set at 25 gpm at the factory.

3. Press gpm selective flow switch (2) to the “25” gpm (rabbit) setting if desired gpm flow needed varies between 14—34 gpm. For lower gpm flow below 14 gpm, push switch to either “9” or “13” gpm (turtle)

   Attach side console back on the machine. Start the machine. Push selective flow switch (1) fully forward (third position); at this position the oil flow through the valve and to the working attachment is continuous.

T134594B —UN—12OCT00

Continued on next page

AM40430,0000185 -19-01SEP05-3/4

Diesel Fuel

Consult your local fuel distributor for properties of the diesel fuel available in your area.

In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975, or EN 15940 is acceptable for use at all percentage mixture levels.

Required Fuel Properties

In all cases, the fuel shall meet the following properties:

Cetane number of 40 minimum. Cetane number greater than 47 is preferred, especially for temperatures below –20 °C (–4 °F) or elevations above 1675 m (5500 ft.).

Cloud Point should be below the expected lowest ambient temperature or **Cold Filter Plugging Point** (CFPP) should be a maximum 10°C (18°F) below the fuel cloud point.

Fuel lubricity should pass a maximum scar diameter of 0.52 mm as measured by ASTM D6079 or ISO 12156-1. A maximum scar diameter of 0.45 mm is preferred.

Diesel fuel quality and sulfur content must comply with all existing emissions regulations for the area in which the engine operates. DO NOT use diesel fuel with sulfur content greater than 10 000 mg/kg (10 000 ppm).

Materials such as copper, lead, zinc, tin, brass and bronze should be avoided in fuel handling, distribution and storage equipment as these metals can catalyze fuel oxidation reactions which can lead to fuel system deposits and plugged fuel filters.

E-Diesel fuel

DO NOT use E-Diesel (Diesel fuel and ethanol blend). Use of E-Diesel fuel in any John Deere machine may void the machine warranty.

CAUTION: Avoid severe injury or death due to the fire and explosion risk from using E-Diesel fuel.

[1]See DX,ENOIL12,OEM, DX,ENOIL12,T2,STD, or DX,ENOIL12,T2,EXT for more information on Engine Oil and Filter Service Intervals.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV, and Stage V Engines Above 560 kW

- Use ONLY diesel fuel with a maximum of 500 mg/kg (500 ppm) sulfur content.

Sulfur Content for Interim Tier 4, Final Tier 4, Stage III B, Stage IV Engines, and Stage V Engines

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

Sulfur Content for Tier 3 and Stage III A Engines

- Use of diesel fuel with sulfur content less than 1000 mg/kg (1000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 1000—2000 mg/kg (1000—2000 ppm) REDUCES the oil and filter change interval.
- BEFORE using diesel fuel with sulfur content greater than 2000 mg/kg (2000 ppm), contact your John Deere dealer.

Sulfur Content for Tier 2 and Stage II Engines

- Use of diesel fuel with sulfur content less than 2000 mg/kg (2000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content 2000—5000 mg/kg (2000—5000 ppm) REDUCES the oil and filter change interval.[1]
- BEFORE using diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm), contact your John Deere dealer.

Sulfur Content for Other Engines

- Use of diesel fuel with sulfur content less than 5000 mg/kg (5000 ppm) is RECOMMENDED.
- Use of diesel fuel with sulfur content greater than 5000 mg/kg (5000 ppm) REDUCES the oil and filter change interval.

IMPORTANT: Do not mix used diesel engine oil or any other type of lubricating oil with diesel fuel.

Improper fuel additive usage may cause damage on fuel injection equipment of diesel engines.

DX,FUEL1 -19-01NOV22-1/1

Loader Boom Service Lock

Install loader boom service lock (A) when front loader must be raised for service procedures.

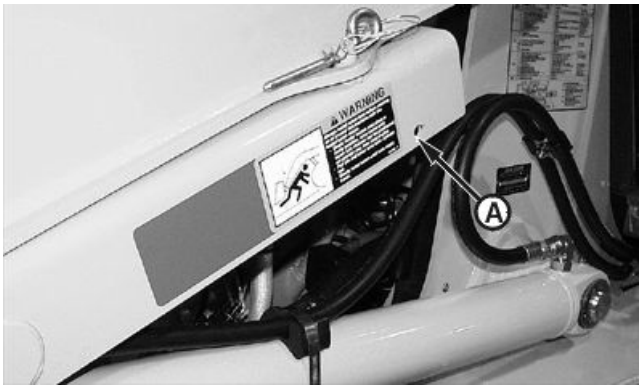
IMPORTANT: Do not raise or lower the front loader boom while the engine hood is open. Always close the engine hood fully before moving the front loader boom, or severe damage to the engine hood will occur.

Installing the Loader Boom Service Lock

1. Close engine hood.
2. Empty loader bucket and move bucket to dump position.
3. Raise boom until loader boom service lock can fit over cylinder rod.
4. Stop engine.
5. Remove cotter pin and retaining pin, and lower loader boom service lock onto cylinder rod.
6. Install retaining pin and cotter pin to attach loader boom service lock on cylinder rod.
7. Slowly lower boom until its weight settles onto the loader boom service lock.

Removing the Loader Boom Service Lock

1. Close engine hood.



T131855C —UN—07NOV00

A—Loader Boom Service Lock

2. Start engine and raise boom slightly to allow clearance between loader boom service lock and cylinder.
3. Remove cotter pin and retaining pin.
4. Lift loader boom service lock to storage position, and install retaining pin and cotter pin to retain.

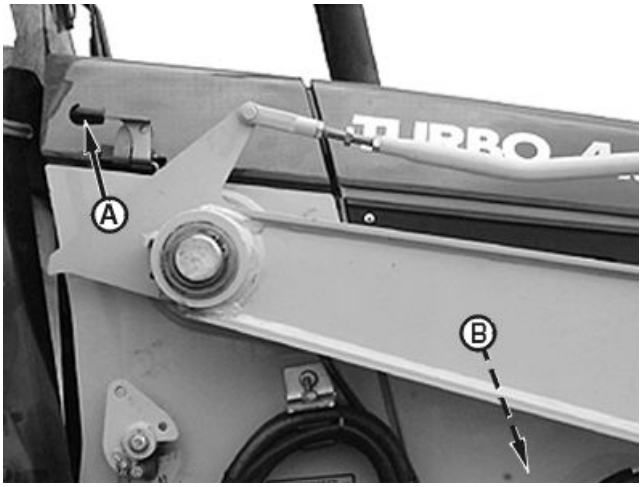
HG31779,0000119 -19-17SEP02-1/1

Opening and Closing Engine Hood (S.N. —903478)

CAUTION: Prevent serious injury or death from unexpected machine movement. Always install the loader boom service lock, or lower the front loader boom fully to the ground, and move control levers to release hydraulic pressure before working near the front of the machine.

IMPORTANT: Do not raise or lower the front loader boom while the engine hood is open. Always close the engine hood fully before moving the front loader boom, or severe damage to the engine hood will occur.

NOTE: The engine hood can be partially opened when the front loader boom is lowered fully to the ground. To fully open the engine hood, the front loader boom must be fully raised and the loader boom service lock must be installed. See Loader Boom Service Lock in this section for installation instructions.)



T132355B —UN—13JUL00

A—Hood Tilt Latch **B—Handhold**

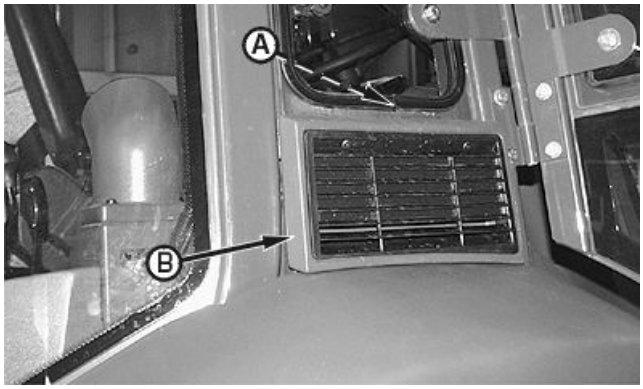
Pull hood tilt latch (A) and lift hood with handhold (B) to open.

CED,OUO1079,578 -19-02JAN03-1/1

Clean Cab Air Filters

Cab Fresh Air Filter

1. Open latch (A) on inside of right-side window frame.
2. Remove fresh air filter cover (B) and fresh air filter.
3. Inspect filter. Clean as necessary. Replace if damaged.
4. Install filter and filter cover.
5. Close latch.



T132588B —UN—18JUL00

A—Latch **B—Fresh Air Filter Cover**

CED,OUO1079,492 -19-11JUL05-1/2

Cab Recirculating Air Filter

1. Remove cab recirculating air filter cover (C) and cab recirculating air filter.
2. Inspect filter. Clean as necessary. Replace if damaged.
3. Install filter and filter cover.

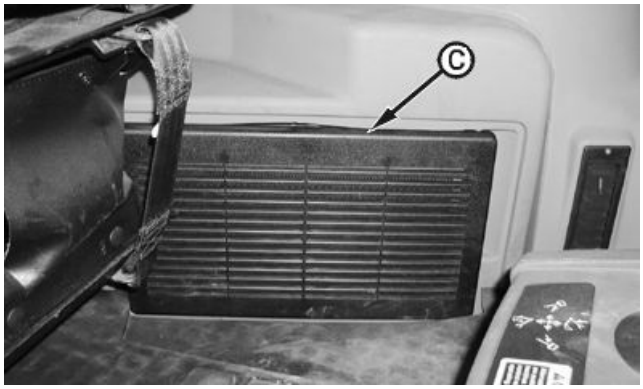
Cleaning Cab Air Filters

CAUTION: Reduce compressed air to less than 210 kPa (2.10 bar) (30 psi) when using for cleaning purposes. To avoid possible injury, clear area of bystanders, guard against flying debris, and wear personal protection equipment, including eye protection.

IMPORTANT: Always replace damaged air filters.

Clean filter(s) using one of the following methods:

- Direct compressed air through filter(s), opposite normal air flow.
- Tap filter(s) on a flat surface with dirty side down.
- Wash in warm, soapy water and flush. Let filter(s) dry before reinstalling.



T132838B —UN—24JUL00

C—Cab Recirculating Air Filter Cover

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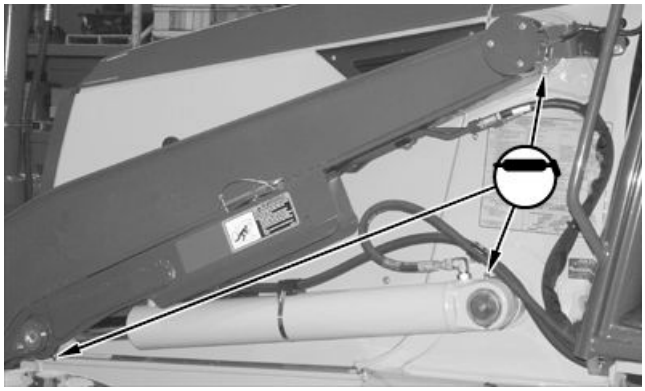
Grease Loader Pivots (S.N. 955725—)

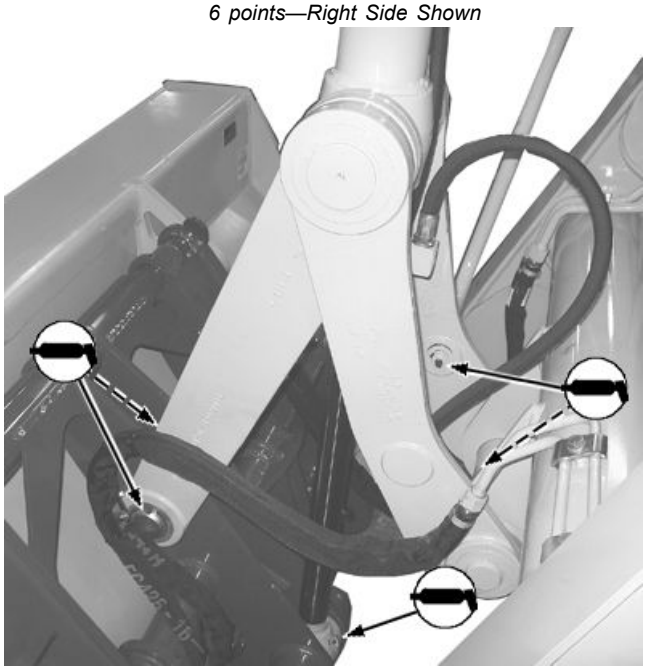
NOTE: Machines equipped with synthetic bushings do not require lubrication.

Apply grease to lubrication fittings until it escapes from joints. See Grease. (Section 3-1.)



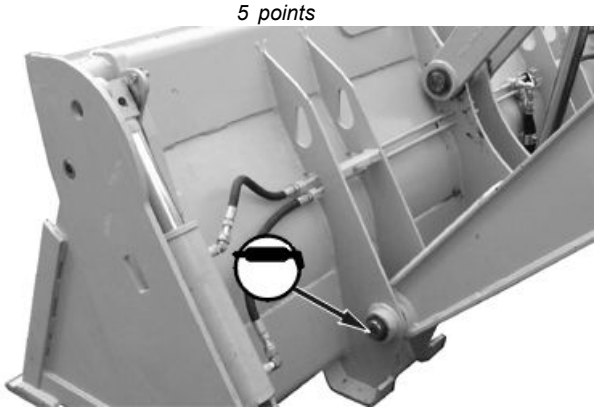
TX1002222A —UN—06JAN06

6 points—Right Side Shown



TX1007733A —UN—16MAY06

5 points



T132372B —UN—12SEP00

2 Points—Left Side Shown

VD76477,000045B -19-11MAY06-1/1

Replace Transmission Oil Filter

NOTE: Change after first 100 hours and then every 1000 hours.

1. Turn transmission oil filter (A) counterclockwise and remove.
2. Apply film of oil to sealing ring on new transmission oil filter. Install new transmission oil filter. Turn clockwise until sealing ring touches mounting surface, then tighten an additional 3/4 to one turn with a suitable filter wrench.
3. Start engine and run for 3 minutes to allow filter element to refill and purge air from charge circuit.
4. With engine running at slow idle, remove transmission dipstick (B). Check transmission oil level and add oil through dipstick tube as necessary. See Transmission, Hydraulic, Axles, and Mechanical Front Wheel Drive Oil. (Section 3-1.)
5. Check for leakage around filter. Tighten filter just enough to stop leaks.
6. Install transmission dipstick and turn handle clockwise to tighten.

A—Transmission Oil Filter **B—Transmission Dipstick**

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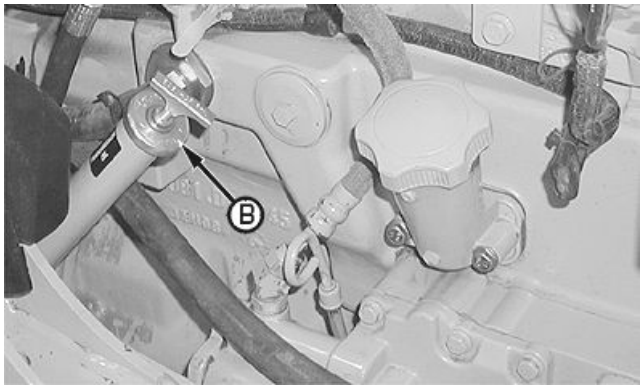


T132362E —UN—13JUL00

HG31779,0000334 -19-01DEC03-1/1

Change Engine Oil And Replace Filter (S.N. 911916—)

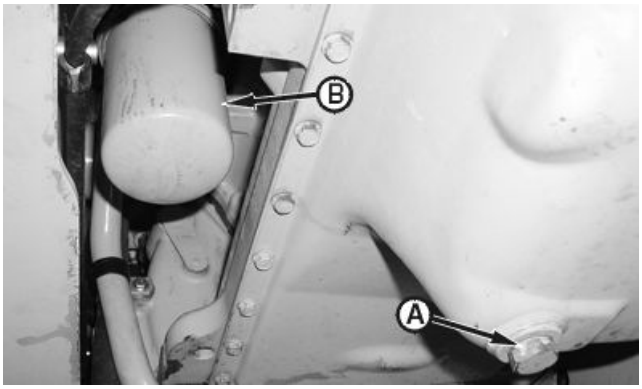
IMPORTANT: If fuel sulfur content exceeds 0.5 percent, change engine oil at 1/2 the normal interval.

CAUTION: Prevent possible injury from unexpected machine movement. Never rely on FNR lever to keep machine from moving. Always engage park brake to hold machine.

1. Run engine to warm oil. Park machine on a level surface. Engage park brake. Stop engine.
2. Remove engine oil drain plug (A). Allow oil to drain into a container.
3. Using a suitable filter wrench, turn engine oil filter (B) counterclockwise and remove from base. Clean mounting surfaces of base as necessary. Dispose of waste oil properly.
4. Apply a thin film of oil to sealing ring on new engine oil filter, and install by turning new filter clockwise by hand until gasket touches mounting surface. Torque an additional 1/2—3/4 turn with filter wrench.
5. Install engine oil drain plug.
6. Remove engine oil fill cap (C) and fill engine with oil to specification. See Diesel Engine Oil. (Section 3-1.)

Specification	
Engine Oil—Capacity	13 L 13.7 qt

IMPORTANT: Before starting engine after a filter change, crank engine for ten seconds without starting to fill new engine oil filter and pre-lubricate the turbocharger, if equipped.



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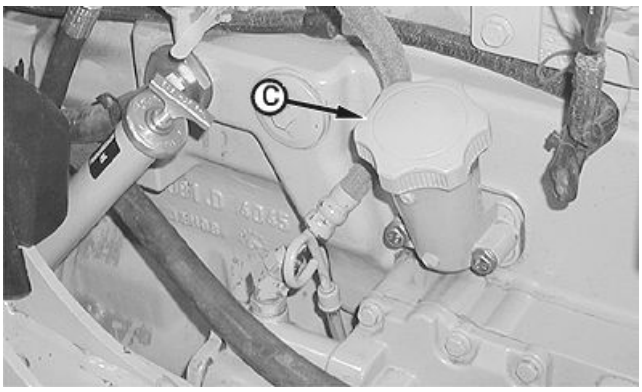


T132362C —UN—13JUL00

A—Engine Oil Drain Plug
B—Engine Oil Filter
C—Engine Oil Fill Cap

7. Run engine for 2 minutes and then stop engine. Check for leaks around drain plug and filter, and tighten as necessary. Check oil level. See Check Engine Oil Level. (Section 3-4.)

HG31779,00001B0 -19-01AUG05-1/1

Replace Engine Air Cleaner Elements

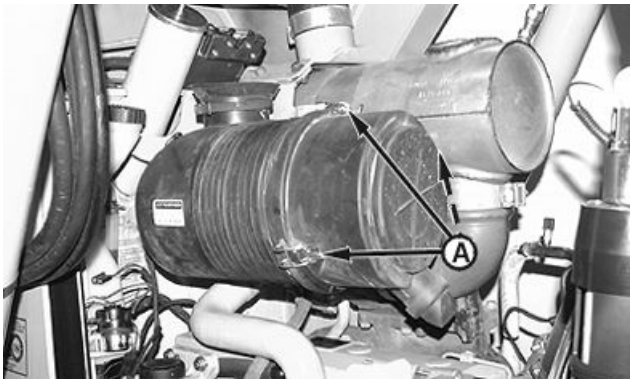
Inspect elements when air filter restriction indicator lights.

1. Open hood.
2. Unfasten clips (A) and remove air cleaner cover.

IMPORTANT: Remove elements gently to avoid dislodging dust from the elements.

3. Slide primary element (B) and secondary element (C) out to remove.
4. Clean inside of air cleaner and outlet tube.
5. Install new secondary element and primary element. Ensure that each element is properly centered and seated.
6. Install air cleaner cover with dust unloader valve pointed down. Fasten clips.

A—Clip (3 used)
B—Primary Element
C—Secondary Element



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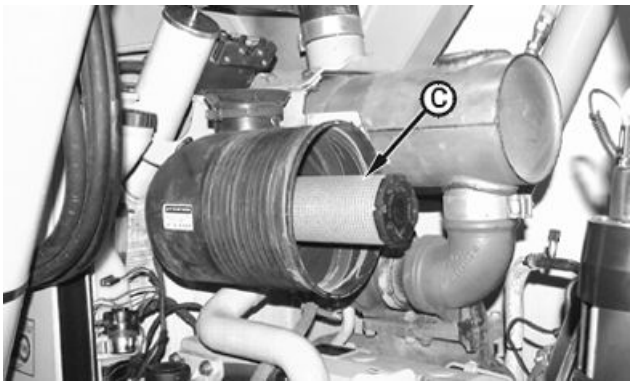

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CED,OUO1079,474 -19-17JUL00-1/1

Handling, Checking and Servicing Batteries Carefully

CAUTION: Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

Always remove grounded (-) battery clamp first and replace it last.

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

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

If you spill acid on yourself:

1. **Flush your skin with water.**
2. **Apply baking soda or lime to help neutralize the acid.**
3. **Flush your eyes with water for 15—30 minutes. Get medical attention immediately.**

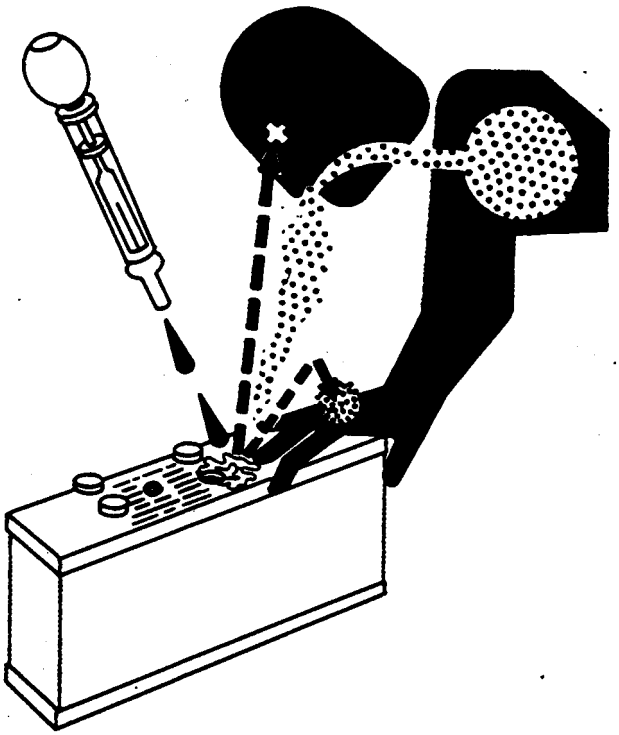
If acid is swallowed:

1. **Do not induce vomiting.**
2. **Drink large amounts of water or milk, but do not exceed 1.9 L (2 qt).**
3. **Get medical attention immediately.**

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.**

If electrolyte spills on the floor, use one of the following mixtures to neutralize the acid: 0.5 kg (1 lb) baking soda in 4 L (1 gal) water, or 0.47 L (1 pt) household ammonia in 4 L (1 gal) water.

TS204 —UN—15APR13



TS203 —UN—23AUG88

IMPORTANT: Do not overfill the battery cells.

Check the specific gravity of electrolyte in each battery cell.

Continued on next page

TX03679,0001788 -19-29APR11-1/2

Discharge Ride Control System Hydraulic Pressure—If Equipped

CAUTION: Prevent possible injury from unexpected boom or bucket movement when equipped with ride control. Ride control accumulator energy must be discharged when working on hydraulic components. Turn key switch to "On". Push upper half of ride control switch to activate ride control and move loader control lever to "Float" position.

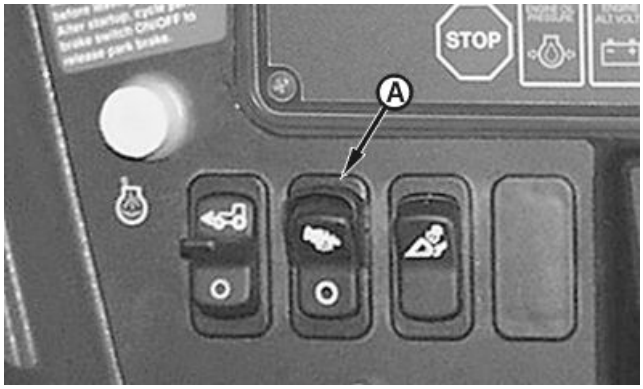
Do not have ride control activated when starting the machine; the machine may move if ride control is activated when the machine is started.

Do not have ride control activated when operating the loader; the ride control system may cause unexpected movement.

The ride control system has an accumulator and valve in the loader circuit.

Before servicing or performing maintenance on the machine, discharge hydraulic oil pressure from the ride control system as follows:

1. Ensure that area around bucket is clear.
2. Push lower half of ride control switch (A) to deactivate ride control.
3. Start the engine.



T131504D —UN—11JUL00

A—Ride Control Switch

4. Position front loader boom so that the bucket is approximately 30 cm (1 ft) off the ground.
5. Stop the engine.
6. Turn key switch to "On" without restarting engine. Push upper half of ride control switch to activate ride control.
7. Move loader control lever to "Float" position. Bucket should lower to ground.
8. If ride control accumulator has lost gas charge, see Checking Ride Control Accumulator—If Equipped in this section.

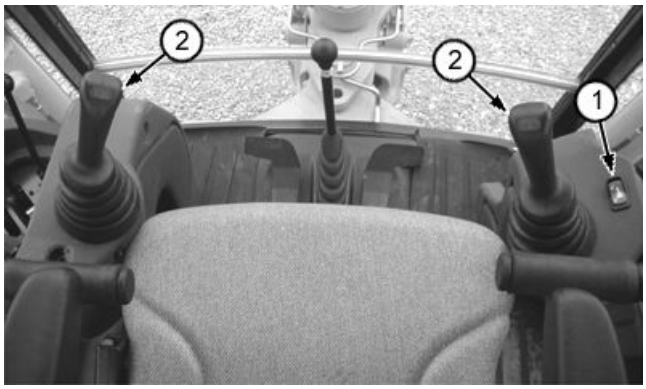
HG31779,00000F6 -19-10SEP02-1/1

Discharge Pilot Control System Hydraulic Pressure—If Equipped

CAUTION: Prevent injury from unexpected machine movement. Turn engine off. Keep bystanders clear of machine.

Before servicing or performing maintenance on the machine, discharge hydraulic oil pressure from the pilot control system as follows:

1. Ensure that area around bucket is clear.
2. Turn off engine.
3. Turn key switch to "ON" position.
4. Rotate seat to backhoe operation position.
5. Pull pilot control towers back to operating position.
6. Push pilot control enable/disable switch (1) to "Unlock" position to enable pilot controls.



T163349B —UN—02JAN03

1— Pilot Control Enable/Disable Switch

2— Pilot Controls

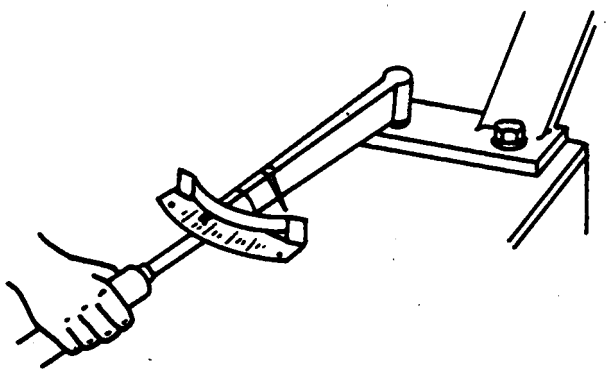
7. Actuate pilot controls (2) in a circular pattern for five to ten rotations.

HG31779,00001BD -19-07JUL09-1/1

Keep ROPS Installed Properly

CAUTION: Avoid bodily injury by making certain all parts are reinstalled correctly if the rollover protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered. A damaged ROPS should be replaced, not reused.



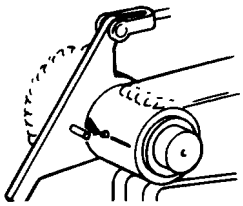
TS176 —UN—23AUG88

When installation of equipment on a machine necessitates loosening or removing ROPS, mounting bolts must be tightened to specification.

Specification	
ROPS Mounting Bolts—Torque	420 N·m 310 lb-ft

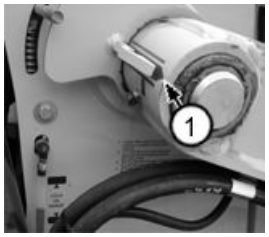
TX,90,BD2192 -19-16JAN08-1/1

Loader Return-to-Dig Check



T7374CH —UN—04OCT90

Early Machines



T164529B —UN—24JAN03

Later Machines

Run engine at approximately 1500 rpm.

Position loader and bucket 2 m (6.0 ft) above ground level with bucket in full dump position.

Move the loader control lever into bucket rollback detent position. Remove hand from control lever.

LOOK: Does loader control lever disengage from bucket rollback detent when bucket indicator pointer is aligned with mark (1) on boom pivot?

YES: Go to next check.

LOOK: When bucket is at ground level, bucket must be level and bucket indicator pointer must be aligned with mark (1) on the boom pivot.

NO: Inspect return-to-dig switch and activation cam. See your authorized dealer.

AM40430,00000BA -19-20JUL05-24/46

Ride Control System Check

Run engine at high idle.

Push ride control switch to on position.

Raise boom to maximum height.

Power boom down half-way to ground.

Stop suddenly by releasing loader control lever.

YES: Go to next check.

LOOK: Is boom cushioned when loader control valve is released?

NO: See your authorized dealer.

AM40430,00000BA -19-20JUL05-25/46

Pilot Control Operation Checks—If Equipped

AM40430,00000BA -19-20JUL05-26/46

Pilot Control Tower Operating/Stored Position Check

Move pilot control towers into operating position.

Release towers.

LOOK/FEEL: Do towers stay in operating position?

Move pilot control towers into stored position.

YES: Go to next check.

LOOK/FEEL: Do towers stay in stored position?

NO: Inspect pilot control towers. See your authorized dealer.

Continued on next page

AM40430,00000BA -19-20JUL05-27/46

Engine (S.N. 951255—)

Symptom	Problem	Solution
Engine Cranks, But Will Not Start or Starts Hard	Fuel tank empty.	Check fuel quantity.
	Fuel tank vent plugged.	Remove cap and listen for sound of air entering tank. Replace cap.
	No electrical power to ECU.	Turn key switch to ON position. Replace fuse. Repair wiring.
	Water in fuel or water frozen in fuel line.	Drain water from fuel tank. Inspect fuel filter for water. Change filter.
	Debris in fuel or wrong grade of fuel.	Check fuel tank outlet strainer for type of fuel debris. Check bottom of fuel tank for debris. Clean tank. Add fuel. Check grade of fuel. Add correct fuel.
	Air leak on suction side of fuel system.	Check for bubbles in fuel filter and tighten connections. Inspect fuel lines for damage.
	Fuel transfer pump diaphragm leaking.	Check engine oil for fuel dilution.
	Slow cranking speed.	Check battery and connections. Incorrect engine oil (cold weather).
	Restricted air filter.	Check air filter restriction indicator and air filters. Clean.
	Restricted fuel filter.	Replace fuel filter.
	ECU fuse.	Replace fuse.
Engine Surges or Stalls Frequently	Air in fuel.	Inspect filter for evidence of air in fuel. Tighten connections and bleed fuel system.
	Fuel tank vent plugged.	Remove cap and listen for sound of air entering tank. Replace cap.
	Debris in fuel or wrong grade of fuel.	Check fuel tank outlet strainer for debris. Check bottom of fuel tank for debris. Clean tank. Add fuel. Check grade of fuel.
	Water in fuel.	Drain fuel tank and inspect filter element for water. Replace filters.

Continued on next page

Symptom	Problem	Solution
	Gauge.	Replace gauge.
Fuel Gauge Shows Full At All Times	Sender float stuck.	Look in fuel tank. See if float is above fuel level. Repair or replace sender. See your authorized dealer.
Horn Does Not Sound	Horn ground.	Ground horn to machine frame.
	Horn fuse.	Check and replace.
	Horn.	Replace horn.
	Horn button.	Replace horn button.
Windshield Wiper Does Not Operate	Wiper fuse.	Check and replace.
	Loose or broken wire.	Inspect wiring for breaks or loose connections. Repair.
	Wiper switch.	See your authorized dealer.
	Wiper motor.	See your authorized dealer.
Heater Fan Does Not Operate	Heater fuse.	Check and replace.
	Loose or broken wire.	Inspect wiring for breaks or loose connections. Repair.
No Work Or Driving Lights	Driving light fuse.	Check and replace.
	Poor ground.	Inspect and tighten.
	Light switch.	See your authorized dealer.
	Burned out bulb.	Replace with new bulb.
Rear Lights Do Not Operate	Loose connector in wiring harness of ROPS.	Inspect and reconnect.
	Poor ground at light.	Inspect and tighten.
Dim Lights	Low battery charge.	Check battery connections.
	Low alternator output.	Check belt tension.
	Poor ground at lights.	Clean and tighten.

Continued on next page

TX,100,BG338 -19-09JAN97-2/3

410G Backhoe Loader Dimensions

NOTE: Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with SAE Standards. Unless otherwise noted, these specifications are based on a standard machine with 19.5L-24, 10PR, R4 rear tires; 11L-16, 12PR, F3 front tires; 0.86 m^3 (1.12 cu yd) loader bucket; 610 mm (24 in.) backhoe bucket; ROPS/FOPS; full fuel tank, and 79 kg (175 lb) operator.

Item	Measurement	Specification
A—Loading Height, Truck Loading Position		
Backhoe w/o Ext. Dipperstick	Height	3.81 m 12 ft 6 in.
Backhoe w/Ext. Dipperstick Retracted	Height	3.86 m 12 ft 8 in.
Backhoe w/Ext. Dipperstick Extended	Height	4.72 m 15 ft 6 in.
B—Reach from Center of Swing Mast		
Backhoe w/o Ext. Dipperstick	Distance	5.99 m 19 ft 8 in.
Backhoe w/Ext. Dipperstick Retracted	Distance	6.07 m 19 ft 11 in.
Backhoe w/Ext. Dipperstick Extended	Distance	7.21 m 23 ft 8 in.
C—Reach from Center of Rear Axle		
Backhoe w/o Ext. Dipperstick	Distance	7.11 m 23 ft 4 in.
Backhoe w/Ext. Dipperstick Retracted	Distance	7.19 m 23 ft 7 in.
Backhoe w/Ext. Dipperstick Extended	Distance	8.33 m 27 ft 4 in.
D—Maximum Digging Depth		
Backhoe w/o Ext. Dipperstick	Depth	4.83 m 15 ft 10 in.
Backhoe w/Ext. Dipperstick Retracted	Depth	4.90 m 16 ft 1 in.
Backhoe w/Ext. Dipperstick Extended	Depth	6.10 m 20 ft 0 in.
E—Digging Depth (SAE)—610 mm (2 ft) Flat Bottom		
Backhoe w/o Ext. Dipperstick	Distance	4.78 m 15 ft 8 in.
Backhoe w/Ext. Dipperstick Retracted	Distance	4.85 m 15 ft 11 in.
Backhoe w/Ext. Dipperstick Extended	Distance	6.07 m 19 ft 11 in.

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Miscellaneous—Machine Numbers

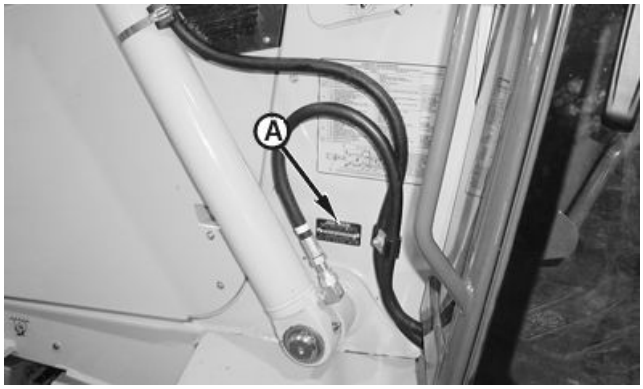
Record Product Identification Number (PIN)

Purchase Date _____

Product Identification Number _____

NOTE: Record all 13 characters of Product Identification Number.

A—Product Identification Number Tag



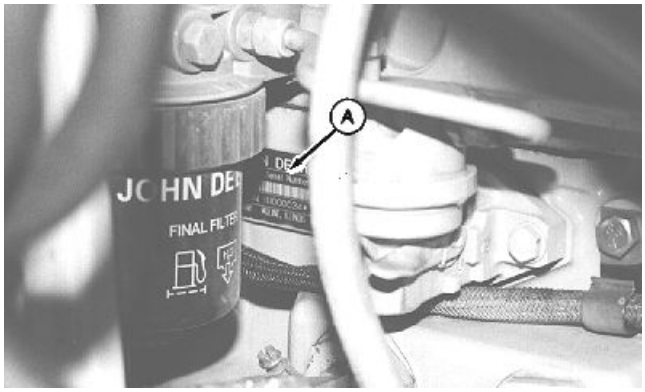
T132526B —UN—13JUL00

CED,OUO1079,460 -19-13JUL00-1/1

Record Engine Serial Number

Engine Serial Number _____

A—Engine Serial Number Tag



T103543 —UN—04SEP96

05T,120,J3 -19-13JUL00-1/1

Record Transmission Serial Number—Powershift

Transmission Serial Number _____

A—Transmission Serial Number Tag

T132445D —UN—13JUL00

CED,OUO1079,462 -19-13JUL00-1/1