

# 5310 S Tractor

**OPERATOR'S MANUAL**  
**5310 S Tractor**  
**OMRE247111 Issue G6 (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.

# Introduction

## Foreword

READ THIS MANUAL carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or equipment damage. This manual and safety signs on your machine may also be available in other languages (see your John Deere dealer to order).

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your machine and should remain with the machine.

MEASUREMENTS in this manual are given in both metric and customary U.S. unit equivalents. Use only correct replacement parts and fasteners. Metric and inch fasteners may require a specific metric or inch wrench.

RIGHT-HAND AND LEFT-HAND sides are determined by facing the direction of forward travel.

WRITE TRACTOR SERIAL (CHASSIS) NUMBER in the Specification or Identification Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File the identification numbers in a secure place off the machine.

SETTING FUEL DELIVERY BEYOND PUBLISHED factory specifications or otherwise overpowering will result in loss of warranty protection for this machine.

BEFORE DELIVERING THIS MACHINE, your dealer performed a predelivery inspection. After operating for the first 100 hours, schedule an after-sale inspection with your dealer to ensure best performance.

THIS TRACTOR IS DESIGNED SOLELY for use in customary agricultural or similar operations ("INTENDED USE"). Use in any other way is considered as contrary to the intended use. The manufacturer accepts no liability for damage or injury resulting from this misuse, and these risks must be borne solely by the user. Compliance with and strict adherence to the conditions of operation, service and repair as specified by the manufacturer also constitute essential elements for the intended use.

THIS TRACTOR SHOULD BE OPERATED, serviced and repaired only by persons familiar with all its particular characteristics and acquainted with the relevant safety rules (accident prevention). The accident prevention regulations, all other generally recognized regulations on safety and occupational medicine and the road traffic regulations must be observed at all times. Any arbitrary modifications carried out on this tractor will relieve the manufacturer of all liability for any resulting damage or injury.



*John Deere 5310 S tractor*

*NOTE: Tractors shown may have optional equipment.*

PY5155 -JUN-21AUG05

AG.OUO6075.97 -19-21FEB06-2/2



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# Safety

## Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



DX,ALERT -19-29SEP98-1/1

TS1389 -UN-07DEC88

## Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



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

TS187 -19-30SEP88

## Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.



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

TS201 -UN-23AUG88

## Prevent Machine Runaway

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral.



TS177 -JUN-11JAN89

CED,OUO1032,2778 -19-15OCT99-1/1

## Operate Tractor Safely

Features designed into your tractor make operation safer and let it perform a wide variety of jobs. Use your tractor only for specified jobs it was designed to perform: implement carrier, load mover, remote power source, or transport unit—not a recreational vehicle.

Careless use or misuse can result in unnecessary accidents. Be alert to hazards of tractor operation. Understand causes of accidents and take every precaution to avoid them. Most common accidents are caused from:

- Tractor upsets
- Improper starting procedures
- Crushing and pinching during hitching
- Collisions with other motor vehicles
- Getting entangled in PTO shafts
- Falls from tractors

Avoid accidents by taking the following precautions:

- Put the gear lever in Park position. Leaving transmission in gear with engine stopped will NOT prevent the tractor from moving.
- Be sure everyone is clear of tractor and attached equipment before starting engine.
- Never try to get on or off a moving tractor.
- When tractor is left unattended, put the gear lever in Park position, stop the engine, remove the key, lower implements to the ground.

### ⚠ CAUTION

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Read Operator's Manual before operating this tractor.</li> <li>2. Keep all shields in place.</li> <li>3. Hitch towed loads only to drawbar to avoid rearward upset.</li> <li>4. Make certain everyone is clear of machine before starting engine or operation.</li> <li>5. Keep all riders off tractor and equipment.</li> <li>6. Keep hands, feet and clothing away from power-driven parts.</li> <li>7. Reduce speed when turning or applying individual</li> </ol> | <ol style="list-style-type: none"> <li>brakes or operating around hazards, on rough ground or steep slopes.</li> <li>8. Couple brake pedals together for road travel.</li> <li>9. Use flashing warning lights on highway unless prohibited by law.</li> <li>10. Stop engine, lower implement to ground and shift to "PARK" or set brakes(s) securely before dismounting.</li> <li>11. Wait for all movement to stop before servicing machinery.</li> <li>12. Remove key if leaving tractor unattended.</li> </ol> |
|---|---|



IM47224A -19-02JUN97

TS276 -JUN-23AUG88

AG,OUO6035,84 -19-18MAY00-1/1

## Use Caution on Hillsides

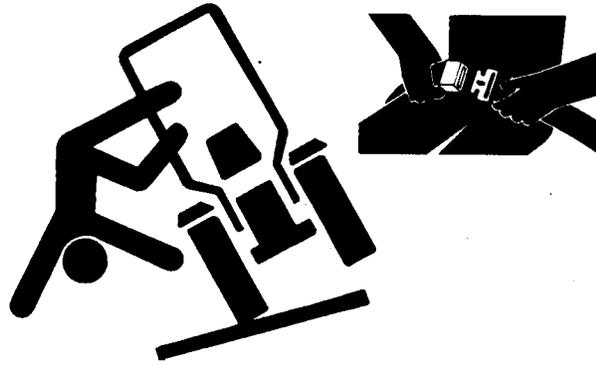
Avoid holes, ditches, and obstructions which cause the tractor to tip, especially on hillsides. Avoid sharp, uphill turns.

Never drive near the edge of a gully or steep embankment -- it might cave in.

Driving forward out of a ditch or mired condition or up a steep slope could cause tractor to tip over rearward. Back out of these situations if possible.

Danger of overturn increases greatly with narrow tread setting, at high speed.

Hitch towed loads only to drawbar. When using a chain, take up the slack slowly.



T5205 -JUN-23AUG88

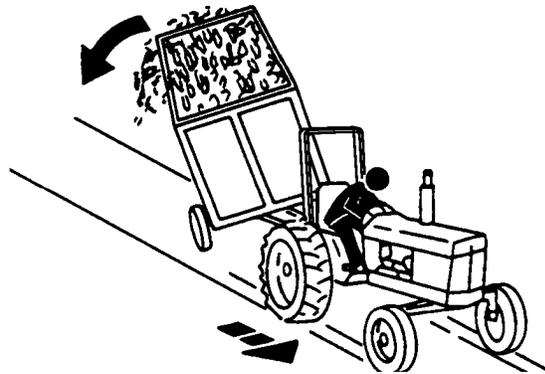
AG,OUO6035.65 -19-17MAY00-1/1

## Shift to Low Gear on Hills

Shift to a low gear before descending a steep hill to improve your control of the tractor with little or no braking. Use engine braking to reduce speed before applying tractor brakes. Run-away tractors often tip over. Never coast downhill.

When driving on icy, wet or oily surfaces, reduce speed and be sure tractor is properly ballasted (specially front tyres) to avoid skidding and loss of steering control.

Additional ballast may be needed for transporting heavy hitch mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.



LV4042 -JUN-09JUL99

AG,OUO6035.83 -19-17MAY00-1/1

## Avoid Tipping

Do not drive where machine could slip or tip.

Stay alert for holes, rocks, and roots in the terrain, and other hidden hazards. Keep away from drop-offs.

Slow down before you make a sharp turn.

Take care when pulling loads or using heavy equipment:

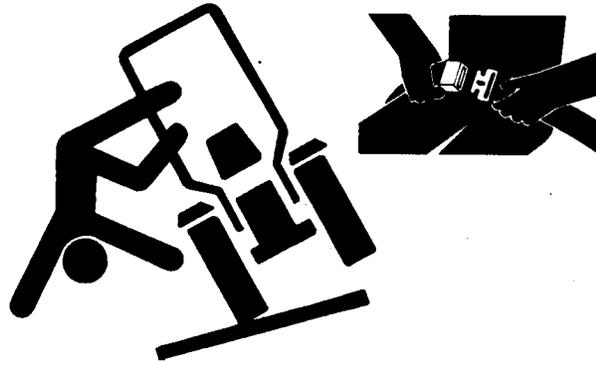
- Use only approved drawbar hitch points.
- Limit loads to those you can safely control.
- Use counterweights or wheel weights when suggested in this operator's manual.

Reduce speed and exercise extreme caution on slopes and in sharp turns to prevent tipping or loss of control. Be especially cautious when changing direction on slopes.

Do not stop or start suddenly when going uphill or downhill.

If machine stops going up hill:

- STOP the PTO.
- Back down slowly.



TSS05 -JUN-23AUG88

MX,AVOIDTIP1A1 -19-22JUL94-1/1

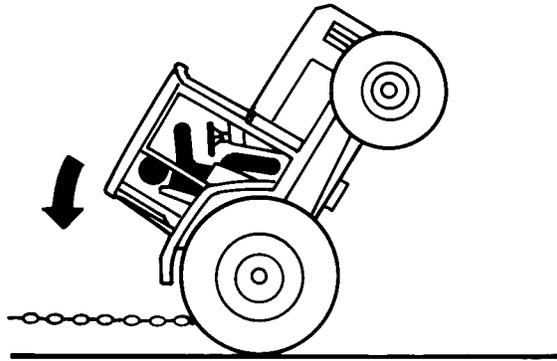
## Freeing a Mired Machine

Attempting to free a mired machine can involve safety hazards such as the mired tractor tipping rearward, the towing tractor overturning, and the tow chain or tow bar (a cable is not recommended) failing and recoiling from its stretched condition.

Back your tractor out if it gets mired down in mud. Unhitch any towed implements. Dig mud from behind the rear wheels. Place boards behind the wheels to provide a solid base and try to back out slowly. If necessary, dig mud from the front of all wheels and drive slowly ahead.

If necessary to tow with another unit, use a tow bar or a long chain (a cable is not recommended). Inspect the chain for flaws. Make sure all parts of towing devices are of adequate size and strong enough to handle the load.

Always hitch to the drawbar of the towing unit. Do not hitch to the front pushbar attachment point. Before moving, clear the area of people. Apply power smoothly to take up the slack: a sudden pull could snap any towing device causing it to whip or recoil dangerously.



TS1645 -JUN-15SEP95



TS263 -JUN-23AUG88

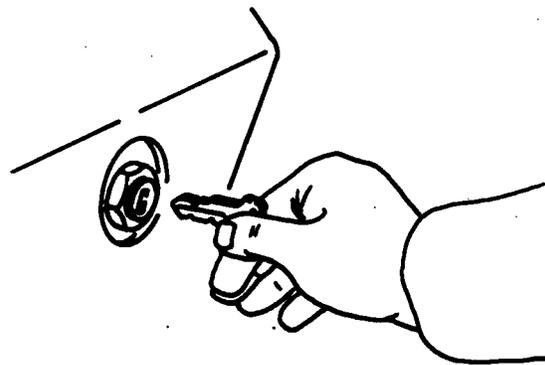
DX,MIREDD -19-07JUL99-1/1

## Park Tractor Safely

To park tractor safely:

- Disengage PTO.
- Lower equipment to the ground.
- Put gear shift lever in PARK.
- STOP the engine.
- Remove key.

Before you leave the operator's seat, wait for engine and attachment parts to stop moving.



M35691 -JUN-26APR89

MX,SAIP,AAA1 -19-21AUG99-1/1

### Handle Fuel Safely—Avoid Fires

Handle fuel with care: it is highly flammable. Do not refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.



TS202 -UN-23AUG88

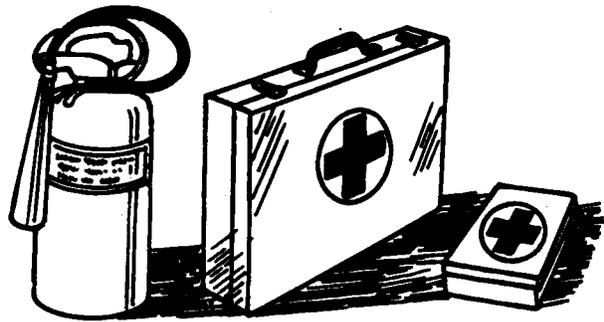
DX,FIRE1 -19-03MAR93-1/1

### 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-23AUG88

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

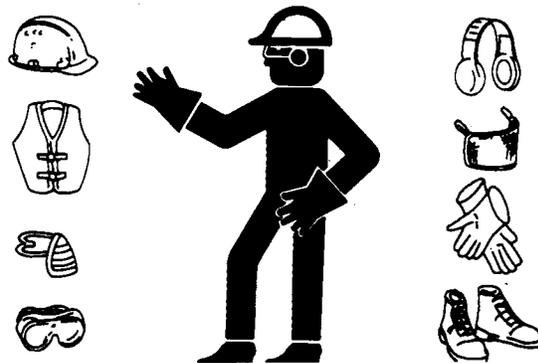
### Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



TS206 -UN-23AUG88

DX,WEAR -19-10SEP90-1/1

### Protect Against Noise

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



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

TS207 -UN-23AUG88

### Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



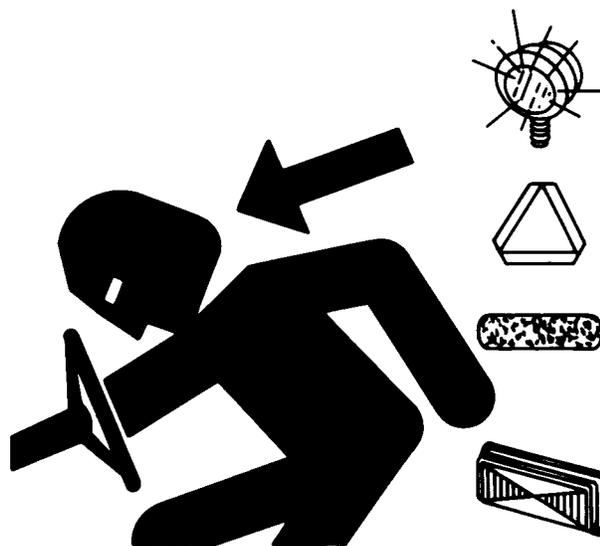
DX,PTO -19-12SEP95-1/1

TS1644 -UN-22AUG95

### Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.



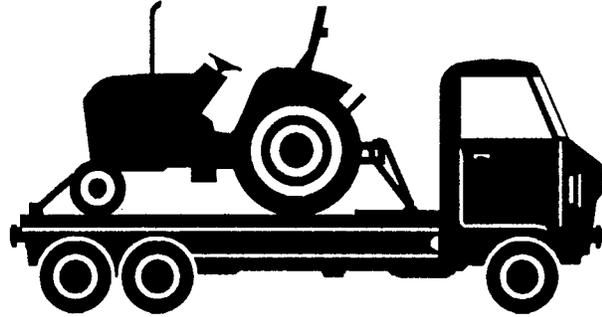
DX,FLASH -19-07JUL99-1/1

TS951 -UN-12APR90

## Safely Transporting the Tractor

A disabled tractor is best transported on a flatbed carrier. Use chains to secure the tractor to the carrier.

Never tow a tractor at a speed greater than 16 km/h (10 mph). An operator must steer and brake the tractor under tow.



LV610 -UN-22APR94

MX,SAIP,LA1 -19-29JUL94-1/1

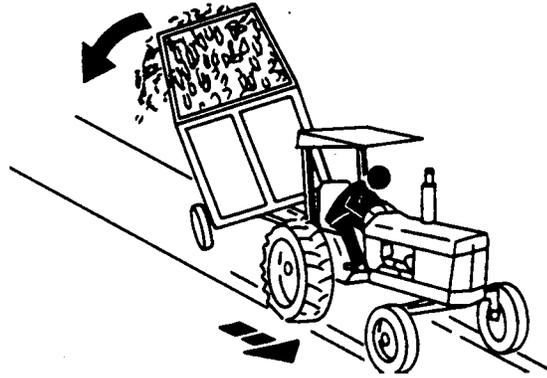
## Tow Loads Safely

Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

Observe these recommended maximum road speeds, or local speed limits which may be lower:

- If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.
- If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.



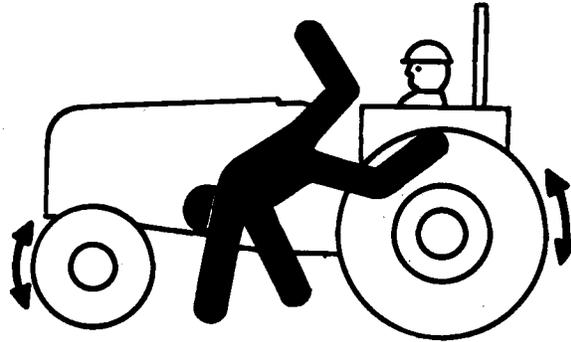
TS216 -UN-23AUG88

DX,TOW -19-02OCT95-1/1

## Keep Riders Off Machine

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



TS290 -JUN-23AUG88

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

## Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



TS218 -JUN-23AUG88

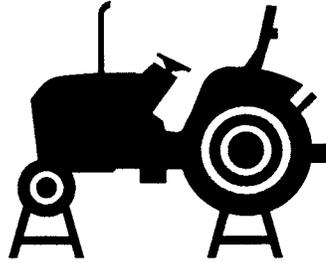
DX,SERV -19-17FEB99-1/1

### Service Tractor Safely

Do not service the tractor while it is in motion or while the engine is running.

Tighten wheel hardware to correct torque as specified in Wheels, Tyres and Tread section. Torque at intervals shown in Break-In Period and Lubrication and Maintenance sections, to ensure that wheel hardware does not loosen.

Reinstall shields removed during service.



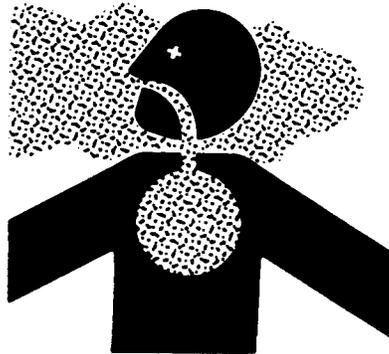
LV828 -UN-08AUG94

AG,OUO6035,70 -19-17MAY00-1/1

### Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area



TS220 -UN-23AUG88

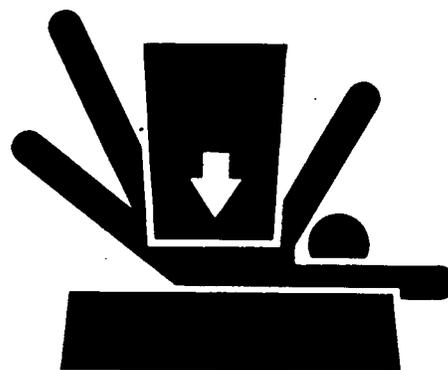
DX,AIR -19-17FEB99-1/1

### Support Machine Properly

Always lower the attachment or implement to the ground before you work on the machine. If the work requires that the machine or attachment be lifted, provide secure support for them. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.

When implements or attachments are used with a machine, always follow safety precautions listed in the implement or attachment operator's manual.



TS229 -UN-23AUG88

DX,LOWER -19-24FEB00-1/1

### Avoid Heating Near Pressurized Fluid Lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can accidentally burst when heat goes beyond the immediate flame area.



TS953 -JUN-15MAY90

DX,TORCH -19-10DEC04-1/1

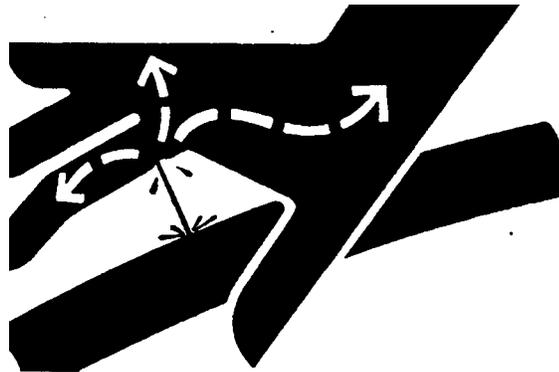
### Avoid High-Pressure Fluids

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.



X9811 -JUN-23AUG88

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

### Service Cooling System Safely

Explosive release of fluids from pressurized cooling system can cause serious burns.

If radiator cap must be removed, do not remove when engine is hot. Shut engine off and wait until cap is cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.



TS281 -JUN-23AUG88

AG,OUO1032,2682 -19-30SEP99-1/1

## Store Attachments Safely

Stored attachments such as dual wheels, cage wheels, and loaders can fall and cause serious injury or death.

Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



TS219 -JUN-23AUG88

DX.STORE -19-03MAR93-1/1

## Prevent Acid Burns

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

Avoid the hazard by:

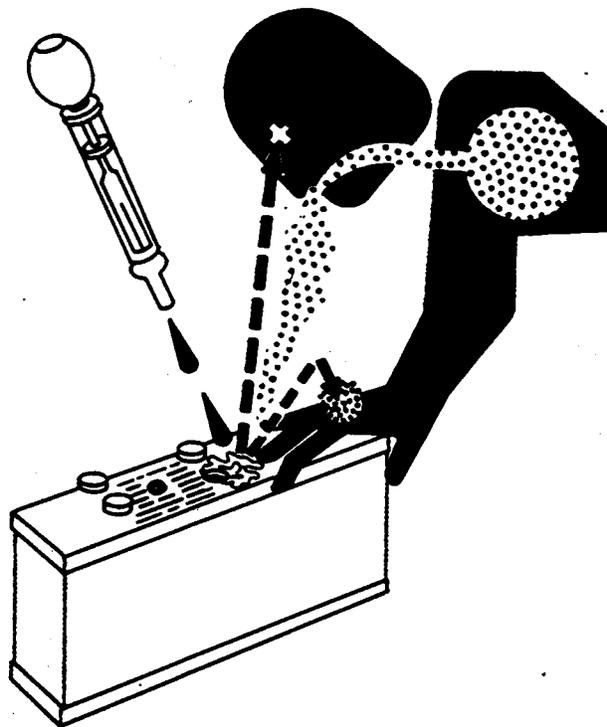
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

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

If acid is swallowed:

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



TS203 -JUN-23AUG88

DX.POISON -19-21APR93-1/1

## Service Tires Safely

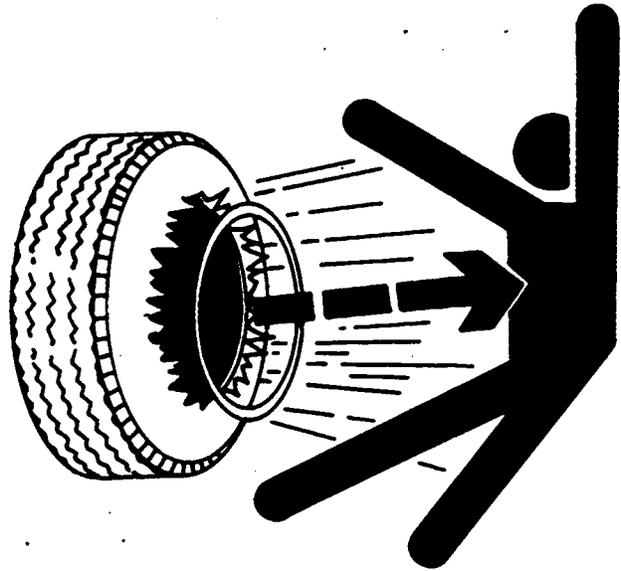
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



TS211 -JUN-23AUG88

DX,RIM -19-24AUG90-1/1

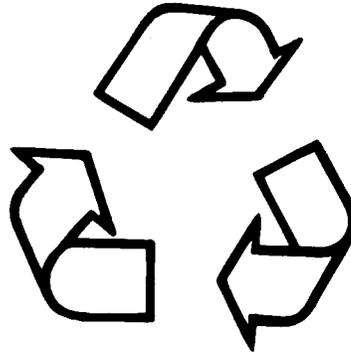
## Dispose of Waste Properly

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



TS1133 -JUN-26NOV90

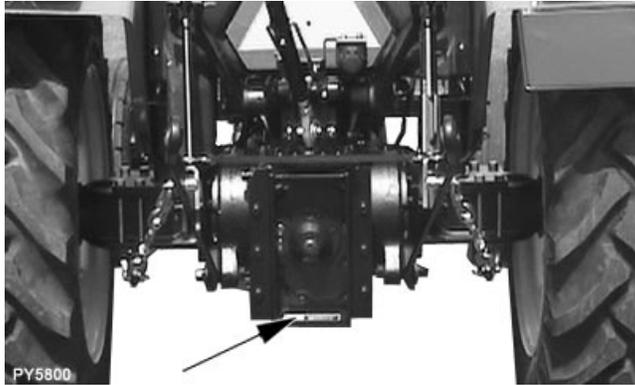
AG,OUO1032,2683 -19-30SEP99-1/1

# Safety Signs

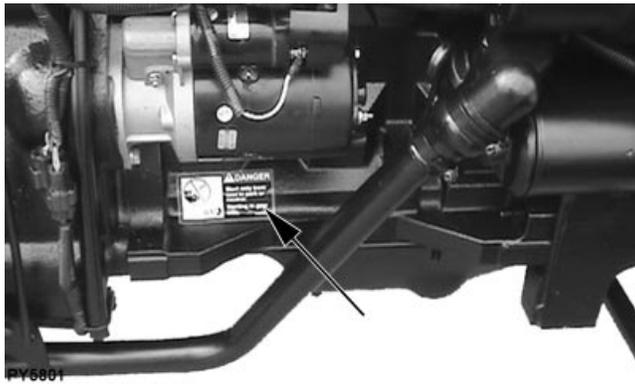
## Warning Labels

Keep warning labels in good condition, replace if not in readable condition.

GENERIC,0000038 -19-28JUN06-1/4



Top surface of PTO shield



Just below starter body



Left fender



M71026 -19-02JUL90



LV1932 -19-02JUN97



LV4307 -19-04NOV05

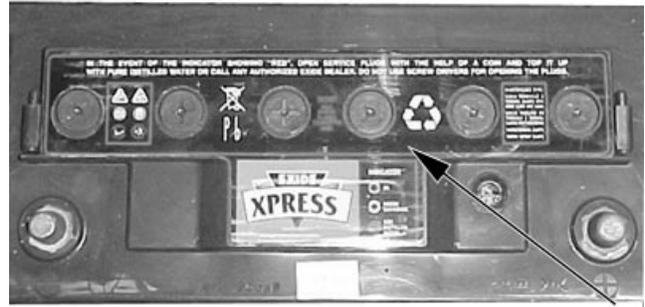
Continued on next page

GENERIC,0000038 -19-28JUN06-2/4



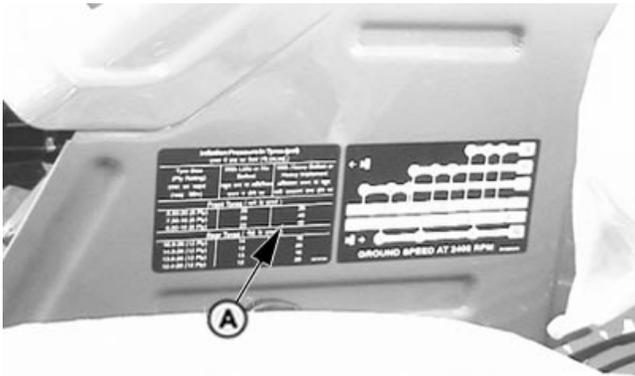
PY1965 -UN-24FEB04

Top of Battery



PY2280 -UN-18NOV04

GENERIC,0000038 -19-28JUN06-3/4



PY4879 -UN-06DEC05

Right Fender

Inflation Pressure In Tyres (psi)		
टायर में हवा का प्रेशर (पी.एस.आई.)		
Tyre Size (Ply Rating)	With Little or No Ballast	With Heavy Ballast or Heavy Implement
टायर का साइज (प्लाई रेटिंग)	बहुत कम या अतिरिक्त वजन न होने पर	अधिकतम वजन या बहुत भारी उपकरण लगा होने पर
<b>Front Tyres ( आगे के टायर्स )</b>		
6.50-20 (8 Ply)	20	29
7.50-16 (6 Ply)	20	40
6.00-16 (8 Ply)	23	40
<b>Rear Tyres ( पीछे के टायर्स )</b>		
18.4-30(14 Ply)	14	19
16.9-28 (12 Ply)	14	19
14.9-28 (12 Ply)	12	20
13.6-28 (12 Ply)	13	18

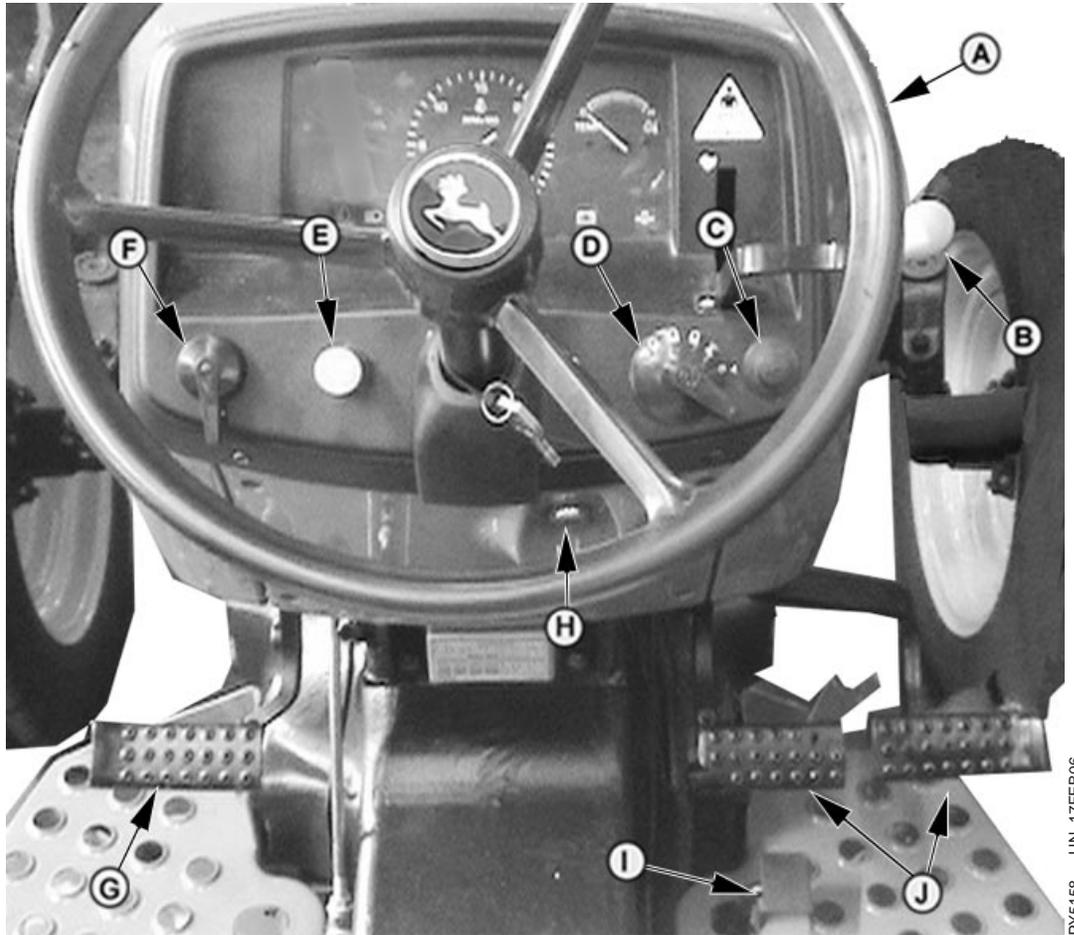
PY4342 -UN-29DEC04

Right Fender

GENERIC,0000038 -19-28JUN06-4/4

# Controls and Instruments

## Tractor Controls



PY5158 -UN-17FEB06

A—Steering Wheel  
B—Hand Throttle  
C—Horn Button

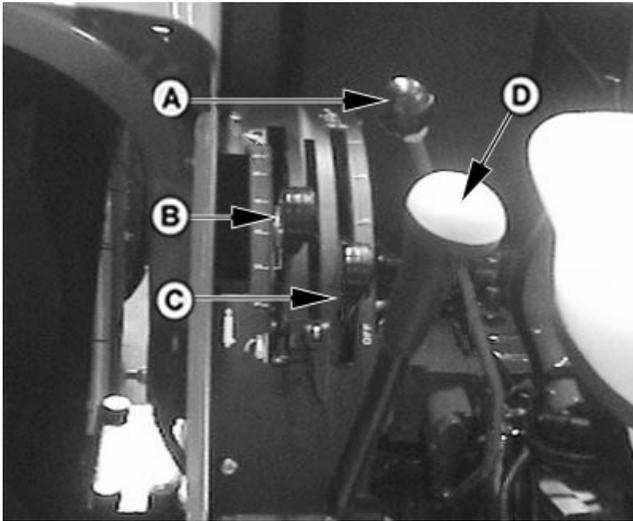
D—Light Switch  
E—Hazard Switch  
F—Turn Signal Switch

G—Clutch Pedal  
H—Key Switch

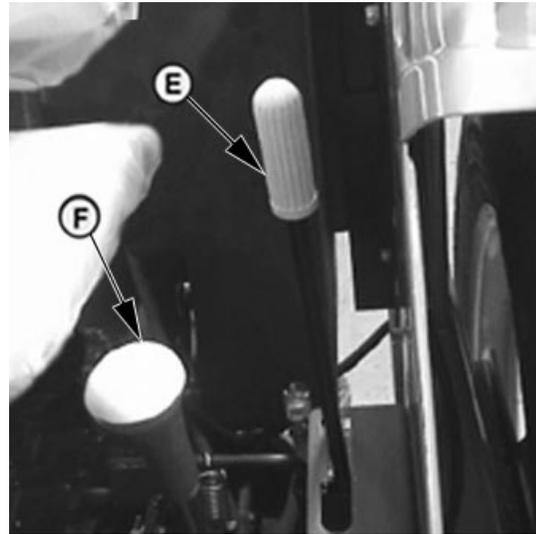
I—Foot Throttle  
J—Brake Pedal

Continued on next page

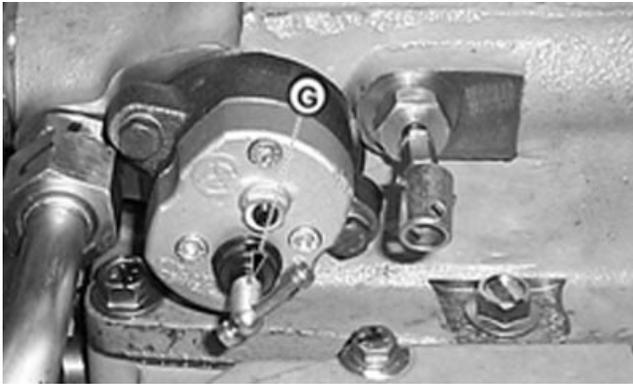
PY80265,05I0102 -19-17FEB06-1/2



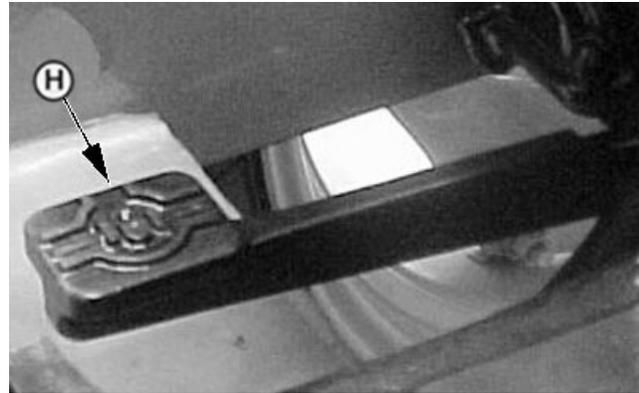
PY5501 -UN-16FEB06



PY5544 -UN-06MAR06



PY4077 -UN-19JAN06



PY4542 -UN-26JAN05

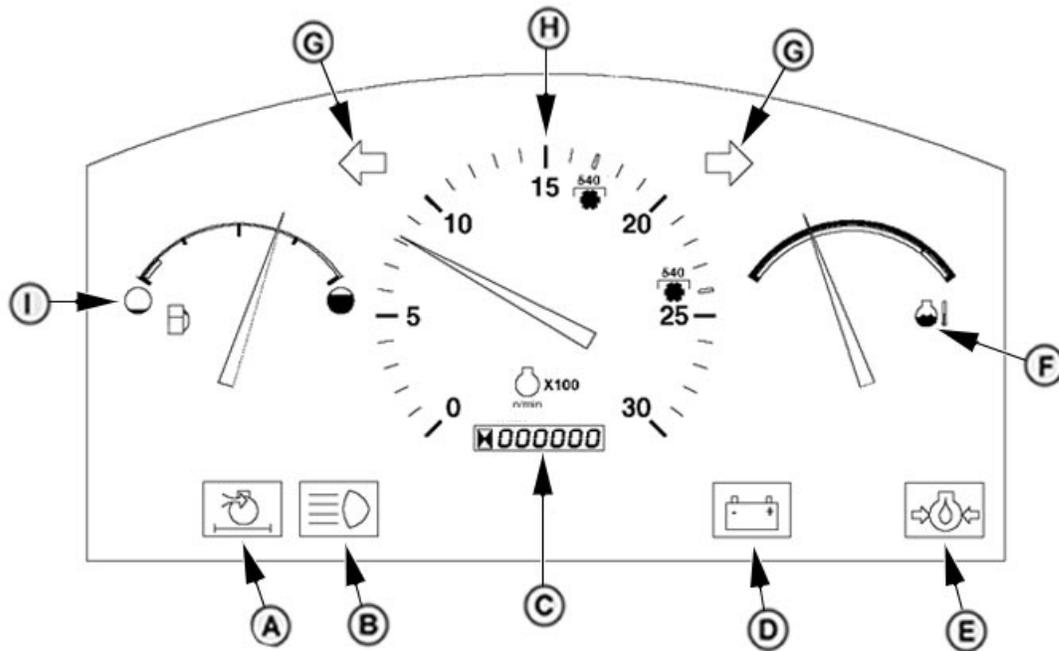
A—Selective Control Lever  
B—Rockshaft Position Control Lever

C—Rockshaft Draft Control Lever  
D—Gear Shift Lever

E—PTO Shift Lever  
F—Range Shift Lever  
G—Rockshaft Rate-of- drop Knob

H—Differential Lock Pedals

**Instrument Panel**



PY5766

A—Air Restriction Indicator  
 B—High Beam Indicator  
 C—Hour Meter

D—Charging System Indicator  
 E—Engine Oil Pressure Indicator

F—Coolant Temperature Gauge  
 G—Turn Signal Direction Indicators

H—Tachometer  
 I—Fuel Gauge

PY5766 -UN-02JUN06

PY80265,05I0105 -19-12SEP05-1/1

# Lights

## Light Switch Positions

Tractor light switch has five positions:

A—Turns off all lights.

B—Turns on warning lights only. Use for parking the vehicle

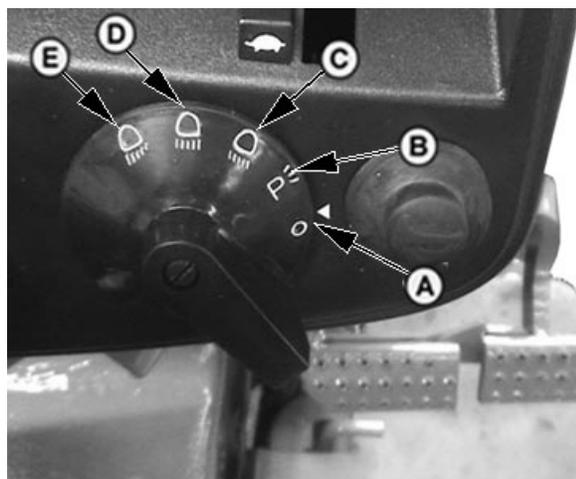
C—Turns on dim headlights, tail lights and warning lights. Turn switch to this position before meeting other vehicles.

D—Turns on bright headlights, tail lights and warning lights. For highway driving during night time

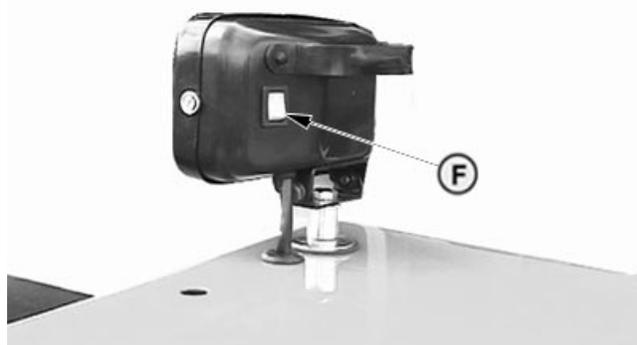
E—Turns on high beamlight.

F— Switch on flood light (plough lamp). for field use only. Do not use on roads. Flood light might blind or confuse other drivers.

- A—Lights Off
- B—Warning Lights Position
- C—Dim Headlights,Tail Lights and Warning Light Position
- D—Bright Headlights, Tail Lights and Warning Lights Position
- E—High Beamlights
- F—Flood Light Switch



PY4481 -UN-11JAN05



PY4107 -UN-21AUG04

GENERIC,000003A -19-11JUL06-1/1

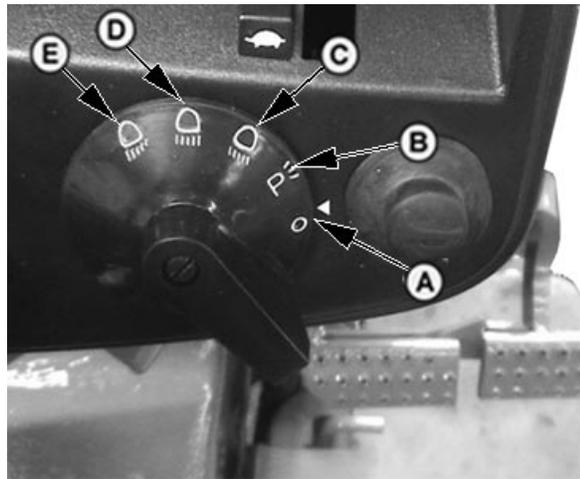
## Using Headlights

Dual-beam headlights (F) are switched on by either “High Beamlight” (E), “Bright Headlight” (D), or “Dim Headlight” (C) light switch positions.

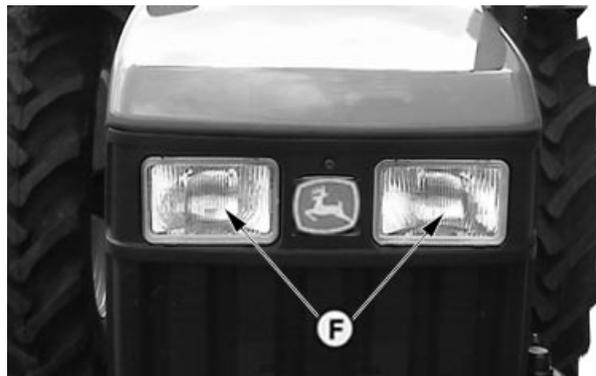
Always dim lights before meeting another vehicle.

Keep headlights adjusted properly, (see Adjusting Headlights in Service section).

- A—Lights Off
- B—Warning Lights Position
- C—Dim Headlights, Tail Lights, and Warning Light Position
- D—Bright Headlights, Tail Lights and Warning Lights Position
- E—High Beamlight
- F—Headlights



PY4481 -UN-11JAN05



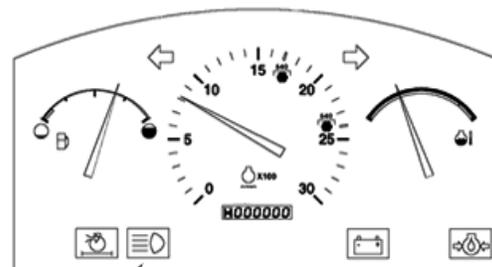
PY5148 -UN-23FEB06

GENERIC,000003B -19-11JUL06-1/1

## Using High Beam Indicator

High beam indicator (A) should glow when light switch is turned to “Bright Headlight” position or “Flood Light” position. Bright headlights, tail lights, flood light and warning lights should be on.

- A—High Beam Indicator



PY5768

PY5768 -UN-02JUN06

PY80265,05I0108 -19-02JUN06-1/1

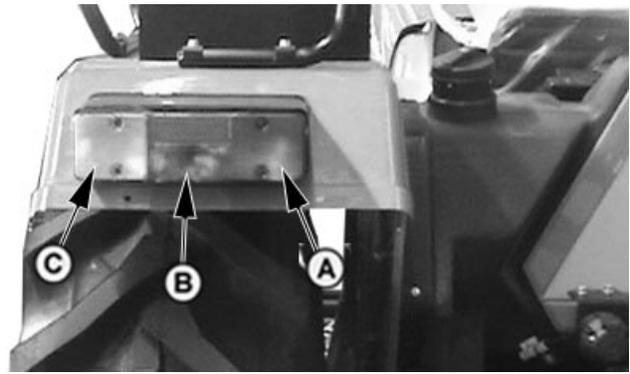
## Using Tail Lights

Red tail lights (A) are switched on by either bright headlight or dim headlight light switch position.

Be sure tail light lenses are clean before driving on a road, so other drivers can see it easily.

**CAUTION:** Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use hand signals or turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your John Deere dealer.

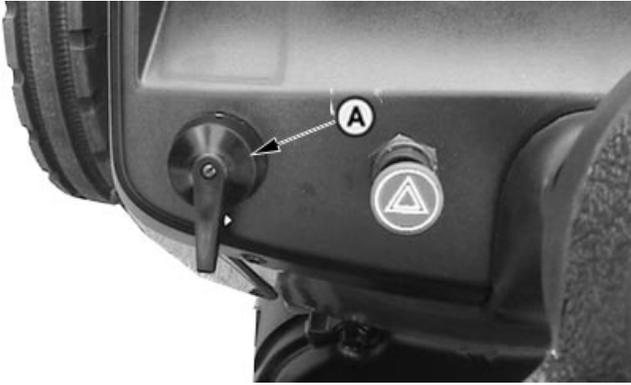


PY4883 -UN-22APR05

A—Tail Lights  
B—Reflex Reflector  
C—Turn Signal Lights

PY80265.05I0109 -19-11JUL06-1/1

## Using Turn Signals



PY4114 -UN-23FEB06

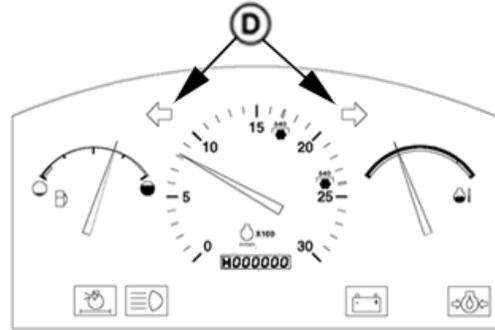


PY5510 -UN-17FEB06

Move turn signal lever (A) down to indicate left-hand turn or up for right-hand turn. Indicator lights (D) will flash to signal turn direction.

When lever is up, front and rear turn lights on right-hand side (C) will flash. When lever is down, front and rear turn lights on left-hand side (B) will flash.

*NOTE: Be sure to manually return lever to center position after turning.*

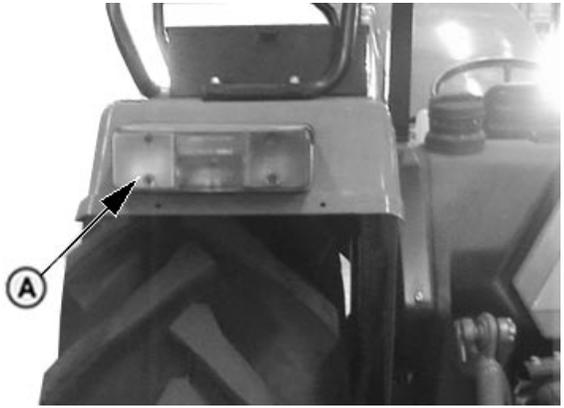


PY5767

PY5767 -UN-02JUN06

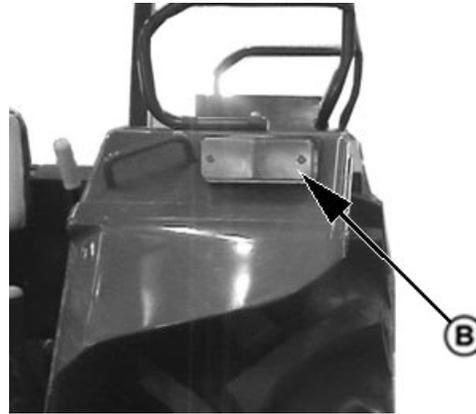
- A—Turn Signal Lever
- B—Left-Hand Lights
- C—Right-Hand Lights
- D—Dash Indicator Lights

### Using Hazard Lights



PY4338 -UN-28DEC04

Rear lights



PY4339 -UN-28DEC04

Front light

All 4 turn signal lights ( 2 front and 2 rear) start to blink when hazard light switch (C) is pulled out. Use hazard lights to warn approaching vehicles when tractor is stopped on the road

- A—Turn Signal Light on Rear Side
- B— Turn Signal Light on Front Side
- C— Hazard Light Switch



PY4896 -UN-20FEB06

Hazard Light Switch

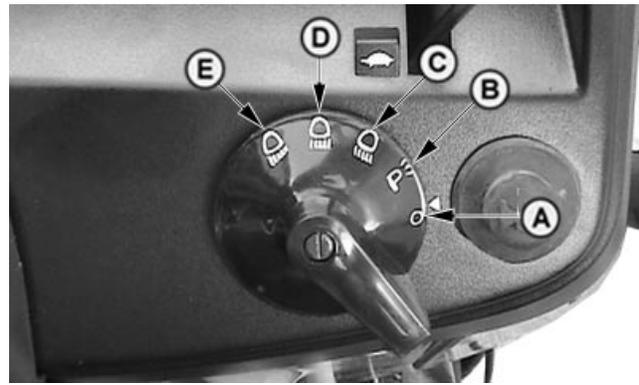
GENERIC,000003E -19-21FEB06-1/1

## Using Flood Lamp

Flood lamp (G) is switched on by “Flood Light (H)” switch . Horn (F) is located just right-hand side of light switch

**CAUTION:** When operating on a road, move light switch to either “Bright or Dim Head Lamp” positions Never use flood lamp when transporting. A clear, bright light at the rear of the tractor could confuse drivers of other vehicles as they approach from the rear.

- A—Lights Off
- B—Warning Lights Position
- C—Dim Headlights, Tail Lights and Warning Light Position
- D—Bright Headlights, Tail Lights and Warning Lights Position
- E—High Beamlight
- F—Horn
- G—Flood Lamp
- H—Flood Light Switch



PY4106 -UN-23FEB06



PY4150 -UN-20FEB06

PY80265,05I0112 -19-11JUL06-1/1

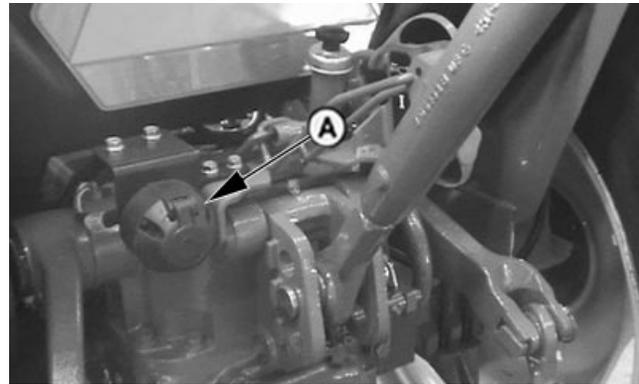
## Seven-Terminal Outlet—If Equipped

Outlet (A) is used to connect lights, turn signals, and remote electrical equipment on trailers or implements. Always use auxiliary light on towed implement when tractor rear signals and other lights are obscured.

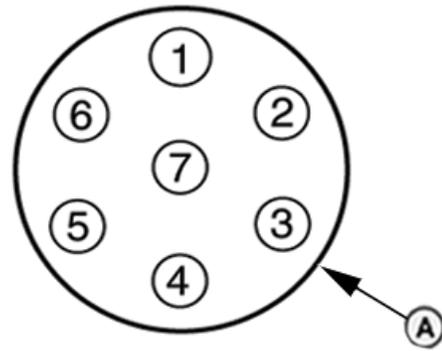
*NOTE: Matching plug is available through your John Deere dealer.*

Terminal	Function	Wire Color
1	Ground	Black
2	Flood Lamp	Purple
3	Left Turn	Dark Green
4	Accessory	Red
5	Right Turn	Dark Green
6	Tail Lamp	Gray
7	Accessory	Red

A—Seven-Terminal Outlet



PY5525 -UN-21FEB06



PY5606 -UN-23FEB06

GENERIC,0000053 -19-11JUL06-1/1

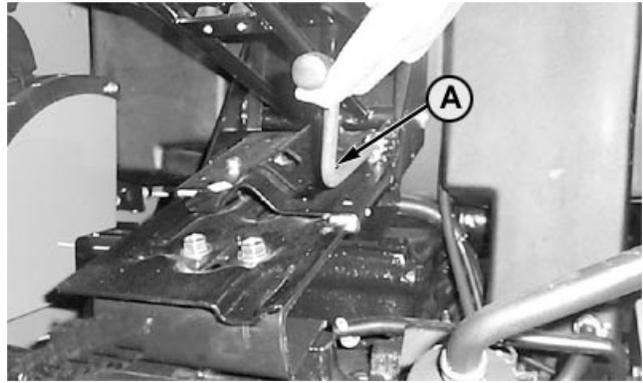
# Operator's Platform

## Selecting Seat Position

### Deluxe Seat

Seat can be moved forward or backward depending on operator's requirement. To move seat on either side, just lift lever (A) and push the seat.

A—Seat Adjustment Lever



PY80265,05I0114 -19-12SEP05-1/1

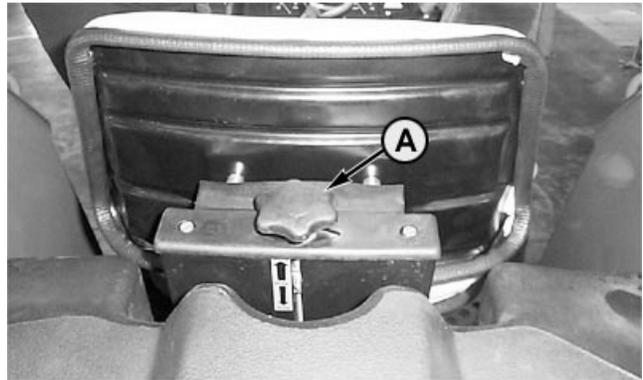
PY1032 -UN-24JUN01

## Adjusting Ride Comfort

Adjustment knob is located behind seat.

Weight markings are given on the rear of seat. Turn adjustment knob (A) for a firm or soft ride. Seat suspension will function properly relative to operator's weight.

A—Weight Adjustment Knob



PY80265,05I0115 -19-12SEP05-1/1

PY1033 -UN-24JUN01

# Break-In Period

## Observe Engine Operation Closely

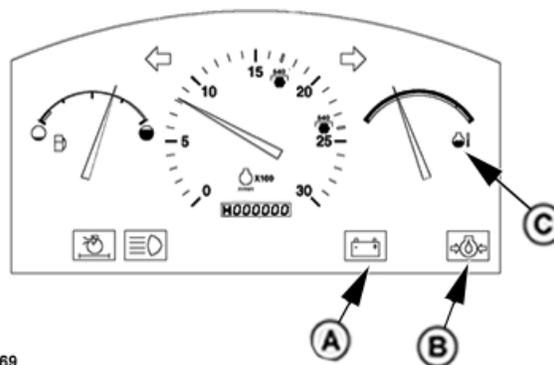
**IMPORTANT:** The engine is ready for normal operation. Be extra cautious during the first 100 hours, until you become thoroughly familiar with the sound and feel of your new tractor. Stay extra attentive and alert.

Warm up tractor carefully. Check charging (A) and oil pressure (B) warning indicator lights and coolant temperature gauge (C).

Avoid unnecessary engine idling.

Check engine oil, coolant, and transmission/hydraulic fluid levels frequently. Watch for fluid leaks.

**NOTE:** If engine oil must be added, use seasonal viscosity grade oil. Use only lubricants meeting specifications given in the Fuels, Lubricants, and Coolant section.



PY5769

A—Charging Indicator  
B—Oil Pressure Indicator  
C—Coolant Temperature Indicator

PY5769 -UN-02JUN06

PY80265,05I0116 -19-02JUN06-1/1

## Break-In Service

**IMPORTANT:** Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first ten hours of operation, after fifty hours of operation, and periodically thereafter.

### During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section)

Tighten wheel hardware. (See Wheels, Tyres, and Treads section)

### After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tyres, and Treads section)

Check alternator/fan belt tension and tighten air intake and cooling system hose clamps

Perform 50 Hours Service

### After the First 100 Hours of Operation:

Replace transmission-hydraulic filter element

Change engine oil and filter<sup>1</sup>

### After the First 1100 Hours of Operation:

Change transmission-hydraulic oil

<sup>1</sup>See Engine Break-In Oil in Service section for additional information.

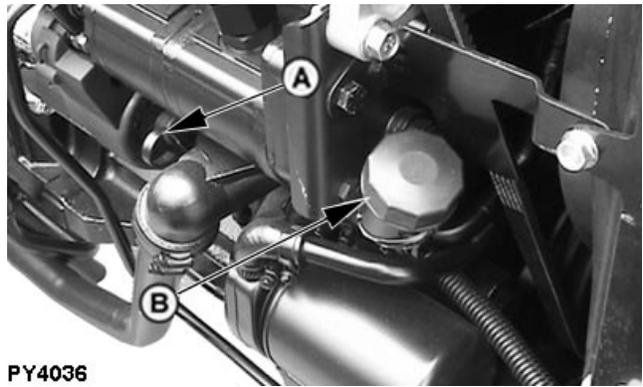
PY80265,05I0117 -19-12SEP05-1/1

# Prestarting Checks

## Service Daily Before Start-Up

1. Check the engine oil level. Wipe dipstick (A) off and reinsert it fully. Remove and locate oil level.

Safe operating range is between two marks on dipstick. Do not operate engine when oil level is below lower mark on dipstick. Add recommended engine oil through filler hole (B). (See Fuel, Lubricants, and Coolant section for oil specifications.)



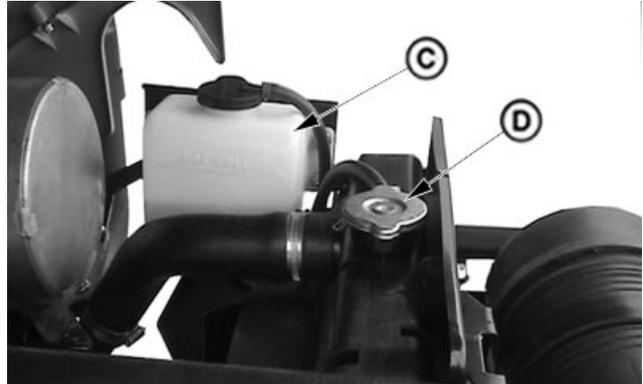
PY4036

PY4036 -UN-19JUN06

**CAUTION:** DO NOT remove radiator cap or drain coolant until coolant is cold. Always loosen radiator cap slowly to relieve any excess pressure.

2. Check coolant level in recovery tank (C). If engine is COOL and level is below "LOW" mark, add coolant to recovery tank to bring level to "LOW" mark.

*NOTE: Coolant level with a cold engine should be at the "LOW" mark. A tractor at operating temperature should have a coolant level at the "HOT FULL" mark.*



PY5511 -UN-17FEB06

3. Lubricate the following items at 10 hour intervals if operating in extremely wet or muddy conditions.

- Front axle pivot pin(s)
- Steering spindles
- Tie rod ends

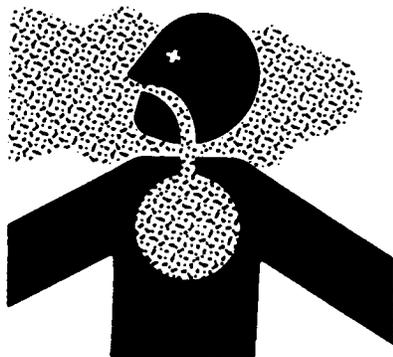
Use multipurpose grease. For detailed information see Lubrication and Maintenance section.

A—Engine Oil Dipstick  
B—Engine Oil Filler Cap  
C—Recovery Tank  
D—Radiator Cap

GENERIC,000003F -19-17FEB06-1/1

# Operating the Engine

## Before Starting the Engine



TSS220 -UN-23AUG88



PY5512 -UN-17FEB06

**CAUTION:** Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or someone else.

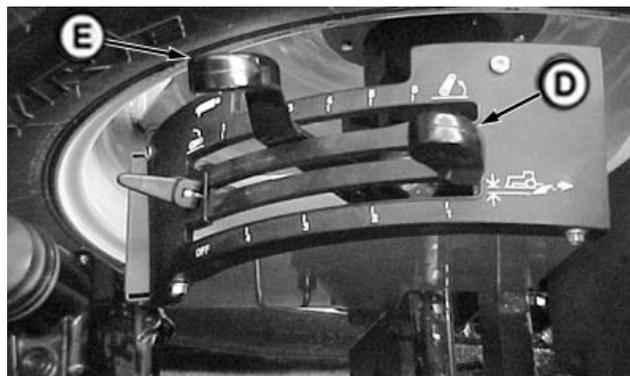
If you must operate engine in a building, be positive there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring enough outside air into the area.

1. Check fuel gauge to be sure tractor has plenty of fuel.
2. Place Gear shift lever (A) in neutral (N) or Park and Range shift lever (B) in Neutral position. Starter will not operate if gear shift lever is not in these positions.
3. Place rockshaft control levers (D and E) in lower position.
4. Check indicator lights. Indicators should illuminate when key switch is turned to the "ON" position.

If any indicator does not function properly, see your John Deere dealer.



PY5527 -UN-21FEB06



PY4316 -UN-14DEC04

- A—Gear Shift Lever
- B—Range Shift Lever
- C—PTO Lever
- D—Rockshaft Draft Control Lever
- E—Rockshaft Position Control Lever

GENERIC.0000054 -19-11JUL06-1/1

## Starting the Engine

1. Push hand throttle (A) forward off idle position (approximately 1/3 of full throttle). Engine may not start with throttle pulled completely down.

**CAUTION:** Avoid possible injury or death from a machine runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear and move if normal circuitry is bypassed.

Start engine only from operator's seat with transmission in NEUTRAL.

**NEVER** start engine while standing on ground.

**IMPORTANT:** DO NOT run a cold engine at full throttle. Engine should be kept at idling for 30 sec before the RPM is increased, this should be strictly followed otherwise sudden acceleration may damage the Turbocharger.

2. Depress clutch pedal and turn key switch fully clockwise (B) to engage starter. Release key when engine starts. If key is released before engine starts, wait until starter and engine stop turning before trying again.

**IMPORTANT:** DO NOT operate starter more than 20 seconds at a time. If engine does not start, wait at least two minutes for the starter motor to cool before trying again. If engine does not start in four attempts, refer to "Troubleshooting" section.



A—Hand Throttle  
B—Key Switch On

TS177 -UN-1JAN89

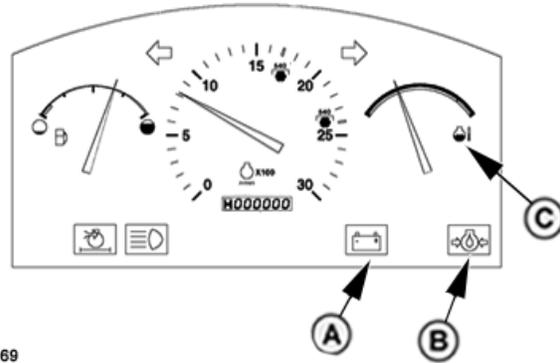
PY4497 -UN-13JAN05

PY80265,05I0120 -19-12SEP05-1/1

### Check Instruments After Starting

**IMPORTANT:** If charging system (A) or oil pressure (B) indicators fail to go out, or temperature gauge (C) indicates hot, stop engine and determine the cause.

- A—Charging System Indicator
- B—Oil Pressure Indicator
- C—Temperature Gauge



PY5769

PY80265,05I0121 -19-02JUN06-1/1

PY5769 -UN-02JUN06

### Oil Pressure Indicator

Oil pressure indicator (A) will light if engine oil pressure is low. Indicator should light when key is turned to engage starter and go out when engine starts.

**IMPORTANT:** NEVER operate engine without sufficient oil pressure. If indicator stays lit for longer than five seconds under normal operating conditions, stop engine and check for cause.

If low oil level is not the problem, see your John Deere dealer.



PY5770

A—Oil Pressure Indicator

PY80265,05I0122 -19-02JUN06-1/1

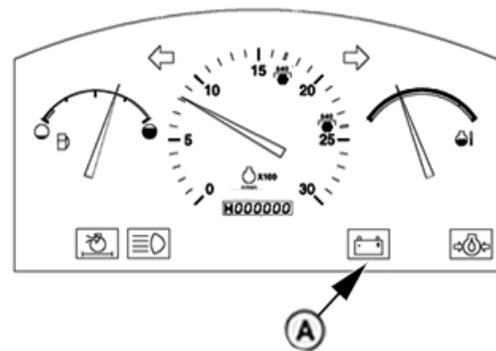
PY5770 -UN-02JUN06

### Charging System Indicator

Charging system indicator (A) will light when alternator output is low. Indicator should light when key is turned to engage starter, and go out when engine starts.

If indicator stays lit for longer than five seconds in normal operation, stop engine and check for cause. If loose or broken fan belt is not the cause, see your John Deere dealer.

- A—Charging System Indicator



PY5771

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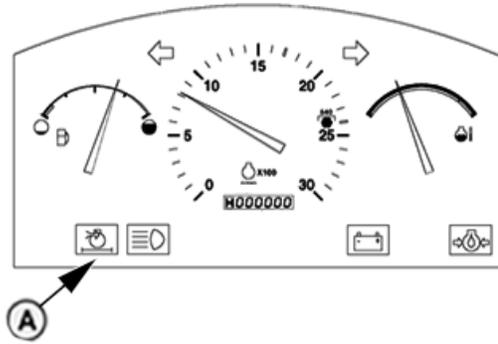
PY5771 -UN-02JUN06

### Air Restriction Indicator

Air restriction indicator (A) will light if air cleaner becomes plugged. Service air cleaner as soon as possible.

Indicator should light momentarily when key is turned slowly to starter engagement position.

A—Air Restriction Indicator



PY5731

PY80265,05I0124 -19-02JUN06-1/1

PY5731 -UN-31MAY06

### Coolant Temperature Gauge

The needle on the temperature gauge (A) rises as engine warms up. If needle reaches red zone, stop engine and determine the cause.

**CAUTION: DO NOT remove radiator cap or drain coolant until coolant is cold. Always loosen radiator cap slowly to relieve any excess pressure.**

Check coolant level in radiator when engine cools. Also check grille, radiator and radiator side screens for plugging. Check fan belt tension. If problem is not corrected, see your John Deere dealer.



PY5773

A—Coolant Temperature Gauge

PY80265,05I0125 -19-02JUN06-1/1

PY5773 -UN-02JUN06

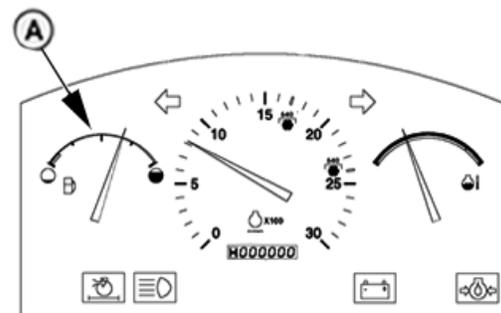
### Watch Fuel Level

Stop to refuel before gauge (A) reaches empty mark.

**IMPORTANT: Use diesel fuel only. See Fuel and Lubricants section for fuel specifications.**

Should tractor run out of fuel and not start in several tries, air must be bled from fuel system. (See Bleeding Fuel System in Service section).

A—Fuel Gauge



PY5774

PY80265,05I0126 -19-02JUN06-1/1

PY5774 -UN-02JUN06

## Changing Engine Speeds

To increase speed, push hand throttle (A) forward.

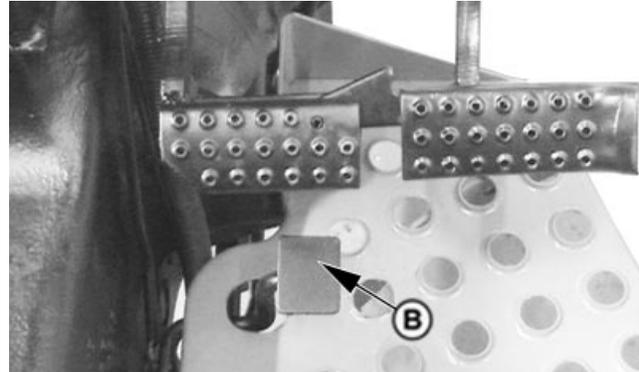
To temporarily increase engine speed above hand throttle setting, depress foot throttle (B).

**CAUTION:** Engine should be kept at idling for 30 sec before the RPM is increased, this should be strictly followed otherwise sudden acceleration may damage the Turbocharger.

A—Hand Throttle  
B—Foot Throttle



PY4485 -UN-16FEB06



PY4937 -UN-01JUN06

PY80265,05I0127 -19-12SEP05-1/1

## Warming Up the Engine

Do not place tractor under full load until it is properly warmed up.

1. Idle engine at about 1200 rpm for 1 to 2 minutes (2 to 4 minutes in cold weather) .
2. Run engine at about 1900 rpm and under light load until engine reaches normal operation condition.

**NOTE:** If hydraulic functions are slow, see *Warming Hydraulic Oil in Rockshaft and 3-Point Hitch section.*



PY5775

PY5775 -UN-02JUN06

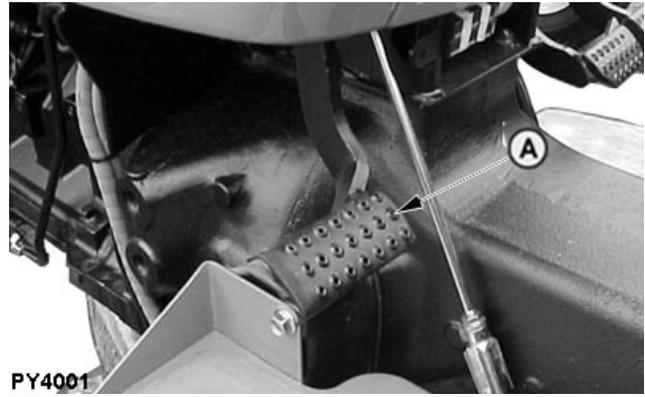
PY80265,05I0128 -19-02JUN06-1/1

## Restart Stalled Engine

**CAUTION:** DO NOT run a cold engine at full throttle. Engine should be kept at idling for 30 sec before the RPM is increased, this should be strictly followed otherwise sudden acceleration may damage the Turbocharger.

Should the engine stall when operating under load, depress clutch (A) and restart it immediately to prevent abnormal heat build up and continue with normal operation or operate at slow idle for one or two minutes before stopping.

**CAUTION:** Engine should not be shut off at high RPM, deacceleration should be done slowly & engine should be kept at idling for 15-30 sec when the engine is stopped.



A—Clutch Pedal

GENERIC.0000055 -19-11JUL06-1/1

## Avoid Idling the Engine

Allowing engine to idle at low RPM uses fuel inefficiently, and can cause a build-up of carbon in the engine.

If tractor must be left with the engine running more than three or four minutes, minimum engine speed should be 1200 RPM.



PY5775

PY80265.05I0130 -19-02JUN06-1/1

### Observe Engine Work and Idle Speeds

Slow idle speed should be 800-875 RPM. At light or no load, full throttle speed will increase to 2500 RPM.

Normal working speed is 1600—2400 RPM rated speed. Within these limits engine can be put under full load.

For correct PTO speed, run engine at 2376 RPM for standard 540 RPM operation (load requiring full engine power).



PY5775

PY5775 -UN-02JUN06

PY80265,05I0131 -19-02JUN06-1/1

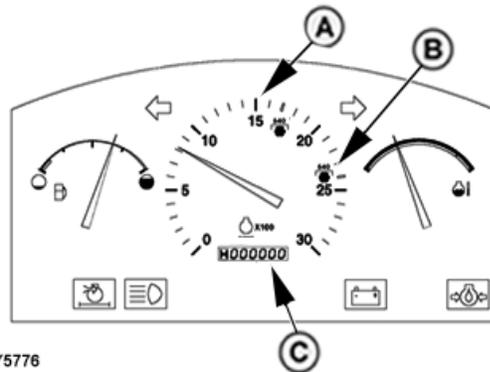
### Working With Speed/Hour Meter

Tachometer (A) shows engine RPM, read in hundreds.

For 540 RPM PTO speed, increase engine speed until tachometer needle is aligned with 2376 RPM mark (B).

Hour meter (C) shows hours of operation in full hours and tenths.

- A—Hourmeter
- B—2376 RPM Mark (540)
- C—Tachometer



PY5776

PY5776 -UN-02JUN06

PY80265,05I0132 -19-02JUN06-1/1

## Stopping the Engine

1. Pull hand throttle (A) down to slow idle position. Allow engine to idle for one to two minutes.
2. Put gear shift lever in Park position (B).

**IMPORTANT:** Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

3. Turn key switch to the OFF position.

**CAUTION:** Engine should not be shut off at high RPM, deceleration should be done slowly & engine should be kept at idling for 15-30 sec when the engine is stopped for a gap of 1 hr. Remove key from key switch to prevent operation by untrained personnel.



A—Hand Throttle  
B—Key Switch OFF

PY4501 -UN-13JAN05

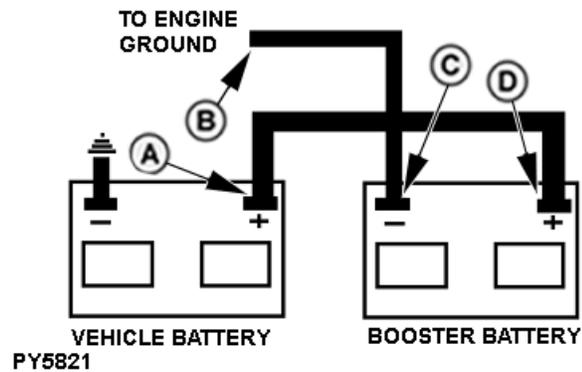
PY80265,05I0133 -19-12SEP05-1/1

## Using Booster Battery

Battery gas is explosive:

- DO NOT smoke while charging battery.
- Keep all flames and sparks away.
- DO NOT charge frozen battery.
- DO NOT connect booster battery negative (—) cable to starting vehicle negative (—) terminal.

1. Access battery. (See procedure in Service section.)
2. Connect positive (+) booster cable to booster battery positive (+) post (D).
3. Connect the other end of positive (+) booster cable to tractor battery positive (+) post (A).
4. Connect negative (—) booster cable to booster battery negative (—) post (C).
5. Connect the other end of negative (—) booster cable to engine ground (B), away from battery and starter.



A—Tractor Battery Positive (+) Post  
B—Engine Ground  
C—Booster Battery Negative (—) Post  
D—Booster Battery Positive (+) Post

PY5821 -UN-12JUL06

PY80265,05I0134 -19-12JUL06-1/1

# Driving the Tractor

## Operator Training Required

- Study the Operation section of this manual before operating tractor.
- Operate tractor in an open, unobstructed area under direction of an experienced operator.
- Learn use of all controls.
- Operator experience is required to learn moving, stopping, turning and other operating characteristics of tractor.

PY80265,05I0135 -19-12SEP05-1/1

## Driving on Public Roads

**CAUTION:** When transporting on a public road or highway, use accessory lights and devices for adequate warning to operators of other vehicles. Check local governmental regulations. Various safety devices are available from your John Deere dealer. Keep safety items in good condition. Replace missing or damaged items.

Observe the following precautions when operating the tractor on the road:

**CAUTION:** Before operating tractor on a road, lock brake pedals together. Use brake lightly and cautiously at transport speeds.

1. Couple brake pedals together using brake locking bar (A). Avoid hard applications of brakes. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes.

Use additional caution when transporting towed loads under adverse surface conditions and when turning or braking on inclines. Be sure wheel tread is adjusted wide to provide maximum stability.

**IMPORTANT:** To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

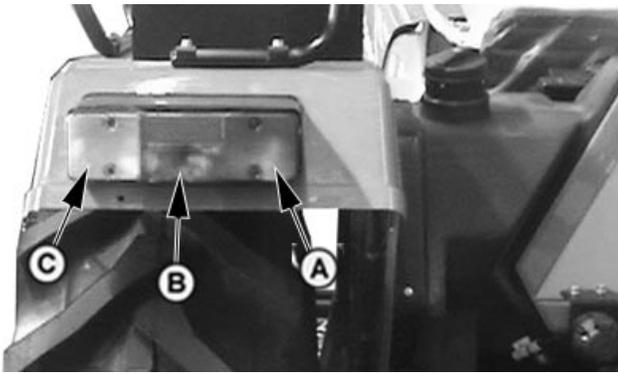


A—Brake Pedals Locking Plate

PY4938 -JUN-21FEB06

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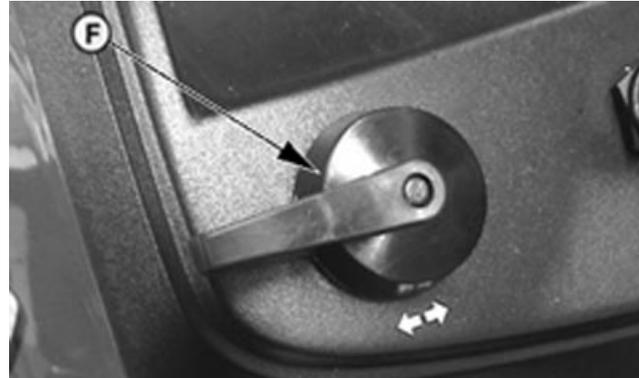
PY80265,05I0136 -19-11JUL06-1/2



PY4883 -UN-22APR05



PY4400 -UN-15JUN06



PY4469 -UN-10JAN06

2. Check local laws and regulations for lighting requirements. Be sure turn signal lights (C) and tail lights (A) are clean and visible.

3. Turn light switch to position (E).

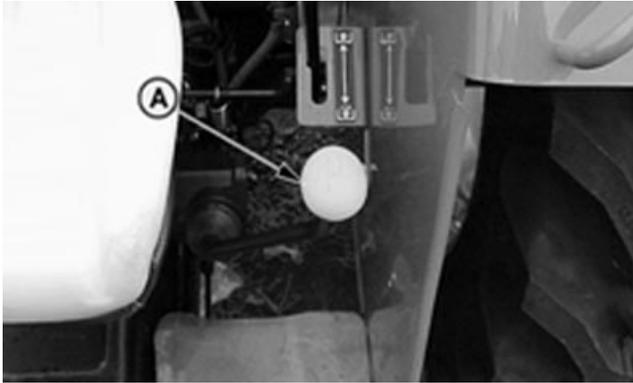
Always turn light switch to dim lights position (E) when meeting another vehicle. Never use flood lamps or any other lights which could blind or confuse other drivers.

4. Use turn signal when turning. Be sure to return lever (F) to center position after turning.

5. Drive slowly enough to maintain safe control at all times. Before descending a hill, shift to a gear low enough to control speed without using brakes. Slow down for rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.

- A—Tail Light
- B—Reflex Reflector
- C—Turn Signal Light
- D—Bright Headlight Switch Position
- E—Dim Headlight Switch Position
- F—Tail Signal Lever

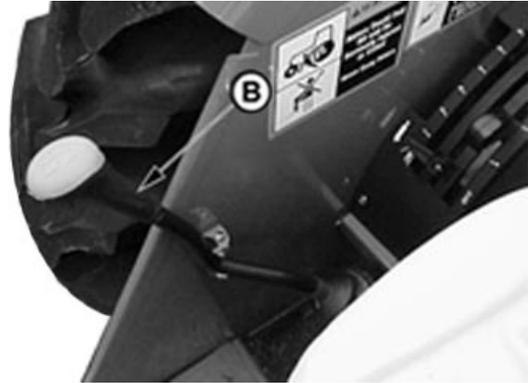
## Operating Transmission



Left Side

A—Range Shift Lever

PY4000 -UN-10JAN06



Right Side

B—Speed Shift Lever

PY3099 -UN-23FEB06

Range shift lever (A) provides three forward speed ranges, (A, B & C).

Range shift must be in neutral for the engine to be started.

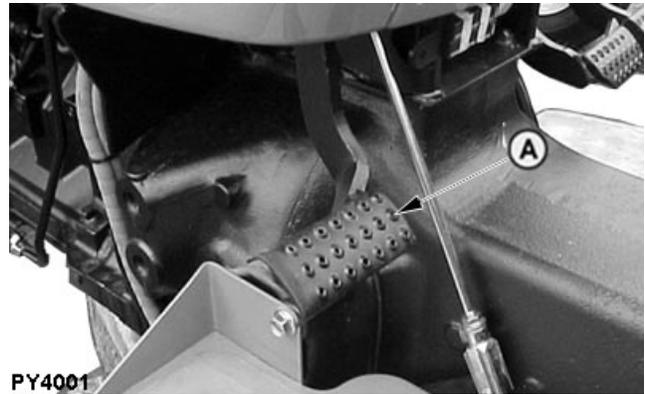
Using range and speed shift levers in different combinations, nine forward speeds and three reverse speeds can be obtained.

PY80265,05I0137 -19-11JUL06-1/1

## Shifting Transmission

**IMPORTANT:** To prevent transmission damage, do not use speed shift on-the-go. To prevent unnecessary wear, never “ride” the clutch by resting a foot on the pedal.

Depress clutch pedal (A) and stop tractor before shifting either range shift lever or gear shift lever. Release clutch pedal gradually to take up load smoothly.



PY4001

PY4001 -UN-06JUN06

A—Clutch Pedal

PY80265,05I0138 -19-12SEP05-1/1

## Selecting a Gear

**IMPORTANT:** To extend drive train life and avoid excessive soil compaction and rolling resistance when using ballast, operate one gear lower than normal.

The tractor may be operated in any gear with engine speeds between 1400 RPM and 2400 rated engine RPM. Within these limits the engine can be put under full load. For light load operation, use a higher gear and lower engine speed. This saves fuel and reduces wear.

Ground Speed Estimates for different tyre sizes are located in Specifications section.



PY5775

PY5775 -UN-02JUN06

PY80265,05I0139 -19-02JUN06-1/1

## Using Brakes

**CAUTION:** Before operating tractor on a road, lock pedals together. Use brake lightly and cautiously at transport speeds.

Use individual brakes to assist in making sharp turns. Disengage brake pedal locking bar (A) and depress only one brake pedal.

To stop tractor, depress both brake pedals.

**IMPORTANT:** To prevent unnecessary wear, never ride the brakes by resting a foot on the pedals.

Reduce speed if towed load is not equipped with brakes and weighs more than the tractor. Avoid hard braking applications. Use additional caution when transporting towed loads under adverse conditions, when turning or stopping on inclines.



A—Brake Pedals Locking Plate

PY4938 -UN-21FEB06

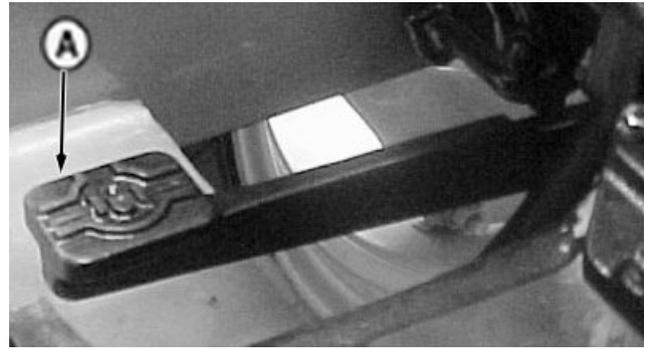
PY80265,05I0140 -19-12SEP05-1/1

## Using Differential Lock



**CAUTION:** DO NOT operate tractor at high speed or attempt to turn with differential lock engaged.

**IMPORTANT:** To prevent damage to drive train, DO NOT engage differential lock when one wheel is spinning and the other is completely stopped by the respective brake.



PY1202 -UN-11JUN02

A—Differential Lock Pedal

When one wheel starts to lose traction, engage differential lock by depressing pedal (A) down.

Keep the pedal pressed till the traction at both the tyres equalizes & tractor comes out of the diych. If lock does not disengage, depress one brake pedal and then the other.

If tyres repeatedly slip, then get to traction, then slip again, hold pedal in the engaged position.

PY80265,05I0141 -19-12SEP05-1/1

## Stopping Tractor

**CAUTION:** Always place the range shift lever in neutral (N) and set brakes before dismounting. Leaving transmission in gear with engine off **MAY NOT** prevent tractor from moving.

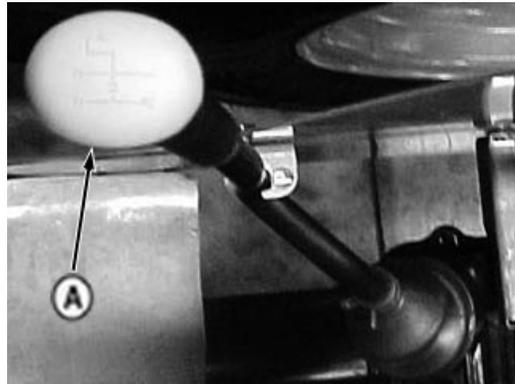
1. Stop the tractor and place gear shift lever (A) in Park position.
2. Apply brakes.
3. Lower all equipment to ground using rockshaft control levers (C & D),,
4. Pull hand throttle (B) down to slow idle position. Allow engine to idle for one to two minutes.

**IMPORTANT:** Cooling of certain engine parts is provided by engine oil. Stopping a hot engine suddenly could cause damage to these parts by overheating or lack of lubrication.

**CAUTION:** Remove the key from key switch to prevent operation by untrained personnel.

5. Turn key switch to OFF position.

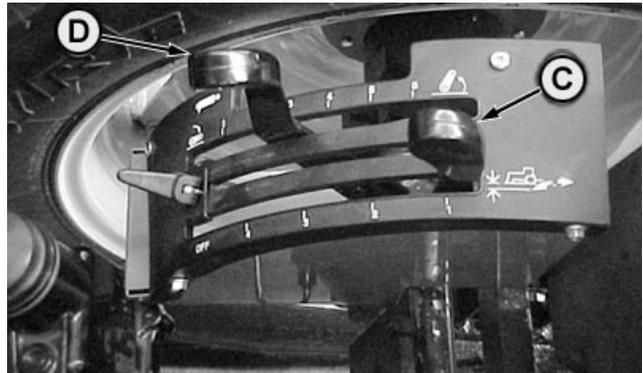
- A—Gear Shift Lever
- B—Hand Throttle
- C—Rockshaft Draft Control Lever
- D—Rockshaft Position Control Lever



PY1205 -UN-11JUN02



PY1215 -UN-11JUN02



PY1469 -UN-28AUG03

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# Rockshaft and 3-Point Hitch

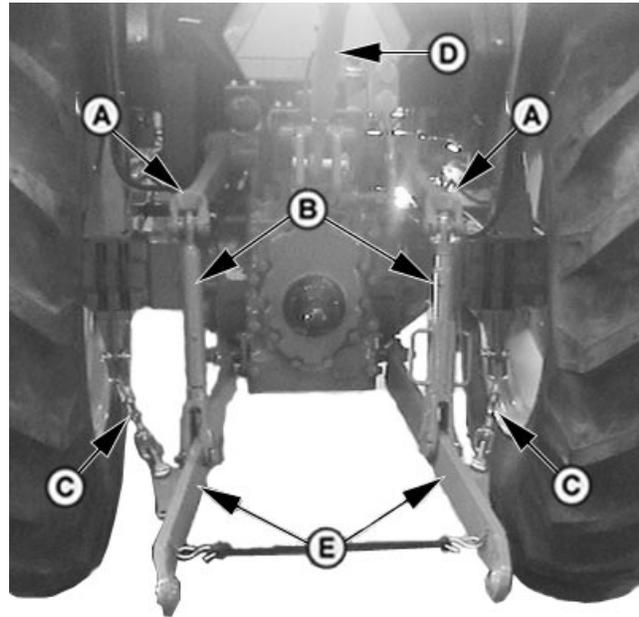
## Match Tractor Power to Implement

**IMPORTANT:** Tractor power should be matched to the size of certain implements. Excessive power can damage an implement, and too large an implement can damage the tractor. (Refer to your implement operators manual for minimum and maximum power requirements before attaching an implement.)

PY80265,05I0143 -19-12SEP05-1/1

## 3-Point Hitch Components

- A—Lift Arms
- B—Lift Links
- C—Sway Chains
- D—Center Link
- E—Draft Links



PY4279 -UN-17FEB06

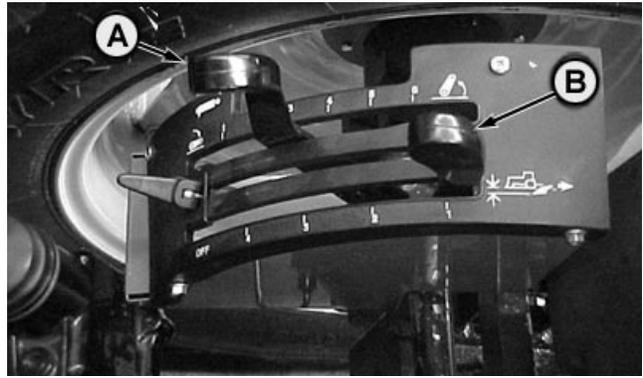
PY80265,05I0144 -19-12SEP05-1/1

## Rockshaft Control Levers

The rockshaft position is controlled by two levers, the rockshaft position control lever (A) and the rockshaft draft control lever (B)

The rockshaft position control lever (A) raises the hitch when pulled rearward, and lowers the hitch when moved forward. See Using Rockshaft Position Control in this section for more information.

The rockshaft draft control lever (B) controls hitch position relative to draft loads. See Using Draft Control in this section for more information.



PY1470 -UN-28AUG03

A—Rockshaft Position Control Lever  
B—Rockshaft Draft Control Lever

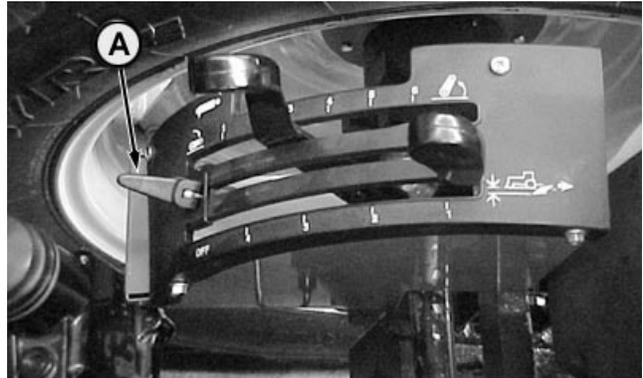
PY80265,05I0145 -19-11JUL06-1/1

## Setting Position Control Lever Stop

**NOTE:** Position control lever stop is used when operating depth or height needs to be repeated.

1. Operate implement for a few minutes to determine proper depth or height.
2. Loosen lever stop (A), and slide against position control lever. Lock stop in position by turning in a clockwise direction. Rockshaft will now lower to same position each time control lever is pushed forward to the stop.

A—Lever Stop



PY1471 -UN-28AUG03

PY80265,05I0146 -19-12SEP05-1/1

## Using Rockshaft Position Control

**CAUTION:** To prevent unexpected movement of rockshaft, place draft control lever (B) in a full forward position before attaching an implement.

Put draft control lever (B) forward when you DO NOT want rockshaft to adjust automatically to draft load, such as attaching implement to tractor.

Use position control lever (A) to control hitch movement and depth. Position control should be used for the following applications:

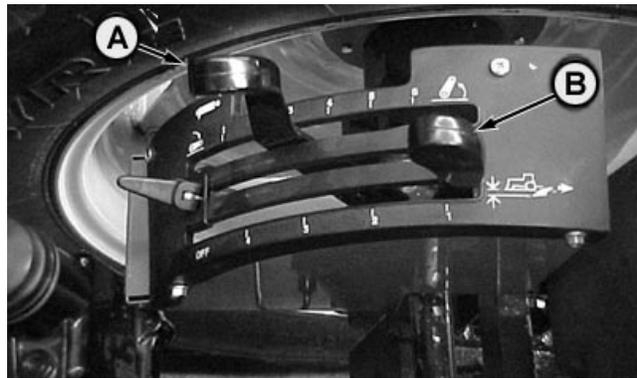
**TRANSPORT** of implements and end of field turn-around. Position control lever should be moved fully rearward (C) for transport for both load and non-load sensing usage.

**CONSTANT DEPTH** of implements on level terrain and for non-ground engaging implements such as spreaders or sprayers. Place position control lever at depth desired (D).

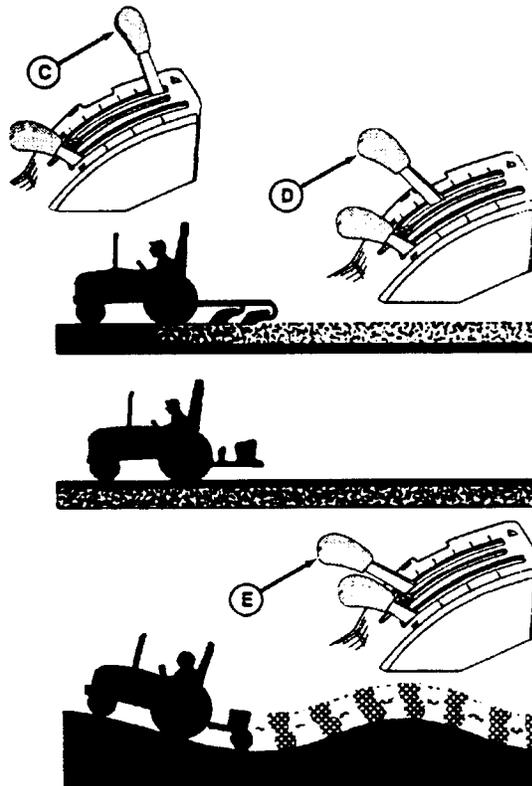
**FLOAT** operation for implements with skids or depth gauge wheels designed to carry full implement weight. Push both levers all the way forward (E) so implement can follow the ground contour.

*NOTE: Lift links can be adjusted for lateral float. (See Lateral Float in this section.)*

- A—Rockshaft Position Control Lever
- B—Rockshaft Draft Control Lever
- C—Position Control Lever in rearward position
- D—Position Control Lever in desired depth position
- E—Position Control Lever and Draft Control Lever in float position



PY1470 -UN-28AUG03



MA7168 -UN-31JAN92

PY80265,05I0147 -19-12SEP05-1/1

## Using Draft Control

The rockshaft is equipped with variable draft control system.

Use draft load sensing when:

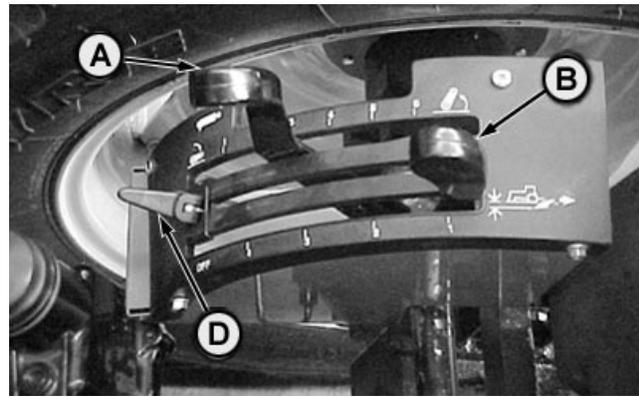
- Operating with a fully mounted implement in hill and swale terrain. The implement will raise and lower to follow the ground contours while maintaining a nearly constant depth.
- Operating in varying soil conditions. The implement is raised slightly to get through tough spots so you do not have to shift to a lower gear.

Draft control lever (B) controls amount of load required before hitch responds. With lever placed fully forward to the position marked "off" (C), there is no draft sensing. Placing the lever toward the rear position reduces the amount of draft load required to override the position setting set by the position control lever (A) and raise the rockshaft.

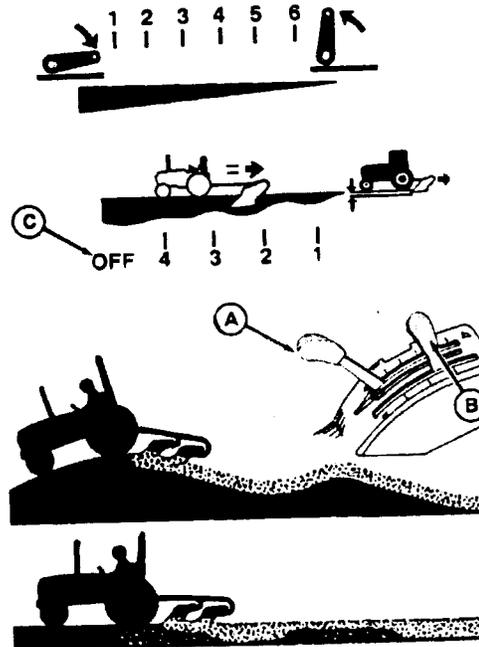
Draft sensitivity ranges can be changed by repositioning the center link. (See Positioning Center Link in this section for additional information.)

For draft load sensing operation:

- Initially place position control lever (A) in its fully rearward position and the draft control lever (B) in the fully forward (least draft) position.
- With tractor moving, push position control lever (A) forward to set implement operating depth. Set position control lever stop (D) so control lever can be brought back to the same position. The operating depth set-up will prevent the rockshaft from lowering all the way when the tractor begins to slip. Then pull draft sensing lever (B) rearward until desired draft sensing sensitivity is obtained.
- The position control lever (A) can also be raised slightly to override the draft control setting to help get through slippery spots without getting stuck.
- The position control lever (A) can be moved fully rearward to raise the hitch at the end of the field.



PY1472 -UN-28AUG03



A—Rockshaft Position Control Lever  
 B—Rockshaft Draft Control Lever  
 C—Draft Sensing Off Position  
 D—Position Control Lever Stop

M47169 -19-29JAN92

## Adjusting Rockshaft Rate-of-Drop/ Implement lock

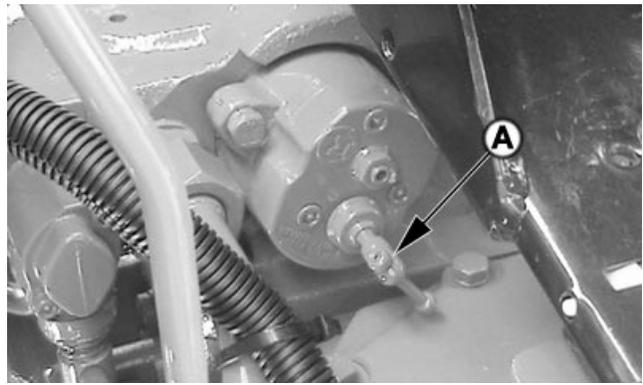
**CAUTION:** Excessive rate-of-drop may cause damage or injury. Fully lowering implement should require at least two seconds.

Rockshaft drops faster when a heavy implement is attached. Adjust rate-of-drop knob so that it is slow enough to be safe and prevent implement damage.

Turn rockshaft rate-of-drop knob (A), located under the seat, clockwise to slow rockshaft drop.

Turn knob counterclockwise to increase rate-of-drop.

Rate-of-drop knob is also called implement lock. When knob is fully screw in, implement will not lower down even if position control lever is fully down. Use implement lock while transporting implement.



A—Rockshaft Rate-Of-Drop Knob cum Implement Lock

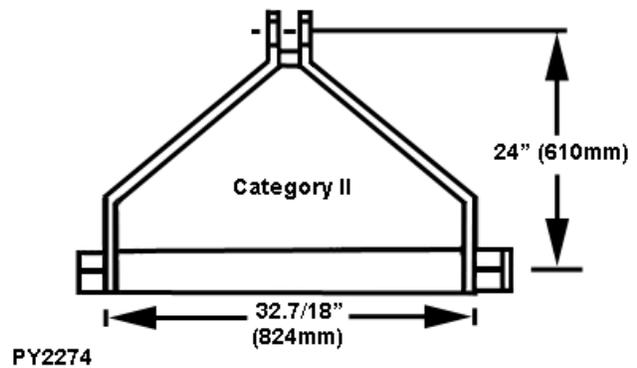
PY4543 -UN-23JAN05

PY80265,05I0149 -19-12SEP05-1/1

## Preparing Implement

Category II implements should have the top hole of the implement mast located 610 mm (24 in.) above the lower pins. Drill another hole in top mast or extend top mast if necessary.

Category	Mast Height	Width Between Lower Pins	Pin Size	
			Lower	Upper
II	610 mm (24 in.)	824 mm (32-7/16 in.)	28.7 mm (1-1/8 in.)	25.5 mm (1 in.)



PY2274 -UN-07JUN06

PY80265,05I0150 -19-12SEP05-1/1

## Positioning Center Link

The draft sensing rockshaft center link attaching bracket has holes which allow three different positions for attaching the center link. The position effects the draft sensing sensitivity.

Standard position is (C).

Move the center link attachment to holes (B) if:

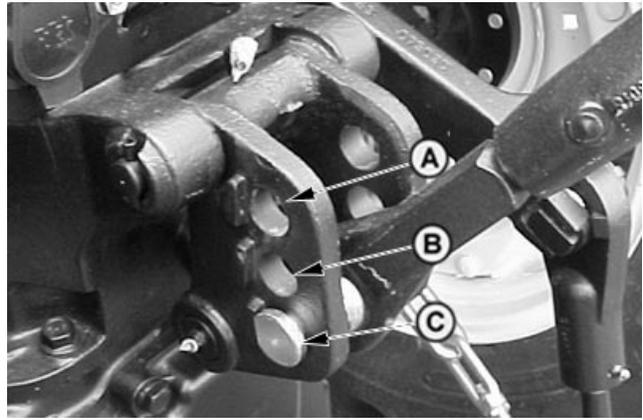
- Excessive hitch activity or hunting occurs in draft control operation.
- The rear of the implement raises too much when lifted. The implement weight which can be lifted is reduced slightly with the center link attachment in the lower holes.
- The draft control lever range is too small.

Move the center link attachment to holes (C) if:

- The hitch seems unresponsive in draft control operation and allows the engine speed to drop too far before raising the rockshaft.
- The rear of the implement droops and drags the ground as the implement is lifted.

Upper hole (A) eliminates nearly all draft sensing.

*NOTE: Implement with Category II mast height 610 mm (24 in.) will use the upper two holes.*



A—Upper Hole  
B—Middle Hole  
C—Lower Hole

PY4005 -UN-14JUL04

PY80265,05I0151 -19-12SEP05-1/1

## Attaching Implements to 3-Point Hitch

1. Be sure drawbar will not interfere. If necessary, move drawbar ahead, or remove it. Check for any other potential interference.

**CAUTION:** Prevent unexpected movement of rockshaft by placing draft sensing lever in the forward or OFF position before attaching implement to hitch.

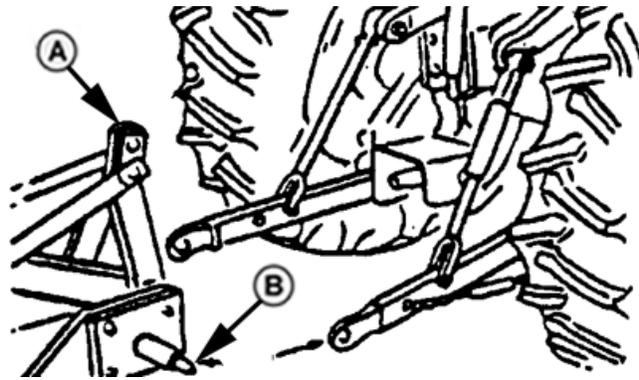
2. Back tractor up to implement (A) so hitch points align. Place transmission in neutral (N), stop the engine and engage brakes BEFORE leaving the tractor seat.
3. Slip draft links over implement hitch pins (B) and retain with quick-lock pins.

**NOTE:** Locking pins can be stored on draft links (through holes in sway chain ears) when not in use.

4. To remove center-link from transport hook, lift center link locking clip (C) and rotate tab (D) to rear of center link clip.
5. Attach center link to implement top mast.
6. Adjust center link and lift links as necessary. (See Leveling the Hitch in this section.)

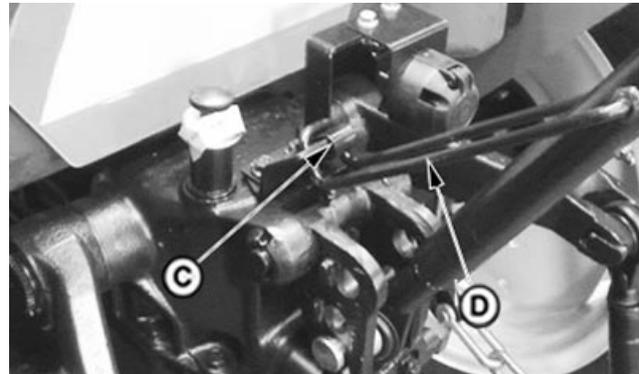
**CAUTION:** To avoid bodily injury or machine damage whenever an implement, implement quick coupler, or other attachment is connected to the tractor 3-Point Hitch, check full range of operation for interference, binding or PTO separation.

7. Using Rockshaft Position Control Lever (E), lower and raise implement slowly and check for any point of interference.



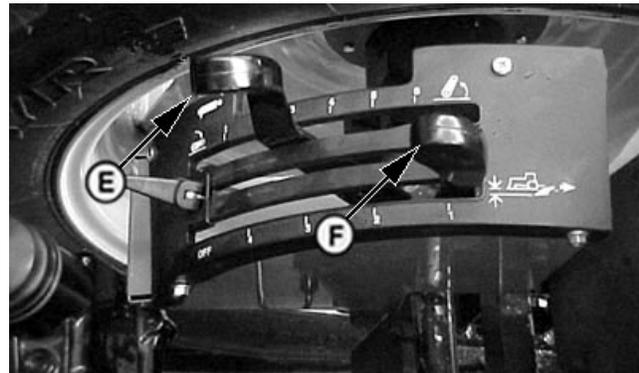
Align Hitch Point

PY5374 -UN-09DEC05



Central Link Locking Clip

PY5375 -UN-09DEC05



Rockshaft Control Lever

PY5530 -UN-22FEB06

- A—Implement
- B—Implement Hitch Pins
- C—Center Link Locking Clip
- D—Tab
- E—Rockshaft Position Control Lever
- F—Rockshaft Draft Control Lever

GENERIC,000004D -19-11JUL06-1/1

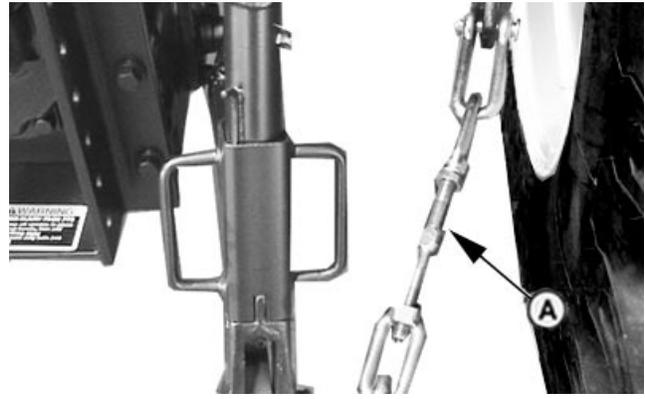
## Adjusting Hitch Side Sway

*NOTE: Check implement operator's manual for instruction on whether to allow side sway.*

**IMPORTANT: DO NOT shorten chains so short that they do not allow hitch to be raised completely. If chain prevents hitch from raising, hydraulic relief valve will open, causing excessive oil heating, pump damage or equipment damage.**

*NOTE: Use spring or rubber strap to keep draft links out of rear tyres when draft links are not attached to implement.*

Implement side sway should be adjusted when the rockshaft is raised for transport by loosening the jam nut on the threaded link (A) and turning the center rod to increase or decrease the length of chain. Tighten jam nut again when adjusted.



A—Threaded Link

PY4892 -UN-14APR05

PY80265,05I0153 -19-12SEP05-1/1

## Leveling the Hitch

1. Lower implement to take weight off hitch.

**IMPORTANT: DO NOT attempt to overextend center link beyond limits of locking clip or lift links past the stops. Link body threads could be damaged.**

*NOTE: Maximum adjustment range of the center link can only be obtained if the ends are positioned equally within the body when attached to an implement.*

2. Adjust center link to level implement front-to-rear. Unlatch locking clip (A). Rotate center link body (B) clockwise to lengthen center link or counterclockwise to shorten it. Be sure to latch the locking clip.

3. Adjust right-hand link to level implement side-to-side. Lift locking handle (C) and turn 1/4 turn to engage slot (D) onto roll-pin in the center portion of the lift link.

Turn crank handle clockwise to raise draft link.

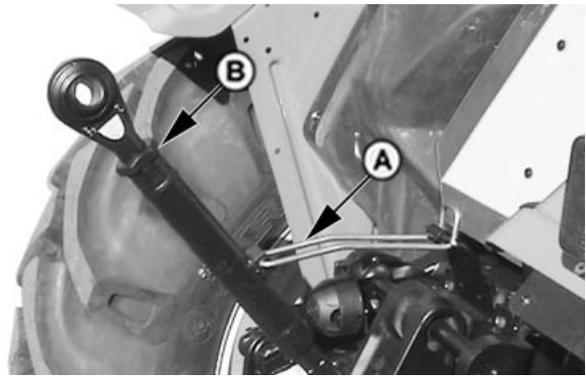
Turn crank handle counterclockwise to lower draft link.

After adjustment, lift handle (C) and turn to engage slot (D) onto the lower body to prevent change of adjustment during operation.

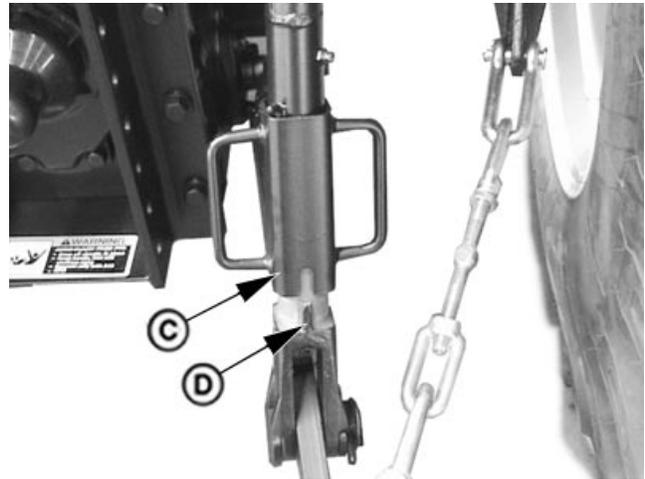
4. The left-hand lift link is also adjustable in length to accommodate different tyre sizes.

To change the left-hand lift link length, remove the upper lift link pin and rotate the upper end assembly clockwise to shorten or counterclockwise to lengthen, and then reinstall the upper pin and locking pin.

Adjust left and right lift links to accommodate various tyre sizes. Set the lift links to have fully-lowered draft link balls approximately seven inches off the ground for greatest range of usable hitch motion.



PY5285 -UN-24NOV05



PY5459 -UN-09JAN06

- A—Locking Clip
- B—Center Link Body
- C—Locking Handle
- D—Slot

GENERIC,0000064 -19-08MAR06-1/1

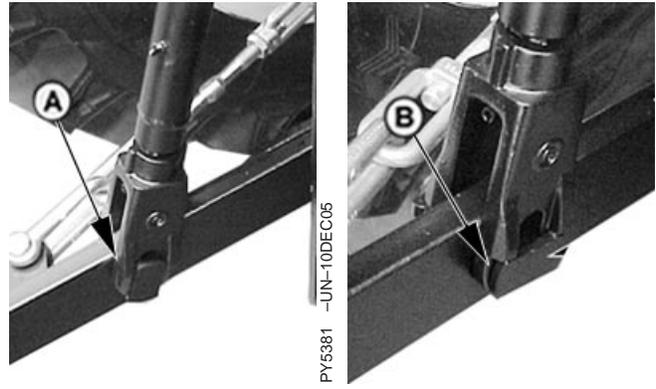
## Adjusting Lateral Float

To allow the draft link to raise slightly as implement follows ground contour, place head of float pin and the rectangular washer on the inside end of the pin in a vertical position (A).

To hold implement rigid, place head of float pin and the rectangular washer in the horizontal position (B).

Use lift link pins in the float position for hitch-mounted implements such as a cultivator or mower, which have ground gauging skids or wheels which may cause the implement to twist relative to the tractor.

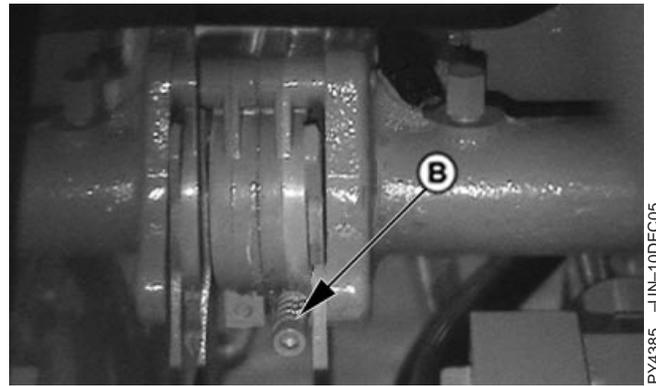
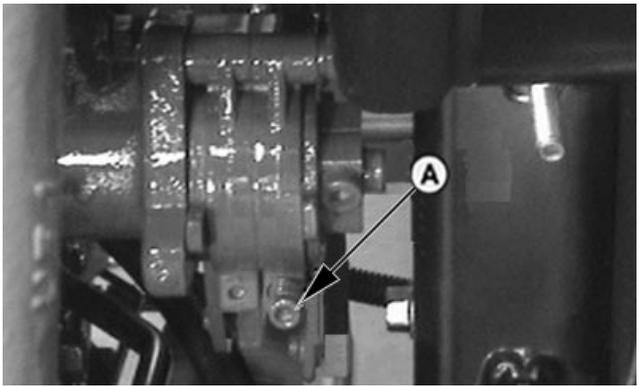
Use the rigid position for implements such as plows and ground engaging implements that should not twist relative to the tractor.



A—Pin In Vertical Position  
B—Pin In Horizontal Position

GENERIC,0000042 -19-22FEB06-1/1

## Adjusting Rockshaft Control Lever Friction



A—Adjustment Set Screws

If the rockshaft position control lever or rockshaft draft control lever do not stay in set position, increase lever

friction by tightening the set screws (A) for the appropriate lever until the proper friction is obtained.

PY80265,05I0156 -19-12SEP05-1/1

## Warming Hydraulic System Oil

Hydraulic system may be slow to function when tractor is started in cold weather. This is because cold oil will not flow as easily through the hydraulic system filter (A).

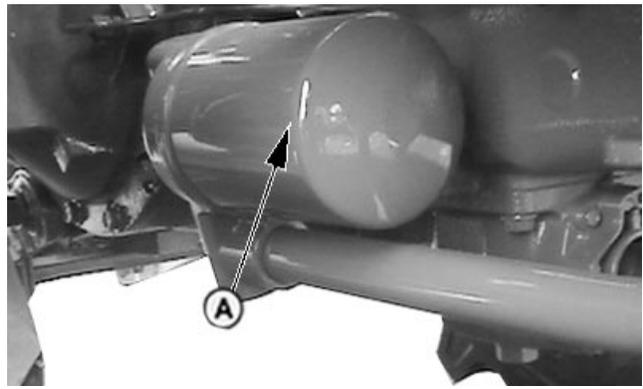
Steering may be slow until system warms up.

Hydraulic system will function normally when oil warms up.

**IMPORTANT:** To prevent damaging hydraulic pump or relief valve, **DO NOT** exceed two to three minutes warm-up time with steering wheel held in full left or full right turn position.

1. Depress clutch pedal, start engine and idle at about 1000 RPM.
2. Turn and hold steering wheel in full left or right turn.

A—Hydraulic Oil Filter



PY4407 -UN-22FEB06



PY5775

PY5775 -UN-02JUN06

PY80265,05I0157 -19-02JUN06-1/1

# Remote Hydraulic Cylinders

## Use Correct Hose Tips

If your tractor is equipped with a selective control valve (SCV), the couplers receptacles accept a standard hose tip as recommended by ISO<sup>1</sup> and SAE<sup>2</sup>. Adapters are available to allow connecting the older John Deere hose tips to the ISO couplers on your tractor.

<sup>1</sup>International Standards Organization

<sup>2</sup>Society of Automotive Engineers

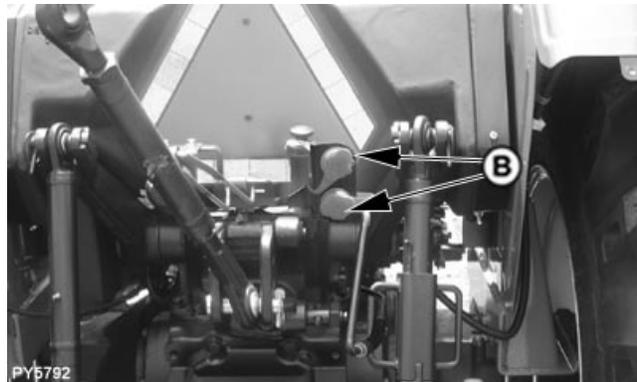
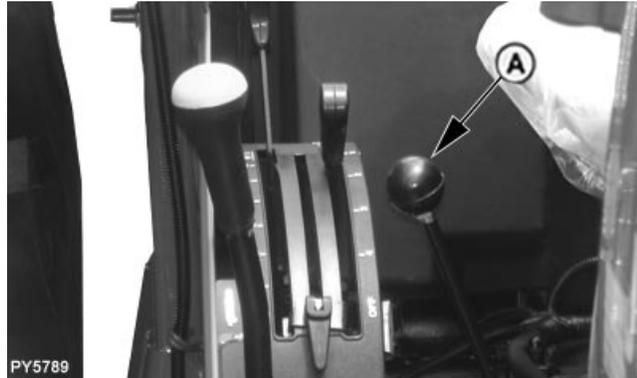
PY80265,05I0158 -19-12SEP05-1/1

## Control Lever and Coupler Identification—If Equipped

Movement of SCV lever (A) fore and aft operates coupler receptacles (B).

Coupler has a detented float position when lever (A) is moved in the fully forward direction.

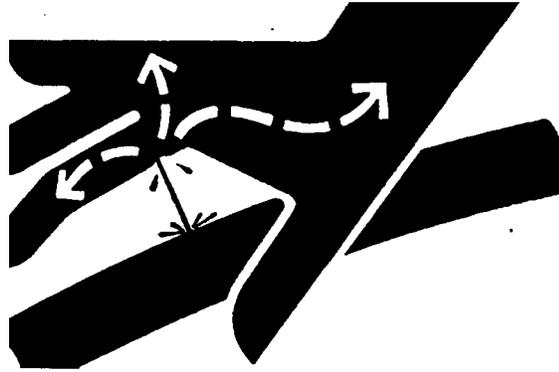
- A— SCV Lever
- B—SCV Receptacles



PY80265,05I0159 -19-08JUN06-1/1

## Connecting Hoses

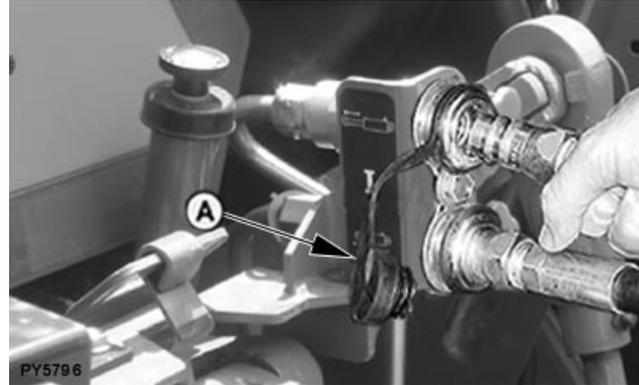
**CAUTION:** Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high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



X9811 -UN-23AUG88

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.

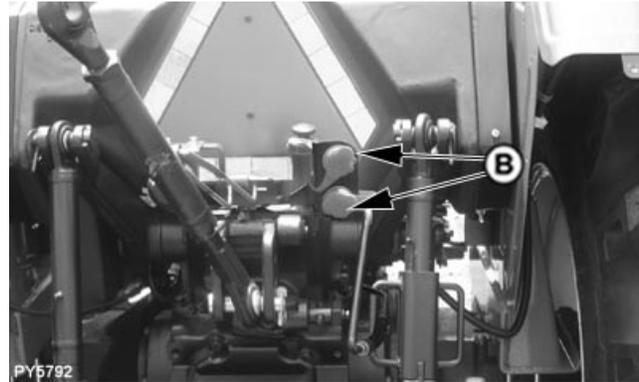
1. Remove dust caps (if equipped) from hose end.
2. Pull dust plug (A) from couplers.
3. Make sure hose end and coupler receptacles are clean.
4. Check hoses to see which is used for extending cylinder. This hose must be connected to a coupler receptacle (B) in order for cylinder to extend when SCV levers are moved rearward or inward.



PY5796

PY5796 -UN-08JUN06

**CAUTION:** Hydraulic hoses can fail due to physical damage, kinks, age and exposure. Check hoses regularly. Replace damaged hoses. See your John Deere dealer.



PY5792

PY5792 -UN-08JUN06

5. To connect each hose, push hose tip firmly into coupler receptacle. Pull lightly on hose to make sure positive connection was made.



PY5795

PY5795 -UN-08JUN06

A—Dust Plug  
B— Receptacle

## Connecting Single-Acting Cylinder

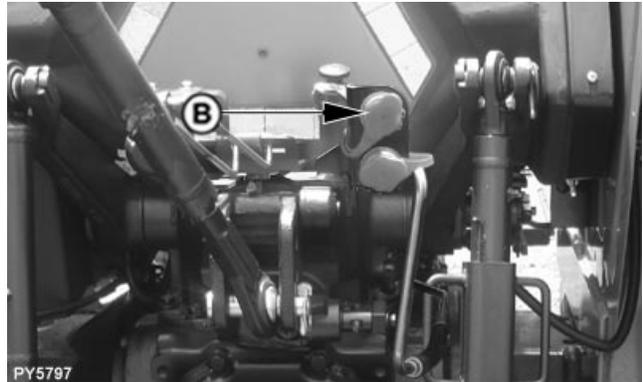
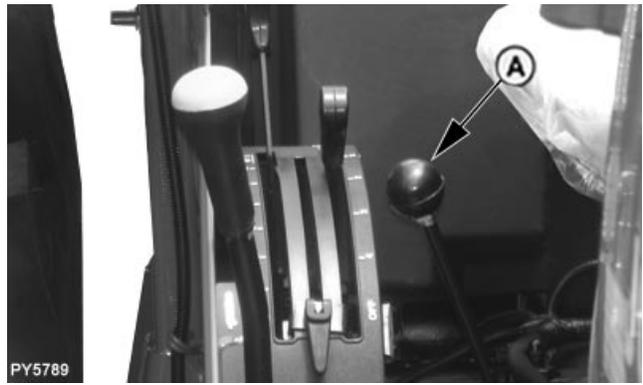
In order for lever (A) to work properly, a single-acting cylinder should be connected only to SCV outlet in the extend position (top coupler) (B).

**IMPORTANT:** Volume of oil required to extend cylinder must not lower transmission-hydraulic oil level below lower sight glass. Check oil level with cylinder fully extended. (See Check Transmission-Hydraulic Oil Level in Service—50 Hours chapter.)

Push SCV No. 1 control lever full forward to use “float” position to lower single-acting cylinder.

“Float” position allows a cylinder to extend and retract freely and uses no engine power.

- A—SCV Outlet Lever
- B—SCV Outlet



GENERIC,0000050 -19-20FEB06-1/1

## Correcting Reversed Cylinder Response

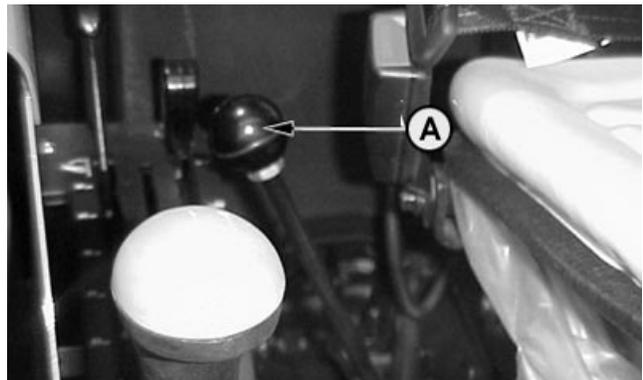
**CAUTION:** If cylinder response is reversed, extending when it should retract, reverse cylinder hose connections at coupler.

PY80265,05I0162 -19-12SEP05-1/1

## Neutral Lever Position

Spring pressure returns lever (A) to a centered position (except when lever is fully forward in the “Float” position). When the control levers are in the centered position, the remote cylinder is hydraulically locked in position.

- A—SCV Lever



GENERIC,0000051 -19-20FEB06-1/1

## Extending/Retracting Cylinder

### Extending Cylinder

Pull lever (A) to the rear of neutral and hold it against spring pressure. This extends cylinder (B) (up arrow) connected to couplers and in most cases raises implement. Lever returns to neutral when released.

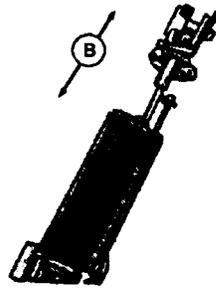
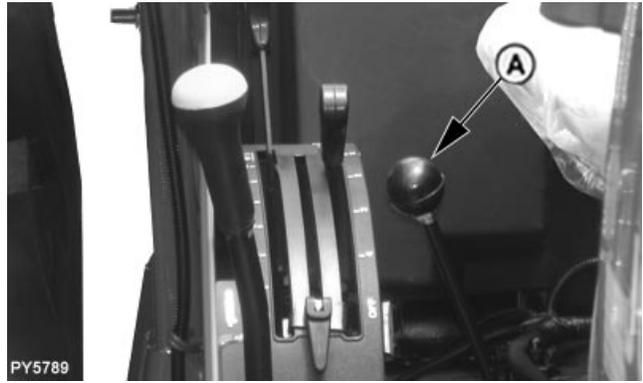
### Retracting Cylinder

Push lever (A) forward and hold it against spring pressure. This retracts cylinder (B) connected to SCV couplers and in most cases lowers implement. Lever returns to neutral when released.

### Float Position

Push lever full forward into detent to operate Float feature. Float operation allows cylinder to extend and retract freely, such as when an implement follows ground contour.

**IMPORTANT: When "Float" is not needed, manually move lever back to neutral position to prevent accidental use of "Float".**



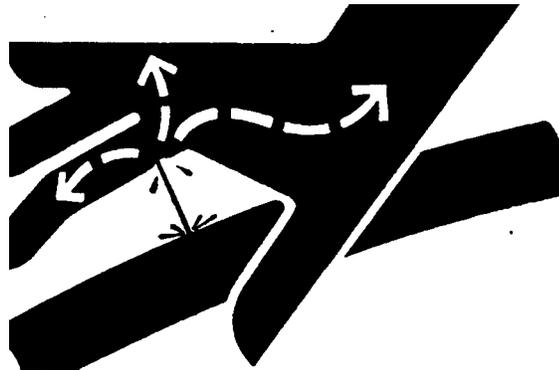
A—Control Lever  
B—Extend and Retract Cylinder

GENERIC,0000052 -19-20FEB06-1/1

## Disconnecting Hoses

1. If possible, retract remote cylinder as much as possible to protect cylinder rod from damage.

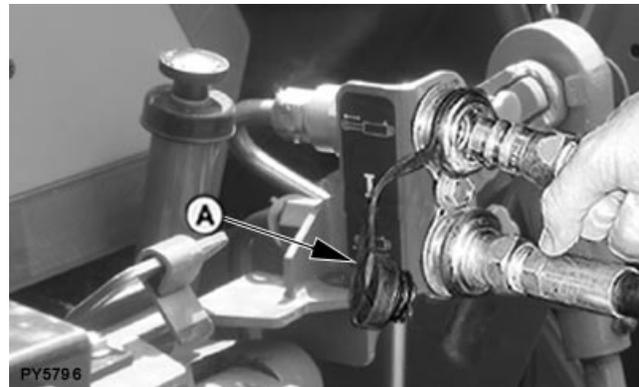
**CAUTION:** Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high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



X9811 -UN-23AUG88

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.

2. With as much hydraulic pressure relieved as possible from hoses, pull hoses from couplers.
3. Make sure dust plugs (A) for receptacles and dust caps for hoses are clean, then install dust plugs.



PY5796

PY5796 -UN-08JUN06

A—Dust Plug

PY80265,05I0156 -19-08JUN06-1/1

# Drawbar and PTO

## Observe Drawbar / Wagon Hitch Load Limitations

**IMPORTANT:** Certain heavy equipment, such as a loaded single-axle trailer, can place excessive strain on drawbar. Strain is greatly increased by speed and rough ground.

Static vertical load on drawbar/wagon hitch should not exceed 556 kg (1225 lb).

Drive slowly with heavy loads.

PY80265,05I0157 -19-12SEP05-1/1

## Stay Clear of Rotating Drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



TS1644 -UN-22AUG95

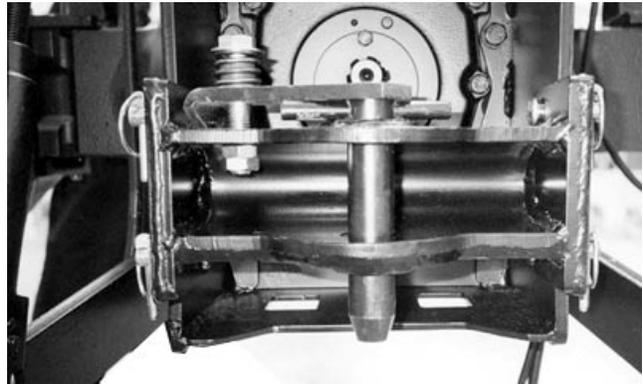
PY80265,05I0158 -19-12SEP05-1/1

## Attaching PTO-Driven Implement



**CAUTION: Stop engine before attaching implement or working in area of implement hitch.**

1. Attach implement to tractor before connecting PTO drive line. Raise hitch to upward position if it is not to be used.
2. Range shift lever in neutral (N), turn key to OFF position, pull fuel shut-off knob to stop engine and set brakes.
3. Attach implement to 3-Point Hitch, be sure drawbar will not interfere. Remove it if necessary.
4. Rotate PTO shield upward for clearance. With engine off, turn shaft slightly by hand if necessary to line up splines. Connect drive line to PTO shaft. Pull out on shaft to be sure drive line is locked to PTO shaft. Place PTO shield in downward position.
5. Be sure all shields are in place and in good condition. Never operate PTO unless master shield is properly installed. **WITH ENGINE STOPPED**, check integral shields on drive line by making sure they rotate freely on shaft. Lubricate or repair as necessary.
6. Check carefully for any interference, make sure hitch is raised to the upper position if it is not used.



PY1094 -UN-10APR05

PY80265,05I0159 -19-12SEP05-1/1

## Operating Tractor PTO (Standard)

1. Start engine and push hand throttle lever (A) forward until tachometer indicates PTO rated speed 2400 RPM (C) for standard 540 operation.
2. Move control lever (B) forward to engage PTO.

**CAUTION:** Turn key OFF to stop engine, put tractor in park position and make sure all mechanisms have stopped before cleaning out machine or making any adjustments to PTO driven implement.

3. Pull control lever back to disengage PTO.

A—Hand Throttle Lever  
B—PTO Shift Lever  
C—540 Operation Speed



PY4485 -UN-16FEB06



PY5534 -UN-22FEB06



PY5531 -UN-22FEB06

GENERIC,00005B -19-11JUL06-1/1

## Operating Tractor Dual PTO (Optional)

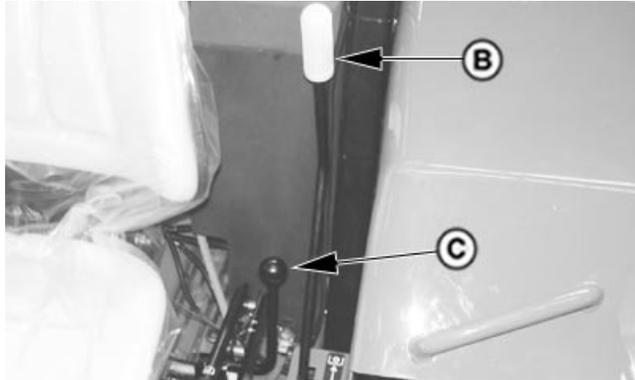
1. Start engine and push hand throttle lever (A) forward until tachometer indicates PTO rated speed 1782 RPM (D) for 540E operation or 2400 RPM (E) for standard 540 operation.
2. Move control lever (B) forward to engage PTO.
3. Move control lever (C) forward for economical 540 operation and backward for 540 standard operation.



PY4485 -UN-16FEB06

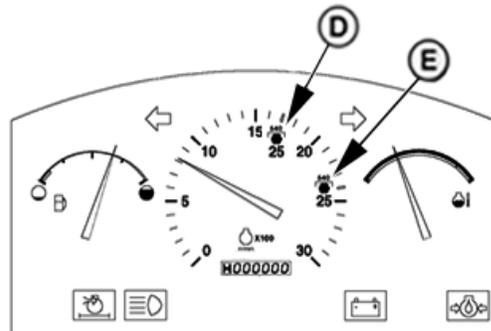
**CAUTION:** Turn key OFF to stop engine, put tractor in park position and make sure all mechanisms have stopped before cleaning out machine or making any adjustments to PTO driven implement.

4. Pull control lever back to disengage PTO.



PY5535 -UN-22FEB06

- A—Hand Throttle Lever
- B—PTO Lever
- C—Economy PTO Lever
- D—540E Operation Speed
- E—540 Standard Operation Speed

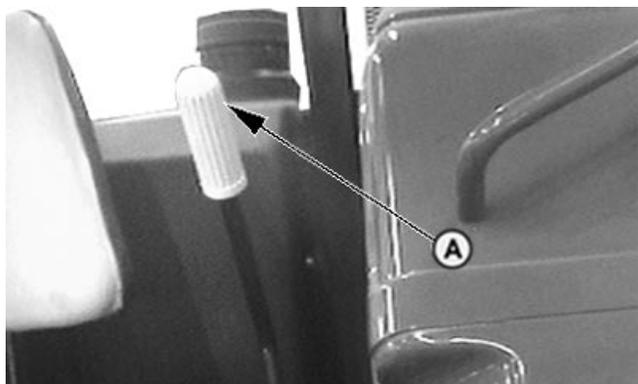


PY5765

PY5765 -UN-02JUN06

GENERIC,000005C -19-02JUN06-1/1

## Adjusting PTO Clutch Operating Rod



PY4487 -UN-17FEB06

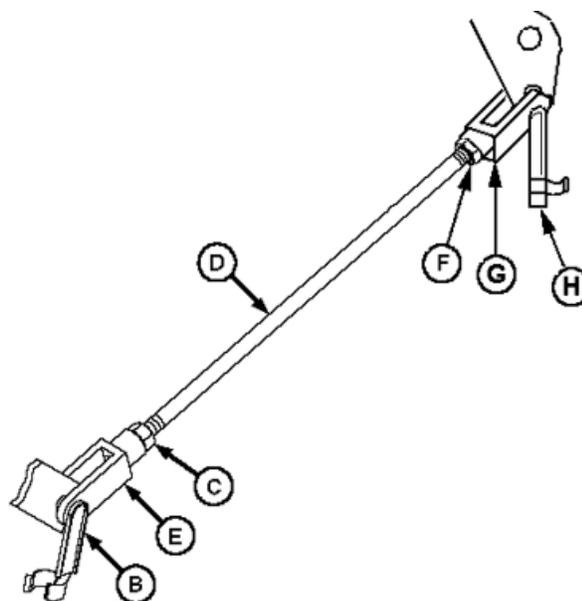
1. Move PTO lever (A) to rearward (disengaged) position.
2. Remove clip pin (B) from rear end of clevis (E).
3. Remove clip pin (H) from forward end of clevis (G).
4. Check for equal thread engagement at clevis (G). Loosen jam nuts (F) and (C). Turn rod (D) until threads on each side of clevis are equal. Tighten jam nut (F).
5. Loosen jam nut (C) from rear of front clevis (E).
6. Adjust length of arm (D) so the clip pin (B) can be inserted with the rod pulled forward and the arm pulled rearward to eliminate free play. Lengthen rod by turn of the clevis to provide PTO clutch lever free play and PTO clutch rod travel in fully engaged position to specification.

### Specification

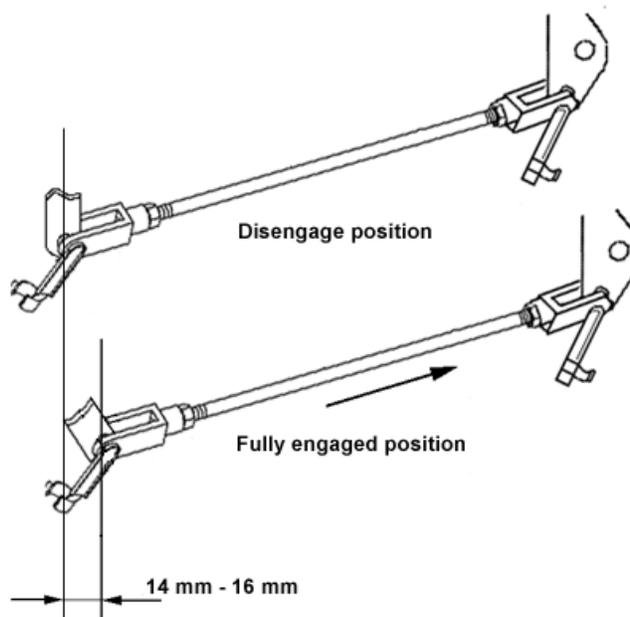
PTO Clutch Lever—Free Play .....	15 mm
PTO Clutch Rod (In Fully Engaged Position)—Travel.....	14 mm -16 mm

**NOTE:** Adjust clevis (G) if you cannot make proper adjustment with clevis (E).

7. Reinstall clip pin (B & H) in clevis (E & G) respectively and arm (D).
8. Tighten jam nut (C) at clevis.



PY5016 -UN-21MAY05



PTO Clutch Rod (In Fully Engaged Position)

PY5019 -UN-21MAY05

- A—PTO Clutch Lever
- B—Clip Pin
- C—Jam Nut
- D—Arm
- E—Clevis
- F—Jam Nut
- G—Clevis
- H—Clip Pin

# Ballast

## Planning for Maximum Productivity

Proper ballasting is an important factor in tractor performance. maximum productivity can be achieved only if tractor weight is appropriate for the job.

John Deere FMO (Fundamentals of Machine Operations) Tractors, discusses methods of determining correct tractor weight and ballast selection.

FMO-Machinery Management includes information on tractor and implement matching and increasing productivity. .

Your John Deere dealer can assist you with information on these subjects.

PY80265,05I0163 -19-12SEP05-1/1

## Selecting Ballast Carefully

Match amount of ballast needed for each job. What is right for one job may be wrong for another job. Ballast for traction and stability.

Factors determining amount of ballast:

- Soil surface-loose or firm.
- Type of implement-integral/semi-integral or towed.
- Travel speed-slow or fast.
- Tractor power output-partial or full load.
- Tyres-single, oversize, or dual.

PY80265,05I0164 -19-12SEP05-1/1

## Matching Ballast to Load Work

Use no more ballast than necessary, and remove ballast when it is no longer needed.

Rather than weighing tractor down to pull heavy loads, try to reduce load. Pulling a lighter load at a higher speed is more economical and more efficient.

The best way to check for correct ballast is to measure amount of travel reduction (% slip) of the drive wheels. Under normal field conditions, travel reduction should be 10—15 percent.

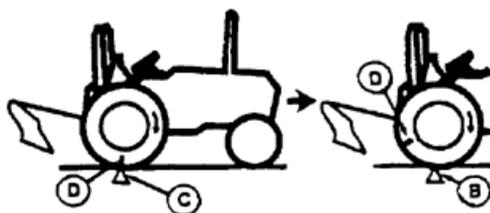
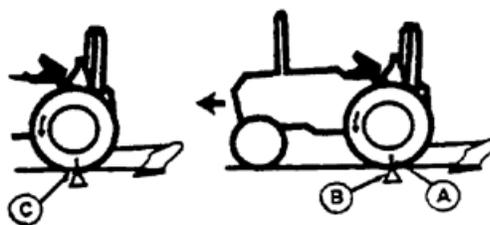
Add more weight to drive wheels if slip is excessive. If there is less than 10 percent slip, weight should be removed.

Too Little Ballast		Too Much Ballast	
1.	Excessive wheel slip	1.	Increased load
2.	Power loss due to churning soil	2.	Power loss due to carrying extra weight
3.	tyre wear	3.	tyre strain
4.	Fuel waste	4.	Soil compaction
5.	Lower productivity	5.	Fuel waste
		6.	Lower productivity

PY80265,05I0165 -19-12SEP05-1/1

### Measuring Wheel Slip—Manually

1. Place a mark (A) on a rear tyre which is easily observed (a chalk mark is recommended).
2. With tractor working and implement lowered, mark a starting point (B) on the ground at the place where the tyre mark (A) meets the ground.
3. Mark the ground again where the tyre mark (A) completes 10 full revolutions (C).
4. With implement raised return in the opposite direction. At the second mark on the ground (C) remark the tyre (D).
5. While driving the tractor along the same path (implement raised), count the tyre revolutions required to reach the starting point (B).
6. Use the return tyre revolutions count and “Wheel Slippage Chart” to determine slippage. 10—15 percent is ideal.
7. Adjust ballast or load to give correct slippage.



PY5516 -UN-17FEB06

**NOTE:** Available horsepower is greatly reduced when wheel slip drops below 10 percent.

**WHEEL SLIPPAGE CHART**

Non-Loaded Wheel Revolutions (Step 5)	Estimated % Slip	Recommended Action
10	0	Remove Ballast
9-1/2	5	Remove Ballast
9	10	Proper Ballast
8-1/2	15	Proper Ballast
8	20	Add Ballast
7-1/2	25	Add Ballast
7	30	Add Ballast

PY80265,05I0166 -19-21FEB06-1/1

## **Ballast Limitations**

Ballast should be limited by either tyre capacity or tractor capacity. Each tyre has a recommended carrying capacity which should not be exceeded (see Wheels, Tyres and Treads section). If a greater

amount of weight is needed for traction, a larger tyre should be considered.

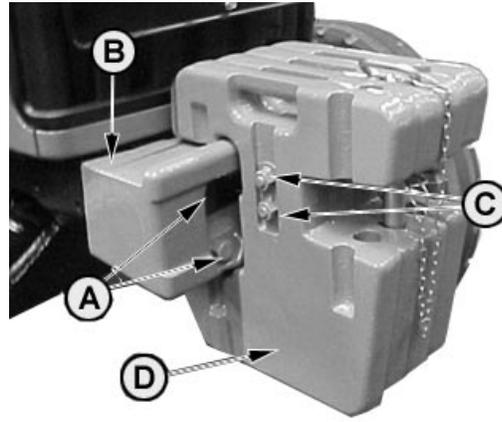
Ballast can be added as either liquid or cast iron.

PY80265,05I0167 -19-12SEP05-1/1

## Ballasting Front End for Transport

**CAUTION:** Additional front ballast may be needed for transporting rear-mounted implements. When implement is raised, drive slowly over rough ground, regardless of how much ballast is used.

**CAUTION:** Weights are heavy. Use proper lifting equipment. Up to 6 additional weights, 50 Kg(110 lb)each, can be installed on the basic weight. Approximate weight of starter weight (A) is : 65 kg (143 lb). Approximate weight of QUIK-TATCHä weights (D) are 50 kg (110 lb).



A—Attaching Bolts  
 B—Starter Weight  
 C—Nuts  
 D—Additional Weights

### Specification

Starter Weight (Ballast)—Weight .....	65 kg (143 lb) Each
QUIK-TATCH™ Weight (Ballast)—Weight.....	50 kg (110 lb) Each

**IMPORTANT:** Tighten the basic weight attaching screws (A) to 550 N•m (405 lb-ft) and the screws (C) on front weights (D) to 230 N•m (170 lb-ft).

Installing QUIK-TATCH™ Weights: QUIK-TATCH™ weights can be installed on the front of the tractor.

One starter weight and up to 6 QUIK-TATCH™ weights can be installed.

1. Install the basic weight (B) with bolts (A).
2. Place additional weights (D) as required. Secure them with nuts (C).

QUIK-TATCH is a trademark of Deere & Company

PY80265,05I0168 -19-11JUL06-1/1

PY2246 -JUN-21FEB06

### Ballasting Tractor

Add weight to front end if needed for stability. Heavy pulling and heavy rear-mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip-over.

Refer to the implement operator's manual, along with "Using Implement Codes" in this section, to determine the minimum number of front weights that are required for your tractor model.

PY80265,05I0169 -19-12SEP05-1/1

### Determining Maximum Rear Ballast

**IMPORTANT: DO NOT overload tyres. If maximum weight shown in chart is not enough for safety, reduce load or install heavier ply tyres.**

**power loads in 3rd gear. Remove ballast if tractor engine labors when pulling heavy loads in the third gears.**

**To extend drive train life, avoid excessive soil compaction and rolling resistance, avoid adding too much ballast. Ballast should never exceed the weight required to provide traction for continuous full**

Chart shows carrying capacity per tyre.

MAXIMUM LOAD PER WHEEL (Aat 19 psi)		
Tyre Size Bias Ply Tyres	Ply Rating	Capacity kg (lb)
18.4-30	14	2550 (5628)

PY80265,05I0170 -19-12SEP05-1/1

### Determining Maximum Front Ballast

Use appropriate front ballast for a particular operating condition. Two-wheel drive tractors should only have enough ballast to maintain safe steering control. Remove ballast when it is no longer needed.

**for safety, reduce load or install tyres with a higher load rating.**

Chart shows carrying capacity per tyre.

**IMPORTANT: DO NOT overload tyres. If maximum weight shown in chart is not enough**

MAXIMUM LOAD PER WHEEL		
2-WD		
Tyre Size	Ply Rating	Capacity kg (lb)
6.5-20	8	550 (1213)

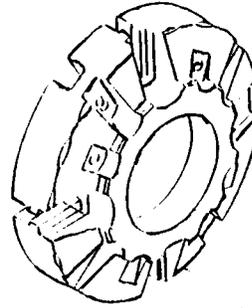
PY80265,05I0171 -19-12SEP05-1/1

## Using Cast Iron Weights

Cast iron weights are available in a 48 kg (106 lb) size. Weights can be installed on the inside or outside of wheel. See your John Deere dealer for more information and recommendations on weight use and placement.

### Specification

Cast Iron Weights—Weight..... 48 kg (106 lb)



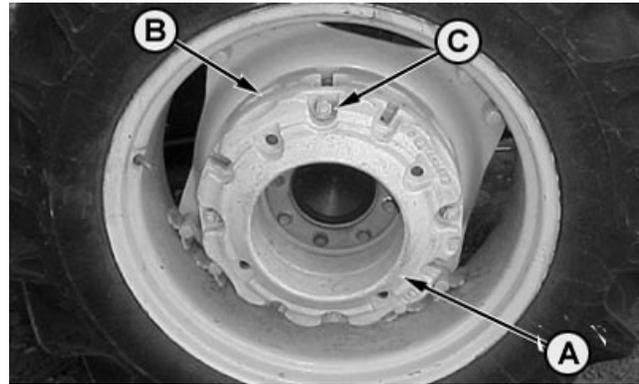
M47215 -UN-29JAN92

PY80265,05I0172 -19-12SEP05-1/1

## Installing Rear Cast Iron Weights

**CAUTION:** Optional cast iron weight weighs 48 kg (106 lb). Handle with care! Use appropriate equipment or have the job done by your John Deere dealer.

1. Attach first weight to wheel disks.
2. To install additional weights (A), install bolts in previous weight (B). Rotate the added weight to align bolts with weight holes (C).
3. Tighten attaching bolts securely. Tighten again after a few hours service. Check tightness regularly.



PY1635 -UN-17FEB06

A—Additional Weight  
B—Weight  
C—Weight Holes

PY80265,05I0173 -19-17FEB06-1/1

## Using Liquid Weight



**CAUTION:** Installing liquid ballast requires special equipment and training. Have the job done by your John Deere dealer or a tyre service store.

**IMPORTANT:** NEVER fill tyre to more than 75% full. More solution would leave too little air space to absorb shocks. Damage to tyre could occur.

A solution of water and calcium chloride provides safe, economical ballast. Used properly, it will not damage Tyres, tubes, or rims.

Use calcium chloride to prevent water from freezing. A mixture of 0.6 kg per liter (5.0 lb of calcium chloride per gal) will not freeze solid above  $-45^{\circ}\text{C}$  ( $-53^{\circ}\text{F}$ ).

Charts on this page show how much each tyre size holds if filled to 75 % full.

LIQUID WEIGHT FOR FRONT Tyres With 0.6 kg/L (5 lb/gal) Calcium Chloride Solution	
Tyre Size	Liquid Weight per tyre kg (lb)—75% Full
6.5-20	34 (74)

LIQUID WEIGHT FOR REAR TYRES With 0.6 kg/L (5 lb/gal) Calcium Chloride Solution	
Tyre Size	Liquid weight per Tyre kg (lb)—75% Full
18.4-30	414 (912)

PY80265,05I0174 -19-12SEP05-1/1

# Wheels, Tyres and Treads

## Service Tyres Safely

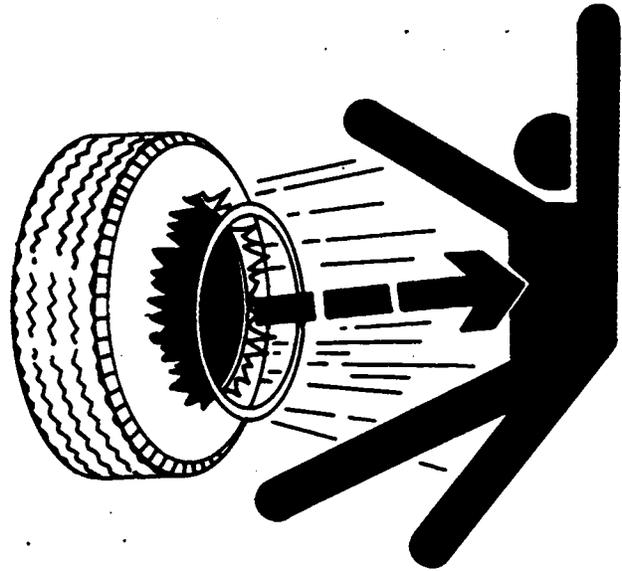
Explosive separation of a tyre and rim parts can cause serious injury or death.

Do not attempt to mount a tyre unless you have the proper equipment and experience to perform the job.

Always maintain the correct tyre pressure. Do not inflate the tyres above the recommended pressure. Never weld or heat a wheel and tyre assembly. The heat can cause an increase in air pressure resulting in a tyre explosion. Welding can structurally weaken or deform the wheel.

When inflating tyres, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tyre assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



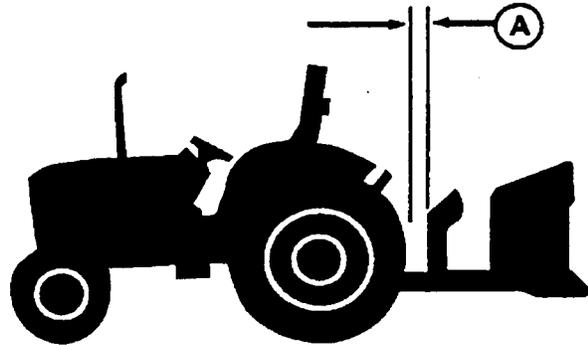
TS211 -UN-23AUG88

PY80265,05I0175 -19-12SEP05-1/1

## Check Implement-to-Tyre Clearance

**IMPORTANT:** Check for adequate clearance (A) between outside diameter of the tyre and implement with hitch in raised position.

When large diameter rear tyres are installed on a tractor with a 3-Point Hitch, a quick coupler or similar device may be required to provide adequate implement-to-tyre clearance.



M47177 -UN-31JAN92

A—Clearance

PY80265,05I0176 -19-12SEP05-1/1

## Check Tyre Inflation Pressure

Check tyres daily for damage or noticeably low pressure.

At least every 100 hours of operation, check inflation pressure with a gauge. Use an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations.

If tyres contain liquid ballast, use a special air-water gauge and measure with valve stem at bottom.

*NOTE: When furrow plowing or during hillside operation, tyre pressure can be increased 28 kPa (0.28 bar) (4 psi) ABOVE maximum to prevent tyre wrinkling or buckling.*

**IMPORTANT: Always check inflation pressure with an accurate tyre gauge to prevent over-inflation. Over-inflation reduces performance and increases strain of both tyre and rim.**

*NOTE: Following inflation information applies to both front and rear tyres and Tyre Inflation Pressure Chart.*

1. All inflation pressures are calculated for 29 km/h (18 mph) travel speeds for both diagonal (bias) ply and radial ply tyres.
2. Operation of tyres at the inflation pressures listed on chart will result in optimum tractive performance of the tyre/vehicle system. Correctly inflated radial tyres will show a large deflection of the sidewall or "cheeks". This is normal and will not hurt the tyre if the inflation pressure is maintained.
3. Inflation pressures less than 80 kPa (12 psi) should be monitored regularly because of the increased risk of low pressure air leaks (especially due to leaking valve cores).
4. Tractors operating on steep side slopes should increase inflation pressures 28 kPa (4 psi) above the values listed to compensate for lateral weight transfer.
5. Tyres run as singles in high traction conditions sometimes experience bead slip if the bead was not fully seated or if too much lubricant was used to mount the tyre. Increasing the inflation pressure will compensate for this condition but will not cause reduced traction. Consult your tyre dealer if this problem occurs.
6. If higher load capacities are needed, contact your John Deere dealer for tyre manufacturers load and inflation table information.

## Tyre Inflation Pressure Chart

Tyre Inflation Pressure Chart 5310 S								
Front Tyres			With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement		
Tyre Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
6.5-20	8	F2	140	(1.4)	(20)	200	(1.9)	(29)
Rear Tyres			With Little or No Added Weight			With Maximum Ballast or Heavy Mounted Implement		
Tyre Size	Ply Rating	Tread	kPa	(bar)	(psi)	kPa	(bar)	(psi)
18.4-30	14	R1	97	(0.97)	(14)	131	(1.31)	(19)

PY80265,05I0178 -19-12SEP05-1/1

## Tighten Wheel/Axle Hardware Correctly

 **CAUTION: NEVER operate tractor with a loose rim, wheel, hub, or axle.**

Any time hardware is loosened, tighten to specified torque.

*NOTE: Follow checking procedure when a new tractor is first used, or wheels have been off.*

1. After driving tractor about 100 m (109 yd), and before placing it under load, tighten hardware to specified torque.
2. Check hardware after working three hours and again after 10 hours.
3. Check all hardware frequently and keep it tight.

PY80265,05I0179 -19-12SEP05-1/1

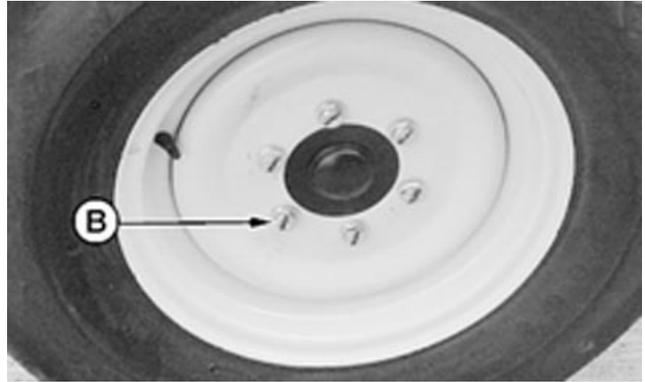
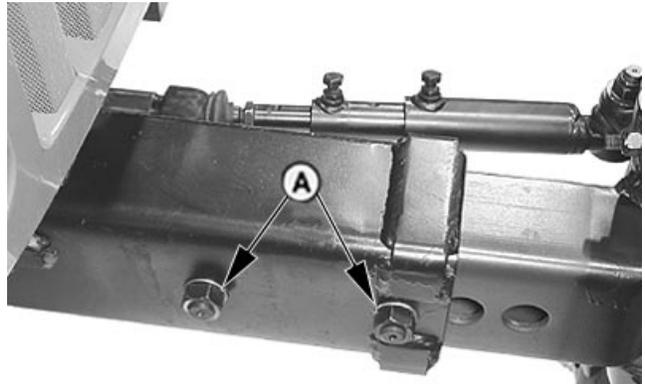
### Tighten Bolts—Adjustable Front Axle

Tighten bolts in the following locations to specifications:

**Specification**

Adjustable Front Axle—	
Axle-to-Knee Bolts—Torque.....	480 N•m (350 lb-ft)
Adjustable Front Axle—	
Disk-to-Flange Bolts—Torque .....	210 N•m (155 lb-ft)

- A—Axle-to-knee**
- B—Disk-to-flange**



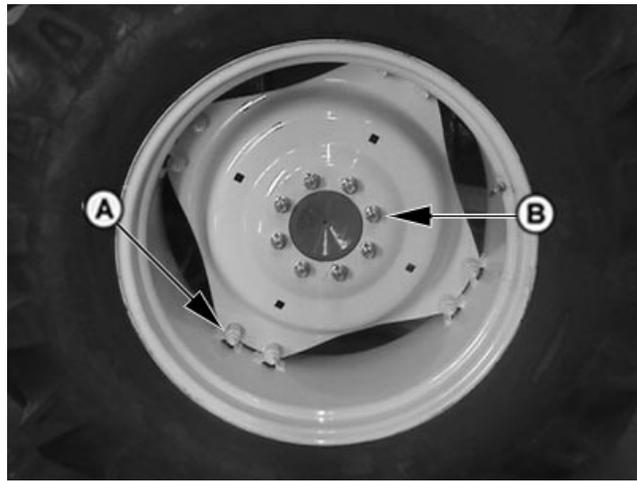
GENERIC,0000056 -19-21FEB06-1/1

### Tighten Bolts—Rear Axle

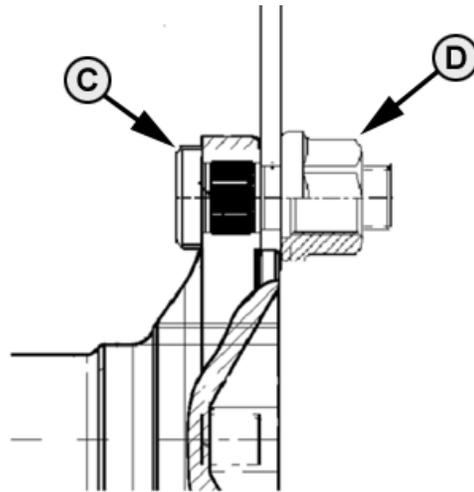
Tighten bolts in the following locations to specifications:

	<b>Specification</b>	
Rear Axle Rim-to-Disk—Torque.....		245 N•m (180 lb-ft)
Rear Axle Disk-to-Flange—		
Torque .....		550 N•m (406 lb-ft)

- A—Rim-to-disk bolts
- B—Disk-to-flange bolts
- C—Stud
- D—Nut



PY4282 -UN-06DEC04

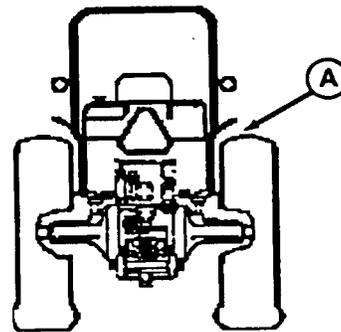


PY1956 -UN-12JAN04

PY80265,05I0181 -19-12SEP05-1/1

### Observe Rear Wheel Tread Width Limitations

**IMPORTANT:** Tyres must have at least 25 mm (1 in.) clearance with fenders (A) and fuel tank. When large diameter rear tyres are installed, check clearance between tyre and fenders .



M47179 -UN-31JAN82

PY80265,05I0182 -19-12SEP05-1/1

### Tread Settings—Multi-Position Rear Wheels

Wheel tread on rear axle with multi-position wheels can be adjusted by repositioning or exchanging the rims or by reversing the wheel disks.

Wheel tread can also be adjusted by exchanging the complete wheel to the opposite side of the tractor (This maneuver permits the change from disk-dished-in to disk-dished-out operations without disassembling the wheel). When changing rear wheels from one side to the other, the arrow on side wall of tyre points in the direction of forward rotation.

The relationship of the wheel disk and rim in obtaining the different tread settings is shown in the diagrams on the facing page.

A study of these diagrams, before attempting to change tread settings, will save unnecessary labor.

**IMPORTANT:** After setting wheel spacing, tighten rim-to-disk and disk-to-flange bolts. Drive tractor 100 m (109 yd) and

**tighten again.**

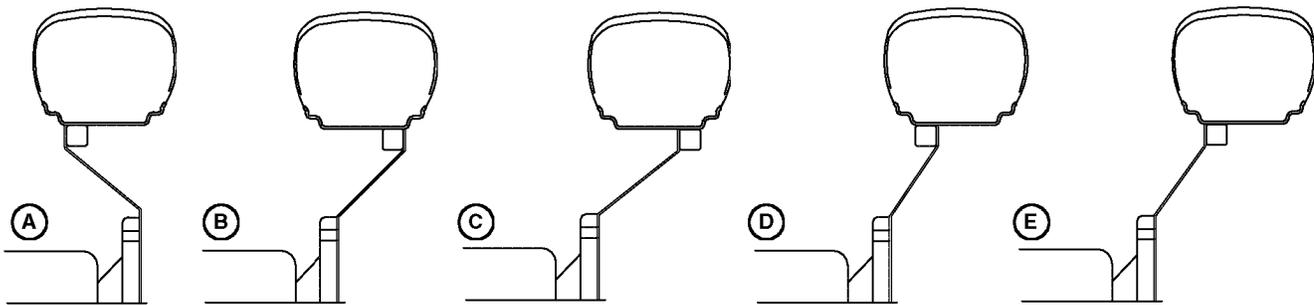
**Specification**

Multi-Position Rear Wheels	
Rim-to-Disk—Torque .....	245 N•m (180 lb-ft)
Multi-Position Rear Wheels	
Disk-to-Flange—Torque.....	550 N•m (406 lb-ft)

*NOTE: Tread settings are measured at bottom of centerline.*

STEEL DISKS REAR TREAD WIDTH Centerline-to-Centerline	
Diagram	Tyre Sizes
	18.4-30
A	1379 mm (54.3 in.)
B	1475 mm (58.1 in.)
C	1579 mm (62.2 in.)
D	1678 mm (66.1 in.)
E	1782 mm (70.2 in.)

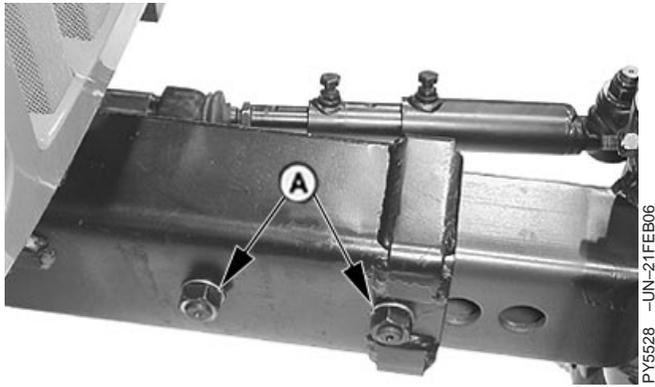
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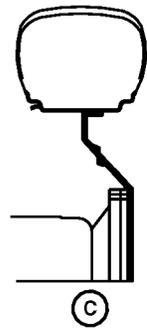
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PY80265,05I0183 -19-12SEP05-2/2

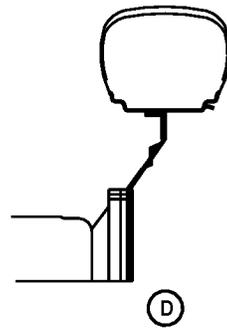
**Tread Settings—Adjustable Front Axle**



PY5528 -UN-21FEB06



**C**



**D**

LV1515 -UN-05MAR96

**A—Adjustment Holes**

Front rims are offset. With some tires, this provides two tread spacings at each axle setting.

**ADJUSTABLE FRONT AXLE TREAD SETTINGS**  
**Diagram C**  
**Centerline-to-Centerline**

Tire	Tread Position <sup>a</sup>					
	1	2	3	4	5	6
6.50-20	1449 mm (57.0 in.)	1549 mm (61.0 in.)	1649 mm (64.9 in.)	1749 mm (68.9 in.)	1849 mm (72.8 in.)	1949 mm (76.7 in.)
7.50-16	1449 mm (57.0 in.)	1549 mm (61.0 in.)	1649 mm (64.9 in.)	1749 mm (68.9 in.)	1849 mm (72.8 in.)	1949 mm (76.7 in.)
9.5L-15	1468 mm (57.8 in.)	1568 mm (61.7 in.)	1668 mm (65.7 in.)	1768 mm (69.6 in.)	1868 mm (73.5 in.)	1968 mm (77.5 in.)
10.0-15	1468 mm (57.8 in.)	1568 mm (61.7 in.)	1668 mm (65.7 in.)	1768 mm (69.6 in.)	1868 mm (73.5 in.)	1918 mm (75.5 in.)
11L-15	1473 mm (58.0 in.)	1573 mm (61.9 in.)	1673 mm (65.9 in.)	1773 mm (69.8 in.)	1873 mm (73.7 in.)	1973 mm (77.7 in.)
27/9.5-15	INT <sup>b</sup>	1546 mm (60.9 in.)	1646 mm (64.8 in.)	1746 mm (68.7 in.)	1846 mm (72.7 in.)	1946 mm (76.6 in.)
27/12LL-15	1477 mm (58.1 in.)	1577 mm (62.1 in.)	1677 mm (66.0 in.)	1777 mm (70.0 in.)	1877 mm (73.9 in.)	1977 mm (77.8 in.)

<sup>a</sup>Tread position 1 is with axle adjustment at its most inward location. See Adjust Front Axle Tread Width in this section.

<sup>b</sup>Interference (Do not use)

**ADJUSTABLE FRONT AXLE TREAD SETTINGS**  
**Diagram D**  
**Centerline-to-Centerline**

Tire	Tread Position <sup>a</sup>					
	1	2	3	4	5	6
6.50-16	1583 mm (62.3 in.)	1683 mm (66.3 in.)	1783 mm (70.2 in.)	1883 mm (74.1 in.)	1983 mm (78.1 in.)	2083 mm (82.0 in.)
7.50-16	1583 mm (62.3 in.)	1683 mm (66.3 in.)	1783 mm (70.2 in.)	1883 mm (74.1 in.)	1983 mm (78.1 in.)	2083 mm (82.0 in.)
9.5L-15	1549 mm (61.0 in.)	1649 mm (64.9 in.)	1749 mm (68.9 in.)	1849 mm (72.8 in.)	1949 mm (76.7 in.)	2049 mm (80.7 in.)
10.0-15	1549 mm (61.0 in.)	1649 mm (64.9 in.)	1749 mm (68.9 in.)	1849 mm (72.8 in.)	1949 mm (76.7 in.)	2049 mm (80.7 in.)
11L-15	1554 mm (61.2 in.)	1654 mm (65.1 in.)	1754 mm (69.1 in.)	1854 mm (73.0 in.)	1954 mm (76.9 in.)	2054 mm (80.9 in.)
27/9.5-15	1527 mm (60.1 in.)	1627 mm (64.1 in.)	1727 mm (68.0 in.)	1827 mm (71.9 in.)	1927 mm (75.9 in.)	2027 mm (79.8 in.)
27/12LL-15	1559 mm (61.4 in.)	1659 mm (65.3 in.)	1759 mm (69.3 in.)	1859 mm (73.2 in.)	1959 mm (77.1 in.)	2059 mm (81.1 in.)

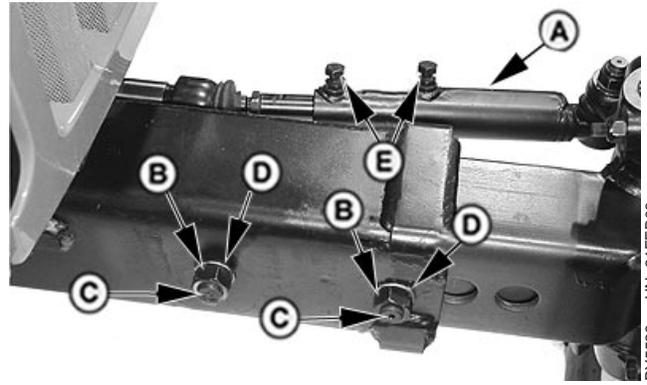
<sup>a</sup>Number 1 position is with axle adjustment at its most inward location. See Adjust Front Axle Tread Width in this section.

GENERIC.0000057 -19-21FEB06-2/2

### Adjust Front Axle Tread Width

**IMPORTANT: DO NOT** place jack under engine oil pan.

1. Jack up front end of tractor.
2. When making large tread adjustments, loosen cap screws (E) and adjust the tie rod (A) length with axle length.
3. Remove two nuts (B), sleeves (D), and cap screws (C) from front axle (2 on each side).
4. Slide axle knees to desired position. Both sides should be adjusted to same spacing.
5. Install sleeves (if equipped), cap screws and nuts on each side. Tighten cap screws to specification.



- A—Tie Rod
- B—Axle Nuts (4 used)
- C—Cap Screws (4 used)
- D—Sleeve (4 used)
- E—Tie Rod Cap Screw

#### Specification

Adjustable Front Axle-to-Knee

Bolts—Torque..... 400 N•m (295 lb-ft)

6. Set toe-in. See Check and Adjust Toe-In for your axle type.

GENERIC,0000058 -19-22FEB06-1/1

## Checking Toe-In



A—Front Axle Toe-In Distance

1. Park machine on level surface.
2. Turn steering wheel so front wheels are in the straight-ahead position. Stop engine.
3. Measure distance (A) between tyres at hub level in front of axle. Record measurement and mark the tyres.
4. Move tractor back about 1 m (3 ft), so mark is at hub level behind the axle. Again, measure distance between tyres at same point on tyre. Record measurement.
5. Determine the difference between front and rear measurements. If the front measurement is smaller, toe is "in". If the rear is smaller, toe is "out".
6. Distance (A) at front of tyres should be 3—6 mm less than distance measured for at rear of tyres. Adjust toe-in if necessary. (See procedure in this section.)

PY80265,05I0186 -19-12SEP05-1/1

## Adjusting Toe-In

1. Loosen lock nuts (A) and back out the bolts (B) on tie rod tubes several turns.
2. Adjust tie rods on both sides of the tractor equally by rotating the inner tube (C) to lengthen or shorten tie rod. Adjust toe-in to 3 to 6 mm (1/8 to 1/4 in.)

Tie Rod Rotation	Approximate Change in Toe-in
1/2 turn	8 mm (5/16 in.)
1 turn	16 mm (5/8 in.)

3. Tighten bolts (B) to specification. Do not overtighten as damage to the tube may occur.

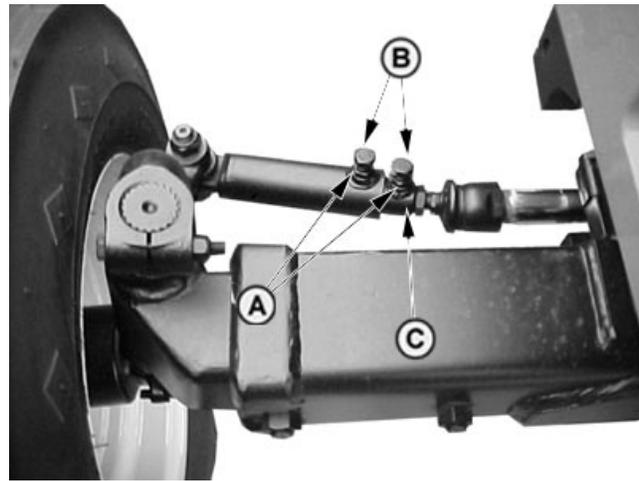
**Specification**

Tie Rod Bolts—Torque..... 85 N•m (62 lb-ft)

4. Tighten the lock nuts (A) to specification.

**Specification**

Tie Rod Lock Nuts—Torque ..... 90 N•m (66 lb-ft)



A—Lock Nuts  
B—Tie Rod Bolts  
C—Inner Tube

PY4009 -UN-14JUL04

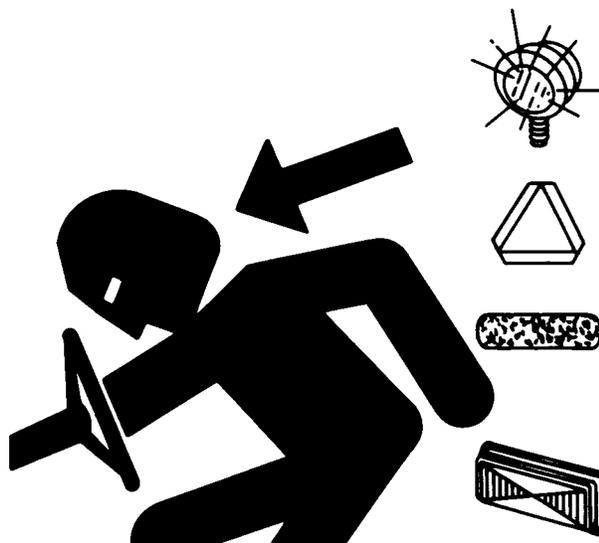
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# Transporting

## Use Safety Lights and Devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use hand signals or turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting and marking that has been damaged or lost.



TS951 -UN-12APR90

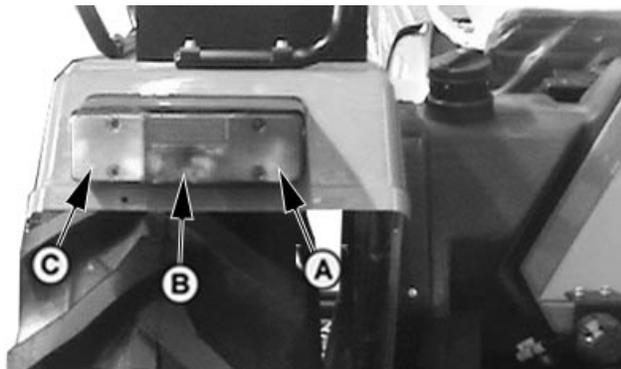
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## Driving Tractor on Roads

**CAUTION:** Observe the following precautions when operating on a road.

1. Before operating tractor on highway be sure tail lights (A) and flashing turning lights (C) work properly. Install and use Slow Moving Vehicle (SMV) emblem and equipment as required for safety and by local regulations.

A—Tail Light  
B—Reflex Reflector  
C—Turning Lights



PY4883 -UN-22APR05

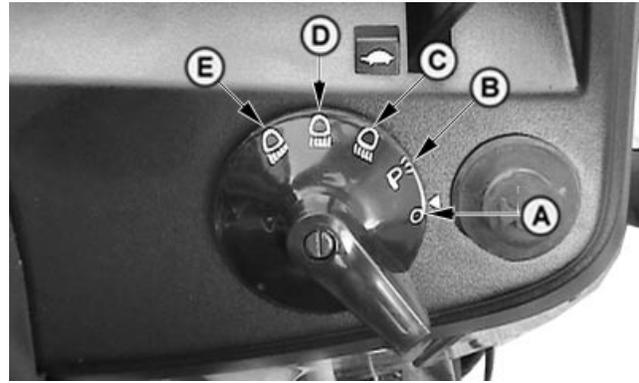
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PY80265,05I0189 -19-11JUL06-1/5

**CAUTION:** NEVER operate flood lamp when transporting tractor. Clear bright light at the rear of the tractor could confuse drivers of other vehicles as they approach from the rear.

**IMPORTANT:** Refer to Lights section for detailed descriptions of lighting operations and functions.

2. Turn light switch to high beam headlights or low beam headlights position. Never use bright lights which are visible from the rear. Always dim headlights before meeting another vehicle. Keep headlights properly adjusted.



A—Lights OFF  
 B—Parking Lights  
 C—Dim Headlights  
 D—Bright Headlights  
 E—High Beamlight

PY4106 -UN-23FEB06

PY80265.05I0189 -19-11JUL06-2/5

3. Use turn signals when turning. Be sure to return control lever (A) to center position after turning.

A—Turn Signal Lever



PY4114 -UN-23FEB06

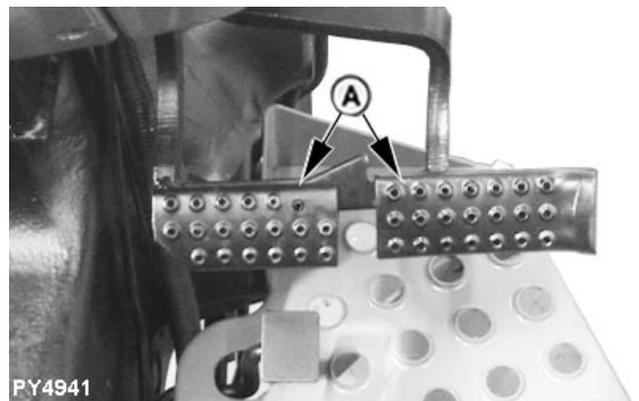
PY80265.05I0189 -19-11JUL06-3/5

4. Couple brake pedals (A) together before driving on a road. Avoid hard applications of brakes.

5. Drive slowly enough to maintain safe control at all times. Slow down for hillsides, rough ground, and sharp turns, especially when transporting heavy, rear-mounted equipment.

6. Before going down a hill, shift to a gear low enough to control speed without using brakes. Never coast down hill.

7. When transporting downhill on icy or graveled grades, be alert for skids which could result in loss of steering control. To decrease chance of skids, reduce speed and be sure tractor has proper ballast.



A—Brake Pedals

PY4941 -UN-01JUN06

Continued on next page

PY80265.05I0189 -19-11JUL06-4/5

**CAUTION:** Stopping distance increases with speed and weight of towed loads, and on slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

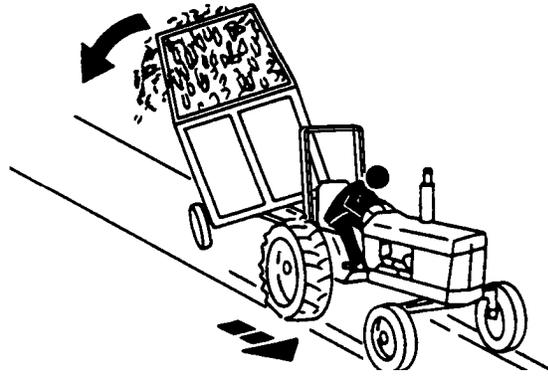
Observe these recommended maximum road speeds, or local speed limits which may be lower:

If towed equipment does not have brakes, do not travel more than 32 km/h (20 mph) and do not tow loads more than 1.5 times the tractor weight.

If towed equipment has brakes, do not travel more than 40 km/h (25 mph) and do not tow loads more than 4.5 times the tractor weight.

Ensure the load does not exceed the recommended weight ratio. Add ballast to recommended maximum for tractor, lighten the load, or get a heavier towing unit. The tractor must be heavy and powerful enough with adequate braking power for the towed load. Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

8. Use caution when operating tractor at transport speeds. Reduce speed if towed load weighs more than tractor and is not equipped with brakes. (See Towed Equipment operator's manual for recommended transport speeds.)
9. Use additional caution when transporting towed loads under adverse surface conditions, when turning and on inclines.
10. Heavy towed or rear mounted implements may start swaying in transport. Excessive swaying will result in loss of steering control. Drive slowly and avoid quick turns of steering wheel. Refer to your implement operator's manual regarding maximum travel speed limitations.



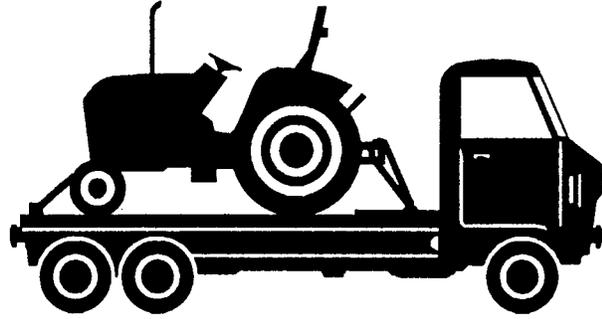
LV4042 -UN-03JUL99

## Transport on Carrier

**CAUTION:** Chain tractor to carrier securely.  
Drive carrier slowly.

The best method of transporting a disabled tractor is to haul it on a flatbed carrier.

**IMPORTANT:** Seal exhaust to prevent dirt from entering and damaging engine.



LV610 -UN-22APR94

PY80265,05I0190 -19-12SEP05-1/1

## Towing Tractor

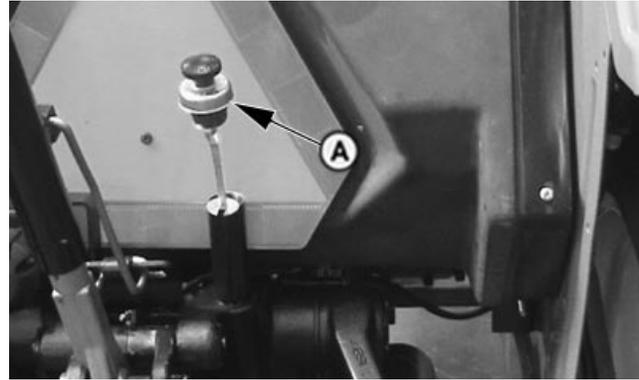
**CAUTION:** NEVER tow tractor faster than 16 km/h (10 mph). Have an operator steer and brake tractor.

**IMPORTANT:** To avoid damaging transmission-hydraulic system, observe the following precautions:

1. Be sure transmission-hydraulic system oil is to the full level line on dipstick (A). If the tractor is to be towed with the front wheels raised, add 1 liter of oil to hydraulic fill port for each 90 mm (3-1/2 in.) the wheels are raised. DO NOT raise front wheels more than 305 mm (12 in.) above ground.

*NOTE:* After transporting tractor, drain oil that was added for towing.

2. Make sure the differential lock is disengaged.
3. Make sure range lever is in neutral and gear lever is in 4th gear.



A—Dipstick

PY4942 -UN-21APR05

PY80265,05I0191 -19-11JUL06-1/1

# Fuels, Lubricants and Coolant

## Handle Fuel Safely—Avoid Fires

Use only diesel fuel.

Handle fuel with care, it is highly flammable.

DO NOT refuel machine:

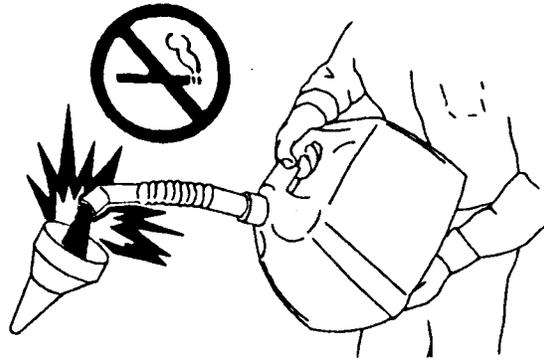
- While you smoke.
- When machine is near open flame or sparks.
- When engine is running. STOP engine.

Fill fuel tank outdoors.

Help prevent fires:

- Clean oil, grease and dirt from machine.
- Clean up spilled fuel immediately.

Do not store machine with fuel in tank in a building where fumes may reach an open flame or spark.



MT73115 -UN-09MAR90

PY80265,05I0192 -19-12SEP05-1/1

## Handle Fluids Safely—Avoid Fires

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



TS227 -UN-23AUG88

PY80265,05I0193 -19-12SEP05-1/1

## Diesel Engine Oil

Use genuine engine oil. This oil is available in pack of 1 litre and 8.5 litre at John Deere Dealership only



PY5149 -UN-21AUG05

GENERIC.000005D -19-22FEB06-1/1

## Fuel Storage

Buy good quality, clean fuel from a reputable supplier.

Avoid storing fuel over long periods of time.

Proper fuel storage is critically important. Use clean storage and transfer tanks. Periodically drain water and sediment from bottom.

Store fuel in a convenient place away from buildings.

PY80265,05I0194 -19-12SEP05-1/1

## Diesel Fuel

Fuel sulphur content should be less than 1.0 percent preferably less than 0.5 percent. Diesel fuel having sulphur content higher than 1.0 percent may cause increase wear on metal engine parts because of acids produced by sulphur during combustion.

Cetane number should be no less than 40 to assure satisfactory starting and overall performance.

**IMPORTANT: If fuel sulphur content exceeds 0.7 percent, the engine oil drain interval must be reduced by 50 percent to 125 hours.**

Filteration of fuel is critical for proper operation of engine. Use genuine MICO fuel filters. Always change fuel filter inserts at given interval

PY80265,05I0195 -19-12SEP05-1/1

## Fill Fuel Tank

**CAUTION:** Handle fuel with care: It is highly flammable. **DO NOT** refuel the machine while smoking or when near open flame or sparks.

Always stop engine before refueling machine. Fill fuel tank outdoors.

Prevent fires by keeping machine clean of accumulated trash, grease and debris. Always clean up spilled fuel.

Fuel tank can be filled through fill cap (A). Fill fuel tank at end of each day's operation. This prevents condensation in tank as moist air cools.

### Specification

Fuel Tank—Capacity ..... 68 L

A—Fuel Tank Filler Cap



TSS202 -JUN-23AUG88



PY4101 -JUN-20AUG04

PY80265,05I0196 -19-12SEP05-1/1

## Lubricant Storage

Your equipment can operate at top efficiency only when clean lubricants are used.

Use clean containers to handle all lubricants.

Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.

Make certain that all containers are properly marked to identify their contents.

Properly dispose of all old containers and any residual lubricant they may contain.

PY80265,05I0197 -19-12SEP05-1/1

## Diesel Engine Coolant

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

**John Deere COOL-GARD™ Prediluted Coolant is preferred for service.**

John Deere COOL-GARD Prediluted Coolant is available in a concentration of either 50% ethylene glycol or 55% propylene glycol.

### Additional recommended coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD Coolant Concentrate in a 40% to 60% mixture of concentrate with quality water.

John Deere COOL-GARD coolants do not require use of supplemental coolant additives, except for periodic replenishment of additives during the drain interval.

### Other fully formulated coolants

Other fully formulated low silicate ethylene or propylene glycol base coolants for heavy-duty engines may be used if they meet one of the following specifications:

- ASTM D6210 prediluted (50%) coolant
- ASTM D6210 coolant concentrate in a 40% to 60% mixture of concentrate with quality water

Coolants meeting ASTM D6210 do not require use of supplemental coolant additives, except for periodic replenishment of additives during the drain interval.

### Coolants requiring supplemental coolant additives

Other low silicate ethylene glycol base coolants for heavy-duty engines may also be used if they meet one of the following specifications:

- ASTM D4985 ethylene glycol base prediluted (50%) coolant
- ASTM D4985 ethylene glycol base coolant concentrate in a 40% to 60% mixture of concentrate with quality water

Coolants meeting ASTM D4985 require an initial charge of supplemental coolant additives, formulated for protection of heavy duty diesel engines against corrosion and cylinder liner erosion and pitting. They also require periodic replenishment of additives during the drain interval.

### Other coolants

It is possible that neither John Deere COOL-GARD nor coolants meeting one of the coolant standards listed above is available in the geographical area where service is performed. If these coolants are unavailable, use a coolant concentrate or prediluted coolant with a quality additive package that provides cylinder liner cavitation protection and protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion.

The additive package must be part of one of the following coolant mixtures:

- ethylene glycol or propylene glycol base prediluted (40% to 60%) coolant
- ethylene glycol or propylene glycol base coolant concentrate in a 40% to 60% mixture of concentrate with quality water

### Water quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

**IMPORTANT: Do not mix ethylene glycol and propylene glycol base coolants.**

**IMPORTANT: Do not use cooling system sealing additives or antifreeze that contains sealing additives.**

DX,COOL3 -19-27OCT05-2/2

### Use Correct Transmission-Hydraulic Filter Element

To protect systems, replace transmission-hydraulic oil filter with a John Deere service filter element. Minimum and maximum performance specifications are printed on John Deere filters. Other filters may be used if they meet these performance specifications.

See Lubrication and Maintenance section for recommended filter change intervals.

PY80265,05I0201 -19-12SEP05-1/1

### Transmission and Hydraulic Oil

Same oil is used for transmission and hydraulic. Use HY-GARD® transmission-hydraulic oil. This oil is available in pack of 1litre and 20 litre at John Deere Dealership only



PY5149 -JUN-21AUG05

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

PY80265,05I0202 -19-12SEP05-1/1

## Grease

Depending upon the expected air temperature range during the service interval, use grease as shown on the adjoining table.

John Deere High-Temperature/Extreme-Pressure/Non-Clay Grease is recommended.

If other greases are used, they must be greases meeting SAE Multipurpose High Temperature Grease with Extreme Pressure (EP) Performance and capable of operating at compartment temperatures above 150°C (302°F)

At temperatures below —30°C (—22°F), use arctic greases such as those meeting Military Specification MIL-G-10942C.

Grease Type	Temperature Limits
Arctic Grease	Below —10°C (14°F)
SAE (NLGI) #0 or #1	0°C to —30°C (32°F to —22°F)
SAE (NLGI) #2	50°C to 0°C (122°F to 32°F)
JD High Temperature	50°C to —10°C (122°F to 14°F)

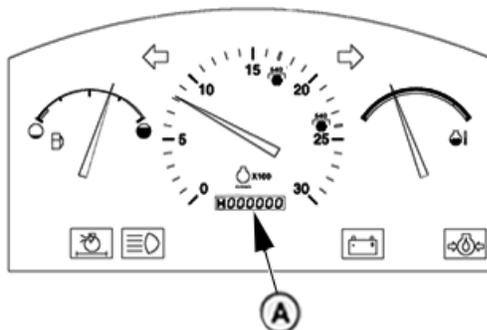
PY80265,05I0203 —19—12SEP05—1/1

# Service and Maintenance

## Observe Service Intervals

Using hour meter (A) as a guide, perform all services at the hourly intervals indicated on the following pages. Keep a service record on charts provided in the Lubrication and Maintenance Record Charts section.

**IMPORTANT:** Recommended service intervals are for average conditions. Service **MORE OFTEN** if tractor is operated under adverse conditions.



PY5777

PY5777 -UN-02JUN06

A—Hourmeter

PY80265,05I0204 -19-02JUN06-1/1

## Break-In Service

**IMPORTANT:** Keep wheel hardware tight to avoid tractor damage. Check wheel hardware torque before operating, twice during first ten hours of operation, after fifty hours of operation, and periodically thereafter.

### During the First 10 Hours of Operation:

Perform daily or 10 hours service. (See Service Intervals in Lubrication and Maintenance section.)

Tighten wheel hardware. (See Wheels, Tyres, and Treads section.)

### After the First 50 Hours of Operation:

Tighten wheel hardware. (See Wheels, Tyres, and Treads section.)

Check alternator/fan belt tension and tighten air intake and cooling system hose clamps

Perform 50 Hours Service

### After the First 100 Hours of Operation:

Replace transmission-hydraulic filter element

Change engine oil and filter<sup>1</sup>

### After the First 1100 Hours of Operation:

Replace transmission-hydraulic oil

<sup>1</sup>See Engine Break-In Oil in Service section for additional information.

PY80265,05I0205 -19-12SEP05-1/1

## Service Intervals

### Every 10 Hours

- Check engine oil level
- Check coolant level
- Drain water and sediment from fuel filters
- Lubricate tie rod ends<sup>1</sup>
- Lubricate steering spindles<sup>1</sup>
- Lubricate front axle pivot pin<sup>1</sup>
- Lubricate rear axle bearings<sup>1</sup>

### Every 50 Hours

- Check transmission-hydraulic system oil level
- Clean and check battery
- Inspect all tyres
- Lubricate front axle pivot pin
- Lubricate steering spindles
- Inspect tractor for loose nuts and bolts

### First 100 Hours

- Change engine oil and filter
- Replace transmission-hydraulic filter

### Every 250 Hours

- Service air cleaner
- Change engine oil and filter
- Clean and check battery
- Inspect and adjust alternator/fan belt
- Lubricate 3-point hitch
- Check neutral start system
- Check clutch pedal free travel
- Check brake pedal adjustment

### Every 500 Hours

- Replace fuel filter
- Replace transmission-hydraulic filter

### Every 600 Hours

- Clean engine crankcase vent tube
- Repack front wheel bearings
- Check and tighten all hoses and hose clamps
- Check cooling system for leaks
- Lubricate rear axle bearings
- Check engine idle speeds
- Have your John Deere dealer:
  - Check front axle pivot pin
  - Adjust engine valve clearance
- Inspect fuel injectors

### First 1100 Hours

- Change transmission-hydraulic oil and filter

### Every 1250 Hours

- Change transmission-hydraulic oil and filter
- Clean transmission-hydraulic pickup screen

### Annually

- Change engine oil and filter
- Replace air cleaner elements

### Every 2 Years or 2000 Hours (Whichever Comes First)

- Flush cooling system

### Service As Required

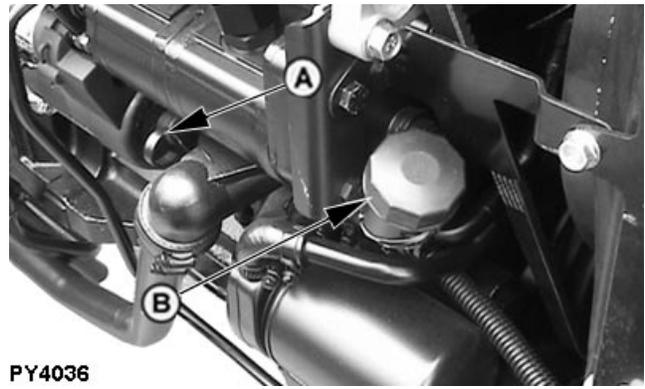
- Service air cleaner
- Adjust throttle friction
- Drain water and sediment from fuel tank and fuel filters

<sup>1</sup>Only necessary when operating in extremely wet and muddy conditions.

# Service—Every 10 Hours

## Check Engine Oil Level

1. Park tractor on level ground, put range shift lever in neutral (N), set brakes and pull fuel shut-off knob to stop engine
2. Pull out dipstick (A). Oil level should be between two marks on dipstick. DO NOT operate engine when oil level is below low mark on dipstick.
3. If level is low, add oil through oil filler hole (B) until even with upper mark. DO NOT overfill. (See fuels, Lubricants and Coolants section.)



PY4036

A—Engine Oil Dipstick  
B—Engine Oil Filler Cap

PY80265.05I0207 -19-12JUL06-1/1

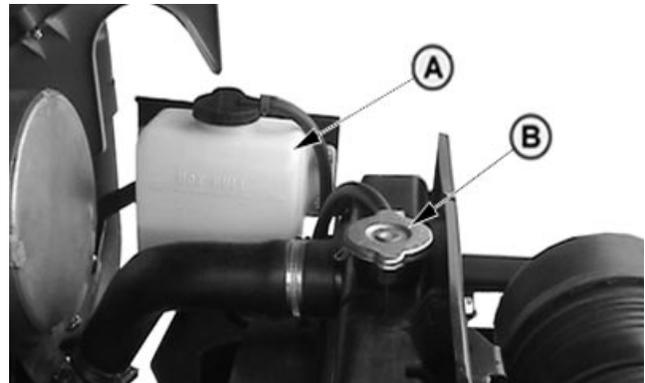
## Check Coolant Level

**CAUTION:** Only remove radiator cap (B) when engine is cold. Slowly loosen cap to first stop to relieve pressure before removing completely.

**IMPORTANT:** Check the coolant level when engine is cold.

1. Check coolant level in coolant recovery tank (A).
2. Coolant level shall be upto to "Cold Mark". If it is below "Cold Mark", add coolant to that mark only. (See Fuels, Lubricants and Coolant section.)

A—Coolant Recovery Tank  
B—Radiator Cap



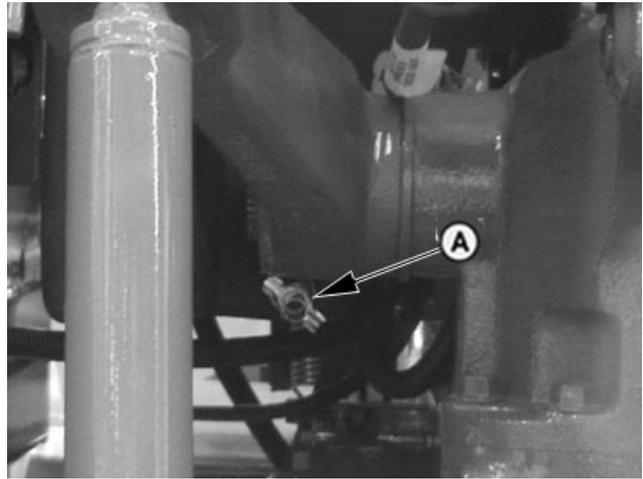
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## Drain Water and Sediment From Fuel Tank and Fuel Filter

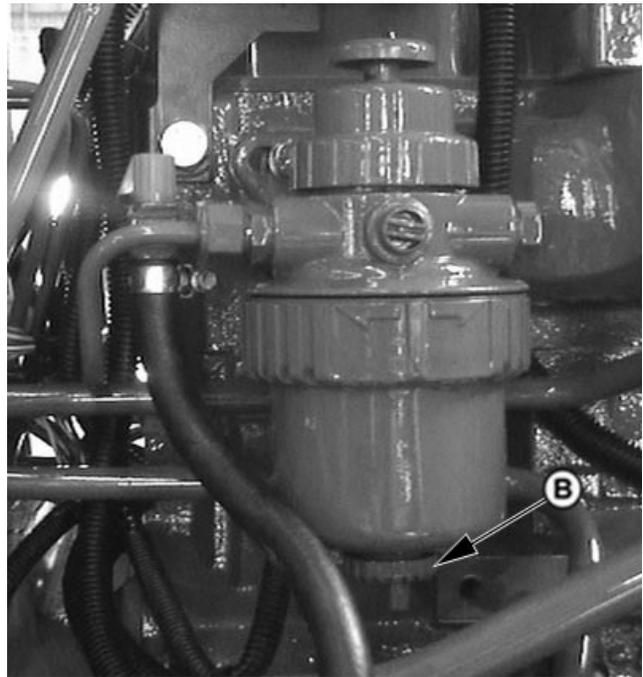
*NOTE: Place a small container under drain fitting to catch draining fuel. Dispose of waste properly.*

1. Open fuel tank fitting (A) to bleed accumulated moisture and sediment from the fuel tank. Tighten fitting closed when clear fuel runs from fitting.
2. Open fuel filter drain (B) to bleed accumulated moisture and sediment from filter. Tighten drain when clear fuel runs from drain.

**A—Fuel Tank Fitting**  
**B—Fuel Filter Drain**



PY4284 -UN-06DEC04



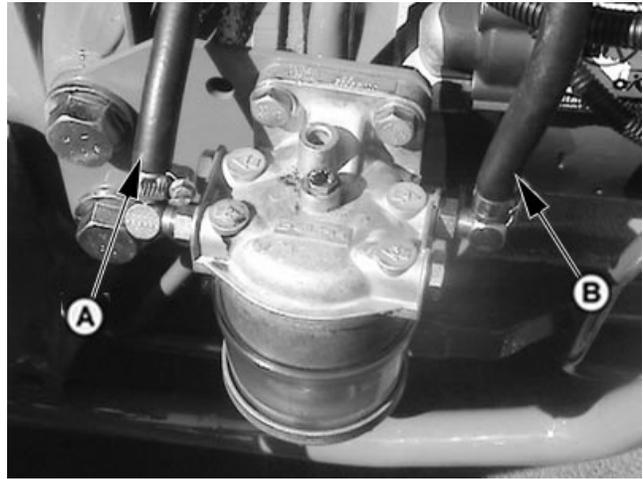
PY4283 -UN-06DEC04

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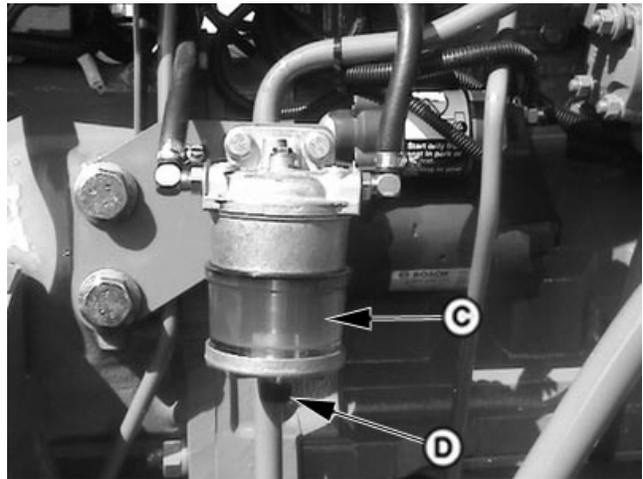
## Water Separator Bowl

1. The water separator is used to obtain the better functioning of fuel system.
2. Drain water and contaminants from clear water separator sediment bowl by opening drain screw (D).

A—Hose from Fuel Tank to Water Separator  
B—Hose from Water Separator to Fuel Filter  
C—Water Separator  
D—Drain Screw



PY4285 -UN-06DEC04



PY4300 -UN-06DEC04

PY80265,05I0210 -19-12SEP05-1/1

## Lubricate as Necessary

Lubrication required only when operating in extremely wet and muddy conditions. Lubricate with several shots of multipurpose grease specified in Fuels, Lubricants and Coolant section.

- Tie rod ends

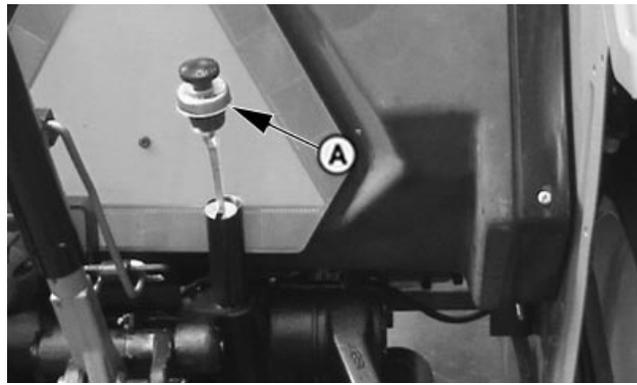
- Steering spindles (Front Axle) (See Service—50 Hours)
- Front axle pivot pin (See Service—50 Hours)
- Rear axle bearings (See Service—600 Hours)
- Steering cylinder head.

PY80265,05I0211 -19-12SEP05-1/1

# Service—Every 50 Hours

## Check Transmission-Hydraulic System Oil Level

1. Park on level ground. Put range shift lever in neutral (N), set brakes and pull fuel shut-off knob to stop engine.
2. Wait a minimum of five minutes for oil to settle.
3. Check level at mark given on dipstick (A). Level should be to full oil level mark .
4. Add oil to filler port if level is low. (See Anti-Chatter Transmission/Hydraulic Oil in Fuels, Lubricants and Coolant section.)



A—Dipstick

PY4942 -UN-21APR05

PY80265.05I0212 -19-11JUL06-1/1

## Clean and Check Battery

To access battery, see procedure in Service section.

Put range shift lever in neutral (N), set brakes and pull fuel shut-off knob to turn engine OFF. Wipe battery with a damp cloth. Clean and tighten connections if needed. Check fluid level in each cell, fill to bottom of filler neck with clean mineral-free water. (See Servicing Battery in Service section.)

- A—Positive Terminal
- B—Negative Terminal



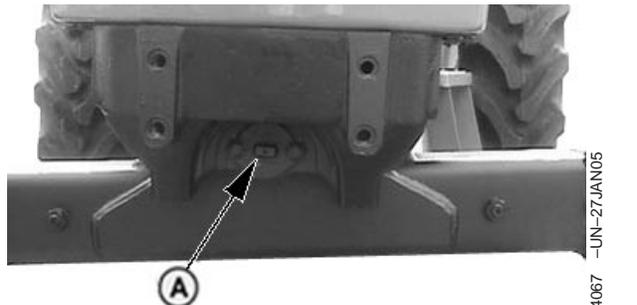
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PY80265.05I0213 -19-12SEP05-1/1

## Lubricate Front Axle Pivot Pin

Adjustable axle pivot pin (A) also requires lubrication of the front and rear pivot bushing zerks with multipurpose grease. (See Fuels, Lubricants and Coolant section.)

- A—Adjustable Axle Pivot Pin



Adjustable Front Axle

PY4067 -UN-27JAN05

PY80265.05I0214 -19-11JUL06-1/1

### Lubricate Steering Spindles

On tractors equipped with adjustable front axle, apply several shots of general purpose grease (See Fuels, Lubricants and Coolant section) to steering spindle fitting (A).

A—Spindle Fitting Zerk



PY4068

Adjustable Front Axle Shown

PY4068 -UN-06JUN06

PY80265,05I0215 -19-11JUL06-1/1

### Inspect Tyres and Loose Hardwares

Inspect all tyres and check inflation pressure. Also check tractor for any loose hardware

Item	Measurement	Specification
Ballast Weights Retaining Bolts	Torque	230 N•m (170 lb-ft)
Front Axle Disk-to-Flange Bolts	Torque	175 N•m (130 lb-ft)
Rear Axle Rim-to-Disk Bolts	Torque	245 N•m (180 lb-ft)
Rear Axle Disk-to-Flange Bolts	Torque	550 N•m (406 lb-ft)

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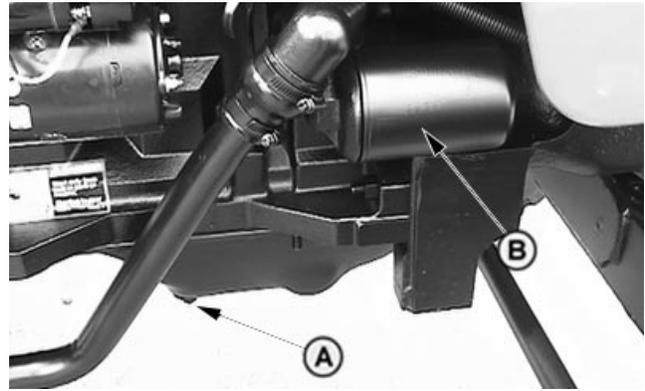
# Service—Every 250 Hours

## Change Engine Oil and Filter

1. Run engine to heat oil. pull fuel shut-off knob to turn engine OFF.

*NOTE: The approximate engine crankcase oil capacity is 8.5 L (9 qt).*

2. Remove oil drain plug (A) and drain oil.
3. Replace engine oil filter (B) while changing oil. Apply a film of oil on the new oil filter gasket and install new filter. Hand tighten plus 1/2 turn.
4. Install drain plug.



PY4147 -UN-26AUG04

A—Engine Oil Drain Plug  
B—Engine Oil Filter

**IMPORTANT: Change engine oil every 125 hours if diesel fuel has a sulfur content greater than 0.7 percent.**

5. Add seasonal viscosity grade oil. (See Fuels, Lubricants and Coolant section.)

### Specification

Engine Crankcase Oil—Capacity ..... 8.5 L

*NOTE: In Break-in-period, change the oil in first 100 hours. Engine oil should be changed annually as a minimum.*

PY80265,05I0217 -19-12SEP05-1/1

## Service Air Cleaner

A dual element air cleaner is standard. A dirty primary element is indicated when the air restriction indicator on instrument panel illuminates. A dirty element can result in loss of power or excessive smoke.

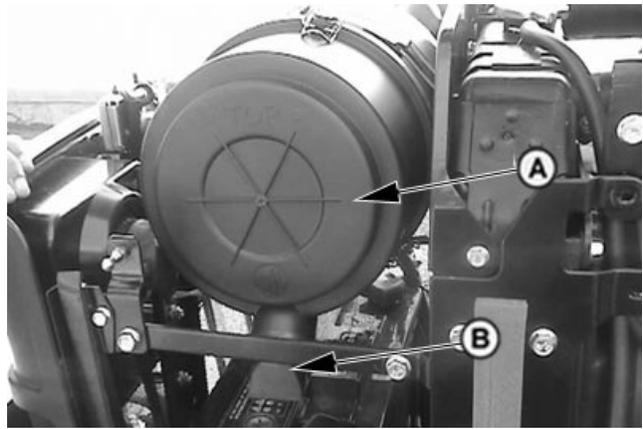
**IMPORTANT: Check unloader valve (B) frequently. Empty as often as needed to keep it from filling with dust. If valve is allowed to fill with dust, air cleaner element will plug rapidly.**

Service air cleaner (A) when indicator light illuminates, every 250 hours or at least once a year.

Replace primary element at least one a year.

The secondary element should be removed only when being replaced, normally once a year.

See procedure in Removing Air Cleaner Elements in Service section.



PY4286 -UN-06DEC04

A—Air Cleaner  
B—Dust Unloader Valve

PY80265,05I0218 -19-12SEP05-1/1

## Inspect and Adjust Alternator/Fan Belt

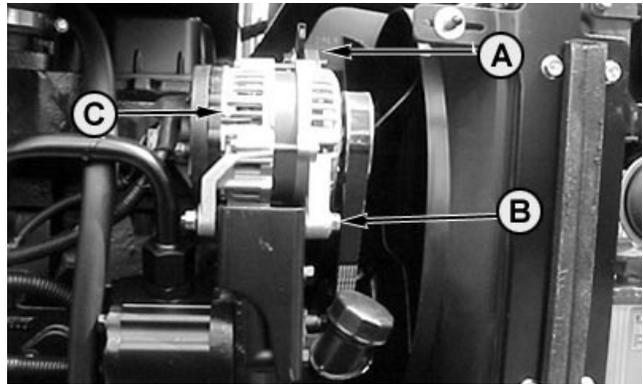
Replace if worn or damaged. (See procedure in Service section.)

*NOTE: Run engine for five minutes to warm a cold belt. Let a hot belt cool for 15 minutes before adjustment.*

Check tension by pressing belt midway between pulleys. Belt should deflect about 19 mm (3/4 in.) at 89 N (20 lb force).

**IMPORTANT: Pry against alternator frame only**

Adjust tension by loosening cap screw (A) and mounting bolt (B). Apply force to alternator frame (C) until belt tension is correct. Tighten cap screw and bolt.



PY1652 -UN-27OCT03

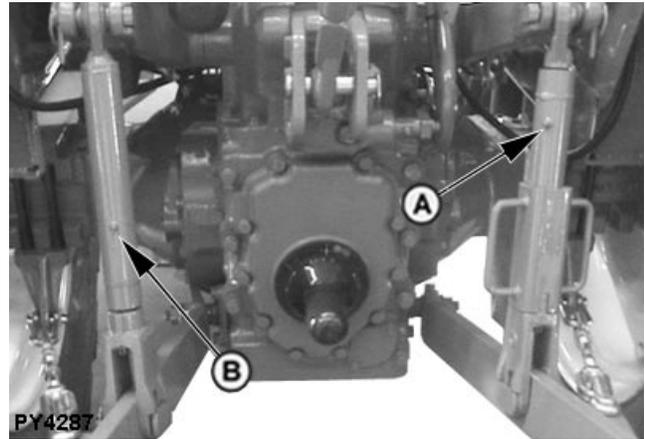
A—Tension Adjustment Cap Screw  
B—Alternator Mounting Bolt  
C—Alternator Frame

PY80265,05I0219 -19-12SEP05-1/1

## Lubricate 3-Point Hitch

Lubricate right lift link (A) and left lift link (B) with several shots of multipurpose grease. (See Fuels, Lubricants and Coolant section.)

- A—Right Lift Link Grease Fittings (2 used)
- B—Left Lift Link Grease Fitting



PY80265,05I0220 -19-12SEP05-1/1

## Check Neutral Start System

Your John Deere tractor is equipped with interlocks to prevent inadvertent movement when the engine is started. Turning the key switch with the clutch pedal depressed should crank the engine if all of the following conditions exist:

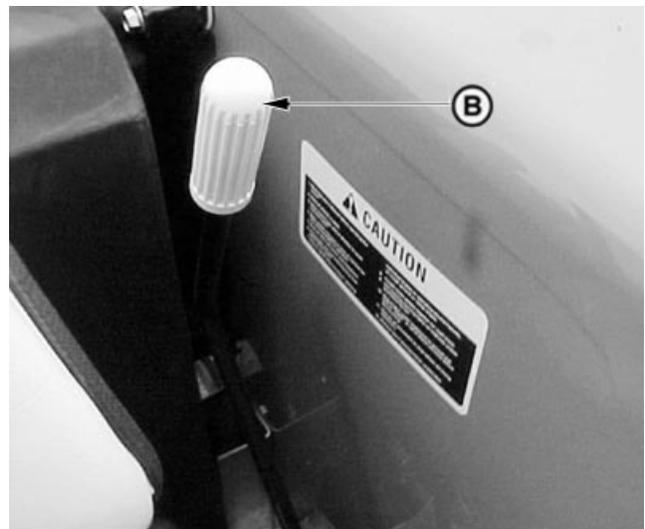
- Gear shift lever (A) in NEUTRAL

**CAUTION:** If starter turns engine in any of the following steps, have the neutral start system repaired by your John Deere dealer.

Turning the key switch to the start position should NOT start the engine, if either of the following exist:

- Gear shift lever (A) in gear (not in NEUTRAL)
- PTO lever (B) in engaged position

- A—Gear Shift Lever
- B—PTO Shift Lever



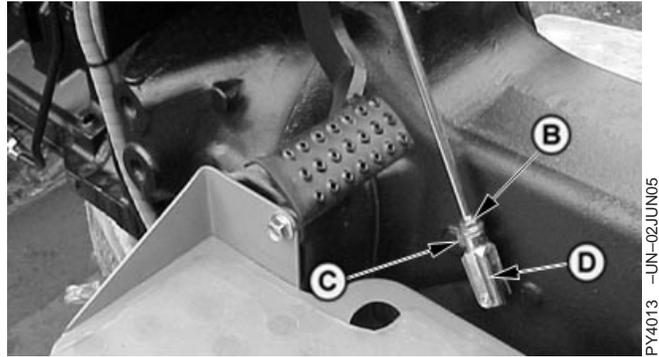
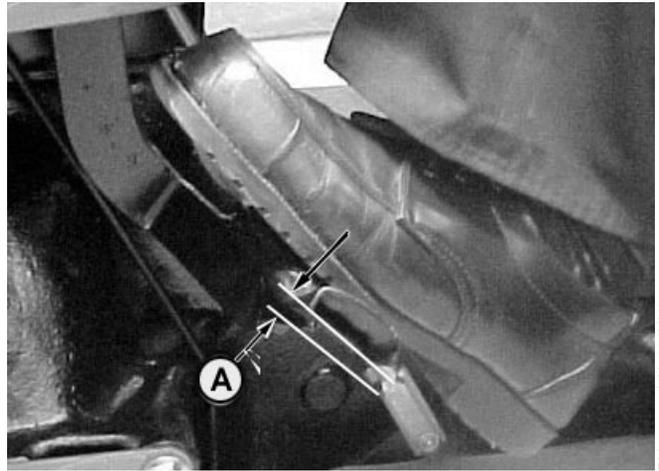
PY80265,05I0221 -19-12JUL06-1/1

## Check and Adjust Clutch Pedal Free Play

Measure free play (A) at top of pedal stroke. Adjust linkage to obtain 20 to 25 mm free play.

To adjust linkage, loosen lock nut (B), unlatch the connecting clip pin (C) and remove. Rotate clevis (D). After making adjustment, replace clip, and recheck free play. When free play is correct, tighten lock nut.

- A—Clutch Pedal Free Play
- B—Lock Nut
- C—Clip Pin
- D—Clevis



PY80265,05I0222 -19-21JUN06-1/1

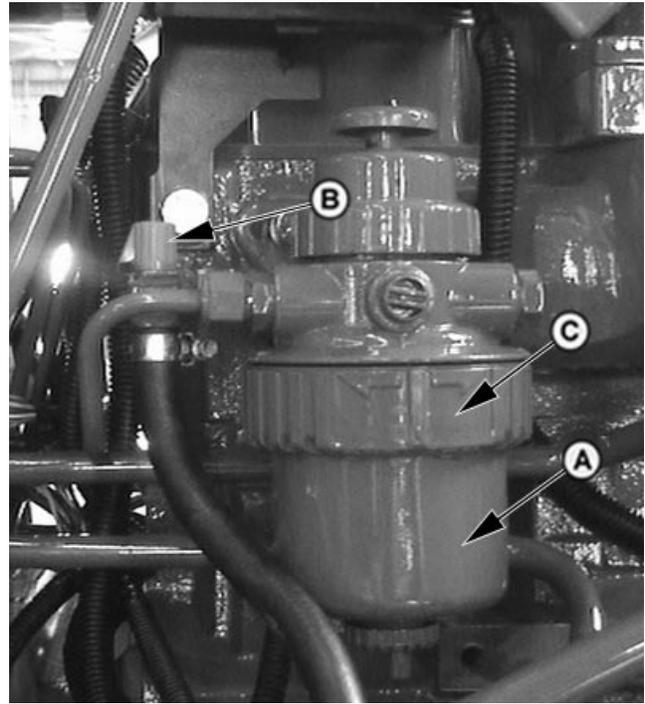
# Service—Every 500 Hours

## Replace Fuel Filter

Replace Filter element (A) at least once a year.

1. Close fuel shut-off (B).
2. Remove retaining ring (C) and filter.
3. Install new filter with retaining ring hand tight.
4. Open fuel shut-off and bleed air from filter. (See Bleeding Fuel System in Service section).

A—Fuel Filter Element  
B—Fuel Shut-off  
C—Retaining Ring



PY4288 -UN-06DEC04

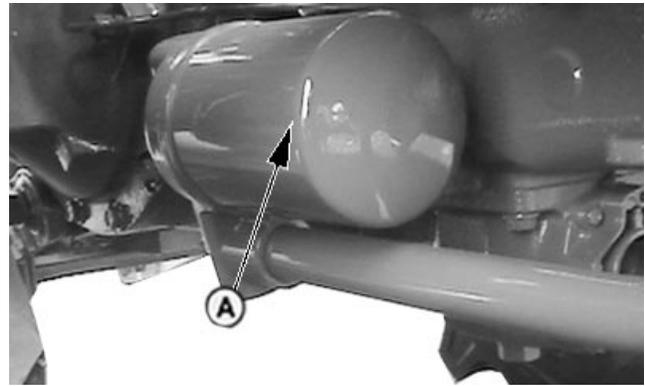
PY80265,05I0223 -19-12SEP05-1/1

## Replace Transmission-Hydraulic Filter

1. Remove filter (A). Apply a film of oil to new gasket and install new filter. Hand tighten plus 1/2 turn.
2. Run engine several seconds and recheck transmission-hydraulic oil level.
3. Add transmission-hydraulic oil if required (See Fuels, Lubricants and Coolant section).

*NOTE: In Break-in-period, change the trans-hydra oil filter in first 100 hours.*

A—Transmission-Hydraulic Oil Filter



PY4407 -UN-22FEB06

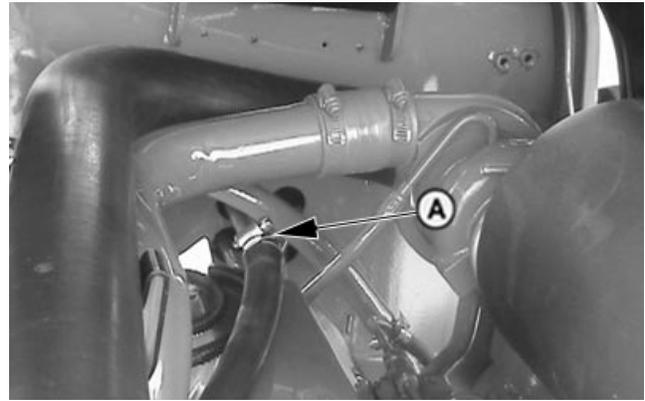
PY80265,05I0224 -19-12SEP05-1/1

# Service—Every 600 Hours

## Clean Engine Crankcase Vent Tube

**CAUTION:** Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

Remove crankcase vent tube (A) from engine. Wash in solvent or blow clean with compressed air. Reassemble vent tube breather cap to engine. Be sure vent tube is not kinked or pinched.



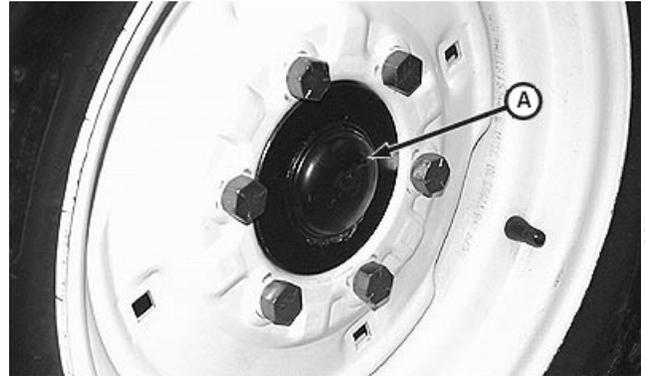
PY4289 -UN-06DEC04

A—Crankcase Vent Tube

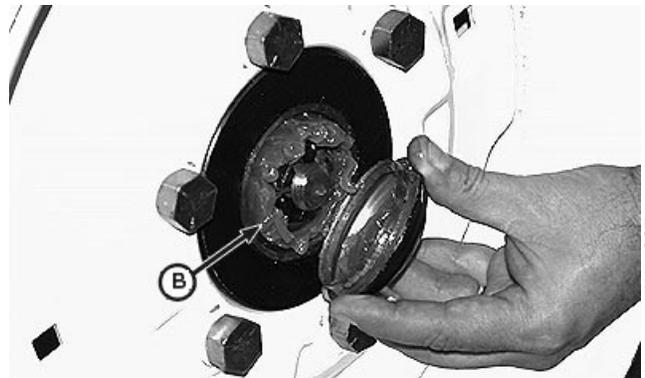
PY80265,05I0225 -19-12SEP05-1/1

## Pack Front Wheel Bearings

1. Jack up front end of tractor..
2. Remove hub cap, cotter pin, and wheel nut.
3. Remove washer and wheel bearings. Clean all parts in solvent and blow dry with compressed air. Replace any worn or damaged parts.
4. Pack bearing with multipurpose grease. (See Fuels, Lubricants and Coolant section.) Coat seal with same grease.
5. Reinstall bearings, washer, and wheel nut.
6. Tighten wheel nut until a slight drag is felt when hub is turned. Back nut off just enough to install cotter pin in hole in wheel spindle.
7. Reinstall hub cap and wheels. Tighten lug bolts to 175 N•m (130 lb-ft). Retighten bolts after driving tractor 100 m (109 yds) and again after 3 hours and 10 hours use.



LV4410 -UN-06OCT99

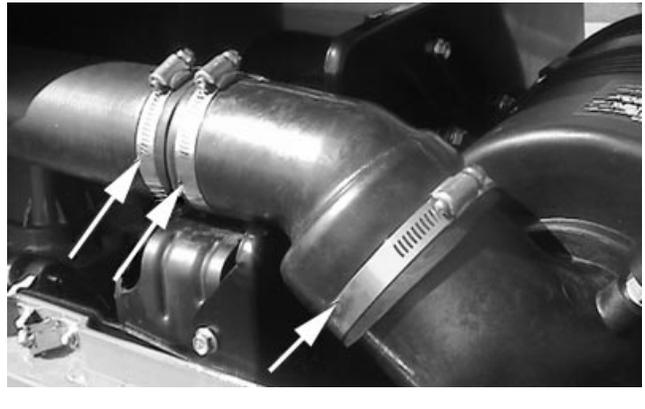
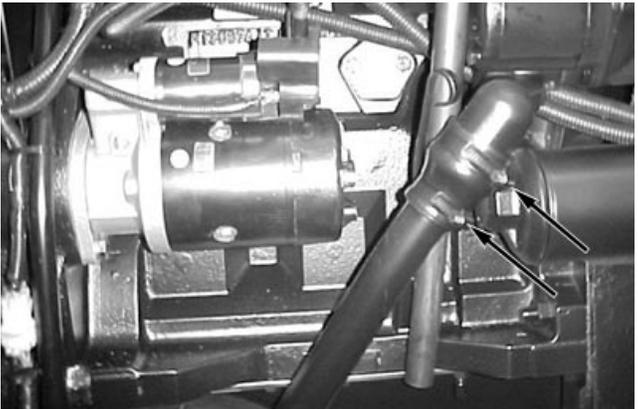


LV4411 -UN-06OCT99

A—Hub Cap  
B—Pack Bearing with Grease

PY80265,05I0226 -19-12SEP05-1/1

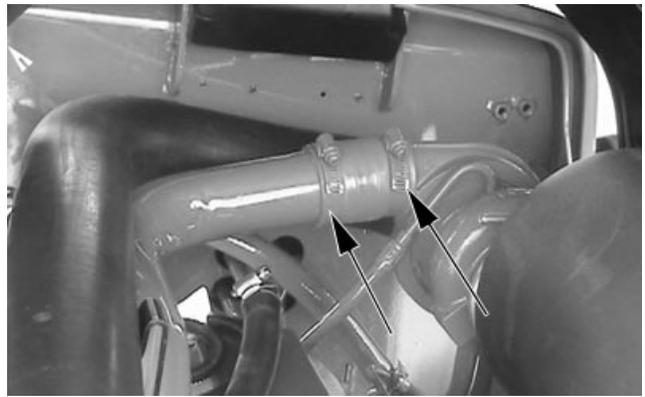
## Check Hoses and Hose Clamps for Tightness



Check the following systems hose clamps for tightness:

- Air Cleaner to engine intake or turbocharger
- Engine Cooling
- Hydraulics
- Fuel

Check all hoses for cracks which could cause leaks or possible failure. Replace as necessary.



PY80265,05I0227 -19-12SEP05-1/1

## Lubricate Rear Axle Bearings

Lubricate rear axle fittings (A), both sides, with several shots of multi-purpose grease. (See Fuels, Lubricants and Coolant section.)

A—Rear Axle Fitting (2 used)



PY80265,05I0228 -19-12SEP05-1/1

## Check Engine Idle Speeds

Slow idle speed is 800-875 RPM.

With no load, fast idle speed should be a maximum of 2650 rpm.

If idle speeds are not correct, see your John Deere dealer.

### Specification

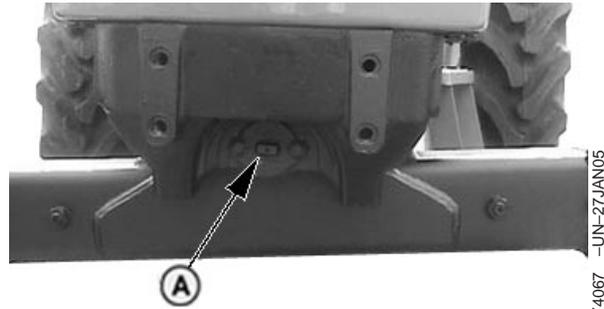
Engine—Slow Idle—Speed .....	800-875 RPM
Engine—Fast Idle (with No Load)—Speed.....	2575-2650 RPM

GENERIC,0000060 -19-22FEB06-1/1

## Check Front Axle Pivot Pin

Ask your John Deere dealer to check the front axle pivot pin (A) for correct end play.

A—Front Axle Pivot Pin



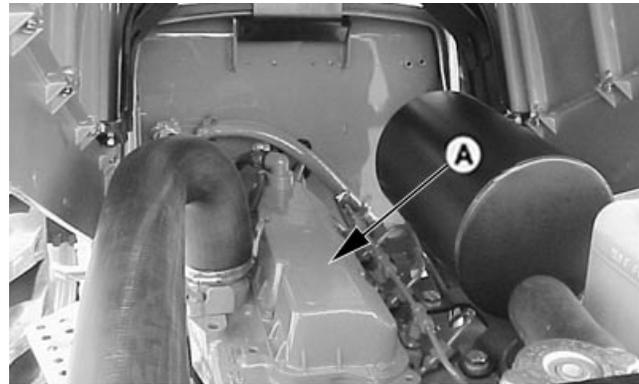
Front axle

PY4067 -UN-27/JAN05

GENERIC,000005F -19-22FEB06-1/1

## Adjust Engine Valve Clearance

Ask your John Deere dealer to make engine valve clearance adjustment and inspect fuel injectors.



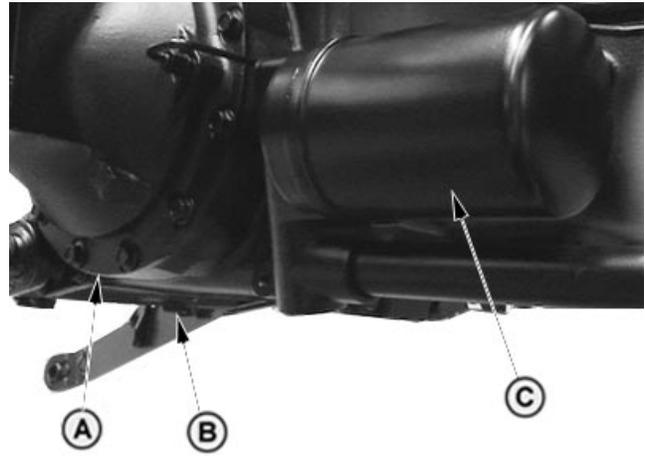
PY5509 -UN-16/FEB06

GENERIC,0000061 -19-22FEB06-1/1

# Service—Every 1250 Hours

## Change Transmission-Hydraulic Oil and Filter

1. Lower rockshaft to remove trapped oil.
2. Remove drain plug (B) from transmission case (A) and drain oil. Dispose of waste oil properly.
3. Replace filter (C) while changing oil. Apply a film of oil to new filter gasket and install new filter. Hand tighten only.
4. Fill system with transmission-hydraulic oil. (See Fuels, Lubricants and Coolant section.)



PY4039 -UN-17JUL04

### Specification

Transmission Oil—Capacity ..... 38 L

5. Check oil level by means of dipstick. Make sure oil level is to full level mark. Check again after operating for five minutes. Add oil if necessary.

- A—Transmission Case
- B—Drain Plug
- C—Filter
- D—Dipstick



PY4019 -UN-15JUL04

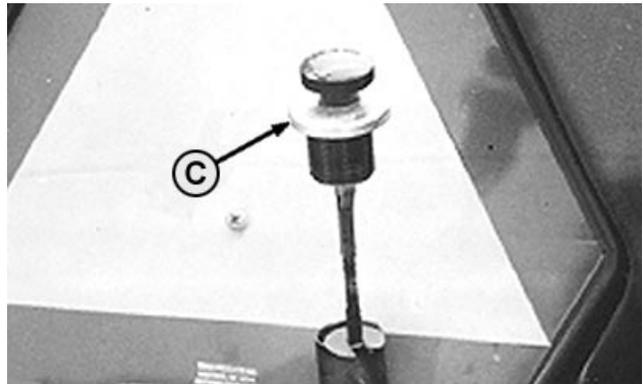
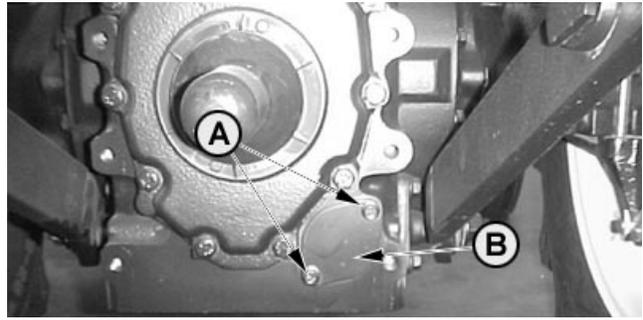
PY80265,05I0232 -19-12SEP05-1/1

## Clean Transmission-Hydraulic Pickup Screen

Remove two cap screws (A) and remove screen cover (B).

1. Drain transmission-hydraulic oil. (See Change Transmission-Hydraulic Oil and Filter in this section.)
2. Remove two cap screws (A) and remove screen. Examine screen for damage. Replace if necessary. Clean screen in solvent and blow dry with compressed air.
3. Carefully install screen so the front of screen is inserted in hole at front of differential case.
4. Fill system with transmission-hydraulic oil. (See Changing Transmission-Hydraulic Oil and Filter in this section.)
5. Check oil level at dipstick (C) after filling and again after operating for 5 minutes.

A—Cap Screws (2 used)  
B—Screen Cover  
C—Dipstick

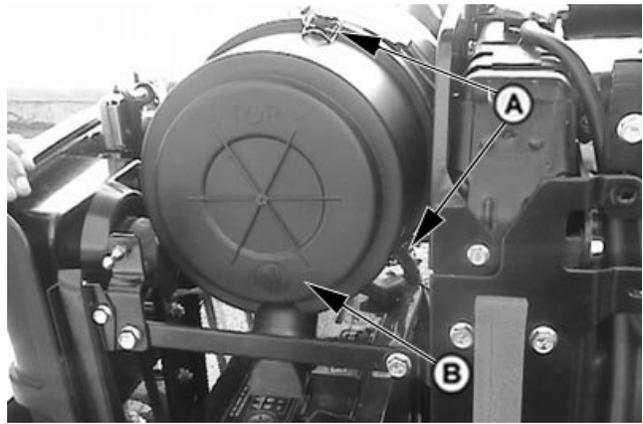


PY80265.05I0233 -19-11JUL06-1/1

# Service—Annually

## Replace Air Cleaner Elements

1. Open hood and remove side screen. (See Removing Side Screen in Service chapter.)
2. Release clips (A).
3. Remove cover (B).
4. Remove primary element (C).
5. Clean out any dirt in canister taking care not to damage the secondary filter element.



PY4295 -UN-06DEC04

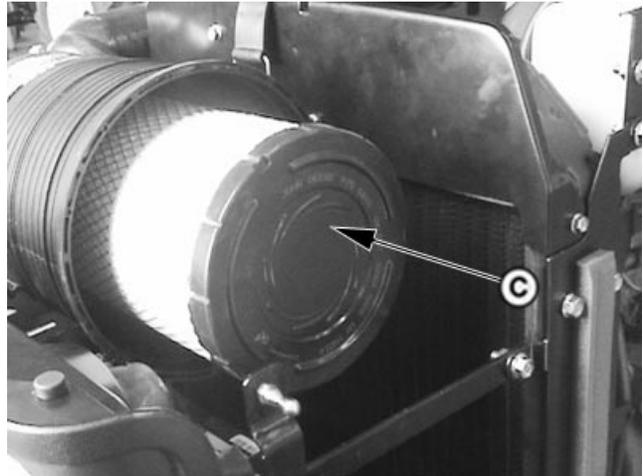
**IMPORTANT:** Remove secondary element (inner element) **ONLY** if it is to be replaced. **DO NOT** attempt to clean secondary element.

**If secondary element is replaced, install new element immediately to prevent dust from entering air intake system.**

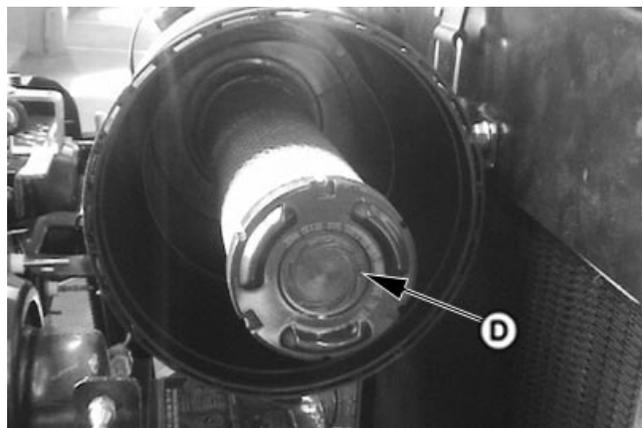
6. Removal of the secondary element (D) is similar to removal of the primary element.

*NOTE:* When installing the air cleaner canister, make sure that the dust unloader valve is facing down.

7. Install secondary element, primary element and cover.
8. Install side screens and close hood.



PY4271 -UN-06DEC04



PY4294 -UN-06DEC04

- A—Clips
- B—Cover
- C—Primary Element
- D—Secondary Element

v34 -19-12SEP05-1/1

# Service—2 Years/2000 Hours

## Flush Cooling System

For efficient operation, drain old coolant, flush the entire system, and fill with clean antifreeze solution at least once every two years.

**CAUTION:** DO NOT remove radiator cap or drain coolant until coolant is cold (temperature gauge should be below the green striped zone). Always loosen radiator cap slowly to relieve any excess pressure.

1. Drain coolant - Remove radiator cap (A). Open drain valve (B) on radiator and drain coolant from radiator. Drain coolant from engine block:

**IMPORTANT:** Thermostat must be removed to ensure a thorough flush.

2. Remove thermostat cover (D), remove thermostat, and install cover (without thermostat). Tighten cap screws to specification.

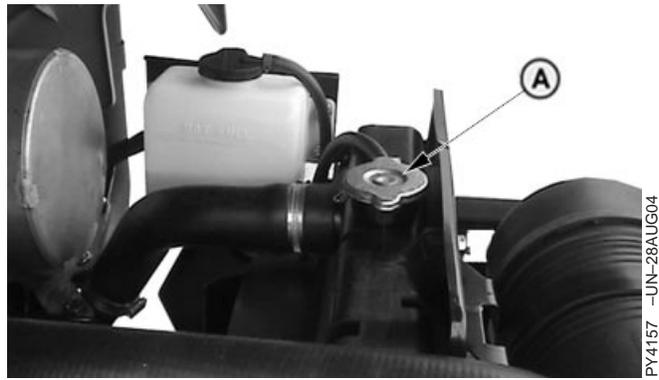
### Specification

Thermostat Cover Cap Screws—

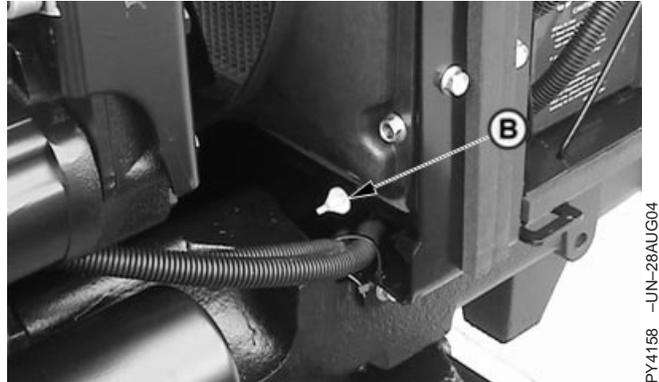
Torque ..... 47 N•m (35 lb-ft)

3. Flush system with water - Close all drain valves/plugs and fill system with clean water. Run engine about 10 minutes to stir up possible rust or sediment. Stop engine and drain water from system before rust and sediment settle.
4. Flush system with radiator cleaner - Close all drain valve/plugs and fill the cooling system with a good commercial radiator cleaner and water. Follow instructions provided with cleaner. Stop engine and immediately drain system.
5. Flush system with water - Close all drain valves/plugs and fill with clean water to flush the system. Run the engine about 10 minutes, then drain out flushing water.

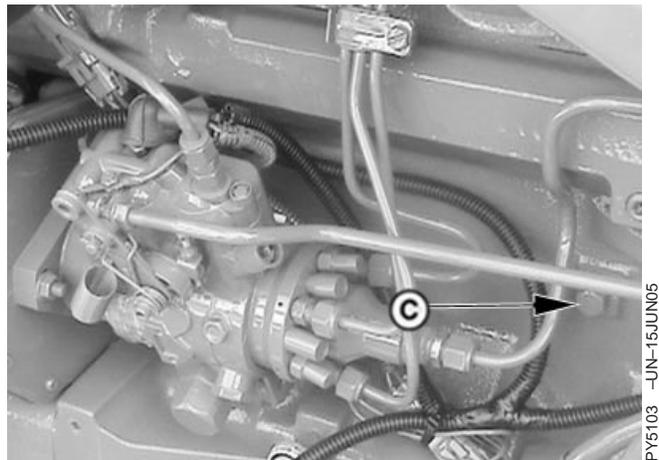
- A—Radiator Cap
- B—Drain Valve
- C—Coolant Drain Plug
- D—Thermostat Cover



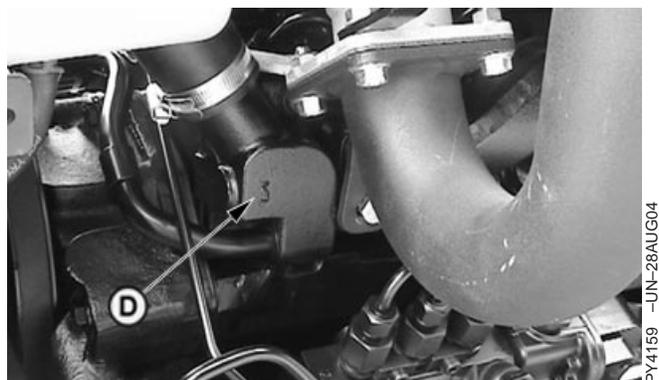
PY4157 -UN-28AUG04



PY4158 -UN-28AUG04



PY5103 -UN-15JUN05



PY4159 -UN-28AUG04

Continued on next page

PY80265,05I0235 -19-12SEP05-1/2

6. Remove thermostat cover and clean off the gasket material. Apply gasket sealant to new gasket and install thermostat and cover. Tighten cap screws to specification.

**Specification**

Thermostat Cover Cap Screws—

Torque ..... 47 N•m (35 lb-ft)

7. Fill with fresh coolant - Close all drain valves/plugs and fill with a mixture of antifreeze, soft water, and coolant conditioner as specified in the Fuels, Lubricants, and Coolant section.
8. Check coolant level - Fill radiator to the top of the filler neck. Run the engine until operating temperature is reached. Let the engine cool (preferably overnight) and recheck the coolant level. Coolant level with a cold engine should be at the bottom of the filler neck. When filling the cooling system it may require several operating/cooling periods to stabilize the coolant level in the system. Add make-up coolant to the radiator as needed to bring the coolant level to the correct level.

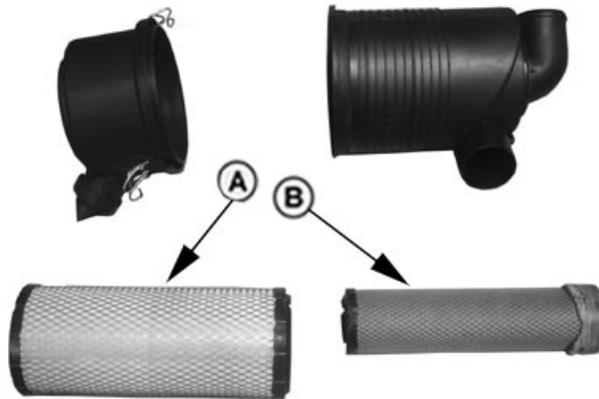
PY80265,05I0235 -19-12SEP05-2/2

# Service—As Required

## Service Air Cleaner

Under dusty conditions, it may be necessary to service air cleaner more often than every 250 hours. Whenever dirty primary element is indicated by loss of power, excessive smoke or air restriction indicator light, replace primary element (A). (See Replace Air Cleaner in Service—250 Hours section.)

A—Primary Element  
B—Secondary Element



PY80265,05I0236 -19-28JUN06-1/1

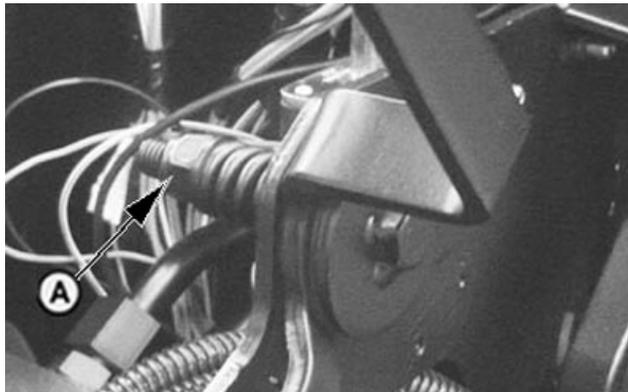
## Adjust Throttle Friction

When throttle linkage becomes loose and does not stay in set position, adjust as follows:

*NOTE: Instrument and side panels removed for illustration purposes. Throttle lever lock nut can be accessed by lowering key switch cover.*

1. Adjust spring tension by loosening or tightening lock nut (A) until throttle lever movement is smooth throughout range of travel with only slight drag.

A—Throttle Lever Lock Nut



PY80265,05I0237 -19-12SEP05-1/1

# Service

## Additional Service Information

This is not a detailed service manual. It contains only information needed for operation and routine maintenance. If you want more detailed service information, refer to Parts Catalog and/or a Technical Manual available at Dealership

PY80265,05I0238 -19-12SEP05-1/1

## Service Tractor Safely

Disengage power to attachments and stop engine before making any repairs or adjustments.

Do not change engine governor setting or overspeed engine.

Keep the vehicle and attachments in good operating condition.

Keep safety devices in place and in working condition.

Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.

Before you work on any part of the engine, stop the engine, and let it cool. Hot engine parts can burn skin on contact.

Never run engine unless range shift lever is in neutral position.

Be careful to prevent clothing, jewelry, or long hair from getting caught in the fan blades, drive belts, or any other moving engine parts.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

GENERIC,0000062 -19-22FEB06-1/1

## Engine Break-In Oil

New engines are filled at the factory with John Deere ENGINE BREAK-IN OIL. During the break-in period, add John Deere ENGINE BREAK-IN OIL as needed to

maintain the specified oil level. Change the oil and filter after the first 100 hours of operation of a new or rebuilt engine.

PY80265,05I0240 -19-12SEP05-1/1

## Work In Ventilated Area

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area

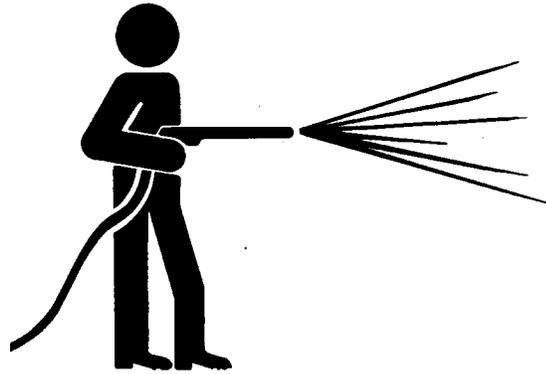


PY80265,05I0241 -19-12SEP05-1/1

TS220 -JUN-23AUG88

## Using High-Pressure Washers

**IMPORTANT:** Directing pressurized water at electronic/electrical components or connectors, bearings and hydraulic seals, fuel injection pumps or other sensitive parts and components may cause product malfunctions. Reduce pressure, and spray at a 45 to 90 degree angle.



PY80265,05I0242 -19-12SEP05-1/1

T6642EJ -JUN-18OCT88

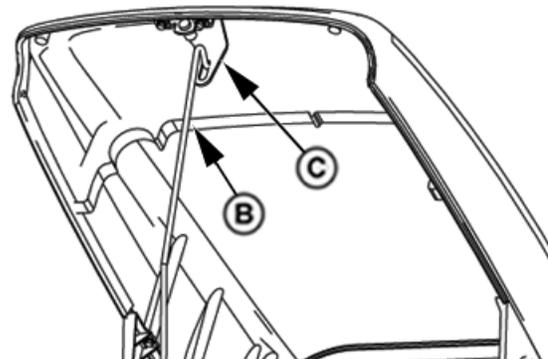
## Opening Hood

1. Push hood latch release (A) in to unlock hood.
2. Raise hood and lift the support rod (B).
3. Insert the hood support rod into the hood latch striker slot (C) to hold hood in raised position.

A—Hood Latch Release  
B—Hood Support Rod  
C—Hood Latch Striker



PY5152 -JUN-21AUG05



PY5829

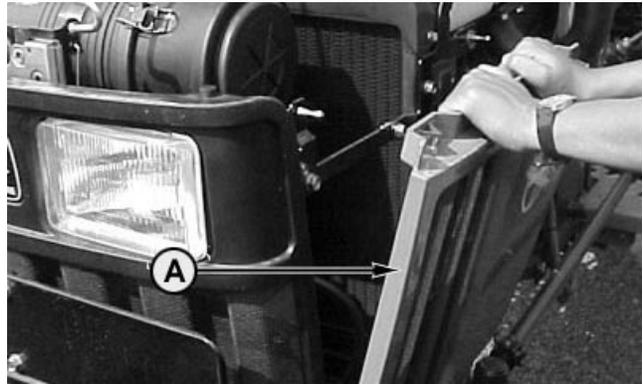
PY5829 -JUN-20JUN06

PY80265,05I0243 -19-28JUN06-1/1

## Removing Side Screens

1. Raise the hood and secure with the support rod.
2. Pull side screen (A).
3. Tilt screen outward and lift from lower mounting slots.

A—Side Screens



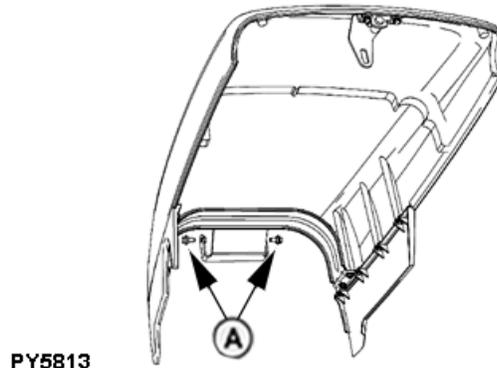
PY1736 -UN-14DEC05

PY80265,05I0244 -19-12SEP05-1/1

## Removing Hood

1. Remove side screens. (See Removing Side Screens in this chapter.)
2. Remove two cap screws (A) securing hood.
3. Release the hood support rod from the hood latch and secure the rod in the stored position.
4. Remove hood from tractor.

A—Cap Screws (2 used)



PY5813

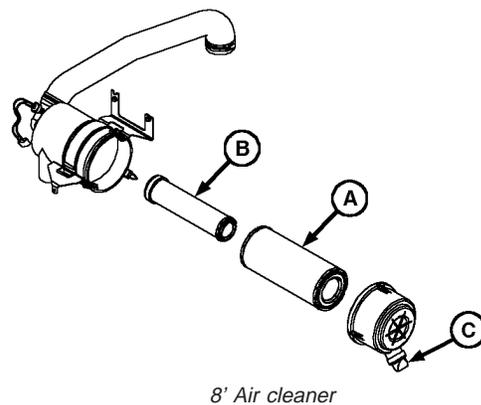
PY5813 -UN-19JUN06

PY80265,05I0245 -19-28JUN06-1/1

## Air Intake System Components

Air enters the intake system through the open end of the air cleaner canister. A major portion of the dust is separated out by air turbulence action of the primary air cleaner element (A) and passed out into the radiator inlet air flow through the dust unloader valve (C). If the primary element becomes plugged, dust is filtered out by the secondary element (B).

A—Primary Air Cleaner Element  
 B—Secondary Air Cleaner Element  
 C—Dust Unloader Valve



LV4089 -UN-20JUL99

PY80265,05I0246 -19-12SEP05-1/1

### Service Air Cleaner at Regular Intervals

Service air cleaner if air restriction indicator (A) illuminates or at least every 250 hours. Replace air cleaner elements at least once a year.

The smaller “secondary” element should be removed only when being replaced, normally once a year. (See Replace Air Cleaner in Service—250 Hours section.)

A—Air Restriction Indicator

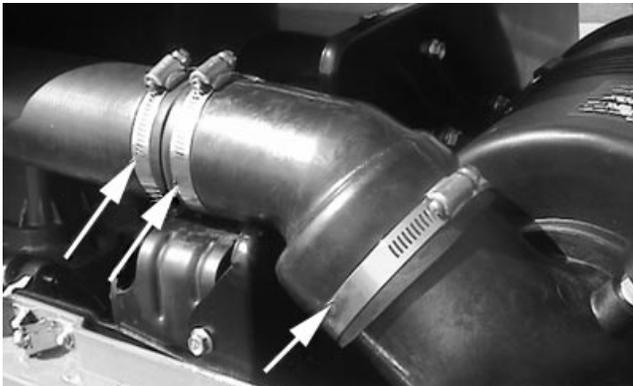


PY5772

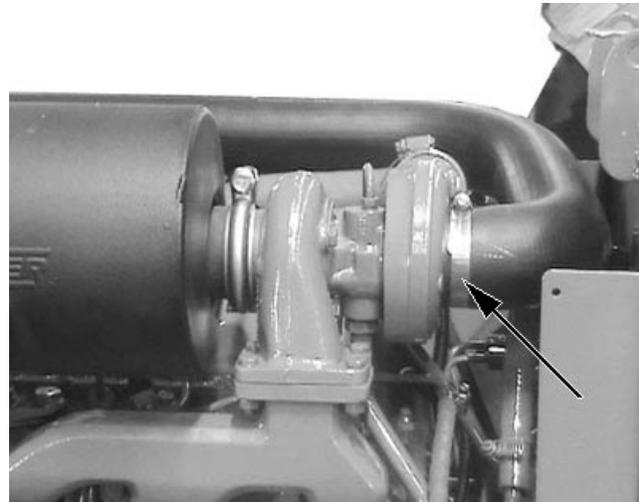
PY5772 -UN-02JUN06

PY80265,05I0247 -19-02JUN06-1/1

### Checking Air Intake System



PY4293 -UN-23FEB06



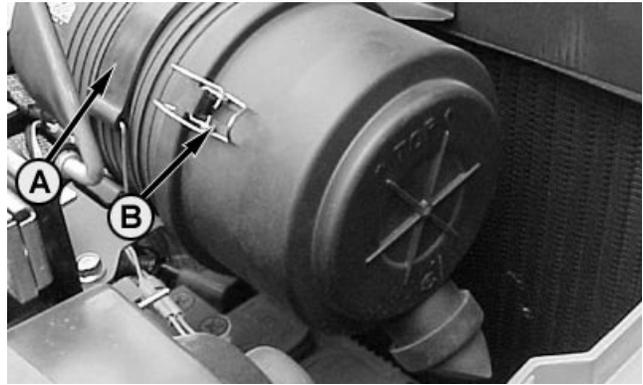
PY4361 -UN-29DEC04

Check all air intake system clamps for tightness.

PY80265,05I0248 -19-12SEP05-1/1

## Removing Primary Air Cleaner Element

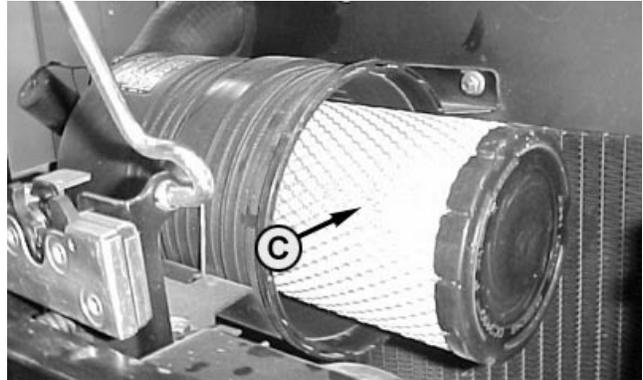
1. Disconnect rubber strap (A) at the front of the canister.
2. Lift clip (B) and pull canister cover.
3. Clean out any dirt in canister taking care not to damage the secondary filter element.
4. Removal of the secondary element is similar to removal of the primary element.



PY1100 -UN-29JUL01

**IMPORTANT:** Remove secondary element (inner element) **ONLY** if it is to be replaced. **DO NOT** attempt to clean secondary element. If secondary element is replaced, install new element immediately to prevent dust from entering air intake system. When replacing the air cleaner canister, make sure that the dust cup/ejector hose is facing downward.

- A—Rubber Strap
- B—Clip
- C—Primary Element



PY1113 -UN-29JUL01

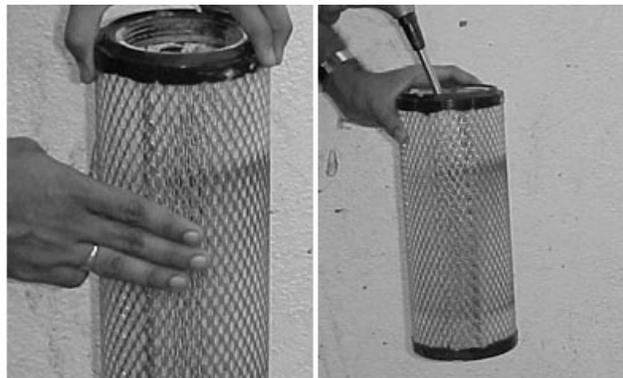
PY80265,05I0249 -19-11JUL06-1/1

## Cleaning Primary Element

1. Pat sides of element gently to loosen dirt. **DO NOT** tap element against a hard surface.
2. clean element with compressed air (below 690 kPa or 100 psi). Hold nozzle next to inner surface, and move up and down pleats.

**IMPORTANT:** **DO NOT** direct air against outside of element, as it might force dirt through to inside.

3. Inspect element before reinstalling.



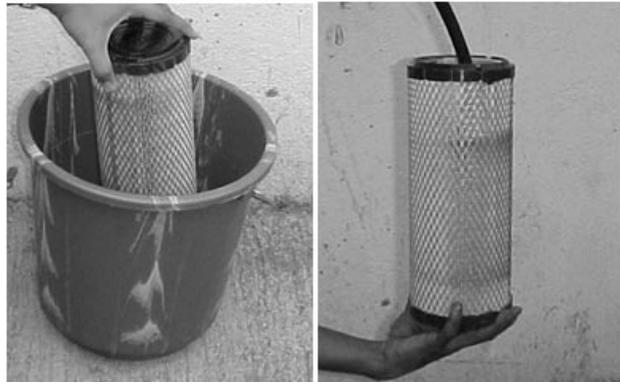
PY1114 -UN-29JUL01

PY80265,05I0250 -19-12SEP05-1/1

## Washing Primary Element

**IMPORTANT:** Never wash element in gasoline or any solvent. Never use compressed air on a wet element. Do not oil element.

1. If element is coated with oil or soot, wash in a solution of warm water . Let element soak at least 15 minutes, then agitate gently to flush out dirt.
2. Rinse element thoroughly from inside with clean water. Use element cleaning gun or a free-running hose. Keep water pressure low (below 280 kPa or 40 psi) to avoid damaging element.
3. Allow element to dry completely before using. This usually takes from one to three days. DO NOT oven dry or use drying agents. Protect element from freezing until dry.
4. Inspect element before installing.

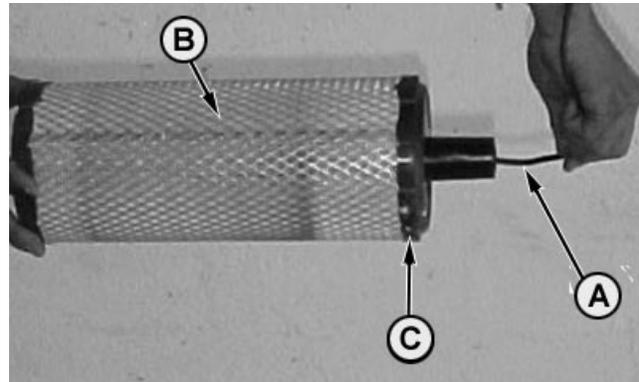


PY1122 -UN-31JUL01

PY80265,05I0251 -19-12SEP05-1/1

## Inspecting Element

1. Hold a bright light (A) inside element (B) and check carefully for holes. Discard any element which shows the slightest hole.
2. Be sure outer screen is not dented. Vibration would quickly wear a hole in filter.
3. Be sure rubber sealing surfaces (C) are in good condition on both ends. If damaged, replace element.



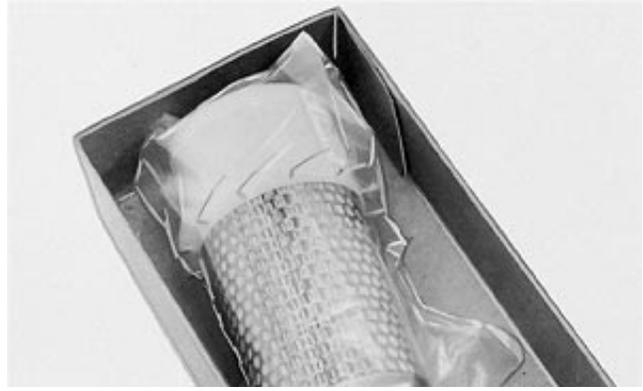
PY1636 -UN-30SEP03

A—Light Source  
 B—Element  
 C—Rubber Sealing Surface

PY80265,05I0252 -19-12SEP05-1/1

## Storing Element

If element is not installed on tractor, seal element in a plastic bag and store in its original shipping container to protect against dust and damage.

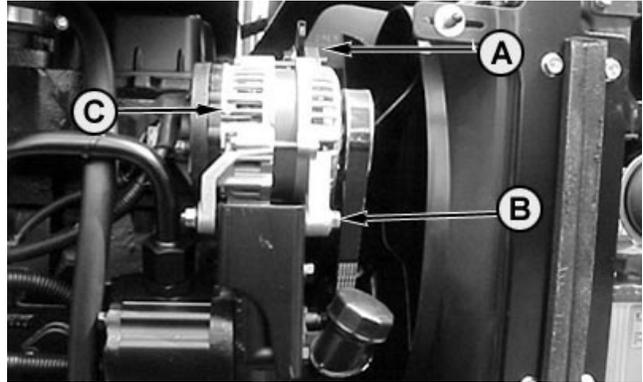


RW471 -UN-26FEB90

PY80265,05I0253 -19-12SEP05-1/1

## Replacing Alternator/Fan Belt

1. Loosen cap screw (A) and bolt (B) and rotate the alternator (C) to free the belt.
2. Remove belt from drive pulley.
3. Belt can be pulled around fan to remove.
4. Install new belt in reverse order of removal.
5. Adjust belt tension. (See Inspect and Adjust Alternator/Fan Belt in Service—250 Hours section.)

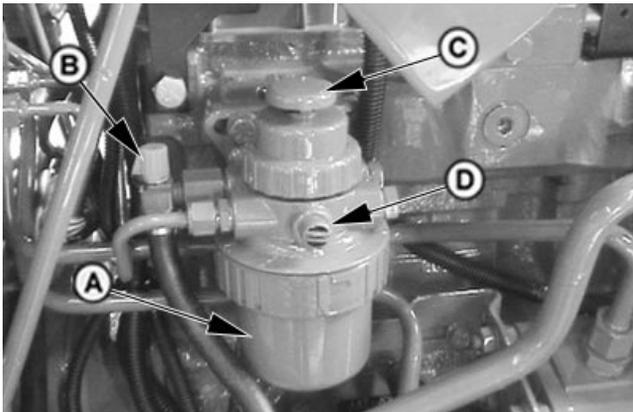


PY1652 -UN-27OCT03

A—Alternator Cap Screw  
B—Alternator Bolt  
C—Alternator

PY80265,05I0254 -19-12SEP05-1/1

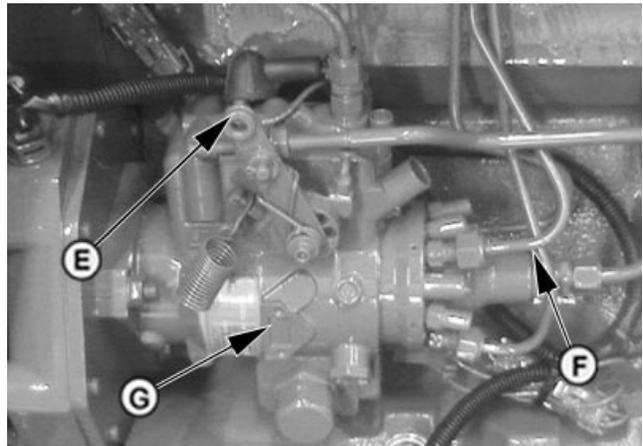
## Fuel System Components



PY4297 -UN-06DEC04

A—FuelGardä fuel filter  
B—Fuel shut-off valve

C—Priming pump  
D—Bleed screw



PY4296 -UN-06DEC04

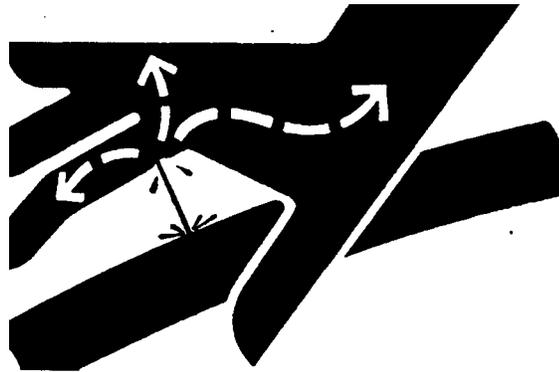
E—Electric fuel shut-off  
F—Fuel injection lines

G—Injection pump

GENERIC,0000063 -19-22FEB06-1/1

## Bleeding 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.



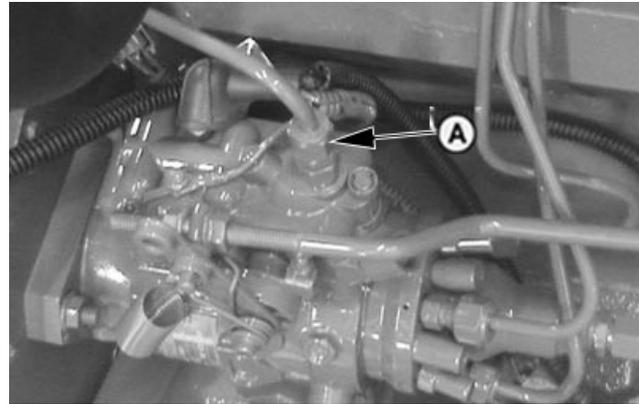
X9811 -UN-23AUG88

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.

1. Fuel tank must be full of fuel with the fuel shut-off valve open.

**IMPORTANT:** To avoid injection pump damage, DO NOT attempt to start the engine while bleeding the fuel system.

2. Loosen fuel return line (A).



PY4277 -UN-06DEC04

A—Fuel Return Line

PY80265.05I0256 -19-11JUL06-1/1

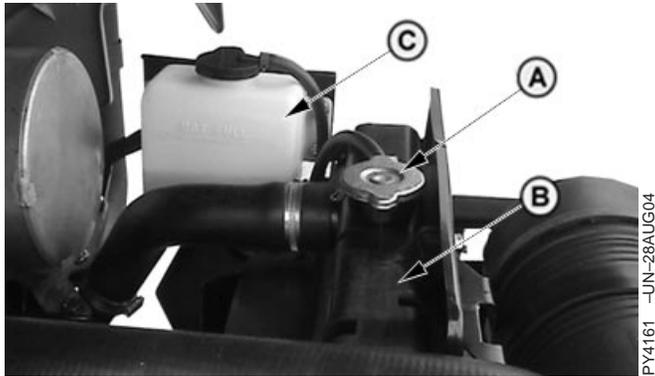
## Do Not Modify Fuel System

**IMPORTANT:** Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors in ways not recommended by the manufacturer will terminate the warranty obligation to the purchaser. (See warranty information inside front cover.)

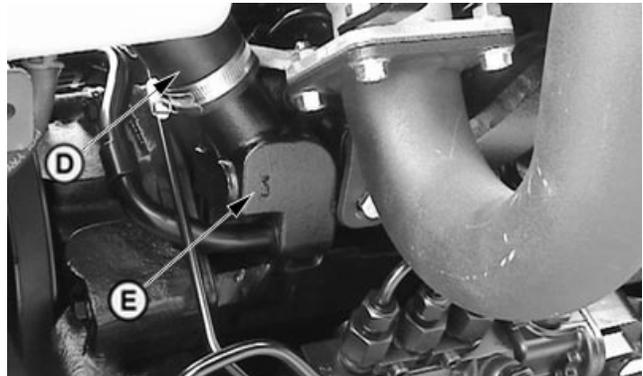
**DO NOT** attempt to service injection pump or fuel injectors yourself. Special training and special tools are required. (See your John Deere dealer.)

PY80265.05I0257 -19-17FEB06-1/1

## Engine Cooling System Components



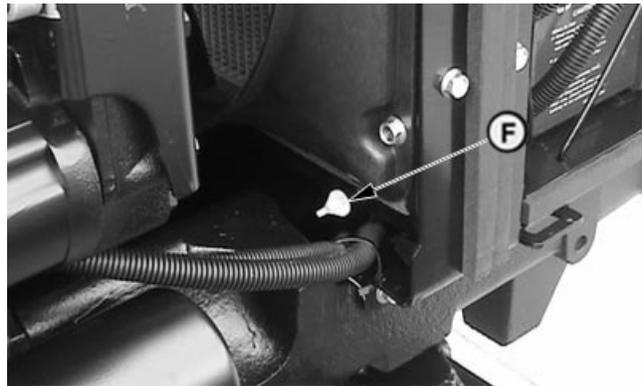
PY4161 -UN-28AUG04



PY4163 -UN-28AUG04

**IMPORTANT:** Never pour cold water into the cooling system of a hot engine, as it might crack cylinder block or head. **DO NOT** operate engine without coolant for even a few minutes.

The tractors utilize a remote coolant recovery tank. Make-up coolant is added to the coolant recovery tank rather than directly to the radiator.



PY4162 -UN-28AUG04

- A—Radiator Cap
- B—Radiator
- C—Coolant Recovery Tank
- D—Upper Radiator Hose
- E—Thermostat Housing
- F—Radiator Drain

PY80265.05I0258 -19-11JUL06-1/1

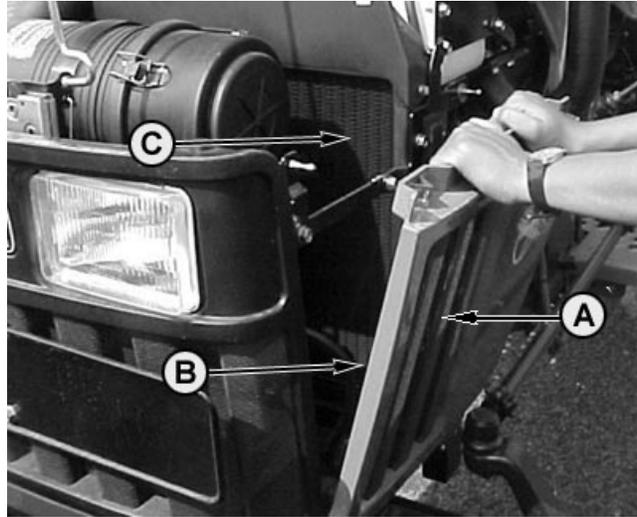
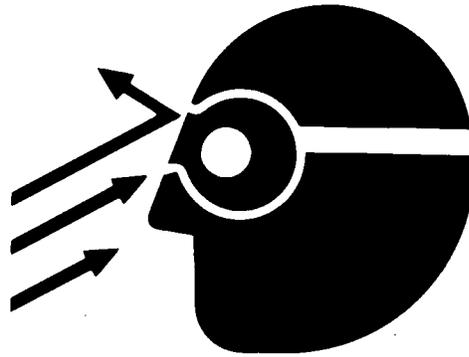
## Cleaning Grille, Screens, Radiator and Oil Cooler

1. Whenever trash builds up on grille (A) or side screens (B), stop engine and brush clean.

**CAUTION:** Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

2. Remove side screens (B), and see if trash has built up on radiator (C). If so, carefully remove it using a brush or compressed air.
3. If a more thorough cleaning is necessary, clean radiator from behind with compressed air or water. Straighten any bent fins.

A—Grille  
B—Side Screens  
C—Radiator



TSS266 -JUN-23AUG88

PY1804 -JUN-15NOV03

PY80265.05I0259 -19-12JUL06-1/1

## Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

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

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



TS204 -JUN-23AUG88

PY80265.05I0260 -19-12SEP05-1/1

## Observe Electrical Service Precautions

**CAUTION:** Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect negative (ground) cable (B) last and disconnect it first. When using a booster battery, follow instructions in “Operating the Engine” section.

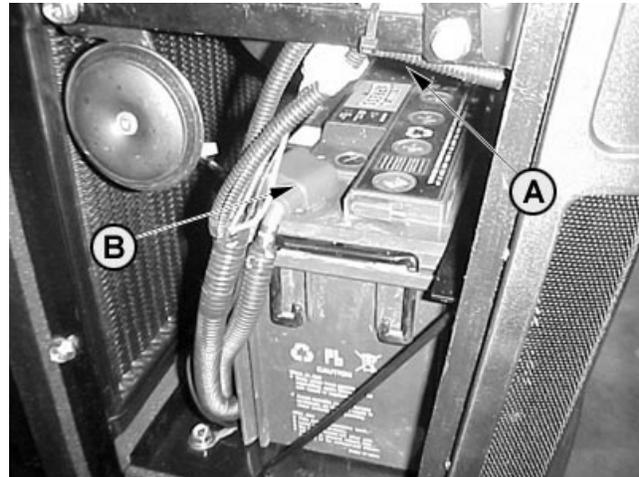


TS204 -UN-23AUG88

To avoid shocks and burns, disconnect battery negative (ground) cable (B) before servicing any part of the electrical system, then remove positive cable (A) if removing battery.

Keep all electrical shields in place.

A—Positive (+) Battery Cable  
B—Negative (−) Battery Cable



PY1988 -UN-24FEB04

PY80265,05I0261 -19-12SEP05-1/1

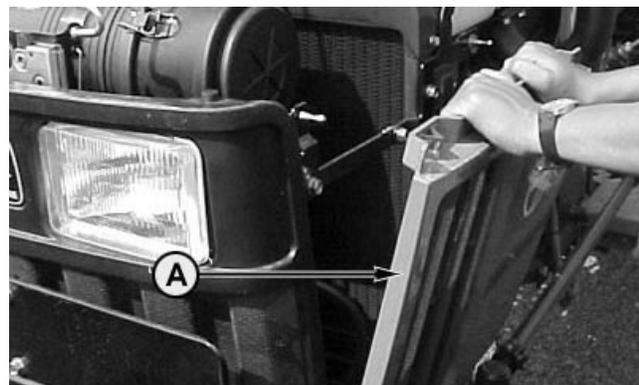
## Battery Access

Battery is located in front of the radiator.

To gain access:

1. Raise the hood.
2. Pull side screens (A) and remove from slots. (See Removing Side Screens in this section.)

A—Side Screens



PY1736 -UN-14DEC05

PY80265,05I0262 -19-12SEP05-1/1

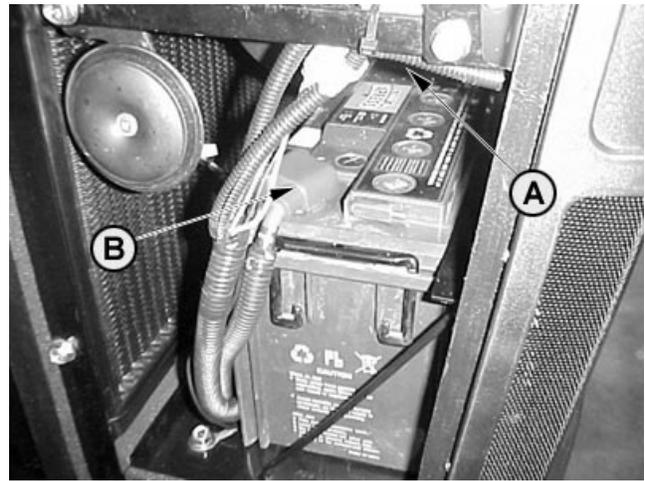
## Removing Battery

**CAUTION:** To avoid sparks, disconnect negative (ground) cable first and connect it last.

1. Remove negative (ground) battery cable (B) and remove the cable connection. Then remove positive cable (A) and connection.

Loosen nuts securing battery hold-down and rotate the holder down, freeing the battery.

2. Lift and slide the battery from the battery tray.



A—Positive (+) Cable Nut  
B—Negative (−) Cable Nut

PY80265,05I0263 -19-12SEP05-1/1

PY1968 -UN-24FEB04

## Checking Battery Condition

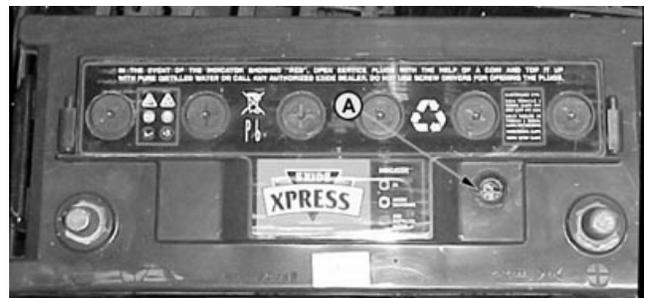
**CAUTION:** Battery gas can explode. Keep sparks and flames away from batteries. Use a flashlight to check battery electrolyte level.

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.

In MHD99 battery eye is provided on top face on battery. The eye shows three different colours, which indicates condition of battery

1. If eye shows GREEN colour , it means battery is full charged.
2. If eye shows WHITE colour, it means charging required.
3. If eye shows RED colour, it means add distilled water.



PY80265,05I0264 -19-12SEP05-1/1

TS204 -UN-23AUG88

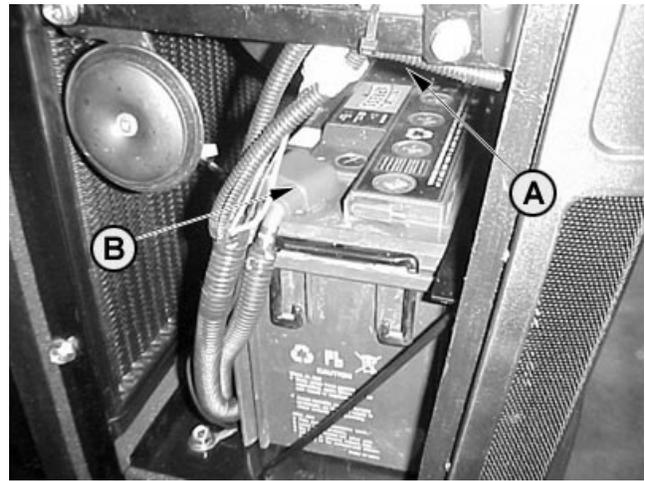
PY2262 -UN-16MAR04

## Servicing Battery

1. Keep battery clean by wiping with a damp cloth. Keep all connections (A and B) clean and tight. To remove any corrosion, wash terminals with a solution of four parts water to one part baking soda.

**CAUTION:** To avoid sparks, connect negative (ground) (—) cable last and disconnect it first.

2. Keep battery fully charged, especially during cold weather. If a battery charger is connected, attach a positive cable to the positive battery terminal (A). Connect the negative battery charger lead to a good ground on tractor frame.



A—Positive (+) Battery Terminal  
B—Negative (—) Battery Terminal

Continued on next page

PY80265,05I0265 -19-12SEP05-1/2

PY1968 -UN-24FEB04

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

Avoid the hazard by:

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

If you spill acid on yourself:

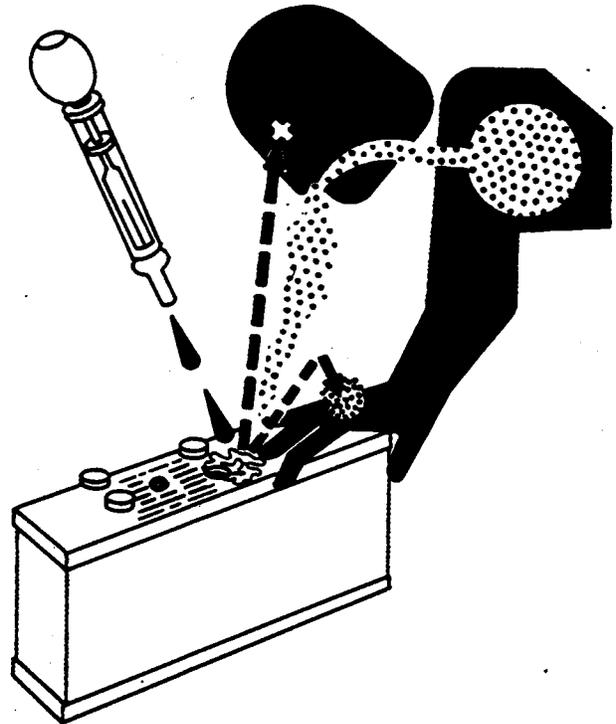
1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

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

**IMPORTANT:** DO NOT add water in freezing weather unless tractor will be run at least 30 minutes to assure thorough mixing.

3. Check level of electrolyte in each cell (A) at least every 250 hours. If low, fill to bottom of filler necks with CLEAN, SOFT water. DO NOT OVERFILL.
4. Coat terminals with a small amount of grease.



TS203 -UN-23AUG88



PY4954 -UN-21APR05

A—Battery Cells

PY80265,05I0265 -19-12SEP05-2/2

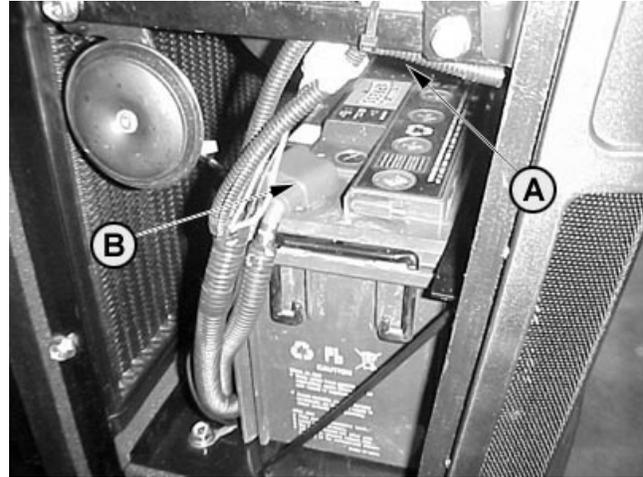
## Charging Battery

Keep battery fully charged, especially during cold weather.

**CAUTION:** Gas given off by battery is explosive. Keep sparks and flames away from battery. Before connecting or disconnecting a battery charger, turn charger off. Make last connection and disconnection at a point away from battery.

1. With charger off, attach positive battery charger lead to positive (+) battery terminal (A). Attach negative charger lead to tractor frame away from the battery.
2. Turn charger on and recharge the battery following battery manufacturer's instructions for using charger. Check battery condition as described below.
3. To disconnect battery charger, turn charger off. Remove negative charger lead first, follow by positive charger lead.

A—Positive (+) Battery Terminal  
 B—Negative (−) Battery Terminal



T5204 -UN-23AUG88

PY1988 -UN-24FEB04

PY80265,05I0266 -19-12SEP05-1/1

## Battery Replacement Specifications

When replacing battery, use recommended battery. See your John Deere dealer.

### Specification

Battery—Volts..... 12 Volts  
 Ampere Rating..... 100 AH  
 Make ..... Exide  
 Model ..... MHD99 (EXIDE EXPRESS)

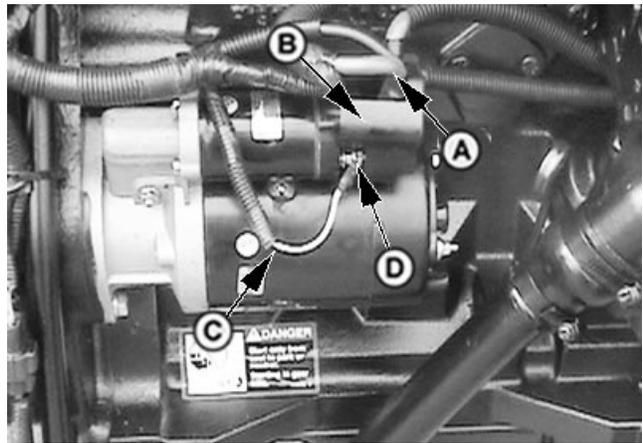
PY80265,05I0267 -19-12SEP05-1/1

## Connecting Starter Wiring

**IMPORTANT:** Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

Connect large battery cable (A) and alternator cable (B) to large solenoid post. Connect the small white wire (C) to solenoid terminal (D).

- A—Large Battery Cable
- B—Large Solenoid Post
- C—Small White Wire
- D—Solenoid Terminal



PY4876 -UN-12APR05

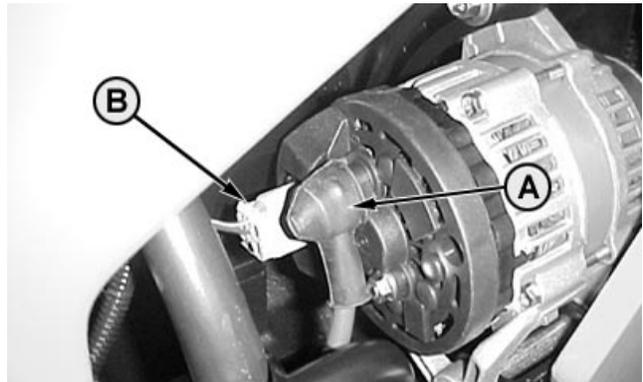
PY80265.05I0268 -19-11JUL06-1/1

## Connecting Alternator Wiring

**IMPORTANT:** Disconnect battery negative (ground) cable before servicing any part of electrical system. Make all other connections before connecting ground cable.

To prevent damage to electrical system, disconnect alternator before making any electrical weld repairs. If an attached implement needs weld repair, disconnect it from tractor before welding, to prevent damage to tractor electrical system.

If alternator is disconnected for any reason, connect wires (A) and (B) as shown at right.



PY1658 -UN-15DEC05

- A—Alternator Wire
- B—Battery Charging Indicator Wire

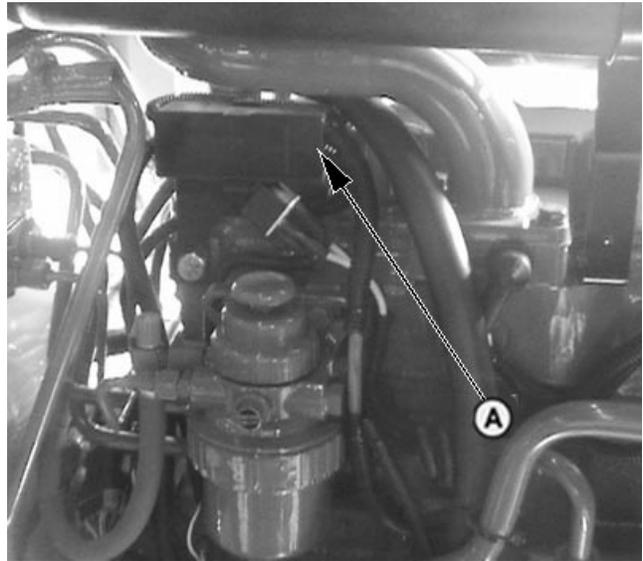
PY80265.05I0269 -19-12SEP05-1/1

## Locating Fusible Link

Electrical circuits are protected by fusible link.

Fusible link (A) is located under hood on right-hand side of tractor, above fuel filter.

A—Fusible Link



PY4439 -UN-03JAN05

PY80265,05I0270 -19-12SEP05-1/1

## Locating Fuses

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse, plus fuses are color coded to ensure proper replacement.

To access fuse panel , just pull out fuse panel cover.

Fuse Rating	Color
10 Amp	Red
20 Amp	Yellow
30 Amp	Green

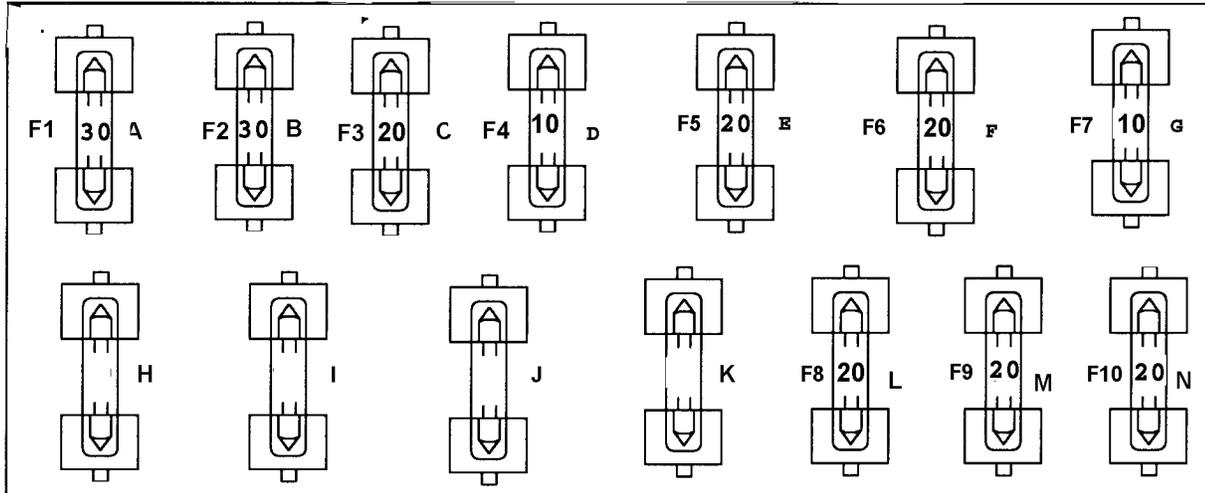
**IMPORTANT: DO NOT** replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.



PY5151 -UN-21AUG05

PY80265,05I0271 -19-12SEP05-1/1

### Fuse Size and Function



A—30 amp—Accessory Relay  
B—30 amp—Key switch  
C—20 amp—Flasher

D—10 amp—Radio  
E—20 amp—Flood light  
F—10 amp—Brake Light

G—10 amp—Alternator  
L—20 amp—Low Beam Light

M—20 amp—High Beam Light  
N—20 amp—Park light

PY80265,05I0272 -19-12SEP05-1/1

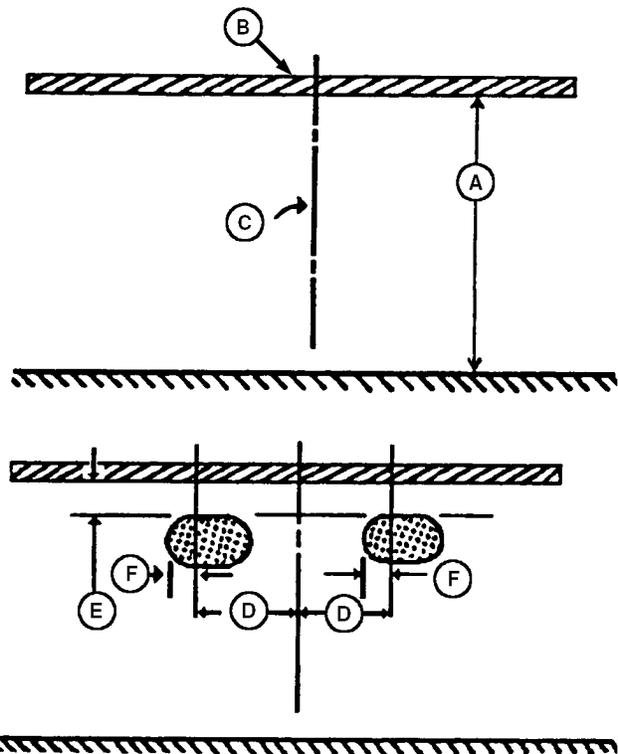
PY2235 -UN-16MAR04

## Aiming Headlights



PY4034 -JUN-22JUL04

1. Park tractor on level ground, with lights 8 m (25 ft) from a wall.
2. Measure from top of hood to the ground (A). Place a strip of masking tape (B) on the wall at the same height.
3. Place a piece of tape, folded in the middle to make a point, on the top front center of the hood.
4. Using the hood tape as a guide, sight across steering wheel and hood to locate tractor centerline. Mark tractor centerline (C) on wall.
5. From tractor centerline (C), mark a point 130 mm (5 in.) out in each direction (D). This mark locates a point directly in front of center of each headlight.
6. Turn light switch to dim position.



LV3020 -JUN-10JUN99

- A—Hood-to-Ground Distance
- B—Masking Tape
- C—Tractor Centerline
- D—Center of Headlight
- E—Top of Zone
- F—Left Edge of Zone

Continued on next page

PY80265,05I0273 -19-12SEP05-1/2

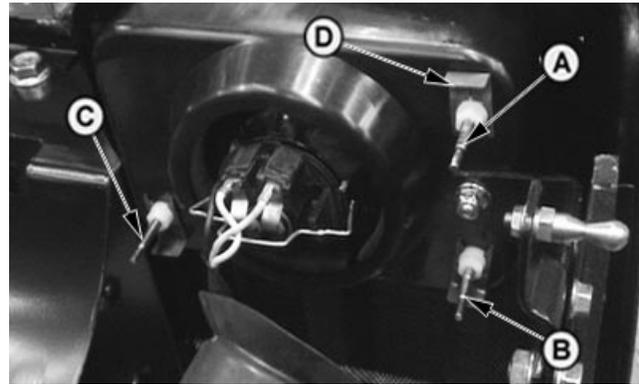
7. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone (E) should be 130 mm (5 in.) below the tape. Left edge of zone (F) should be 130 mm (5 in.) left of lamp location marked (D).
8. To adjust headlights, see Adjusting Headlights in this section.

PY80265,05I0273 -19-12SEP05-2/2

## Adjusting Headlights

1. Open the hood.
2. Turn screws (A—C) counterclockwise to lower beam or clockwise to raise beam.
3. To adjust beam in toward center of tractor, turn screw (A) counterclockwise and screws (B and C) clockwise an equal number of turns on each screw.
4. To adjust beam out from center of tractor, turn screws (B and C) counterclockwise and screw (A) clockwise an equal number of turns on each screw.

*NOTE: Clips (D) need not be removed for adjustment.*



A—Headlight Mounting Screw  
B—Headlight Mounting Screw  
C—Headlight Mounting Screw  
D—Clips

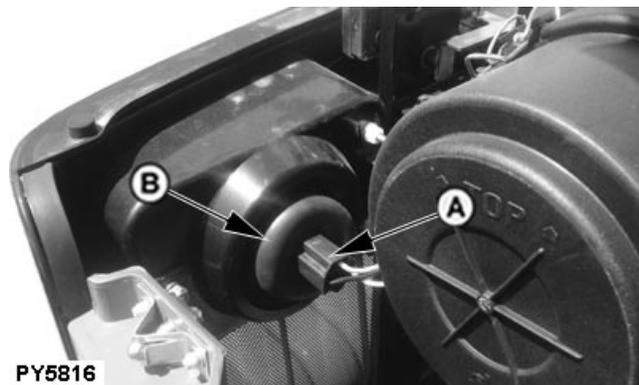
PY4104 -UN-12DEC05

PY80265,05I0274 -19-12SEP05-1/1

## Replace Headlight Bulb

1. Remove headlight connector (A).
2. Remove dust boot (B).

A—Headlight Connector  
B—Dust Boot



PY5816

Continued on next page

PY80265,05I0275 -19-28JUN06-1/2

PY5816 -UN-19JUN06

3. Twist collar (C).
4. Remove bulb (D).

**CAUTION:** A halogen bulb is pressurized and may shatter. Protect bulb against abrasions and scratches.

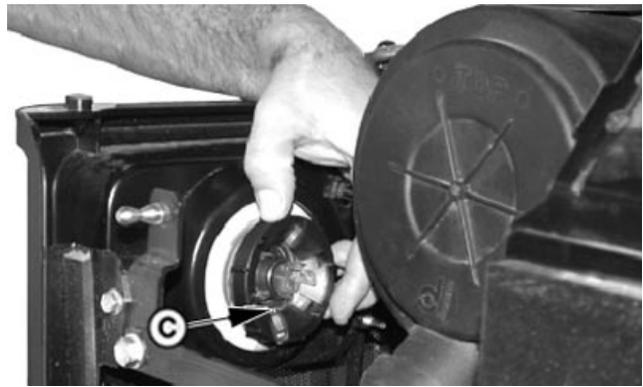
To guard against personal injury, wear protective eyeglasses and clothing when handling bulb. Turn power off when installing and before removing bulb. Dispose of bulb with care.

Allow bulb to cool before removing.

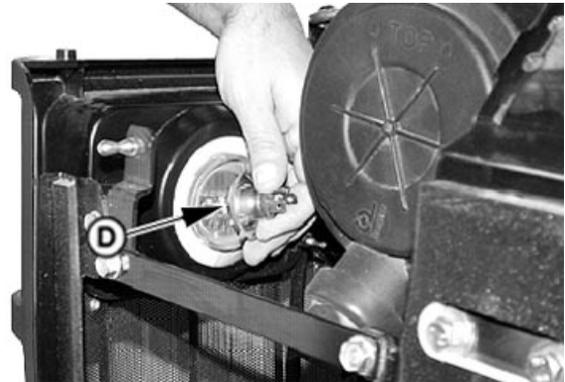
Read and follow all bulb manufacturers installation instructions.

5. Install bulb, collar, seal and connector in reverse order.

C—Collar  
D—Bulb



PY4921 -UN-12DEC05



PY4922 -UN-12DEC05

PY80265,05I0275 -19-28JUN06-2/2

## Replace Tail Light and Warning Light Bulbs

1. Remove screws (A).
2. Remove lens.
3. Push and twist to release bulb from socket.
4. Reverse this procedure to reassemble light.

A— Cap Screws (2 used)

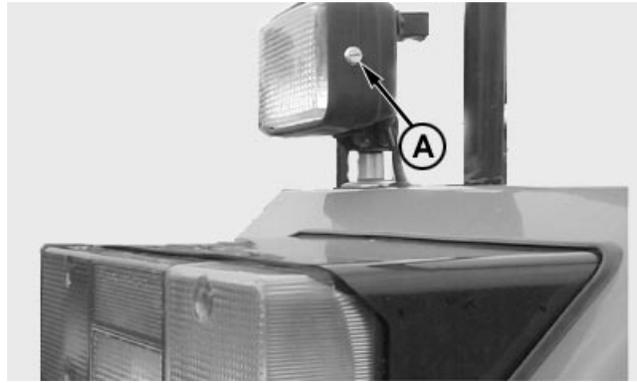


PY4362 -UN-29DEC04

PY80265,05I0276 -19-12SEP05-1/1

## Replace Flood Lamp Bulb

1. Loosen mounting hardware (A) and rotate flood lamp up to access cover fastening screw
2. Remove screw, lamp cover and lamp from housing
3. Disconnect wiring leads from bulb
4. Rotate bulb counterclockwise and remove
5. Reverse the procedure to reassemble the flood lamp



PY1080 -UN-02JUL01

PY80265,05I0277 -19-12SEP05-1/1

## Checking Tyres

1. Check tyres daily for damage or noticeably low pressure.
2. Have any cuts or breaks repaired as soon as possible.
3. Protect tyres from exposure to sunlight, petroleum products and chemicals.
4. Drive carefully. Try to avoid rocks and sharp objects.

**IMPORTANT: Minimum pressures may be used only for light loads and only if**

**tractor has no added weight. If you install ballast or mounted implements, or if you pull heavy loads, increase pressure.**

5. If tyre contains liquid ballast, jack up the rear wheel and measure tyre pressure keeping valve stem at topmost position.

Refer to Tyre Inflation Pressure Chart in Wheels, Tyres and Treads section.

PY80265,05I0278 -19-12SEP05-1/1

# Troubleshooting

## Engine Troubleshooting

Symptom	Problem	Solution
<b>Engine hard to start or will not start</b>	Improper starting procedure.	Reviewing starting procedure.
	No fuel.	Check fuel tank.
	Air in fuel tank.	Bleed fuel tank.
	Hand primer left raised.	Push primer down.
	Slow starter speed.	See "Starter Cranks Slowly".
	Crankcase oil too heavy.	Use oil of proper viscosity.
	Improper type of fuel.	Consult fuel supplier; use proper type fuel for operating conditions.
	Water, dirt, or air in fuel system.	Drain, flush, fill and bleed system.
	Clogged fuel filter.	Replace clogged filter insert (s)
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump shut-off not reset.	Turn key switch to OFF then to ON.
	Fuel shut-off valve closed.	Open Fuel shut-off valve on Fuel tank and Fuel filter both.
	<b>Engine knocks</b>	Insufficient oil.
Injection pump out of time.		See your John Deere dealer.
Low coolant temperature.		See your John Deere dealer.
Engine overheating.		See "Engine Overheats".

Continued on next page

PY80265,05I0279 -19-12SEP05-1/4

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>
<b>Engine runs irregularly or stalls frequently</b>	Low coolant temperature.	See your John Deere dealer.
	Clogged fuel filter.	Replace clogged filter.
	Water, dirt, or air in fuel system.	Drain, flush, fill, and bleed system.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
<b>Below normal engine temperature</b>	Improper type of fuel.	Use proper fuel.
	Defective temperature gauge or sender.	Check gauge, sender, and conditions.
<b>Lack of power</b>	Engine overloaded.	Reduce load or shift to lower gear.
	Low fast idle speed.	See your John Deere dealer.
	Intake air restriction.	Service air cleaner.
	Clogged fuel filter.	Replace filter element.
	Improper type of fuel.	Use proper fuel.
	Overheated engine.	See "Engine Overheats".
	Below normal engine temperature.	See your John Deere dealer.
	Improper valve clearance.	See your John Deere dealer.
	Dirty or faulty injectors.	Have John Deere dealer check injectors.
	Injection pump out of time.	See your John Deere dealer.
	Turbocharger not functioning .	See your John Deere dealer.
	Implement improperly adjusted.	See implement operator's manual.
	Restricted fuel line.	See your John Deere dealer.
	Restricted return line.	See your John Deere dealer.
	Improper ballast.	Adjust ballast to load.

Continued on next page

PY80265,05I0279 -19-12SEP05-2/4

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>
<b>Low oil pressure</b>	Low oil level.	Add oil.
	Improper type of oil.	Drain, fill crankcase with oil of proper viscosity and quality.
<b>High oil consumption</b>	Crankcase oil too light.	Use proper viscosity oil.
	Oil leaks.	Check for leaks in lines, around gaskets and drain plugs.
	Restricted crankcase vent tube.	Clean vent tube.
<b>Engine emits white smoke</b>	Improper type fuel.	Use proper fuel.
	Low engine temperature.	Warm up engine to normal operating temperature.
	Defective thermostat.	See your John Deere dealer.
	Defective injection nozzles.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.
	Cold start advance or light load advance not functioning.	See your John Deere dealer.
	Turbocharger not functioning.	See your John Deere dealer.
<b>Engine emits black or gray exhaust smoke</b>	Improper type of fuel.	Use proper fuel.
	Clogged or dirty air cleaner.	Service air cleaner.
	Engine overloaded.	Reduce load or shift to a low gear.
	Injection nozzles dirty.	See your John Deere dealer.
	Engine out of time.	See your John Deere dealer.

Continued on next page

PY80265,05I0279 -19-12SEP05-3/4

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>	
<b>Engine overheats</b>	Dirty radiator core, or grille screens.	Remove all trash.	
	Engine overloaded.	Shift to lower gear or reduce load.	
	Low engine oil level.	Check oil level. Add oil as required.	
	Low coolant level.	Fill radiator to proper level, check radiator, and hoses for loose connection or leaks.	
	Faulty radiator cap.	Replace cap.	
	Loose or defective fan belt(s).	Adjust belt tension(s).	
	Cooling system needs flushing.	Flush cooling system.	
	Defective thermostat.	See your John Deere dealer.	
	Defective temperature gauge or sender.	See your John Deere dealer.	
	Incorrect grade of fuel.	Use proper fuel.	
	<b>High fuel consumption.</b>	Improper type of fuel.	Use proper fuel.
		Clogged or dirty air cleaner.	Service air cleaner.
		Engine overloaded.	Reduce load or shift to a lower gear.
		Improper valve clearance.	See your John Deere dealer.
Injection nozzles dirty.		See your John Deere dealer.	
Engine out of time.		See your John Deere dealer.	
Implement improperly adjusted.		See implement operator's manual.	
Low engine temperature.		See your John Deere dealer.	
Excessive ballast.		Adjust ballast to load.	
Restricted air intake system.		Check system.	
Plugged crankcase vent tube.	Clean vent tube.		

## Transmission Troubleshooting

Symptom	Problem	Solution
<b>Transmission oil overheats</b>	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.
<b>Low transmission pressure.</b>	Hydraulic motor not plumbed correctly.	See your John Deere dealer.
	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.

PY80265,05I0280 -19-12SEP05-1/1

## Hydraulic System Troubleshooting

Symptom	Problem	Solution
<b>Hydraulic system fails to function</b>	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic filter.	Replace filter.
	Clogged transmission-hydraulic pickup screen.	Clean pickup screen.
	High-pressure internal leak.	See your John Deere dealer.
	Hitch fails to lift or lift slowly	Open preselector valve
<b>Hydraulic oil overheats</b>	Low oil supply.	Fill system with correct oil.
	Clogged transmission-hydraulic oil filter.	Replace filter.
	Internal hydraulic leak.	See your John Deere dealer.
	Oil passage to cylinder closed	Open preselector valve
	Hitch feedback linkage improperly adjusted.	Reset linkage. See your John Deere dealer.

PY80265,05I0281 -19-12SEP05-1/1

## Brakes Troubleshooting

Symptom	Problem	Solution
<b>No solid pedal feel</b>	Pedals adjusted incorrectly.	See your John Deere dealer.
<b>Excessive pedal travel</b>	Pedals adjusted incorrectly.	See your John Deere dealer.
<b>Brakes drag during transport</b>	Brakes out of adjustment.	See your John Deere dealer.

PY80265,05I0282 -19-12SEP05-1/1

## Rockshaft and 3-Point Hitch Troubleshooting

Symptom	Problem	Solution
<b>Insufficient transport clearance</b>	Center link too long.	Adjust center link.
	Lift links too long.	Adjust lift links.
	Implement not level.	Level implement.
	Implement not properly adjusted.	See implement operator's manual.
	Front of center link in upper holes.	Move center link to lower holes.
	Sway chains adjusted to short.	Lengthen sway chains.
<b>Hitch drops slowly</b>	Rockshaft rate-of-drop control not properly set.	Adjust rate-of-drop knob.
<b>Hitch fails to lift or lifts slowly</b>	Excessive load on hitch.	Reduce load.
	Low oil level.	Fill system with proper oil.
	Hydraulic oil too cold.	Allow oil to warm.
	Transmission-hydraulic oil filter clogged.	Replace filter.
	Transmission-hydraulic pickup screen clogged.	Clean or replace pickup screen.
<b>Implement will not operate at desired depth</b>	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Improper setting of limit stop.	Reset position limit.
	Improper setting of draft lever.	See Rockshaft and 3-Point Hitch section.

Continued on next page

PY80265,05I0283 -19-12SEP05-1/2

Symptom	Problem	Solution
<b>Insufficient or no hitch response to draft load</b>	Front attachment of center link in upper holes.	Move center link attachment to lower bracket holes.
	Draft control lever in "Off" position.	Move lever rearward.
	Lift links too short.	Adjust lift links.
	Lack of penetration.	See implement operator's manual.
	Rate-of-drop too slow.	Adjust rate-of-drop valve.
<b>Hitch too responsive</b>	Front attachment on center link in lower bracket holes.	Move center link attachment to upper bracket holes.
	Improper draft sensing adjustment.	Move lever forward.
<b>Hitch drops too fast</b>	Rate-of-drop set too fast.	Adjust rate-of-drop.
<b>Rockshaft control levers "drift". Levers too loose.</b>	Friction disks are loose.	Adjust rockshaft control lever friction. See procedures in "Rockshaft and 3-Point Hitch" section or see your John Deere dealer.

PY80265,05I0283 -19-12SEP05-2/2

## Electrical System Troubleshooting

Symptom	Problem	Solution
<b>Battery will not charge</b>	Loose or corroded connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Loose or defective alternator/fan belt.	Adjust belt tension or replace belt.
<b>Charging system indicator glows with engine running</b>	Low engine speed.	Increase speed.
	Defective battery.	Check electrolyte level and specific gravity.
	Defective alternator.	See your John Deere dealer.
	Slipping alternator/fan belt.	Adjust belt tension.
<b>Starter inoperative</b>	Range shift lever in gear.	Move lever to neutral.
	PTO lever in engaged position.	Move PTO lever to disengaged position.
	Low battery output.	See your John Deere dealer.
	Blown fuse.	Replace fuse.
<b>Starter cranks slowly</b>	Low battery output.	Check electrolyte level and specific gravity.
	Crankcase oil too heavy.	Use proper viscosity oil.
	Loose or corroded connections.	Clean and tighten loose connections.
<b>Light system does not function; rest of electrical system functions</b>	Blown fuse.	Replace fuse.

Continued on next page

PY80265,05I0284 -19-12SEP05-1/2

*Troubleshooting*

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>
<b>Entire electrical system does not function</b>	Faulty battery connections.	Clean and tighten connections.
	Sulfated or worn-out battery.	Check electrolyte level and specific gravity.
	Blown fuse.	Replace fuse.
<b>Relay(s) sticking or nonfunctional; repeated failures</b>	Diode to protect circuit from arcing has failed.	See your John Deere dealer.

PY80265,05I0284 -19-12SEP05-2/2

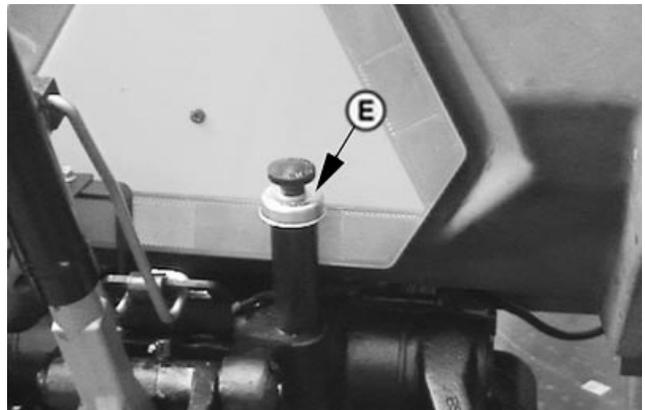
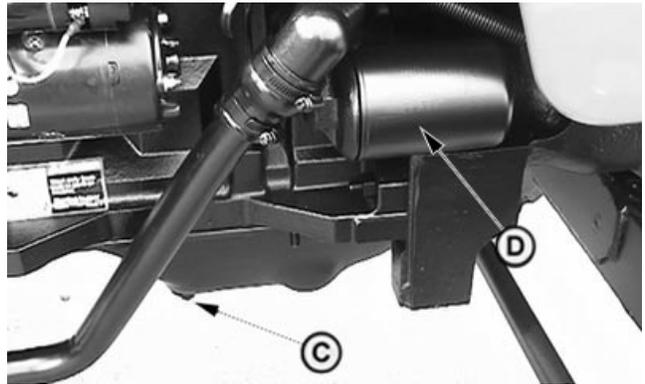
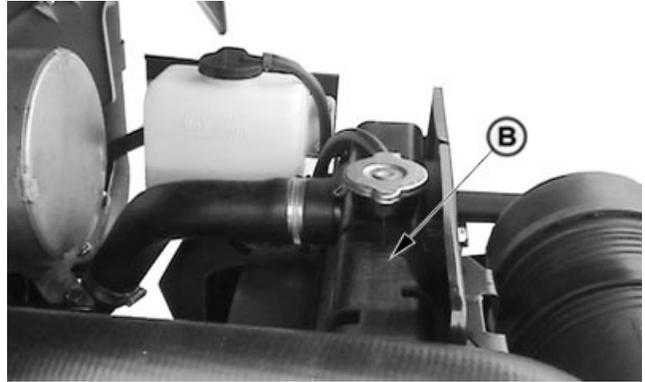
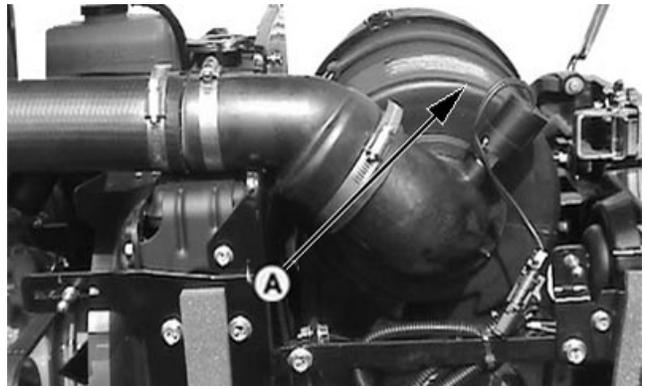
# Tractor Storage

## Storing Tractor

**IMPORTANT:** Any time tractor will not be used for several months, use this procedure to minimize corrosion and deterioration.

1. Service air cleaner (A). (See Servicing Air Cleaner in Service section.)
2. If coolant has been in tractor for two years, flush cooling system (B). (See Flushing Cooling System in Service section.) Add 50 percent antifreeze water mixture. Test coolant for adequate cold weather protection.
3. Change engine oil and filter (D). (See Change Engine Oil and Filter in Service—250 Hours section.)
4. Drain fuel and add back 4 L of fuel. Then add 0.4 L of corrosion inhibitor.
5. Add 0.25 L of corrosion inhibitor to transmission-hydraulic system fill port (E).
6. Depress clutch and start engine. Run engine until it reaches operating temperature. Also raise and lower rockshaft several times. Shut off engine.

A—Air Cleaner  
B—Cooling System  
C—Engine Oil Drain Plug  
D—Engine Oil Filter  
E—Transmission-Hydraulic Oil Filler Cap



Continued on next page

GENERIC.0000059 -19-11JUL06-1/2

7. Add 0.5 L more inhibitor to fuel tank at filler cap (A).
8. Add 0.5 L inhibitor to engine crankcase at filler (B).
9. Remove air intake hose at manifold. Pour 0.1 L inhibitor into manifold and replace hose. Pull hand throttle back to slow idle position. Crank engine only a few revolutions.
10. Loosen alternator/fan belt after they have cooled.
11. Remove and clean battery. Store in a cool, dry place. Keep it charged.<sup>1</sup>
12. Tie or block clutch pedal in the disengaged position.
13. Coat exposed bare (no paint) metal surfaces with grease or a corrosion inhibitor.
14. Use tape to seal air inlet hole (C), dust unloader valve (D), exhaust pipe, crankcase filler (B), fuel caps, and transmission-hydraulic system filler cap (E).
15. Cover dash with opaque material to prevent gauges from fading.
16. Raise tyres off ground. Protect them from heat and sunlight.
17. Thoroughly clean tractor. Touch up any painted surfaces that are scratched or chipped.
18. If tractor must be stored outside, cover it with a waterproof material.

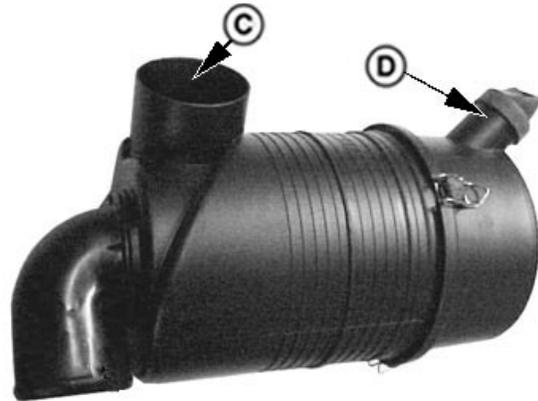
- A—Fuel Tank Filler Cap
- B—Engine Oil Filler Cap
- C—Air Cleaner Inlet Hole
- D—Dust Unloader Valve
- E—Transmission-Hydraulic Filler Cap



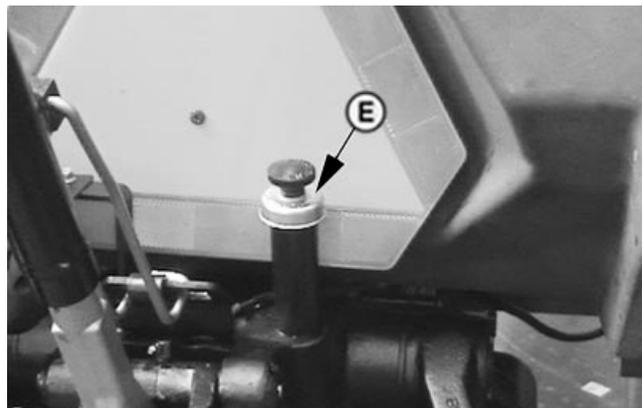
PY4101 -UN-20AUG04



PY1418 -UN-03FEB03



PY5515 -UN-17FEB06



PY4946 -UN-21APR05

<sup>1</sup>Disconnect battery ground cable for short-term storage periods (20 to 90 days).

## Removing Tractor From Storage

1. Check tyre inflation pressure. (See Wheels, Tyres and Treads section.) Lower tyres to ground.
2. Unseal all openings sealed in "Storing Tractor".
3. Install battery.
4. Remove ties or block which secured clutch pedal down.
5. Check levels of engine oil, transmission-hydraulic oil and engine coolant, Add if necessary.
6. Drain a small amount of fuel from fuel tank to purge any moisture condensation that has collected.
7. Fill fuel tank.
8. Perform all appropriate 10-hour, 50-hour, 250-hour, and 600-hour services as instructed in Lubrication and Maintenance section.
9. Check all instruments and indicators by turning key switch to ON position.

PY80265,05I0286 -19-11JUL06-1/2

**IMPORTANT: DO NOT operate starter more than 20 seconds at a time and wait at least two minutes for starter to cool before trying again.**

10. Pull hand throttle (A) all the way down, depress clutch pedal and crank engine until oil pressure rises.
11. Connect wiring lead to fuel injection pump shut-off solenoid.
12. Depress clutch pedal and start engine. Operate engine at slow idle for several minutes. Warm up carefully and check all systems before placing tractor under load.



A—Hand Throttle

PY4485 -UN-16FEB06

PY80265,05I0286 -19-11JUL06-2/2

# Specifications

## John Deere 5310 S Tractor

### 5310 S-3029T Turbocharged Engine

Observed PTO power	62 hp
Max. engine torque	240 Nm
Cylinders	3
Bore	106.5 mm
Stroke	110 mm
Displacement	2.9 L
Compression ratio	17.8:1
Firing order	1-2-3
Slow idle	800-875 RPM
Fast idle	2575-2650 RPM
Operating range	1400-2400
Injection pump timing	5.4° BTDC
Type of injection pump	Rotary

### Electrical

Battery	12 V, 100 AH
Alternator	43 Amp
Starter	12 V, 2.5 kW

### Transmission

Clutch type	Dual
Gearbox type	Collar Shift
No. of forward gears	9
No. of reverse gears	3
Standard PTO	540 RPM
Dual PTO (Optional)	540 RPM @ 2376 & 1782 ERPM

### Brakes

Type	Wet disc brakes
Actuation	Hydraulic

### Hydraulics

Pump output	46 l/min
Lifting capacity	2000 kgf

### Wheels and Tyres

Front tyre	6.5 x 20, 8 PR
Rear tyre	18.4 x 30, 14 PR

### Dimensions and Weight

Total weight	2515 kg
Wheel base	2050 mm
Overall length	3820 mm
Overall width	1880 mm
Overall height (with exhaust pipe)	2300 mm
Ground clearance	500 mm
Turning radius w. brake	3150 mm
Turning radius w/o brake	3610 mm

### Filling Capacities

Fuel tank	68 lit
Engine sump	8.5 lit
Transmission	38 lit
Hydraulics	Common to transmission

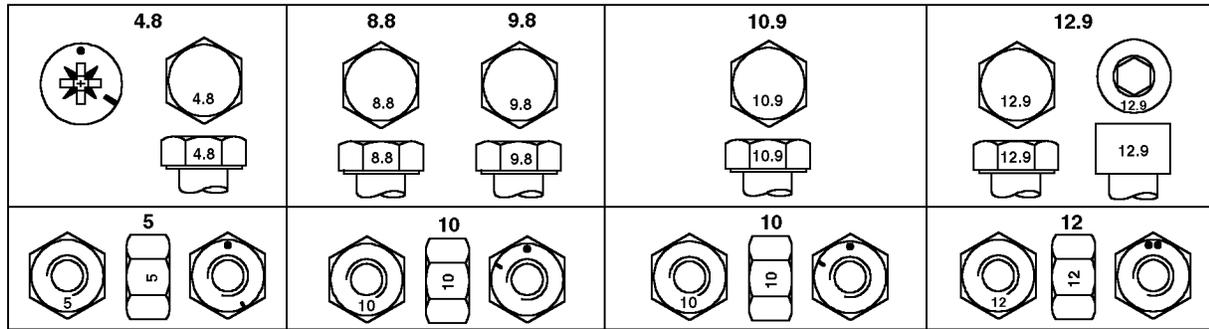
GENERIC,0000043 -19-17FEB06-1/1

**Ground Speed at Rated Engine Speed (2400 RPM)**

5310 S Tractor ( Rear tyre size : 18.4 X 30 ) , ( RR - 753 mm )	
Gear	Speed (km/h)
A1	2.72
A2	4.20
A3	4.92
B1	6.39
B2	9.94
B3	11.80
C1	17.57
C2	27.28
C3	32.41
A-R	3.86
B-R	9.13
C-R	25.07

PY80265,05I0288 -19-12SEP05-1/1

## Metric Bolt and Cap Screw Torque Values



Top, property class and head markings; bottom, property class and nut markings

Size	Class 4.8		Class 8.8 or 9.8		Class 10.9		Class 12.9	
	Lubricated <sup>a</sup> N•m(lb-ft)	Dry <sup>b</sup> N•m(lb-ft)						
M6	4.7 (3.5)	6 (4.4)	9 (6.6)	11.5 (8.5)	13 (9.5)	16.5 (12.2)	15.5 (11.5)	19.5 (14.5)
M8	11.5 (8.5)	14.5 (10.7)	22 (16)	28 (20.5)	32 (23.5)	40 (29.5)	37 (27.5)	47 (35)
M10	23 (17)	29 (21)	43 (32)	55 (40)	63 (46)	80 (59)	75 (55)	95 (70)
M12	40 (29.5)	50 (37)	75 (55)	95 (70)	110 (80)	140 (105)	130 (95)	165 (120)
M14	63 (46)	80 (59)	120 (88)	150 (110)	175 (130)	220 (165)	205 (150)	260 (190)
M16	100 (74)	125 (92)	190 (140)	240 (175)	275 (200)	350 (255)	320 (235)	400 (300)
M18	135 (100)	170 (125)	265 (195)	330 (245)	375 (275)	475 (350)	440 (325)	560 (410)
M20	190 (140)	245 (180)	375 (275)	475 (350)	530 (390)	675 (500)	625 (460)	790 (580)
M22	265 (195)	330 (245)	510 (375)	650 (480)	725 (535)	920 (680)	850 (625)	1080 (800)
M24	330 (245)	425 (315)	650 (480)	820 (600)	920 (680)	1150 (850)	1080 (800)	1350 (1000)
M27	490 (360)	625 (460)	950 (700)	1200 (885)	1350 (1000)	1700 (1250)	1580 (1160)	2000 (1475)
M30	660 (490)	850 (625)	1290 (950)	1630 (1200)	1850 (1350)	2300 (1700)	2140 (1580)	2700 (2000)
M33	900 (665)	1150 (850)	1750 (1300)	2200 (1625)	2500 (1850)	3150 (2325)	2900 (2150)	3700 (2730)
M36	1150 (850)	1450 (1075)	2250 (1650)	2850 (2100)	3200 (2350)	4050 (3000)	3750 (2770)	4750 (3500)

<sup>a</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

<sup>b</sup> "Dry" means plain or zinc plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

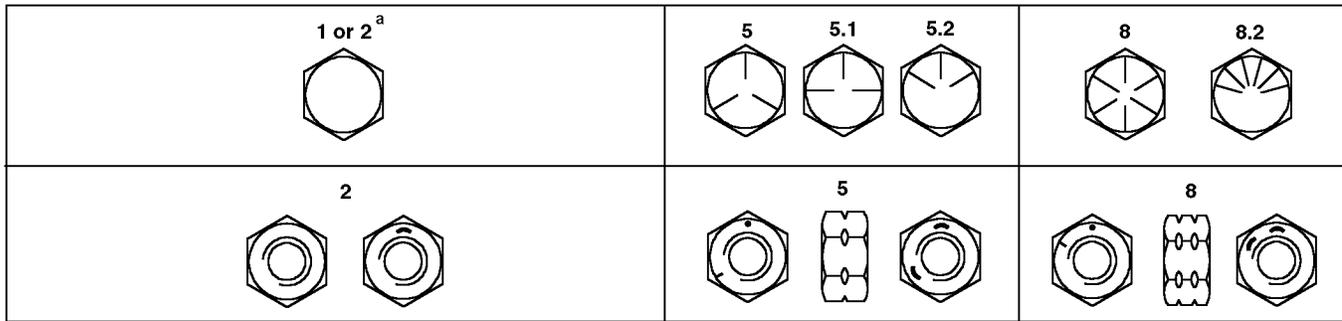
Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

TORQZ -UN-07SEP99

## Unified Inch Bolt and Cap Screw Torque Values



Top, SAE grade and head markings; bottom, SAE grade and nut markings

TORQ1A -UN-27SEP99

Size	Grade 1 (No Mark)		Grade 2 <sup>a</sup> (No Mark)		Grade 5, 5.1 or 5.2		Grade 8 or 8.2	
	Lubricated <sup>b</sup> N•m(lb-ft)	Dry <sup>c</sup> N•m(lb-ft)						
1/4	3.8 (2.8)	4.7 (3.5)	6 (4.4)	7.5 (5.5)	9.5 (7)	12 (9)	13.5 (10)	17 (12.5)
5/16	7.7 (5.7)	9.8 (7.2)	12 (9)	15.5 (11.5)	19.5 (14.5)	25 (18.5)	28 (20.5)	35 (26)
3/8	13.5 (10)	17.5 (13)	22 (16)	27.5 (20)	35 (26)	44 (32.5)	49 (36)	63 (46)
7/16	22 (16)	28 (20.5)	35 (26)	44 (32.5)	56 (41)	70 (52)	80 (59)	100 (74)
1/2	34 (25)	42 (31)	53 (39)	67 (49)	85 (63)	110 (80)	120 (88)	155 (115)
9/16	48 (35.5)	60 (45)	76 (56)	95 (70)	125 (92)	155 (115)	175 (130)	220 (165)
5/8	67 (49)	85 (63)	105 (77)	135 (100)	170 (125)	215 (160)	240 (175)	305 (225)
3/4	120 (88)	150 (110)	190 (140)	240 (175)	300 (220)	380 (280)	425 (315)	540 (400)
7/8	190 (140)	240 (175)	190 (140)	240 (175)	490 (360)	615 (455)	690 (510)	870 (640)
1	285 (210)	360 (265)	285 (210)	360 (265)	730 (540)	920 (680)	1030 (760)	1300 (960)
1-1/8	400 (300)	510 (375)	400 (300)	510 (375)	910 (670)	1150 (850)	1450 (1075)	1850 (1350)
1-1/4	570 (420)	725 (535)	570 (420)	725 (535)	1280 (945)	1630 (1200)	2050 (1500)	2600 (1920)
1-3/8	750 (550)	950 (700)	750 (550)	950 (700)	1700 (1250)	2140 (1580)	2700 (2000)	3400 (2500)
1-1/2	990 (730)	1250 (930)	990 (730)	1250 (930)	2250 (1650)	2850 (2100)	3600 (2650)	4550 (3350)

<sup>a</sup> Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152 mm) long. Grade 1 applies for hex cap screws over 6 in. (152 mm) long, and for all other types of bolts and screws of any length.

<sup>b</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

<sup>c</sup> "Dry" means plain or zinc plated without any lubrication.

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fastener threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

# Identification Numbers

## Identification Plates

Each tractor has the identification plates shown on these pages. The letters and numbers stamped on the plates identify a component or assembly. ALL these characters are needed when ordering parts or identifying a tractor or component for any John Deere product support program. Also, they are needed for law enforcement to trace your tractor if it is ever stolen. ACCURATELY record these characters in the spaces provided in each of the following photographs.

PY80265,05I0291 -19-12SEP05-1/1

## Record Tractor Serial (Chassis) Number

Serial number plate (A) is located on the left front support member of the tractor.



PY5163 -UN-21AUG05

PY80265,05I0292 -19-12SEP05-1/1

## Record Front Axle Serial Number

The front-axle serial number plate (A) is located on rear side of right-hand axle housing.



PY4071 -UN-07JUN06

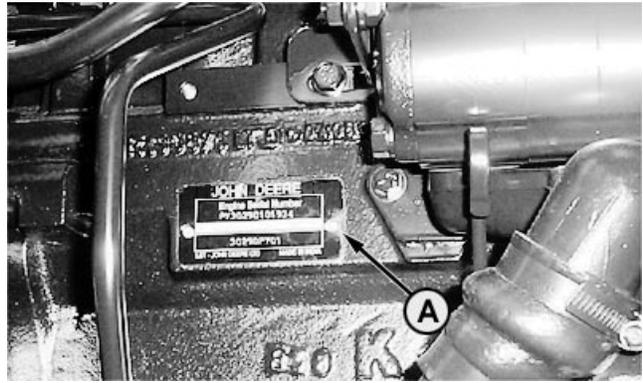
PY4071

PY80265,05I0293 -19-12SEP05-1/1

### Record Engine Serial Number

Serial number plate (A) is located on the right-hand side of the engine block between the starter solenoid and the hydraulic pump.

Engine Serial Number \_\_\_\_\_



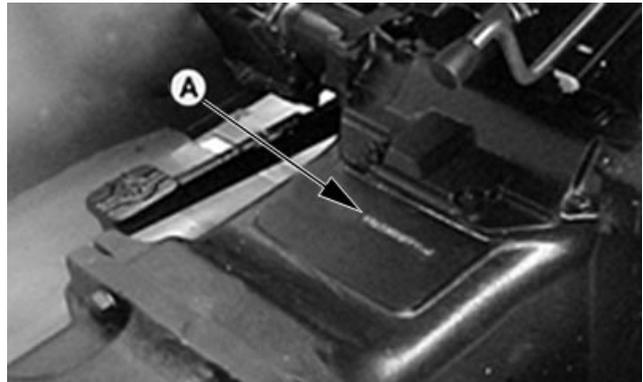
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### Record Transmission Serial Number

Transmission serial number is stamped into the lower left-hand corner of rear housing (A).

Transmission Serial Number \_\_\_\_\_



PY1537 -UN-30JAN06

PY80265,05I0295 -19-12SEP05-1/1

# Lubrication Maintenance Record Charts

## 50, 250 Hour Service Chart

### Every 50 Hours

- Check transmission-hydraulic system oil level
- Clean and check battery
- Inspect all tyres
- Lubricate front axle pivot pin
- Lubricate steering spindles
- Inspect tractor for loose nuts and bolts

- Service air cleaner
- Inspect and adjust alternator/fan belt
- Lubricate 3-point hitch
- Check neutral start system
- Check clutch pedal free play
- Check brake pedal adjustment

### Every 250 Hours

- Change engine oil and filter

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PY80265,05I0296 -19-12SEP05-1/1

### 500 Hour Service Chart

Every 500 Hours

- Replace transmission-hydraulic oil filter

- Replace fuel filter

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PY80265,05I0297 -19-12SEP05-1/1

### 600 Hour Service Chart

**Every 600 Hours**

- Clean crankcase vent tube
- Repack front wheel bearings
- Tighten engine air intake hose clamps
- Check cooling system for leaks
- Lubricate rear axle bearings
- Check engine idle speeds
- Have your John Deere dealer:
  - Adjust engine valve clearance
  - Check front axle pivot pin
  - Inspect fuel injectors

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PY80265,05I0298 -19-12SEP05-1/1

### 1000,1250 Hour Service Chart

#### Every 1000 Hours

- Check and adjust valve clearance
- Check engine speeds

#### Every 1250 Hours

- Change transmission-hydraulic oil and filter
- Clean transmission-hydraulic pickup screen

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PY80265,05I0299 -19-12SEP05-1/1

### Annual Service Chart

**Annually**

- Replace air cleaner elements

- Change engine oil and filter

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
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Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

PY80265,05I0301 -19-12SEP05-1/1

**2000 Hour Service Chart**

**Every 2 Years or 2000 Hours (Whichever Comes First)**

- Flush cooling system

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
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Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

PY80265,05I0302 -19-12SEP05-1/1

## As Required Service Chart

### Service as Required

- Replace fuel filter

- Drain water and sediment from fuel tank
- Service air cleaner
- Adjust throttle friction

Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				
Hours					Hours				
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Hours					Hours				
Date					Date				
Hours					Hours				
Date					Date				

PY80265,05I0303 -19-12SEP05-1/1

# John Deere Service

## John Deere Parts

We help minimize downtime by putting genuine John Deere parts in your hands in a hurry. That's why we maintain a large and varied inventory to meet your spare parts needs.



PY00013.0000003 -19-14JUN01-1/1

TS100 -JUN-23AUG88

## The Right Tools

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly. They save your time and money.



PY00013.0000004 -19-14JUN01-1/1

TS101 -JUN-23AUG88

## Well Trained Technician

School is never out for John Deere service technicians. Training schools are held regularly to be sure our personnel know your equipment and how to maintain it.

Result?

Experience you can count on!



PY00013.0000005 -19-14JUN01-1/1

TS102 -JUN-23AUG88

## Prompt Service

Our goal is to provide prompt, efficient care when you want it and where you want it. We can make repairs at your place or at ours, depending on the circumstances.

see us, depend on us. We'll be around when you need us.



PY00013.0000006 -19-14JUN01-1/1

TS103 -JUN-23AUG88

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