

# **4050, 4250 and 4450 Tractors**



**JOHN DEERE**

## **TECHNICAL MANUAL** 4050, 4250 and 4450 Tractors

TM1353 (01SEP87) English

**TM1353 (01SEP87)**

LITHO IN U.S.A.  
ENGLISH

# 4050, 4250 AND 4450 TRACTORS TECHNICAL MANUAL TM-1353 (SEP-87)

## CONTENTS—REPAIR SECTIONS

### PUBLICATION NUMBER CHANGE

This technical manual was formerly TM-1257. The number was changed to TM-1353 when engine information was removed. Some pages still carry the old publication number. For engine information, refer to engine component technical manual, CTM-1, 6466 Engines or to CTM-4, 6359 Engines. This machine technical manual covers removal and installation of the engine components. The component manual covers basic repair of the engine. For main hydraulic pump repair information, refer to component technical manual, CTM-7, Radial Piston Pumps.

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*All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

U10;010GEN AX3 021087

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U10;010GEN CX3 061087

## INTRODUCTION

This manual is part of a total service support program.

### FOS Manuals—reference

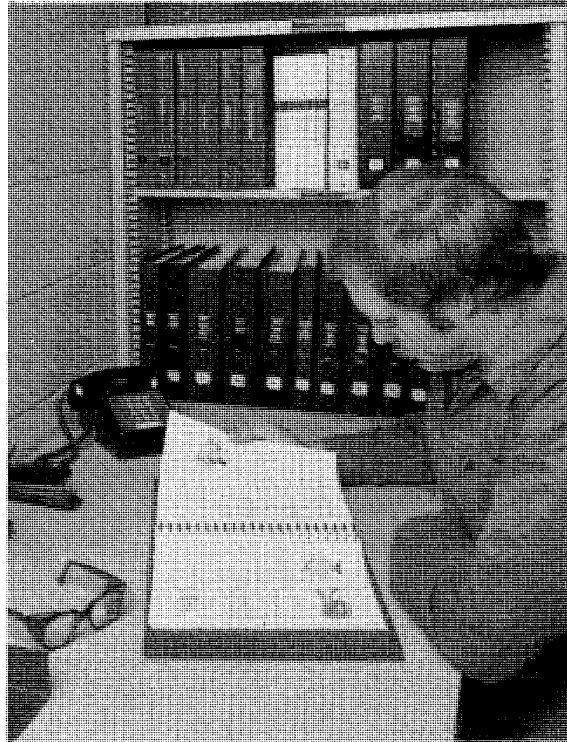
### Technical Manuals—machine service

### Component Manuals—component service

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

*Technical Manuals* are concise service guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.

*Component Technical Manuals* are concise service guides for specific components. Component technical manuals are written as stand alone manuals covering multiple machine applications.



AB6;RW5559 053;INTRO2 030785

## FEATURES OF THIS TECHNICAL MANUAL

John Deere ILLUSTRATION format emphasizing illustrations and concise instructions in easy-to-use modules.

Emphasis on diagnosis, analysis, and testing so you can understand the problem and correct it.

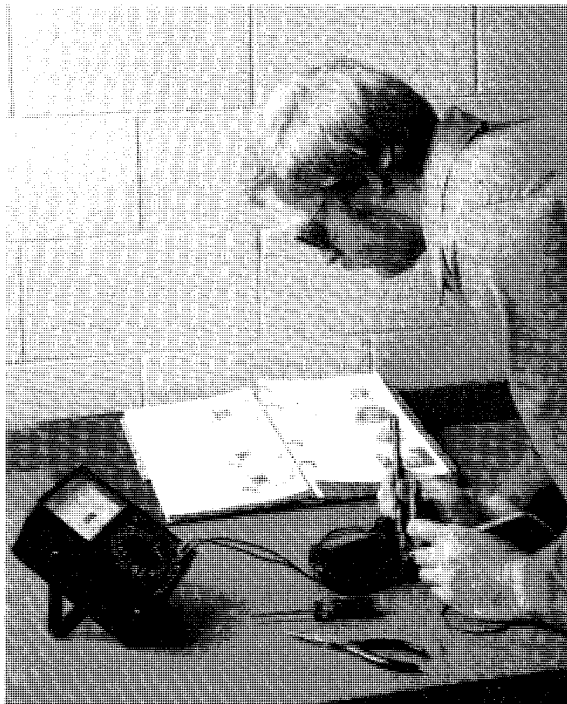
Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

Step-by-step instructions for teardown and assembly.

Summary listing at the beginning of each group of all applicable specifications, wear tolerances, torque values, essential tools, and materials needed to do the job.

An emphasis throughout on safety—so you do the job right without getting hurt.

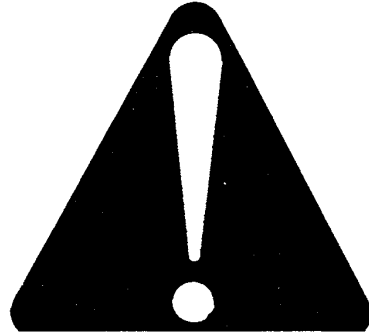
This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.



AB6;RW5560 053;INTRO3 071085

## SAFETY AND YOU

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



AB6;T81389 053;TMSAFE 071085

## IMPORTANT

The **IMPORTANT** message identifies potential problems which may cause consequential damage to tractor. Following recommended procedure will instruct technician how to avoid problem.

U10;010INT D 101281

## NOTES

The word *NOTE* is followed by a statement that identifies a qualification or exception to a previous statement. A "NOTE" may also identify nice-to-know information pertinent to, but not directly related to previous statement.

U10;010INT E 101281

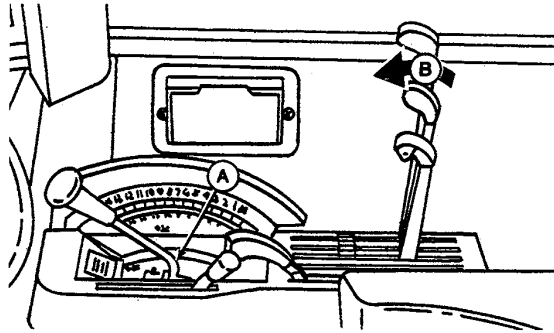
### STAY CLEAR OF MOVING TRACTOR

Always place transmission in PARK (A) before dismounting. 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. Some movement may occur as engine starts.

Never try to get on or off a moving tractor.

When tractor is left unattended, lower implements to the ground (B), stop the engine, and remove the key.



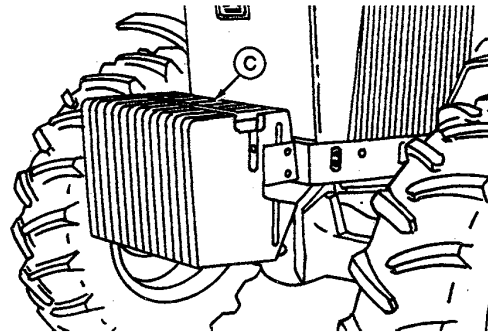
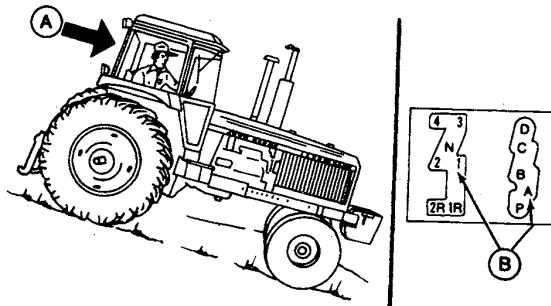
AJ7;RW5696L U01;STAY CLEAR2 200585

### SHIFT TO LOW GEAR ON HILLS

Shift to a low gear (B) before descending a steep hill (A), to improve your control of the tractor with little or no braking. Make sure brake pedals are locked together. Never coast downhill.

When driving on icy or graveled surfaces, reduce speed and be sure tractor is properly ballasted to avoid skidding and loss of steering control.

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

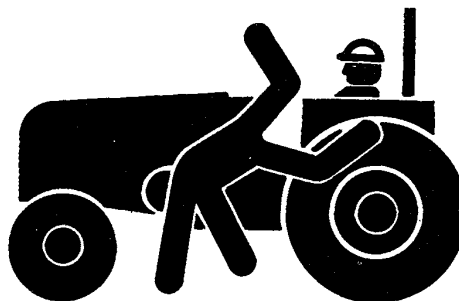


AJ7;RW5692 L,RW5693 L U01;DRIVE SAFE1 281085

### 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.

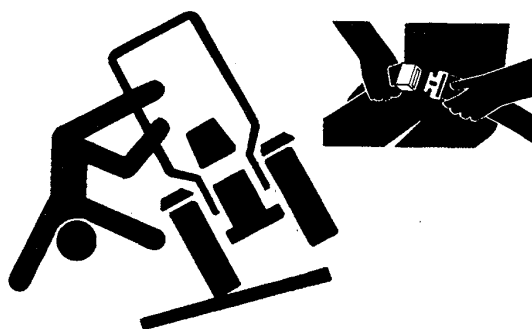


AB6;TS213 053;RIDER 160687

### USE SEAT BELT PROPERLY

Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS.

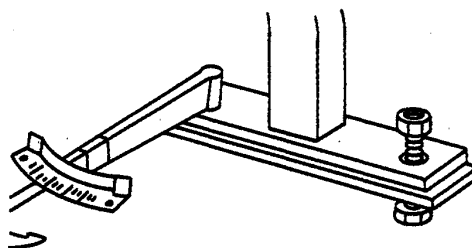


AB6;TS205 053;ROPS1 230487

### KEEP ROPS INSTALLED PROPERLY

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

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



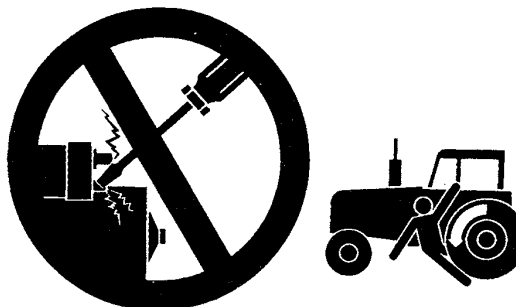
AB6;TS212 053;ROPS3 230487

### 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 or park.



AB6;TS177 053;BYPAS1 210585



## TOW EQUIPMENT PROPERLY

Use caution when towing loads at transport speeds. Reduce speed if towed load weighs more than the tractor and is not equipped with brakes. Avoid hard braking applications. (Consult implement operator's manual for recommended transport speeds.)

Use additional caution when transporting towed loads under adverse surface conditions, when turning, or on inclines.

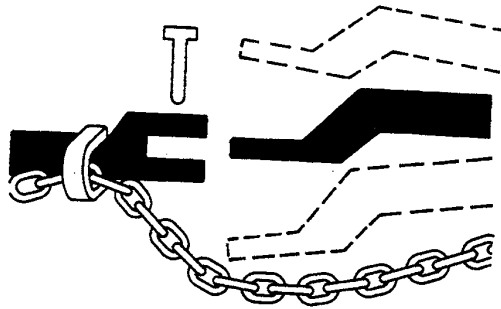
U01;TOW 061284

## USE A SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.



AB6;TS208 053;CHAIN 180987

## PRACTICE SAFE MAINTENANCE

Understand service procedure before doing work.

Never lubricate or service 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. 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.

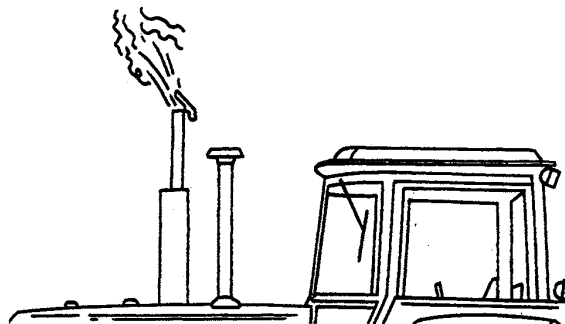
Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.



AB6;TS209 053;SERV 160687

### AVOID EXHAUST FUMES

Never run engine in a closed building. Make sure service area is adequately ventilated.



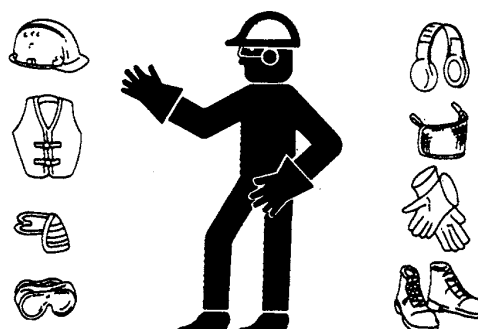
AJ7;RW5703 L U01;AVOID FUMES 090585

### 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.



AB6;TS206 053;WEAR 230487

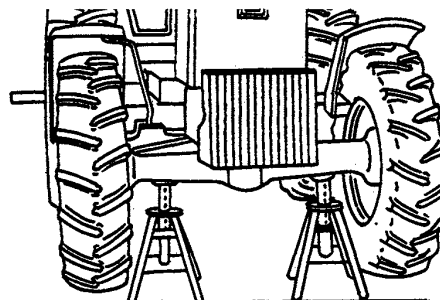
### SERVICE TRACTOR SAFELY

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

If servicing front-wheel drive equipped tractor with rear wheels supported off ground and rotating wheels by engine power, always support front wheels in a similar manner. If front wheels are not raised, loss of electrical power or transmission-hydraulic system pressure will engage front driving wheels and pull rear wheels off support. Under these conditions, the front-drive wheels can engage even with switch in disengaged position.

Reinstall all shields removed during service.

The air conditioning system is pressurized. Improper servicing may cause refrigerant to penetrate eyes and skin or cause burns. Special equipment and procedures are required to service air conditioning system. (See your John Deere dealer.)



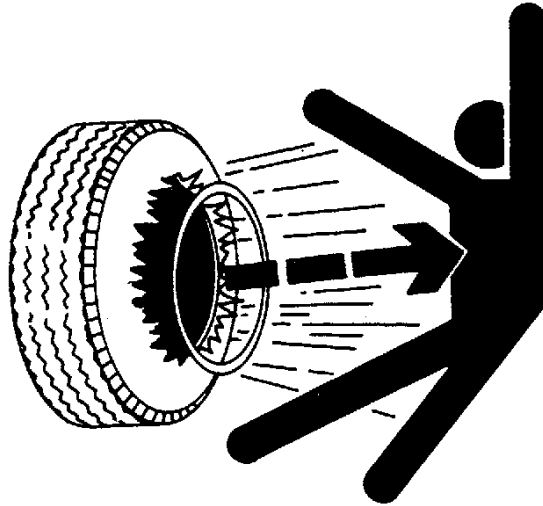
AJ7;RW5700 L U01;WORK SAFE1 090585

## SERVICE TIRES SAFELY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Have it done by your John Deere dealer or a qualified tire repair service.

When sealing tire beads on rims, never exceed 35 psi (241 kPa) (2.4 bar) or maximum inflation pressures specified by tire manufacturers for mounting tires. Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous explosive force. If both beads are not seated when the maximum recommended pressure is reached, deflate, reposition tire, relubricate bead and reinflate.

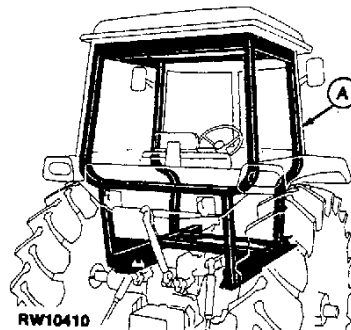
Detailed tire mounting instructions, including necessary safety precautions, are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks, available through your John Deere dealer. Such information is also available from the Rubber Manufacturers Association and from tire manufacturers.



AB6;TS211 U01;TIRE 051087

## DO NOT MODIFY TRACTOR

Never modify structural members of the roll-over protective structure (ROPS) (A) of the SOUND-GARD body or ROLL-GARD protective frame by welding, bending, drilling or cutting as this might weaken the structure. If any structural member is damaged, replace the entire structure. Do not attempt repairs.



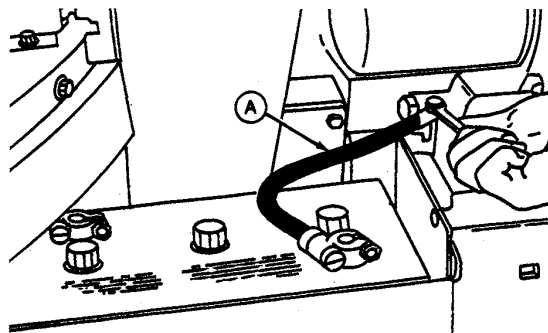
RW10410

AJ7;RW1041 0 U01;MODIFY RC 131285

## OBSERVE ELECTRICAL SERVICE PRECAUTIONS

Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect ground cable (A) last and disconnect it first. When using a booster battery, follow instructions in operator's manual.

To avoid shocks and burns, disconnect battery ground cable before servicing any part of electrical system.



AJ7;RW5701L U10;010INT EX1 210682

## AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard to search for leaks.

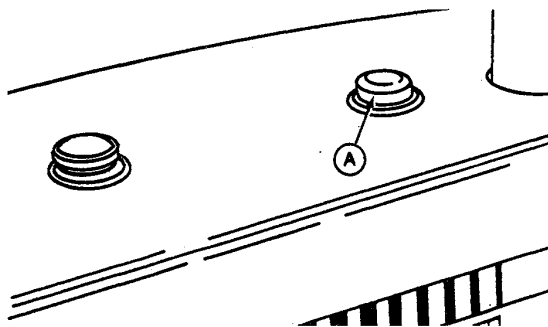
If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



AB6;X9811 053;FLUID 180987

## SERVICE COOLING SYSTEM SAFELY

Do not remove radiator cap (A) when engine is hot. Shut the engine off and wait until it cools. Then turn the cap slowly to the first stop to relieve pressure before removing it completely.

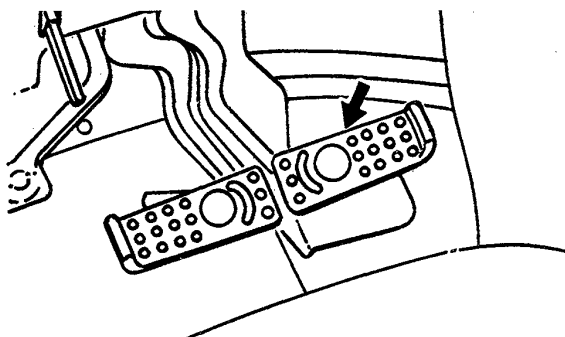


AJ7;RW5702 L U01;COOL IT 090585

## SERVICE BRAKE ACCUMULATOR SAFELY

Accumulator contains gas and oil under pressure. To avoid injury from escaping fluid, relieve all pressure from accumulator before disconnecting brake accumulator or brake valve. To do so open bleed screws and pump brake pedal with engine stopped, until pedal easily goes all the way down.

The accumulator is charged with dry nitrogen to a pressure of 500 psi (3450 kPa) (35 bar). If it needs recharging, have job done only by a qualified service person and only with dry nitrogen.



AJ7;RW8630 L U01;FIX BRAKE 311085

### AVOID EXPLOSIONS OR FIRE

Batteries produce explosive gas. Before using booster batteries, read instructions in operator's manual.

Before connecting or disconnecting battery charger, turn the charger off to avoid sparks. See instructions in operator's manual.

Be careful with starting fluid or any type of fuel.

Never smoke while handling fuel.

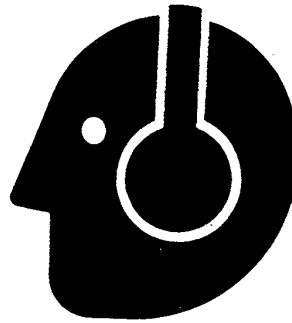


AC3;RW5895 U01;FIRE 091184

### PROTECT AGAINST NOISE

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

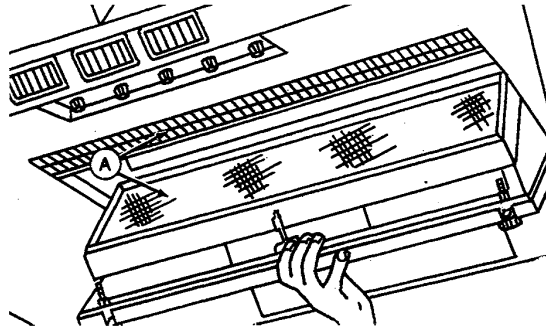
Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



AB6;TS207 053;NOISE 230487

### HANDLE CHEMICALS PROPERLY

SOUND-GARD body air filters (A) are not designed to filter out harmful chemicals. Follow instructions given in the implement operator's manual and those given by the chemical manufacturer when using agricultural chemicals.



AJ7;RW5704 L U01;HANDLE CHEM 090585

## PREVENT BATTERY EXPLOSIONS

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.



AB6;TS204 U01;EXPLO 021087

## AVOID 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:

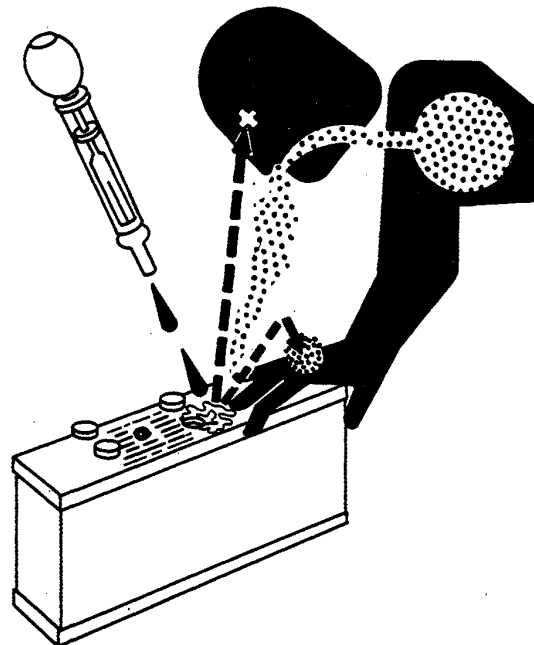
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoid breathing fumes when electrolyte is added.
4. Avoid spilling or dripping electrolyte.

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 10-15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



AB6;TS203 U01;ACID 021087

### 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.



AB6;TS202 053;FIRE1 230487

### 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.



AB6;TS186 053;FIRE2 080785

### HANDLE STARTING FLUID SAFELY

Starting fluid is highly flammable.

Keep all sparks and flame away when using it. Keep starting fluid away from batteries and cables.

To prevent accidental discharge when storing the pressurized can, keep the cap on the container, and store in a cool, protected location.

Do not incinerate or puncture a starting fluid container.



AB6;T6098A U 053;FIRE3 160687

# Section 10 GENERAL

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Is Clutch Pedal Adjusted Correctly .....	10-05-14
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If Equipped, Does INVESTIGATOR™ II Warning System Operate Correctly ..	10-05-15
Are Instrument Panel Gauges And Lights Operating Correctly .....	10-05-15
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Is Neutral Start Switch Operating Correctly .....	10-05-16
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Are Brakes Operating Correctly With Engine On/Off .....	10-05-17
Does Transmission Operate Correctly In All Gears (And In Park) .....	10-05-17
Does Hydraulic System Operate Properly .....	10-05-17
Does PTO Operate Correctly .....	10-05-18
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Are Engine Oil Lines Free Of Leaks ...	10-05-18
Are Fuel Lines Free Of Leaks .....	10-05-18
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Properly .....	10-05-19
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Operate Correctly .....	10-05-23
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Adjusted Correctly .....	10-05-23
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Operate Correctly .....	10-05-23
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Correctly .....	10-05-24
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Check Alternator And	
Compressor Belt .....	10-10-03
Check And Adjust Injection	
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Transmission - Hydraulic Oils .....	10-15-02	Change Transmission-Hydraulic Oil .....	10-15-09
Use Correct Hydraulic Filter Element .....	10-15-02	Lubricate Grease Fittings .....	10-15-10
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Clean Crankcase Vent Tube .....	10-15-06	Lubricate MFWD Equipped Tractors .....	10-15-11
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## Contents

### TERMS AND ABBREVIATIONS

The following list defines various abbreviations and terms used throughout this manual.

A/C	—Air Conditioning	PCV	—Pressure Control Valve
AC	—Alternating Current	POS.(+)	—Positive
ACC.	—Accessory	PPP	—Rotary Valve Pilot Pressure
Bat.	—Battery		—Port
°C	—Degrees Celsius	PRV	—Pressure Regulating Valve
CCA	—Cold Cranking Amps	PSI	—Pounds Per Square Inch
CL	—Clutch	PST	—Power Shift Transmission
DR	—Diagnostic Receptacle	PT	—Pint
EOV	—Engagement Override Valve	PTO	—Power Take Off
°F	—Degrees Fahrenheit	QRT	—Quad-Range Transmission
F1 through F15	—Forward Speed	QT	—Quart
FN	—Forward/Neutral	R-12	—Refrigerant-12
FWD-REV	—Forward—Reverse	RH	—Right-Hand
GPM	—Gallon Per Minute	RN	—Reverse/Neutral
HG	—Mercury	ROM	—Return Oil Manifold
HI	—High	RPM	—Revolutions Per Minute
HL-BR	—BHi Pilot Pressure Port	RS	—Rockshaft
HL-CL	—CLO Pilot Pressure Port	SAE	—Society of Automotive
HSG	—Housing		—Engineers
IGN	—Ignition	SCV	—Selective Control Valve
ISO	—International Standards	SGB	—SOUND-GARD Body
	—Organization	SMU	—Standard Monitoring Unit
LH	—Left-Hand		—(INVESTIGATOR II)
LO	—Low	SPEC	—Specifications
MA	—Milli-Amps	ST	—Start
MAX.	—Maximum	SW	—Switch
MFWD	—Mechanical Front Wheel	Tach	—Tachometer
	—Drive	TCV	—Transmission Control Valve
MIN	—Minimum		—Housing
ml	—Milliliters	TDC	—Top Dead Center
mm	—Millimeter	Temp	—Temperature
MOD	—Modulator	TEV	—Thermal Expansion Valve
NEG.(—)	—Negative	TL	—Tail Light
NF	—Neutral/Forward	TRAN.	—Transmission
NN	—Neutral/Neutral	TRPT	—Transport
NPT	—National Pipe Thread	V	—Volts or Voltage
NR	—Neutral/Reverse	V. Det	—Voltage Detector
NO.	—Number	VL or VLS	—Valve(s)
OZ	—Ounce	WL	—Warning Lamp
		WOT	—Wide-Open Throttle

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**Group 00**  
**SPECIFICATIONS**

**GENERAL TRACTOR SPECIFICATIONS**

**POWER:**

PTO (Factory observed at 2200 rpm)

4050 (Tractors Serial No. -006509) .....	75 kW (100 hp)
4050 (Tractor Serial No. 006510- ) .....	78 kW (105 hp)
4050E* .....	94 kW (126 hp)
4250 .....	90 kW (120 hp)
4250E* .....	106 kW (142 hp)
4450 .....	105 kW (140 hp)

**ENGINE:**

Type .....	Diesel
Aspiration	
4050 (Tractor Serial No. -006509) .....	Natural
4050 (Tractor Serial No. 006510- ), 4050E*, 4250, 4250E* and 4450 .....	Turbocharged
Cylinders .....	In-line 6
Slow idle speed	
4050 (Tractor Serial No. -006509), 4250 and 4450 .....	850 rpm
4050 (Tractor Serial No. 006510- ), 4050E* and 4250E* .....	800 rpm
Governed speed range	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	800—2400 rpm
4050 (Tractor Serial No. 006510- ) .....	800—2350 rpm
Operating speed range	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	1500—2000 rpm
4050 (Tractor Serial No. 006510- ) .....	1300—2200 rpm
Bore and stroke	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	116 x 120.6 mm (4.57 x 4.75 in.)
4050 (Tractor Serial No. 006510- ) .....	106.5 x 110 mm (4.19 x 4.33 in.)
Compression ratio	
4050 (Tractor Serial No. -006509) .....	17.0:1
4050 (Tractor Serial No. 006510- ) .....	16.8:1
4050E*, 4250, 4250E*, and 4450 .....	15.8:1
Displacement	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	7.6 L (466 cu. in.)
4050 (Tractor Serial No. 006510- ) .....	5.8L (359 cu. in.)
Firing order .....	1-5-3-6-2-4
Valve clearance:	
Intake	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	0.46 mm (0.018 in.)
4050 (Tractor Serial No. 006510- ) .....	0.35 mm (0.014 in.)
Exhaust	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E*, and 4450 .....	0.71 mm (0.028 in.)
4050 (Tractor Serial No. 006510- ) .....	0.46 mm (0.018 in.)
Lubrication system .....	Force-feed, pressurized with full-flow oil filter

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information.

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*Specifications*

**GENERAL TRACTOR SPECIFICATIONS - Continued**

**FUEL SYSTEM:**

Type ..... Direct injection  
 Injection pump type  
     4050 ..... Rotary  
     4050E\*, 4250, 4250E\*, and 4450 ..... In-line  
 Injection pump timing ..... TDC  
 Air cleaner ..... Dry type with safety element

**COOLING SYSTEM:**

Type ..... Pressurized with centrifugal pump  
 Fan ..... Viscous drive  
 Thermostats ..... Two heavy-duty

**ELECTRICAL SYSTEM:**

Type ..... 12-volt, negative ground  
 Batteries ..... Two  
     Group ..... 5D  
     Amps ..... 800  
     Capacity (min) ..... 376  
 Alternator:  
     SOUND-GARD® Body ..... 90 amp  
     Less SOUND-GARD® Body  
         4050 (Tractor Serial No. -006509), 4250 (Tractor Serial No. -011036),  
         4450 (Tractor Serial No. -022110) ..... 72 amp  
         4050 (Tractor Serial No. 006510- ), 4250 (Tractor Serial No. 011037- ),  
         4450 (Tractor Serial No. 022111- ) ..... 90 amp

**CAPACITIES:**

Fuel tank  
     4050 (Tractor Serial No. -005510) ..... 174 L (46 gal)  
     4050 (Tractor Serial No. 005511- ), 4250 and 4450 ..... 246 L (65 gal)  
 Cooling system  
     4050 (Tractor Serial No. -005510) ..... 19.9 L (21 qt)  
     4050 (Tractor Serial No. 005511- ), 4250 and 4450 ..... 25.6 L (27 qt)  
 Crankcase with filter ..... 17.0 L (18 qt)  
 Transmission-hydraulic system:  
     Power-Shift (drain and fill) ..... 51.0 L (13.5 gal)  
     Power-Shift with MFWD (drain and fill) ..... 60.0 L (15.9 gal)  
     QUAD-RANGE™ (drain and fill) ..... 60.5 L (16.0 gal)  
     QUAD-RANGE with MFWD (drain and fill) ..... 65 L (17.2 gal)  
 Mechanical Front-Wheel Drive:  
     Axle housing ..... 8.5 L (9 qt)  
     Wheel hub ..... 1.9 L (2 qt)

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information.

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*Specifications*

**GENERAL TRACTOR SPECIFICATIONS - Continued**

**POWER-SHIFT TRANSMISSION:**

Type ..... 2-speed, hydraulically-shifted planetary in front of compound planetary with multiple wet disk clutches and brakes  
Gear selections ..... 15 forward, 4 reverse  
Shifting ..... Hydraulic, on-the-go and under load

**QUAD-RANGE™ TRANSMISSION:**

Type ..... 2-speed, power shifted planetary and 8-speed synchronized with constant mesh gears  
Gear selections ..... 16 forward, 6 reverse  
PERMA-CLUTCH ..... Hydraulically-operated, multiple-disk wet clutch

**POWER TAKE-OFF:**

Type ..... Fully independent  
Speed (2200 engine rpm) ..... 1000 rpm or dual speed 540/1000 rpm  
Size ..... 35 mm (1-3/8 in.)  
Clutch ..... Hydraulically-operated, multiple-disk wet clutch

**BRAKES:**

Type ..... Hydraulically-operated wet disk

**HYDRAULIC SYSTEM:**

Type ..... Closed-center, constant-pressure  
Standby pressure ..... 16000 kPa (155 bar) (2320 psi)  
Steering system ..... Hydrostatic power

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*Specifications*

**GENERAL TRACTOR SPECIFICATIONS - Continued**

**TWO-WHEEL DRIVE DIMENSIONS (with standard tires):**

Wheelbase .....	2710 mm (106.7 in.)
Length (less hitch and drawbar) .....	4028 mm (158.6 in.)
Rear axle diameter	
4050 and 4250 .....	86 mm (3-3/8 in.)
4450 .....	92 mm (3-5/8 in.)
Overall width (axle length):	
Regular axle .....	2438 mm (96 in.)
Special dual axle (4050 and 4250) .....	2870 mm (113 in.)
Long axle (4450) .....	2768 mm (109 in.)
Extra long axle (4450) .....	3022 mm (119 in.)
Overall height:	
Top of SOUND-GARD® Body	
4050 (Tractor Serial No. -005510) .....	2852 mm (112.3 in.)
4050 (Tractor Serial No. 005511- ) .....	2957 mm (116.4 in.)
4250 and 4450 .....	2957 mm (116.4 in.)
Top of steering wheel	
4050 (Tractor Serial No. -005510) .....	2306 mm (90.8 in.)
4050 (Tractor Serial No. 005511- ) .....	2357 mm (92.8 in.)
4250 and 4450 .....	2357 mm (92.8 in.)
Turning radius	
With brakes .....	3.7 m (12.1 ft)
Without brakes .....	4.0 m (13.1 ft)
Crop clearance (drawbar with offset down)	
4050 .....	362 mm (14.25 in.)
4250 and 4450 .....	400 mm (15.75 in.)
Average shipping weight	
(with SOUND-GARD® Body, QUAD-RANGE™	
transmission, and most popular wheel equipment)	
4050 .....	5029 kg (11,089 lb)
4250 .....	5331 kg (11,755 lb)
4450 .....	5780 kg (12,745 lb)
Tires (standard):	
Front .....	10.00-16, 6-ply (F-2)
Rear .....	18.4-38, 8-ply (R-1)

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*Specifications*

**GENERAL TRACTOR SPECIFICATIONS - Continued**

**MFWD DIMENSIONS (with standard tires):**

Wheelbase .....	2675 mm (105.3 in.)
Length .....	4023 mm (158.4 in.)
Height to top of SOUND-GARD® body	
4050 (Tractor Serial No. -005510) .....	2905 mm (114.5 in.)
4050 (Tractor Serial No. 005511- ) .....	2956 mm (116.5 in.)
4250 and 4450 .....	2956 mm (116.5 in.)
Height to top of steering wheel	
4050 (Tractor Serial No. -005510) .....	2306 mm (90.9 in.)
4050 (Tractor Serial No. 005511- ) .....	2357 mm (92.9 in.)
4250 and 4450 .....	2357 mm (92.9 in.)
Turning radius:	
MFWD engaged with brakes .....	4.8 m (15.8 ft)
without brakes .....	5.2 m (17.0 ft)
MFWD disengaged with brakes .....	4.5 m (14.9 ft)
without brakes .....	4.7 m (15.5 ft)
Crop clearance: (front axle) .....	435 mm (17.1 in.)
Average shipping weight	
(with SOUND-GARD® body, Power-Shift transmission, and most popular wheel equipment)	
4050 .....	5664 kg (12,489 lb)
4250 .....	5966 kg (13,155 lb)
4450 .....	6415 kg (14,145 lb)
Tires (standard):	
Front .....	14.9-26, 10-ply (R-1)
Rear .....	18.4-38, 8-ply (R-1)

**HI-CROP DIMENSIONS (with standard tires) (4050 and 4250 Tractors Only)**

Wheelbase .....	2715 mm (107 in.)
Length .....	4034 mm (159 in.)
Width .....	2423 mm (95.5 in.)
Height to top of SOUND-GARD® body	
4050 (Tractor Serial No. -005510) .....	3231 mm (127.3 in.)
4050 (Tractor Serial No. 005511- ) .....	3282 mm (129.3 in.)
4250 .....	3282 mm (129.3 in.)
Height to top of steering wheel	
4050 (Tractor Serial No. -005510) .....	2632 mm (103.7 in.)
4050 (Tractor Serial No. 005511- ) .....	2683 mm (105.7 in.)
4250 .....	2683 mm (105.7 in.)
Turning radius:	
With brakes .....	3.6 m (11.8 ft)
Without brakes .....	4.1 m (13.5 ft)
Crop clearance:	
Front axle .....	1046 mm (41.2 in.)
Rear axle .....	770 mm (30.3 in.)
Rear housing .....	882 mm (34.8 in.)
Average shipping weight (with standard equipment)	
4050 .....	5761 kg (12,702 lb)
4250 .....	6063 kg (13,369 lb)
Tires (standard):	
Front	
4050 .....	7.50-20, 6-ply (F-2)
4250 .....	9.50-20, 6-ply (F-2)
Rear .....	18.4-38 cane and rice (R-2-0)

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*Specifications*

**4050 AND 4250 HI-CROP TRACTORS, QUAD-RANGE™ GROUND SPEEDS**

(Engine speed 2200 rpm, with 18.4-38 cane and rice R-2-0 tires)

TIRE SIZE	TREAD	CHANGES IN SPEEDS
15.5-38	R-1	9% Slower
18.4-34	R-1	7% Slower
20.8-38	R-2-0	4.4% Faster
18.4-34	R-2-0	5.9% Slower

Range	Gear	mph	(km/h)
A	1	2.16	(3.47)
	2	2.74	(4.41)
	3	3.57	(5.74)
	4	4.53	(7.29)
	R1	3.45	(5.55)
	R2	4.39	(7.06)
B	1	4.96	(7.99)
	2	6.31	(10.15)
	3	8.20	(13.20)
	4	10.42	(16.77)
	R1	7.95	(12.79)
	R2	10.09	(16.24)
C	1	5.88	(9.47)
	2	7.48	(12.03)
	3	9.72	(15.65)
	4	12.35	(19.87)
	R1	9.41	(15.15)
	R2	11.96	(19.24)
D	1	9.04	(14.54)
	2	11.48	(18.47)
	3	14.93	(24.02)
	4	18.95	(30.50)

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*Specifications*

**4050 AND 4250 HI-CROP TRACTOR, POWER-SHIFT GROUND SPEEDS**

(Engine speed 2200 rpm, with 18.4-38 cane and rice R-2-0 tires)

TIRE SIZE	TREAD	CHANGES IN SPEEDS
15.5-38	R-1	9% Slower
18.4-34	R-1	7% Slower
20.8-38	R-2-0	4.4% Faster
18.4-34	R-2-0	5.9% Slower

Gear	mph	(km/h)
1	1.42	(2.29)
2	2.03	(3.27)
3	2.40	(3.87)
4	3.09	(4.97)
5	3.57	(5.74)
6	4.05	(6.51)
7	4.66	(7.50)
8	5.22	(8.40)
9	6.02	(9.68)
10	6.82	(10.98)
11	7.86	(12.65)
12	9.02	(14.52)
13	11.15	(17.94)
14	15.23	(24.51)
15	18.84	(30.32)
R1	1.73	(2.79)
R2	2.49	(4.00)
R3	3.77	(6.07)
R4	5.68	(9.14)

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**4050 AND 4250 TRACTORS, POWER-SHIFT GROUND SPEEDS**

(Engine speed 2200 rpm, with 18.4-38 R-1 rear tires)

TIRE SIZE	TREAD	CHANGES IN SPEEDS
15.5-38	R-1	9% Slower
16.9-38	R-1	4% Slower
18.4R-38	R-1	2% Slower
20.8-38	R-1	4% Faster
18.4-34	R-1	7% Slower
20.8-34	R-1	4.5% Slower
20.8R-38	R-1	2.5% Faster
20.8-38	R-2-0	5.7% Faster
20.8-34	R-2-0	2.7% Faster
18.4-38	R-2-0	1.3% Faster

Gear	mph	(km/h)
1	1.37	(2.21)
2	1.96	(3.16)
3	2.32	(3.73)
4	2.98	(4.80)
5	3.44	(5.54)
6	3.90	(6.28)
7	4.50	(7.24)
8	5.04	(8.11)
9	5.80	(9.34)
10	6.59	(10.60)
11	7.59	(12.21)
12	8.71	(14.01)
13	10.78	(17.34)
14	14.70	(23.65)
15	18.18	(29.26)
R1	1.67	(2.69)
R2	2.40	(3.86)
R3	3.64	(5.86)
R4	5.48	(8.82)

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*Specifications*

**4050 AND 4250 TRACTOR, QUAD-RANGE  
GROUND SPEEDS**

(Engine speed 2200 rpm, equipped with 18.4-38 R-1 rear tires)

			Range	Gear	mph	(km/h)	
			A	1	2.08	(3.35)	
				2	2.65	(4.26)	
				3	3.44	(5.54)	
				4	4.37	(7.03)	
				R1	3.33	(5.36)	
				R2	4.23	(6.81)	
TIRE SIZE	TREAD	CHANGES IN SPEEDS	B	1	4.79	(7.00)	
15.5-38	R-1	9% Slower		2	6.08	(9.79)	
16.9-38	R-1	4% Slower		3	7.92	(12.74)	
18.4R-28	R-1	2% Slower		4	10.05	(16.18)	
20.8-38	R-1	4% Faster		R1	7.67	(12.34)	
18.4-34	R-1	7% Slower		R2	9.74	(15.67)	
20.8-34	R-1	4.5% Slower		C	1	5.68	(9.14)
20.8R-38	R-1	2.5% Faster			2	7.21	(11.61)
20.8-38	R-2-0	5.7% Faster			3	9.38	(15.10)
20.8-34	R-2-0	2.7% Faster			4	11.91	(19.17)
18.4-38	R-2-0	1.3% Faster	D	1	8.72	(14.03)	
				2	11.07	(17.82)	
				3	14.40	(23.18)	
				4	18.29	(29.43)	

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*Specifications*

**4450 TRACTOR, POWER-SHIFT GROUND SPEEDS**

(Engine speed 2200 rpm, with 18.4-38 R-1 rear tires)

			Gear	mph	(km/h)
			1	1.34	(2.15)
			2	1.91	(3.08)
			3	2.31	(3.72)
			4	2.90	(4.67)
			5	3.34	(5.38)
			6	3.80	(6.11)
			7	4.37	(7.04)
			8	5.02	(8.08)
			9	5.79	(9.31)
			10	6.57	(10.57)
			11	7.57	(12.18)
			12	8.46	(13.62)
			13	10.48	(16.86)
			14	14.65	(23.58)
			15	18.13	(29.17)
			R1	1.85	(2.98)
			R2	2.65	(4.26)
			R3	4.02	(6.47)
			R4	6.05	(9.74)
TIRE SIZE	TREAD	CHANGES IN SPEEDS			
16.9-38	R-1	4% Slower			
18.4R-38	R-1	2% Slower			
20.8-38	R-1	4% Faster			
20.8R-38	R-1	2.5% Faster			
18.4-42	R-1	6.3% Faster			
23.1-34	R-1	1.3% Faster			
18.4R-42	R-1	4.7% Faster			
18.4-38	R-2-0	1.3% Faster			
23.1-34	R-2-0	6.3% Faster			
20.8-38	R-2-0	5.7% Faster			

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*Specifications*

**4450 TRACTOR, QUAD-RANGE GROUND SPEEDS**

(Engine speed 2200 rpm equipped with 18.4-38, R-1 rear tires)

			Range	Gear	mph	(km/h)	
			A	1	1.98	(3.19)	
				2	2.51	(4.04)	
				3	3.28	(5.28)	
				4	4.14	(6.67)	
				R1	3.18	(5.11)	
				R2	4.01	(6.46)	
TIRE SIZE	TREAD	CHANGES IN SPEEDS	B	1	4.56	(7.34)	
16.9-38	R-1	4% Slower		2	5.77	(9.28)	
18.4R-38	R-1	2% Slower		3	7.54	(12.13)	
20.8-38	R-1	4% Faster		4	9.53	(15.33)	
20.8R-28	R-1	2.5% Faster		R1	7.30	(11.75)	
18.4-42	R-1	6.3% Faster		R2	9.23	(14.85)	
23.1-34	R-1	1.3% Faster		C	1	5.41	(8.70)
18.4R-42	R-1	4.7% Faster			2	6.84	(11.00)
18.4-38	R-2-0	1.3% Faster			3	8.94	(14.38)
23.1-34	R-2-0	6.3% Faster			4	11.29	(18.17)
20.8-38	R-2-0	5.7% Faster	R1	8.68	(13.93)		
			R2	10.94	(17.60)		
			D	1	8.30	(13.36)	
				2	10.50	(16.89)	
				3	13.72	(22.08)	
				4	17.34	(27.90)	

U10;010GEN GX5 091184

**Group 05**

**PREDELIVERY, DELIVERY AND AFTER-SALE SERVICE**

**SPECIFICATIONS**

**Engine Speeds:**

Slow Idle	
4050 (Tractor Serial No. -006509), 4250 and 4450	850 rpm
4050 (Tractor Serial No. 006510- ), 4050E* and 4250E*	800 rpm
Fast Idle	
4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E* and 4450	2400 rpm
4050 (Tractor Serial No. 006510- )	2350 rpm
Fast Idle at Full Load	2200 rpm

Clutch Pedal Height	140 mm (5-½ in.)
Brake Pedal Free Travel	8 mm (3 in.)

**Torque Specifications:**

Air Intake Clamps	8.5 N·m (6 ft-lb)
Front Axle:	
Narrow/Wide	500 N·m (370 ft-lb)
Regular - 4050 and 4250	435 N·m (320 ft-lb)
4450	500 N·m (370 ft-lb)
Hi-Crop	600 N·m (445 ft-lb)
Front Wheel to Hub:	
Standard	135 N·m (100 ft-lb)
MFWD	410 N·m (300 ft-lb)
Wheel Pinion Sleeve-to-Wheel	410 N·m (300 ft-lb)
Rear Rim Clamp-to-Wheel	230 N·m (170 ft-lb)
Outside Dual-to-Hub	407 N·m (300 ft-lb)
Side Frame Bolts	578 N·m (426 ft-lb)
Front Support to Side Frame:	
Standard	140 N·m (103 ft-lb)
MFWD	475 N·m (350 ft-lb)
SOUND-GARD® body or ROLL-GARD®	
Mounting Bolts	200 N·m (150 ft-lb)
Rockshaft Lift Arm Retaining Bolts	230 N·m (170 ft-lb)

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information .

U10;010GEN HX5 071087

### TUNE-UP SPECIFICATIONS

#### PTO Horsepower at 2200 rpm

4050 (Tractor Serial No. -006509) .....	74.6 kW (100 hp)
4050 (Tractor Serial No. 006510- ) .....	78.3 kW (105 hp)
4050E* .....	94 kW (126 hp)
4250 .....	89.5 kW (120 hp)
4250E* .....	106 kW (142 hp)
4450 .....	104.4 kW (140 hp)

#### Compression

4050 (Tractor Serial No. -006509) .....	3000—3410 kPa (34—34.1 bar) (435—495 psi)
4050 (Tractor Serial No. 006510- ) .....	2400 kPa (24 bar) (350 psi) minimum
4050E*, 4250, 4250E* and 4450 .....	2690—3100 kPa (26.9—31 bar) (390—450 psi)

Thermostat Opening Temperature ..... 82°C (180°F)

Radiator Cap Pressure Release ..... 100—120 kPa (1.0—1.2 bar) (14—17 psi)

Compressor/Alternator Belt Tension ..... 380—425 N (85—95 lb)

#### Engine Speeds:

##### Slow Idle

4050 (Tractor Serial No. -006509), 4250 and 4450 .....	850 rpm
4050 (Tractor Serial No. 006510- ), 4050E* and 4250E* .....	800 rpm

##### Fast Idle

4050 (Tractor Serial No. -006509), 4050E*, 4250, 4250E* and 4450 .....	2400 rpm
4050 (Tractor Serial No. 006510- ) .....	2350 rpm
Fast Idle at Full Load .....	2200 rpm

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information.

**LUBRICATION SPECIFICATIONS**

Engine Crankcase ..... 17.0 L (18 qt)

Transmission-Hydraulic System:

Power Shift without MFWD ..... 51.0 L (13.5 gal)  
 Power Shift with MFWD ..... 60.0 L (15.9 gal)  
 QUAD-RANGE® without MFWD ..... 60.5 L (16.0 gal)  
 QUAD-RANGE with MFWD ..... 65.0 L (17.2 gal)

Service Intervals:

Engine:

Check Oil Level ..... 10 Hours  
 Check Coolant ..... 10 Hours  
 Check Fuel Filter (4050 Tractor Serial No. 006510- ) ..... 10 hours  
 Change Oil and Filter\* ..... 200 Hours  
 Clean Vent Tube ..... 600 Hours  
 Replace Fuel Filter Element (4050 Tractor Serial No. 006510- ) ..... 600 Hours  
 Check Fuel Injection Nozzles ..... 1200 Hours  
 Replace Air Filter Elements ..... Annually  
 Change Coolant ..... Biennially  
 Replace Thermostats ..... Biennially  
 Replace Fuel Filter (4250 and 4450) ..... As required  
 Inspect or Replace Crankshaft Damper ..... As required  
 Check Side Frame Bolts ..... First 100 Hours or Before Installation of Loader

Transmission-Hydraulic System:

Check Oil Level ..... 10 Hours  
 Check Oil Level of MFWD  
     Axle Housing and Wheel Hub ..... 200 Hours  
 Change Transmission and Hydraulic Filters\* ..... 600 Hours  
 Clean Filter Screens ..... 1200 Hours  
 Change Oil ..... 1200 Hours  
 Change Transmission and Hydraulic Filters ..... Annually or as required  
 Check Accumulators: Brake, Shift, Seat ..... As required

Lubrication of Grease Fittings:

Rear Axle Bearings (wet conditions) ..... 10 Hours  
 Rear Axle Bearings (normal conditions) ..... 600 Hours  
 Front Wheel Bearings (wet conditions) ..... 10 Hours  
 Front Wheel Bearings (normal conditions) ..... 1200 Hours  
 Front Axle Pivots, Steering  
     Spindles, and Tie Rods (wet conditions) ..... 10 Hours  
 Front Axle Pivots, Steering  
     Spindles, and Tie Rods (normal conditions) ..... 200 Hours  
 MFWD U-Joints and Steering Knuckles  
     (wet conditions) ..... 10 Hours  
 MFWD King-Pins, Steering Knuckles and U-Joints (normal conditions) ..... 200 Hours  
 Wide Swing Drawbar ..... 10 Hours  
 Load Control Shaft Outer Bearings ..... 200 Hours  
 3-Point Hitch ..... 200 Hours  
 MFWD Hub and Axle Housings ..... 1200 Hours  
 Secondary Brake Linkage Pivot ..... 200 Hours

\*Change at 100 Hours during "break-in" period.

U10;010GEN IX5 071087



## ENGLISH TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is  $\pm 20\%$ .

Bolt Diameter	Plain Head*		Three Radial Dashes*		Six Radial Dashes*	
	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m
1/4 in.	6	8	9	12	12	16
5/16 in.	10	14	18	24	25	34
3/8 in.	20	27	30	41	45	61
7/16 in.	30	41	50	68	70	95
1/2 in.	45	61	75	101	110	149
9/16 in.	70	95	110	150	155	210
5/8 in.	95	128	155	210	215	290
3/4 in.	165	225	270	365	385	520
7/8 in.	170	230	435	590	620	840
1 in.	255	345	660	895	930	1260

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

\* Torque value for bolts and cap screws are identified by their head markings.

U10;010000 FX2 290585

## METRIC TORQUE SPECIFICATIONS

NOTE: Wrench torque tolerance is  $\pm 20\%$ .

Bolt Diameter	Property Class 8.8*		Property Class 10.9*	
	lb-ft	N-m	lb-ft	N-m
M5	5	6	7	9
M6	8	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M16	166	225	229	310
M20	321	435	450	610
M24	554	750	775	1050

Torque figures indicated above and in the Specification Sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

\* Torque value for bolts and cap screws are identified by their property class head markings.

U10;010000 GX2 070385

## DEALER PREDELIVERY SERVICE

The John Deere delivery receipt, when properly filled out and signed by the dealer and customer, verifies that predelivery and delivery services were satisfactorily performed. When delivering the tractor, give the customer his copy of the delivery receipt and operators manual. Be sure to explain their purposes to him.


Because of the shipping factors involved, plus extra finishing touches necessary to promote customer satisfaction, there are certain predelivery services that must be performed by the dealer. These services are listed in the first of two sections on the predelivery form which is attached to the tractor. The second section is a list of factory inspections that must be verified by the dealer.

Fill the form in completely and sign it. Send a copy to the factory and file the original with the shop order for the job. This will certify that the proper predelivery service has been completed.

Using the following illustrated procedures, perform all services listed and check each job off as it is completed.

U03;01005 A 211281

### 1. CHARGE BATTERY(IES) (IF NEEDED).

 **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.**

Check battery condition, using a battery hydrometer. Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.225. Replace battery if difference between cells is more than 0.050.

Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 for every 10°F above 80°F. (Add 0.007 for every 10°C above 27°C.) Subtract at same rate if electrolyte temperature is below 80°F (27°C). Corrected specific gravity of a fully charged battery is 1.260.

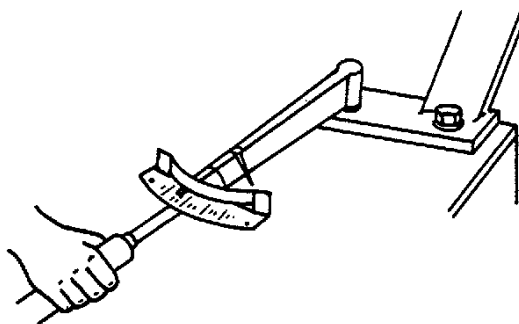


AB6;TS204 U10;010005 AX4 071087

## 2. INSTALL ROLL-GARD™ AS PER INSTRUCTIONS

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

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



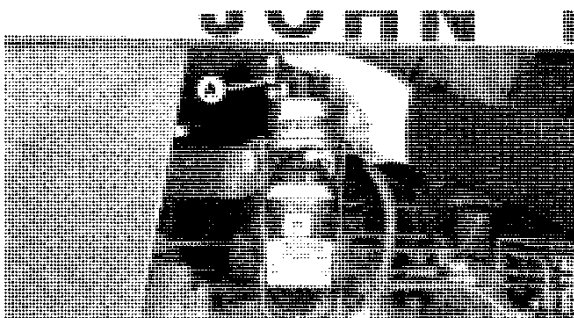
AB6;TS176 U10;010035 AAX4 071087

## 3. IF EQUIPPED, INSTALL ETHER AID SOLENOID WIRING.

**CAUTION:** Starting fluid is highly flammable. Do not use near fire, sparks or flames. Read the cautionary information on the container. Protect container against damage. Do not carry extra or empty ether cans inside SOUND-GARD body.

**IMPORTANT:** To avoid engine damage, inject fluid only in small amounts and only while engine is turning. Do not depress button longer than one second at a time.

Connect wire (A) to ether aid solenoid. To check operation, inject starting fluid by depressing button on dash.

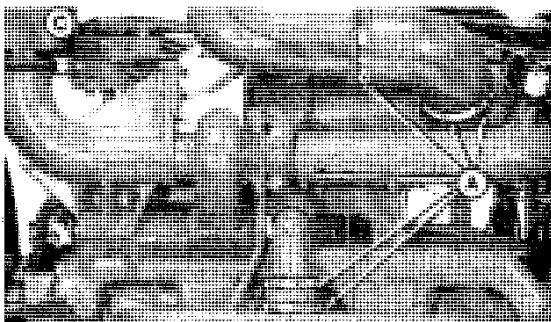


AC2;RW7831 U10;010005 CX3 100685

## 4. TIGHTEN AIR INTAKE HOSE CLAMPS.

**IMPORTANT:** All intake manifold and intercooler connections at turbocharger and engine cylinder head must be tight to prevent loss of power resulting from lower manifold pressure.

Check engine air intake hose clamps (A) for tightness.

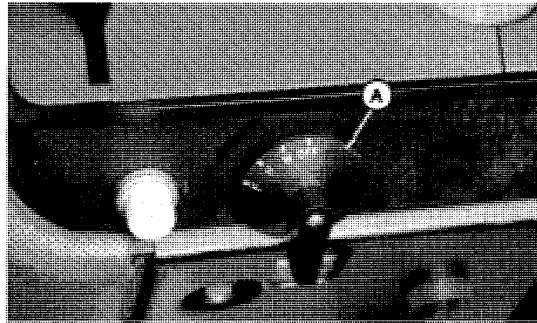


AC2;RW7435 U10;010005 BX4 100685

## 5. ADJUST ALL LAMPS.

Make sure lights are adjusted for maximum operation and work properly when switch (A) is in following positions:

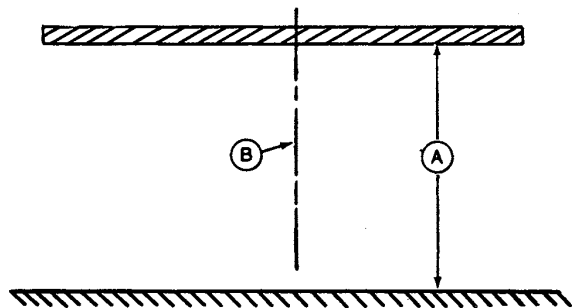
- OFF — To turn off lights
- W — To turn on warning lamps
- H — To turn on dual-beam head lamps, warning lamps, and red tail lamps
- F — To turn on dual-beam head lamps, flood lamps, and front light bar



AC2;RW7840 U10;010005 EX3 100685

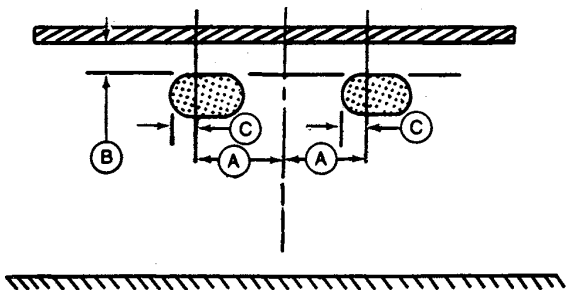
### TO AIM HEAD LAMPS:

1. Park tractor on level ground, 8 m (25 ft.) from a wall.
2. Measure height of center lamps above the ground, and place a strip of masking tape on wall at same height (A).
3. Sight across steering wheel and hood ornament to locate tractor centerline, mark this spot on tape (B).



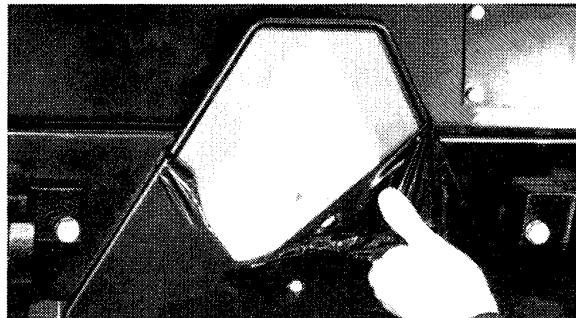
AC2;RW4890 U10;010005 BXX3 010782

4. From centerline mark a point 305 mm (12 in.) out in each direction (A). This locates a point directly in front of each lamp center.
5. Turn light switch to "H" and dimmer switch to low beam.
6. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone should be 130 mm (5 in.) lower than lamp center (B). Left edge of zone should be 130 mm (5 in.) left of lamp center (C).



AC3;RW4891 U10;010005 BTX3 010782

## 6. REMOVE SMV PLASTIC COVER.



AC2;RW7832 U10;010005 FX3 100685

## 7. CHECK TIRE INFLATION PRESSURE

Inspect tires for damage or noticeably low pressure. Check inflation pressure with a gauge. Use an accurate gauge having 10 kPa (0.1 bar) (1 psi) graduations.

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

Even when radial ply tires are correctly inflated, they may appear to be under-inflated. Always check inflation pressure with an accurate tire gauge to prevent over-inflation.

**IMPORTANT: 1. To ensure proper MFWD tire performance in all field conditions, maintain front tire pressure at maximum allowable level.**

**2. When replacing tires, contact tire dealer for changes in inflation pressure.**

### TIRE INFLATION PRESSURE CHART FOR RADIAL AND BIAS-PLY TIRES

Tire Size	Star Rating	Ply Rating	With Little or No Added Weight	With Maximum Ballast Or Heavy Mounted Implement
			psi (kPa) (bar)	psi (kPa) (bar)
<b>Front Tires</b>				
7.50-20		6	24 (170) (1.7)	44 (300) (3.0)
9.5L-15		6	24 (170) (1.7)	36 (250) (2.5)
9.50-20		8	24 (170) (1.7)	44 (300) (3.0)
10.00-16		6	24 (170) (1.7)	32 (220) (2.2)
11.00-16		8	24 (170) (1.7)	40 (280) (2.8)
11.00-16		12	24 (170) (1.7)	60 (410) (4.1)
11L-15		6	24 (170) (1.7)	28 (190) (1.9)
14L-16.1		6	24 (170) (1.7)	28 (190) (1.9)
<b>MFWD Tires</b>				
13.6-28		10		36 (250) (2.5)
14.9-26		10		32 (220) (2.2)
14.9-28		10		32 (220) (2.2)
16.9-24		10		28 (190) (1.9)
16.9R26		8		24 (170)(1.7)
16.9-26		10		28 (190) (1.9)
16.9R28		8		24 (170)(1.7)
18.4R26		8		26 (180)(1.8)
<b>Rear Tires</b>				
15.5-38		8	16 (110) (1.1)†	26 (180) (1.8)
16.9-34		8	16 (110) (1.1)†	24 (170) (1.7)
16.9-38		8	16 (110) (1.1)†	24 (170) (1.7)
18.4-34		6	16 (110) (1.1)†	16 (110) (1.1)
18.4-34		8	16 (110) (1.1)†	20 (140) (1.4)
18.4-38		6	16 (110) (1.1)†	16 (110) (1.1)
18.4R38	*	6	16 (110) (1.1)†	18 (120) (1.2)
18.4-38		8	16 (110) (1.1)†	20 (140) (1.4)
18.4R38	*	8	16 (110) (1.1)†	18 (120) (1.2)
18.4R38	**	10	16 (110) (1.1)†	26 (180) (1.8)
18.4R38	***	12	16 (110) (1.1)†	30 (210) (2.1)
18.4-42		6	16 (110) (1.1)†	16 (110) (1.1)†
18.4-42		8	16 (110) (1.1)†	20 (140) (1.4)
18.4R42	*	8	16 (110) (1.1)†	18 (120) (1.2)
18.4-42		10	16 (110) (1.1)†	26 (180) (1.8)
18.4R42	**	10	16 (119) (1.1)†	24 (170) (1.7)
18.4R42	***	12	16 (110) (1.1)†	30 (210) (2.1)
20.8-34		6	16 (110) (1.1)†	16 (110) (1.1)
20.8-34		8	16 (110) (1.1)†	18 (120) (1.2)
20.8-38		8	16 (110) (1.1)†	18 (120) (1.2)
20.8R38	*	8	16 (110) (1.1)†	18 (120) (1.2)
20.8-38		10	16 (110) (1.1)†	22 (150) (1.5)
20.8R38	**	10	16 (110) (1.1)†	24 (170) (1.7)
23.1-30		8	16 (110) (1.1)	16 (110) (1.1)
23.1-34		8	16 (110) (1.1)†	16 (110) (1.1)
24.5-32		10	16 (110) (1.1)	20 (140) (1.4)

†For dual tires, inflation pressure may be reduced to 12 psi (80 kPa) (0.8 bar) minimum.

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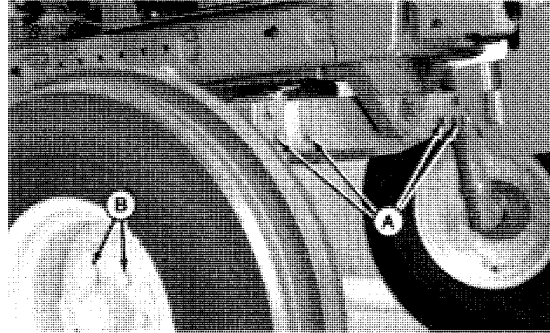
## 8. ADJUST WHEEL SPACING FOR CUSTOMER NEEDS. CHECK WHEEL ALIGNMENT.

To determine appropriate wheel spacing for customer needs, you will need to know: type of axle, type of wheel, and size of tire to be used. Since many combinations are possible, refer to Section 80, Miscellaneous, of this technical manual, to choose correct front and rear wheel spacing.

After adjustment, be sure all fastening hardware is tightened securely, such as: axle bolts (A) and front wheel bolts (B).

**IMPORTANT: After setting wheel spacing on tractor with mechanical front-wheel drive, adjust fenders and steering stops.**

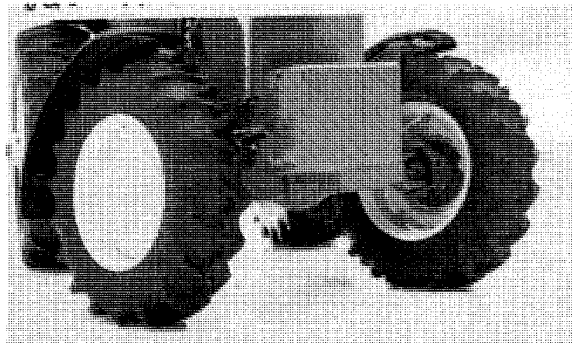
After adjusting wheel spacing, refer to Section 80, Miscellaneous, for wheel alignment procedure.



AC2;RW6002 U10;010005 HX3 100685

## ADJUSTING FRONT FENDERS

Adjust mechanical front-wheel drive front fender to provide adequate fender-to-tractor clearance for turning and axle oscillation. Correct adjustment also minimizes fender vibration. Refer to Section 80, Miscellaneous, of this technical manual, to choose correct setting.

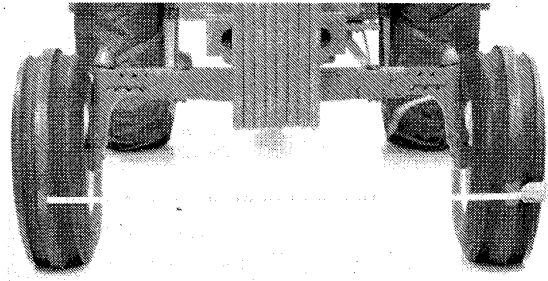


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## 9. ADJUST FRONT WHEEL TOE-IN.

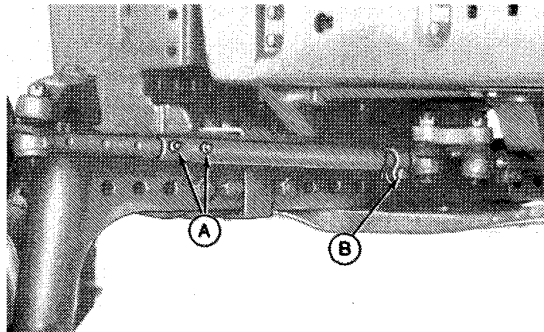
### CHECKING TOE-IN (ADJUSTABLE AXLE)

- A. Steer front wheels straight ahead.
- B. Measure distance between tires at hub level. Mark the point at which you measured.
- C. Move tractor back about 1 m (3 ft), so mark is at hub level behind the axle. Again measure distance between tires, at same point on tire. Tires should be 3 to 9 mm (1/8 to 3/8 in.) less than measurement at rear of tires.



### ADJUSTING TOE-IN (ADJUSTABLE AXLE)

- A. Remove bolts from tie rod tubes (A).
- B. Loosen clamps (B).
- C. Rotate tubes to lengthen or shorten tie rods. Adjust toe-in to 6 mm (1/4 in.).



*NOTE: Adjust left-hand and right-hand tie rods to same length, so tractor will turn equally sharp in either direction.*

- D. Replace bolts and tighten clamps.

### CHECKING AND ADJUSTING TOE-IN (MFWD)

Refer to Section 80, Miscellaneous, for checking and adjusting mechanical front-wheel drive toe-in.

AC2;RW6507,RW6508 U10;010005 IX3 100685

## 10. ON MFWD: (IF EQUIPPED), SET STEERING STOPS

Since several tires sizes and tread settings are possible, refer to Section 80, Miscellaneous, of this technical manual, for correct steering stop position.

U10;010005 JX3 100685

## 11. TORQUE WHEEL HARDWARE TO SPECIFICATIONS.

**⚠ CAUTION:** Never operate tractor with loose rim, wheel, hub, or axle.

Any time bolts are loosened, retighten to specified torque.

After driving tractor about 100 m (100 yd), and before placing it under load, retighten bolts to specified torque.

Refer to Section 80, Miscellaneous, of this technical manual, for proper procedure and specified torque.

U10;010005 KX3 100685

## 12. LUBRICATE ALL GREASE FITTINGS.

Refer to Lubrication, Group 15 of this section.

## 13. FOLLOW BREAK-IN PROCEDURE

Refer to TM-1259, Section 220, Engine Operation and Tests.

U10;010005 LX3 100685

## VERIFY FACTORY SERVICES

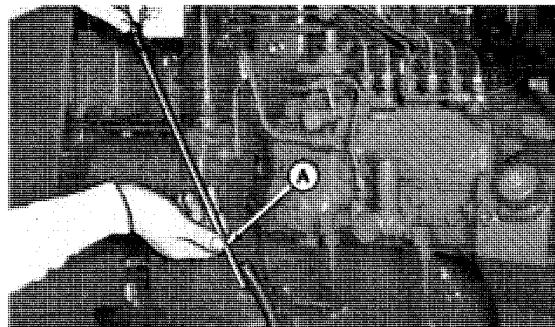
The second part of the predelivery form is a list of factory inspections that should be verified by the dealer. Use this part of the predelivery form along with the following illustrated procedures to check and verify each item on the list.

U10;010005 WX2 261081

## 1. IS ENGINE CRANKCASE OIL LEVEL CORRECT?

Check engine oil (A). Do not operate engine when oil level is below low mark on dipstick.

See Engine Oil specifications, listed in Lubrication, Group 15 of this section.



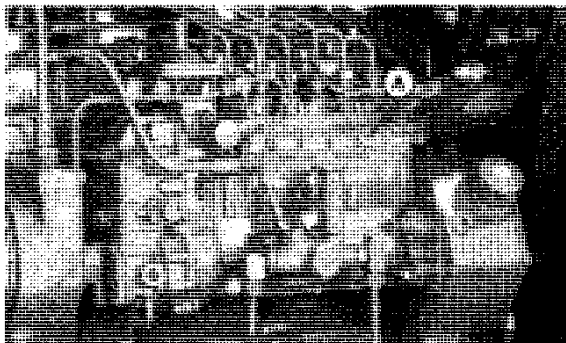
AC2;RW5730 U10;010005 DX4 030583



## 2. IS FUEL INJECTION SEALING COVER (OR PUMP SEALS) INTACT?

**IMPORTANT:** Setting the injection pump fuel delivery above specification will terminate the John Deere warranty on this machine.

This important note is located on fuel injection pump (A) in two locations in order to stress its importance. Covers with wires and lead seals insure fuel settings not be tampered with, except by authorized fuel injection technician.



AP3;RW9007 U10;010005 0X3 250985

## 3. IS AIR CLEANER ELEMENT(S) INSTALLED CORRECTLY?

Inspect air cleaner. Make sure primary and secondary air cleaner elements are in place and cover is properly tightened. Check dust unloader valve for plugging or defects.

Be sure air filter indicator on instrument panel is working properly. Indicator light should not be glowing.



AC2;RW7833 U10;010005 PX3 010782

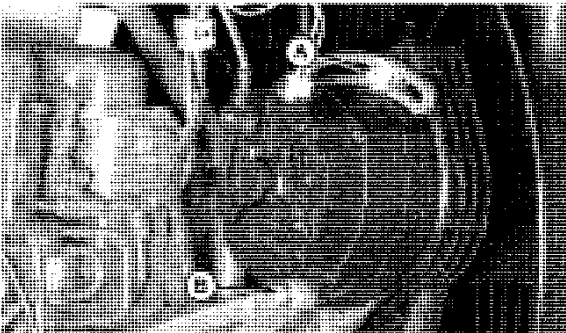
## 4. ARE BELTS ADJUSTED CORRECTLY?

### A. ADJUSTING ALTERNATOR BELT(S) TENSION

**IMPORTANT:** Belts must be cool when tension is adjusted.

With engine stopped, check belt tension with tension tool. (Refer to Adjust Alternator Belts in Section 40.)

After adjustment, tighten cap screw (A) and mounting bolt (B).



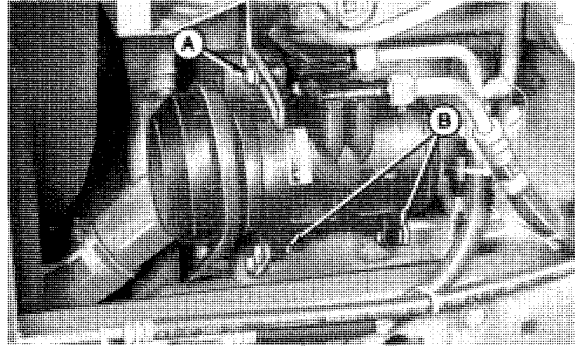
AC2;RW6826 U10;010005 QX3 030985

## B. ADJUSTING COMPRESSOR BELT TENSION

**IMPORTANT: Belts must be cool when tension is adjusted.**

With engine stopped, check belt tension with tension tool. (Refer to Adjust Compressor Belt in Section 90.)

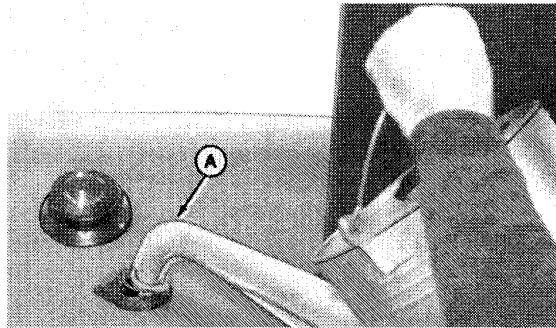
After adjustment, tighten cap screw (A) and mounting bolt (B).



AC2;RW6827 U10;010005 BVX3 030985

## 5. IS ENGINE COOLANT LEVEL CORRECT?

Check coolant level when engine is cold. Coolant level should be approximately 95 mm (3-3/4 in.) below top of filler neck. Fill (A) with 50 percent mixture of clean, soft water and antifreeze.

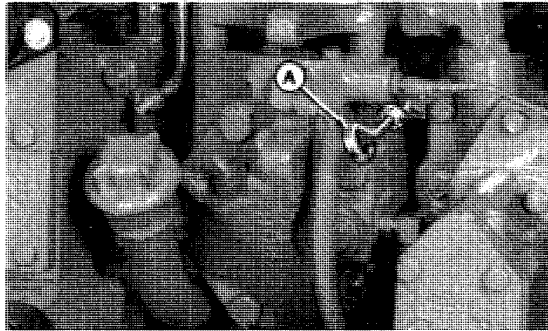


AC2;RW5731 U10;010005 RX3 030583

## 6. IS TRANSMISSION/HYDRAULIC SYSTEM OIL LEVEL CORRECT?

Check transmission hydraulic oil level (A), especially when implements with many or large remote cylinders are used. Cylinder capacity may be large enough to lower oil level below normal operating level.

Most accurate oil level reading is obtained prior to starting engine after long shut-down period.



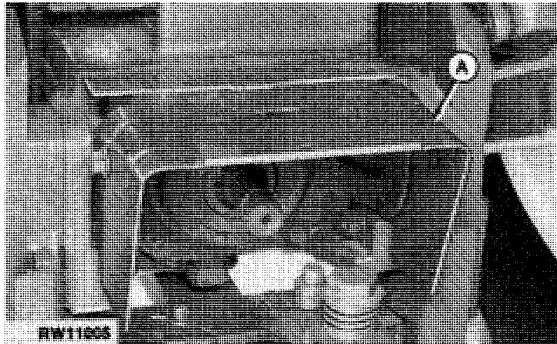
AC2;RW5733 U10;010005 SX3 010782

**7. ARE SHIELDS, HANDRAILS, AND STEPS INSTALLED CORRECTLY?**



**CAUTION:** Tractor master shield (A) should be in place at all times except for special applications as directed in the implement operator's manual.

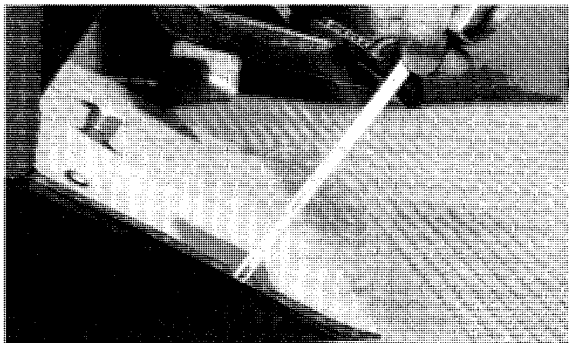
Be sure step and handrail mounting hardware is tightened securely.



AK3;RW1100 5 U10;010005 TX3 100685

**8. IS CLUTCH PEDAL ADJUSTED CORRECTLY?**

Measure for proper pedal height. Pedal height should be 140 mm (5-1/2 in.).



AC2;RW3169 U10;010005 UX3 010782

**9. IF 4WD, ARE SAFETY HINGE STRAPS ON TRACTOR?**

(Not applicable)

U10;010005 VX3 010782

## 10. WAS BATTERY (IES) CHARGED AS RECEIVED FROM FACTORY?

**⚠ 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.

Check battery condition, using battery hydrometer. Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.225. Replace battery if difference between cells is more than 0.050.

Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 for every 10°F above 80°F. (Add 0.007 for every 10°C above 27°C.) Subtract at same rate if electrolyte temperature is below 80°F (27°C). Corrected specific gravity of a fully charged battery is 1.260.

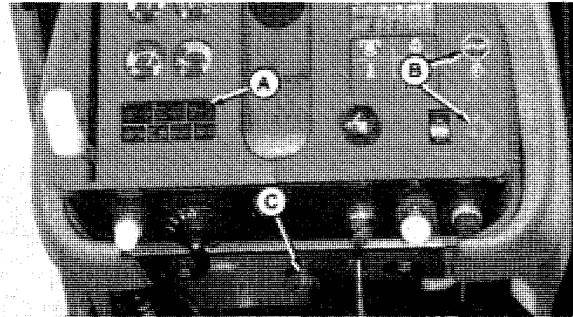


AB6;TS204 U10;010005 EX4 071087

## 11. IF EQUIPPED, DOES INVESTIGATOR™ II WARNING SYSTEM OPERATE CORRECTLY?

Check INVESTIGATOR II indicator lights (A), warning lights (B), and audible warning horn (C).

Refer to Technical Manual, TM-1259, Section 240, Electrical System, for function of gauges and audible warning system.

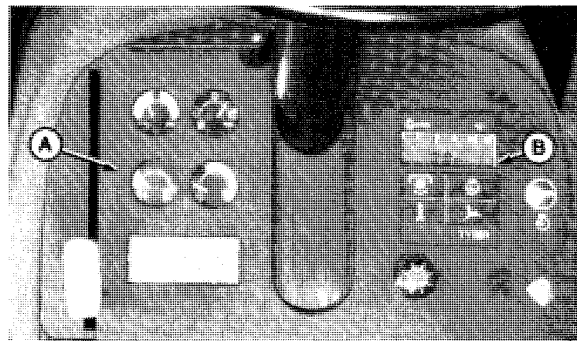


AC2;RW7834 U10;010005 XX3 010782

## 12. ARE INSTRUMENT PANEL GAUGES AND LIGHTS OPERATING CORRECTLY?

Check gauges (A) and tachometer (B). Refer to Technical Manual, TM-1259, Section 240, Electrical System, for correct operation.

Replace any instrument panel gauges and lights as needed. Refer to Section 40, Electrical Repair, of this technical manual.

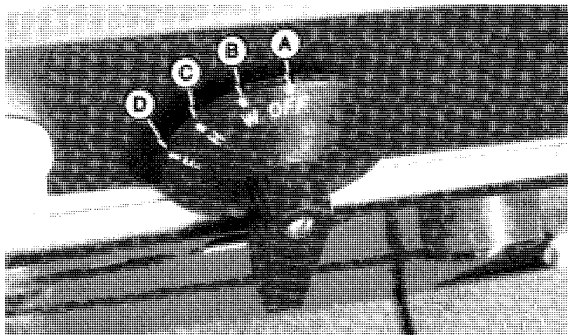


AC2;RW3888 U10;010005 YX3 010782

### 13. ARE ALL LIGHTS OPERATING CORRECTLY IN ALL POSITIONS?

Check lamp operation in all switch positions.

- A—Lamps off
- B—Warning lamps. (For daytime highway use only)
- C—Dual-beam head lamps, warning lamps and red tail lamps. (For day or nighttime highway use)
- D—Dual-beam head lamps, flood lamps and front light bar. (For field use ONLY)

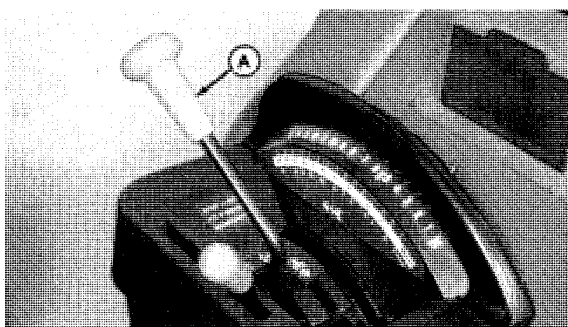


AC2;RW3155 U10;010005 ZX3 010782

### 14. IS NEUTRAL START SWITCH OPERATING CORRECTLY?

**CAUTION:** When checking neutral start, be sure clutch pedal is depressed and stop cable is pulled out.

Check neutral start switch. Tractor should only start with shift lever (A) in park or neutral.



AC2;RW7845 U10;010005 AAX3 010782

### 15. IS ENGINE FAST AND SLOW IDLE ADJUSTED CORRECTLY?

Check and adjust engine idle speeds as instructed in Technical Manual, TM-1259, Section 230, Diesel Fuel System.

U10;010005 ABX3 010782

### 16. DOES ENGINE STOP KNOB OPERATED CORRECTLY?

Check engine stop knob. Start engine and then pull stop knob all the way out. After engine stops, push stop knob back in.

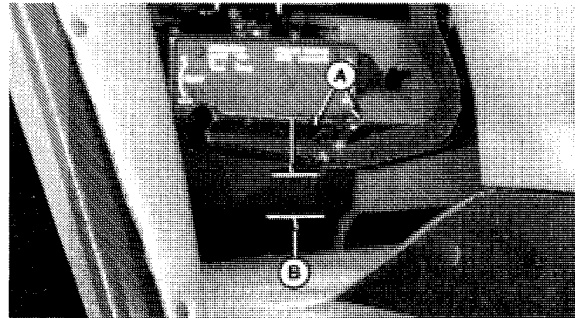


AC2;RW3171 U10;010005 ACX3 010782

### 17. ARE BRAKES OPERATING CORRECTLY WITH THE ENGINE ON/OFF?

Check operation of brakes. With engine stopped at least 15 minutes, depress brake pedal (A) five times at 5 second intervals. Pedal should have a solid feel and pedal travel should not exceed 75 mm (3 in.) (B).

If pedal bottoms out or loses solid feel, refer to Technical Manual, TM-1259, Section 260, Steering/Brakes.



AC2;RW6938 U10;010005 ADX3 010782

### 18. IF EQUIPPED, DOES HAND BRAKE OPERATE CORRECTLY?

(Not applicable.)

U10;010005 AEX3 010782

### 19. DOES TRANSMISSION OPERATE CORRECTLY IN ALL GEARS (AND IN PARK, IF EQUIPPED)?

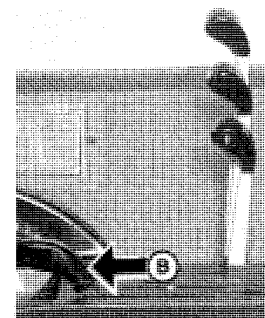
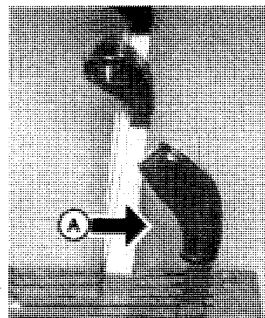
For proper operation, refer to Technical Manual, TM-1259, Section 250, Power Train Operation and Tests.

U10;010005 AFX3 010782

### 20. DOES HYDRAULIC SYSTEM OPERATE PROPERLY?

#### A. CHECK OPERATION OF ROCKSHAFT

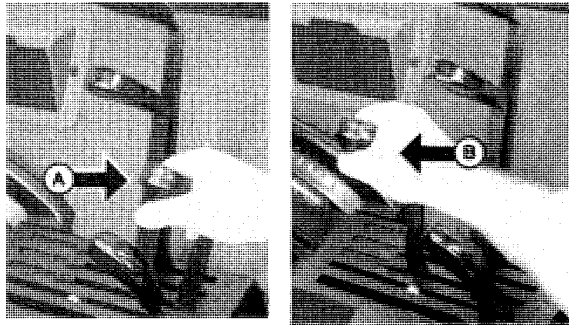
Start tractor and pull rockshaft lever rearward (A) to raise rockshaft, and push rockshaft lever forward (B) to lower rockshaft.



AC2;RW7121,RW7122 U10;010005 AGX3 010782

**B. CHECK OPERATION OF SELECTIVE CONTROL VALVES**

Connect a remote cylinder to SCV. Start tractor and pull SCV lever rearward (A) to extend cylinder, and push SCV lever forward (B) to retract cylinder.

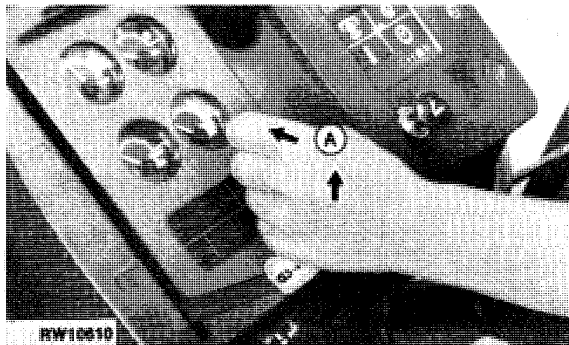


AC2;RW7841,RW7842 U10;010005 BWX3 010782

**21. DOES PTO OPERATE CORRECTLY?**

Check operation of PTO. Lift PTO clutch lever and push forward (A) to engage PTO (lever should lock in the engaged position), and pull PTO clutch lever rearward to disengage PTO clutch and engage PTO brake.

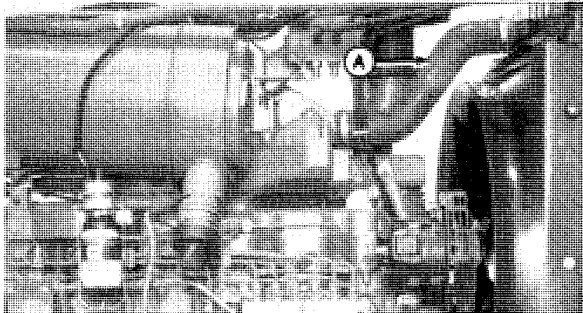
Lever should return to disengage position when engine is shut off.



AK3;RW1061 0 U10;010005 AHX3 100685

**22. ARE COOLANT LINES FREE OF LEAKS?**

Check upper (A) and lower radiator hoses, and heater hoses (if equipped) for leaks.



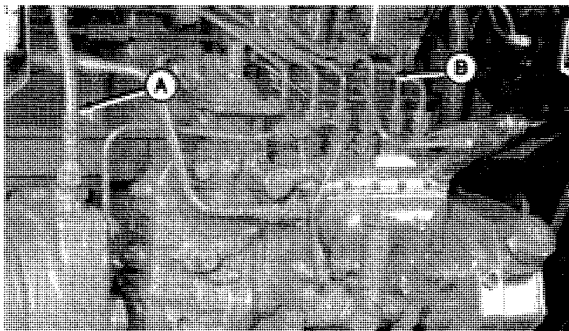
AC2;RW7835 U10;010005 AIX3 010782

**23. ARE ENGINE OIL LINES FREE OF LEAKS?**

Inspect engine oil line (A) for leaks.

**24. ARE FUEL LINES FREE OF LEAKS?**

Be sure fuel lines (B) are free of leaks.

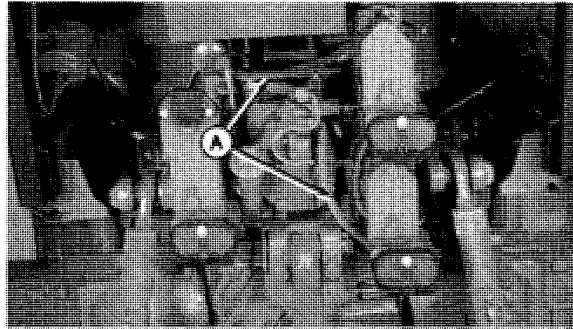


AC2;RW7848 U10;010005 FX4 210782

**25. ARE HYDRAULIC/TRANSMISSION LINES FREE OF LEAKS?**

Check hydraulic lines (A), and around hydraulic filter for leaks.

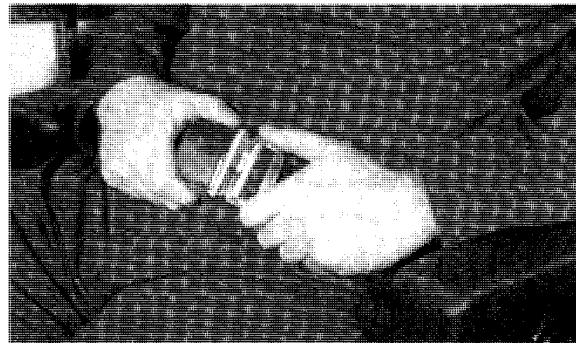
Be sure transmission lines are free of leaks.



AC2;RW7849 U10;010005 GX4 210782

**26. ARE SEAT BELTS INSTALLED AND OPERATIONAL, IF REQUIRED?**

Check operation of seat belt. Make sure seat belt lock and release mechanism work.

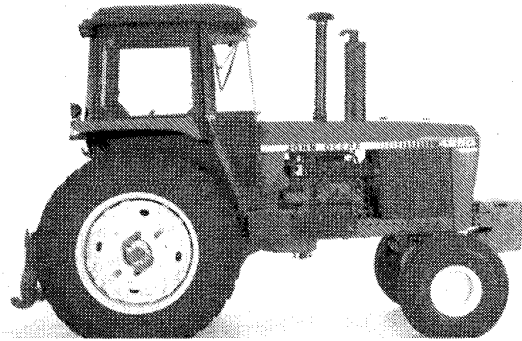


AC2;RW3180 U10;010005 AMX3 010782

**27. ARE DECALS SMOOTH AND NEAT?**

**28. IS PAINT COVERAGE ACCEPTABLE?**

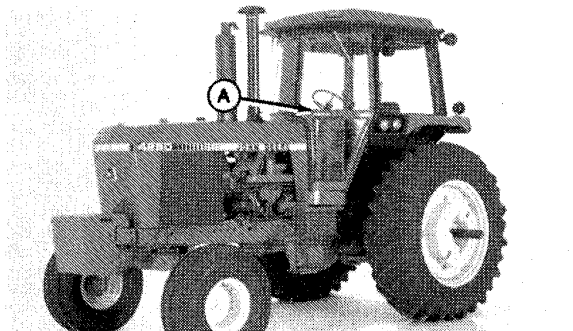
**29. IS OVERALL TRACTOR APPEARANCE ACCEPTABLE?**



AC2;RW7850 U10;010005 HX4 210782

**30. IF EQUIPPED, DOES SGB DOOR OPERATE PROPERLY?**

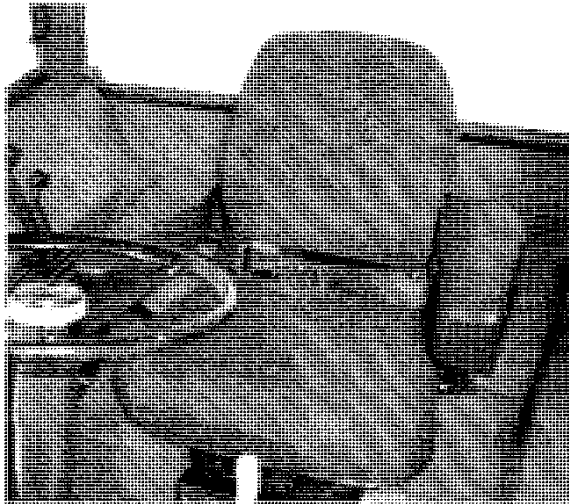
Check operation of SOUND-GARD body door (A). Be sure door closes easily and latches securely.



AC2;RW7851 U10;010005 IX4 210782



**31. IF EQUIPPED, IS SGB UPHOLSTERY NEAT IN APPEARANCE?**



**32. IF EQUIPPED, IS INTERIOR OF SGB CLEAN?**

AC2;RW5986 U10;010005 ARX3 010782

## **DELIVERY SERVICE**

A thorough discussion of the operation and service of a new tractor at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Enough time should be devoted, at the customer's convenience, to introducing the owner to his new tractor and explaining to him how to operate and service it.

The following procedure is recommended before the serviceman and owner complete the delivery acknowledgments portion of the delivery receipt.

U03;01005 AL 121280

Using tractor operator's manual as a guide, be sure owner understands these points thoroughly:

1. Controls and instruments.
2. How to start and stop engine.
3. Importance of break-in period.
4. How to use liquid or cast-iron ballast.
5. All functions of hydraulic system.
6. Using power takeoff.
7. Importance of safety.
8. Importance of lubrication and periodic services.

Give particular emphasis to rockshaft speed-of-drop, rockshaft selector lever (load and depth control), engine oil pressure indicator light, coolant temperature indicator light, charging system indicator light, and INVESTIGATOR™ II Warning System. These areas are very often misunderstood.

After explaining and demonstrating the above features, have owner sign delivery receipt and give him the operator's manual.

U03;01005 AM 010782

## **AFTER-SALE INSPECTION**

The purchaser of a new John Deere tractor is entitled to a free inspection within the warranty period after the equipment has been "run-in". The terms of this after-sale inspection are outlined on the back of the John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether the tractor is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer and opportunity to answer questions that may have arisen during the first few days of operation.

The following inspection program is recommended within the first 100 hours of tractor operation.

U03;01005 AM 211281

## 1. INSPECT ENGINE

**IMPORTANT:** Examine side frame and front support bolts. **DO NOT** apply grease or oil to bolts. Retorque bolts after 100 hours:

12-Point Side Frame Bolts .....	578 N·m (426 lb-ft)
6-Point Side Frame Bolts .....	650 N·m (480 lb-ft)
Front Support (Standard) .....	140 N·m (103 lb-ft)
Front Support (MFWD) .....	475 N·m (350 lb-ft)

U10;010005 B5X3 050583

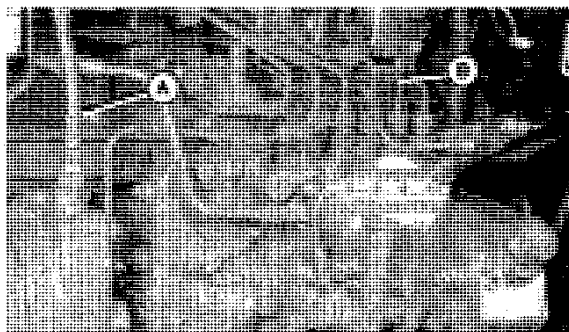
### A. ARE THERE ANY OIL, FUEL OR COOLANT LEAKS?

**CAUTION:** Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.

Inspect engine oil line (A) and fuel lines (B) for leaks.

Be sure coolant lines are free of leaks and all clamps are tight.



AC2;X9811;RW7848 U10;010005 JX4 210782

### B. IS FAN BELT TENSION CORRECT?

**IMPORTANT:** Belts must be cool when tension is checked.

With engine stopped, check belt tension with a reliable gauge. Tension should be 375 to 425 N (85 to 95 lbs.)

If belts (A) need adjustment, loosen adjusting cap screw and mounting bolt. Pry only against FRONT alternator frame. Holding alternator in position, tighten cap screw and mounting bolt.



AC2;RW7852 U10;010005 KX4 210782

**C. ARE ENGINE IDLE SPEEDS (LOW AND HIGH) CORRECT?**

Check and adjust engine idle speeds as instructed in Technical Manual, TM-1259, Section 230, Diesel Fuel System.

U10;010005 BIX3 010782

**D. DOES FUEL SHUT-OFF OPERATE CORRECTLY?**

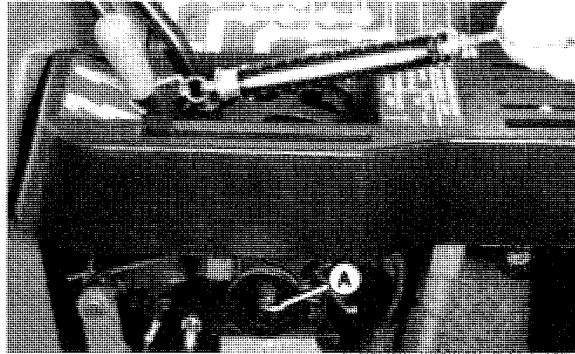
Check engine stop knob. Start engine and then pull stop knob all the way out. After engine stops, push stop knob back in.



AC2;RW3171 U10;010005 BIX3 010782

**E. IS THROTTLE LEVER FRICTION DISK ADJUSTED CORRECTLY?**

Tighten throttle lever spring screw (A) so a 3.5 kg (8.0 lb.) pull is required to move lever.



AC2;RW7845 U10;010005 BIX3 010782

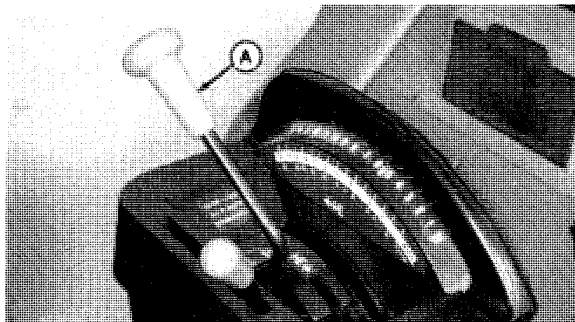
**2. INSPECT ELECTRICAL SYSTEM**

**A. DOES NEUTRAL START SWITCH OPERATE CORRECTLY?**



**CAUTION: When checking neutral start, be sure clutch pedal is depressed and stop cable is pulled out.**

Check neutral start switch. Tractor should only start with shift lever (A) in park or neutral position.

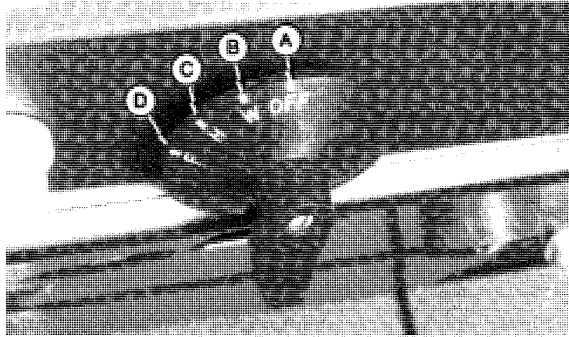


AC2;RW7845 U10;010005 AUX3 010782

**B. DO ALL LIGHTS OPERATE CORRECTLY?**

Check lamp operation in all switch positions.

- A—Lamps off.
- B—Warning lamps. (For daytime use only.)
- C—Dual-beam head lamps, warning lamps and red tail lamps. (For day or nighttime highway use.)
- D—Dual-beam head lamps, flood lamps, and front light bar. (For field use ONLY.)

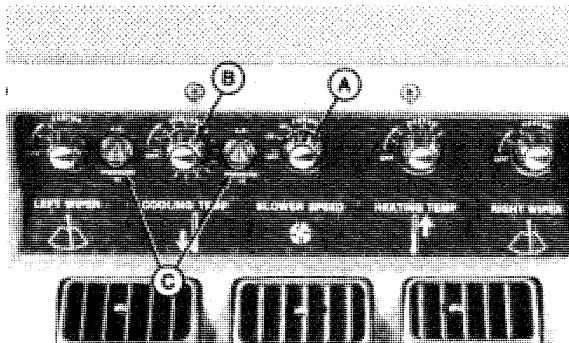


AC2:RW3155 U10;010005 AVX3 010782

**C. DOES AIR CONDITIONER OPERATE CORRECTLY?**

Blower switch (A) must be turned on before air conditioning system will operate. Regulate temperature with air conditioning control (B) and blower speed.

On earlier tractors, warning lamps (C) will come on for 5 seconds for bulb check when blower control switch is first turned on. If either or both pressure warning lamps (C) come on and stay on after bulb check, turn blower switch off. Wait approximately 2 minutes, then turn switch on to reset circuit. Warning lamps will remain off after resetting if system is okay. If either or both lamps come back on for more than 5 seconds, refer to Technical Manual, TM-1259, Section 290, Operator Station, for correct operation of air-conditioning system.



AC2:RW4094 U10;010005 8MX3 110986

D. IS BATTERY AT FULL CHARGE?

**⚠ 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.**



Check battery condition, using a battery hydrometer. Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.225. Replace battery if difference between cells is more than 0.050.

Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 for every 10°C above 27°C.) Subtract at same rate if electrolyte temperature is below 80°F (27°C). Corrected specific gravity of a fully charged battery is 1.260.

AB6;TS204 U10;010005 LX4 071087

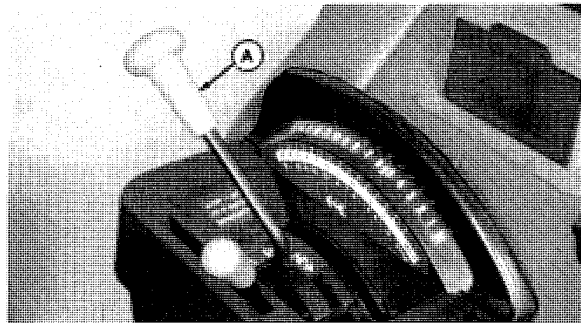
3. INSPECT POWER TRAIN

A. IS TRANSMISSION OPERATING IN ALL GEARS AND IN PARK ON INCLINE?

Check operation of transmission.

Start tractor and operate shifter in all gears.

Check park position (A) with tractor on incline.

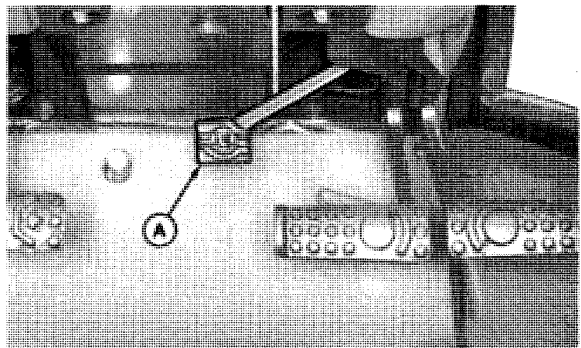


AC2;RW7845 U10;010005 AXX3 010782

B. IS DIFFERENTIAL LOCK OPERATING CORRECTLY AND ADJUSTED WITH BRAKE PEDAL?

**⚠ CAUTION: Do not operate tractor at high speed or attempt to turn with differential lock engaged.**

Check operation of differential lock. While driving tractor, depress differential lock pedal (A). Pedal should release when either or both brake pedals are touched.



AC2;RW5979 U10;010005 AYX3 030583

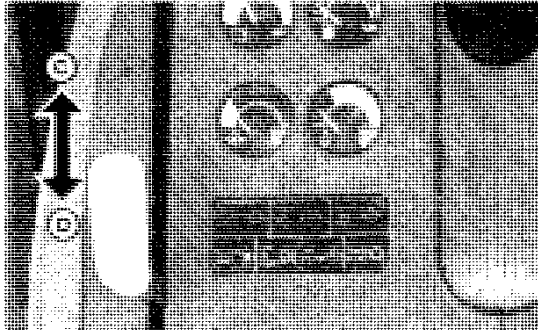
C. IS PTO OPERATING CORRECTLY AND ARE SHIELDS IN PLACE?

**CAUTION:** Tractor master shield (A) should be in place at all times except for special applications as directed in the Implement operator's manual.



Check operation of PTO. Push PTO clutch lever forward (C) to engage PTO (Lever should lock in the engaged position), and pull PTO clutch lever rearward (D) to disengage PTO clutch and engage PTO brake.

Lever should return to disengage position when engine is shut off.

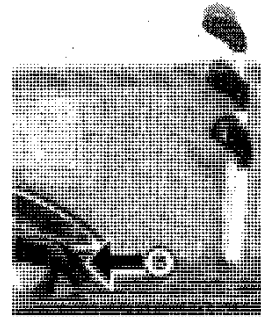
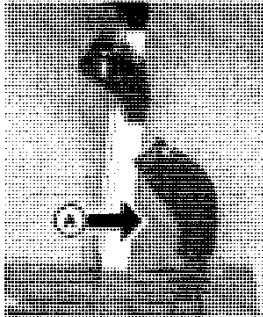


AK9:RW1100 5, AC2:RW7830 U10;010005 AZX3 131087

#### 4. INSPECT HYDRAULIC SYSTEM

A. IS ROCKSHAFT OPERATING CORRECTLY?

Start tractor and pull rockshaft lever rearward (A) to raise rockshaft, and push rockshaft lever forward (B) to lower rockshaft.



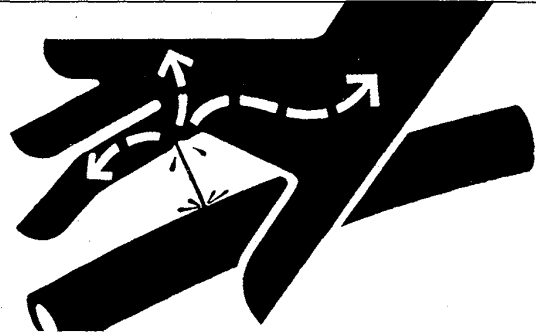
UC2:RW7121,RW7122 U10;010005 BAX3 161087

B. ARE THERE ANY VISIBLE OIL LEAKS?



**CAUTION:** Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



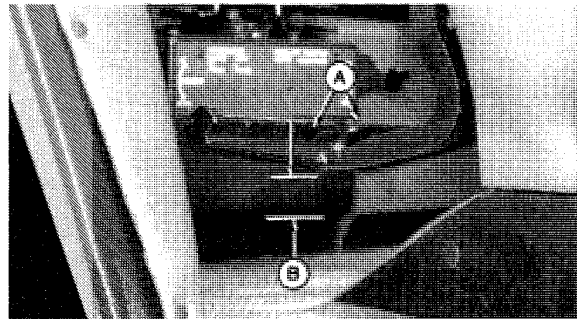
AC2:X9811 U10;010005 BNX3 010782

## 5. INSPECT STEERING AND BRAKES

A. DO BRAKES OPERATE CORRECTLY WITH ENGINE ON AND OFF?

Check operation of brakes. Start tractor and depress brake pedal (A). Pedal travel should not exceed 75 mm (3 in.).

With engine stopped, depress brake pedal five times. Pedal should have solid feel.

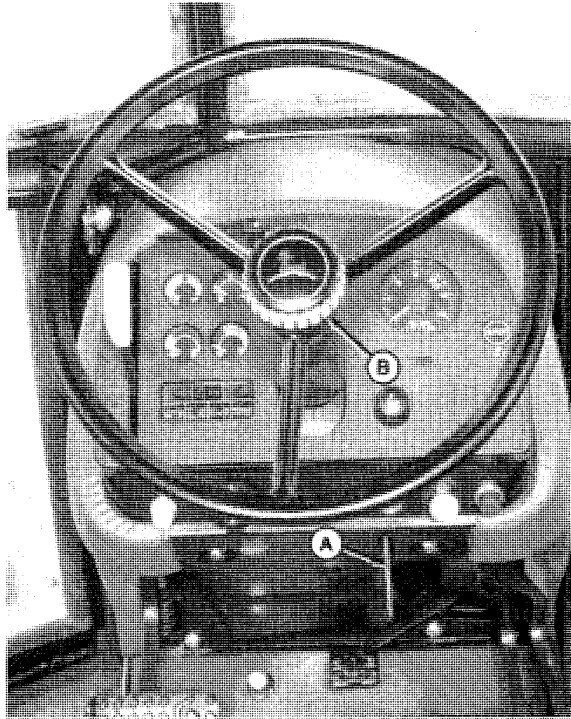


AC2:RW6938 U10;010005 BCX3 010782



**B. DOES STEERING OPERATE CORRECTLY BOTH LEFT AND RIGHT?**

1. Lift tilt release lever (A) and move steering column to desired angle. Push lever down to hold column in position.
2. Loosen steering wheel hub (B) and extend or retract steering wheel as desired. Tighten hub.
3. Turn steering wheel to left and right. Be sure steering wheel moves freely and does not bind.
4. Refer to Technical Manual, TM-1259, Section 260, Steering/Brakes, for any suspected malfunction.



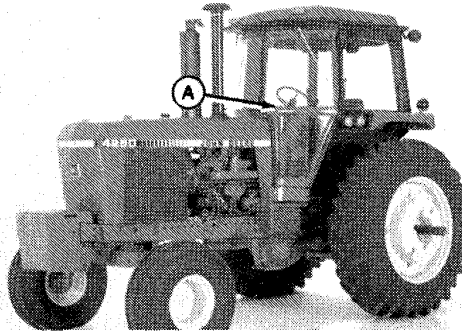
AC2;RW6729 U10;010005 BOX3 010782

**6. INSPECT OPERATOR STATION**

**A. ARE SGB OR ROPS MOUNTING TIGHT AND PROPERLY INSTALLED?**

Check installation of SOUND-GARD® Body (A) or Roll-Over Protective Structure. Be sure mounts are tight and positioned properly.

If repair is needed, refer to Section 15, Separation, of this technical manual.



AC2;RW7851 U10;010005 MX4A 120986

**B. IS SEAT OPERATING CORRECTLY?**

Check following adjustments for proper operation: armrest height, backrest angle, lumbar support, seat height, fore-and-aft positions, ride, height and weight, and counterbalance spring.

If problems arise with HYDRACUSION™ Seat or PERSONAL POSTURE™ Seat, refer to Technical Manual, TM-1259, Section 290, Operator Station.

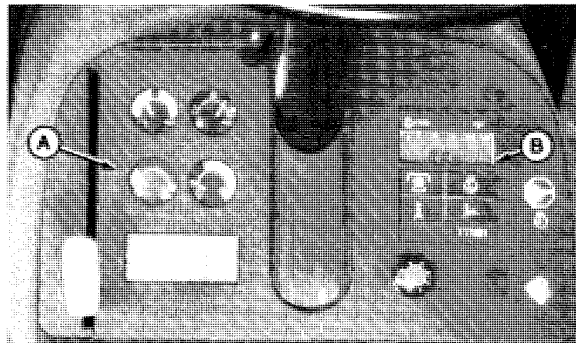


AC2;RW5986 U10;010005 BPX3 010782

**C. ARE ALL GAUGE AND INDICATOR LIGHTS OPERATING CORRECTLY?**

Check gauges (A) and tachometer (B). Refer to Technical Manual, TM-1259, Section 240, Electrical System, for correct operation.

Replace any instrument panel gauges and lights as needed. Refer to Section 40, Electrical Repair, of this technical manual.



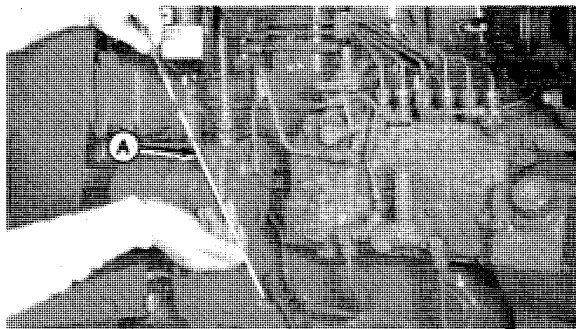
AC2;RW3888 U10;010005 BBX3 010782

**7. ARE FOLLOWING FLUID LEVELS CORRECT:**

**A. ENGINE CRANKCASE**

Check engine oil (A). Do not operate engine when oil level is below low mark on dipstick.

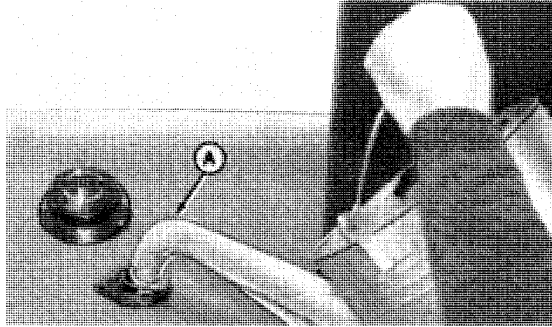
See engine oil specifications, listed in Lubrication, Group 15 of this section.



AC2;RW7847 U10;010005 GX4 210782

### B. ENGINE COOLANT

Check coolant level when engine is cold. Coolant level should be approximately 95 mm (3-3/4 in.) below top of filler neck. Fill (A) with 50 percent mixture of clean, soft water and antifreeze.

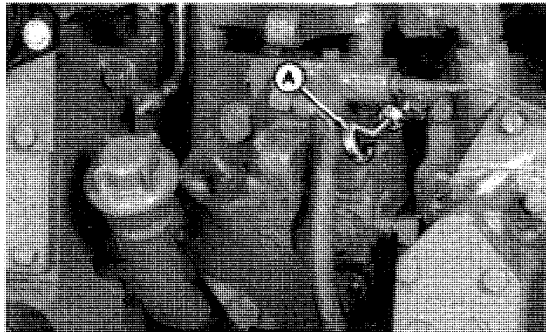


AC2;RW5731 U10;010005 BFX3 030583

### C. HYDRAULIC SYSTEM

Check transmission/hydraulic oil level (A), especially when implements with many or large remote cylinders are used. Cylinder capacity may be large enough to lower oil level below normal operating level.

Most accurate oil level reading is obtained prior to starting engine after long shut-down period.

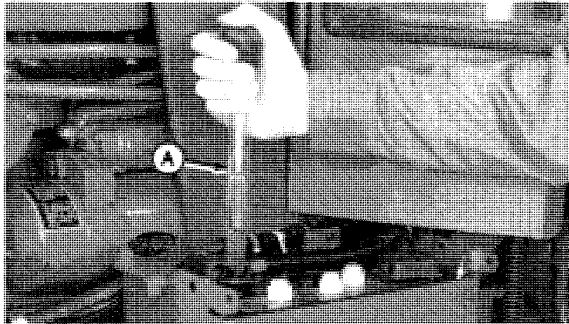


AC2;RW5733 U10;010005 B6X3 010782

### D. BATTERY

Check battery condition, using a battery hydrometer (A). Check specific gravity of electrolyte in each cell. Charge battery if reading is below 1.225. Replace battery if difference between cells is more than 0.050.

Always correct specific gravity reading for electrolyte temperature variation. Add 0.004 for every 10°F above 80°F. (Add 0.007 for every 10°C above 27°C.) Subtract at same rate if electrolyte temperature is below 80°F (27°C). Corrected specific gravity of a fully charged battery is 1.260.



AC2;RW7846 U10;010005 PX4 210782

## 8. DOES CUSTOMER UNDERSTAND PROPER OPERATION AND MAINTENANCE OF TRACTOR?

To assure complete customer satisfaction, enough time should be devoted, at customer's convenience, in helping him understand correct operation and maintenance of his tractor. The John Deere Delivery Receipt emphasizes this importance. It may be necessary to review that information with customer. Be sure to explain importance of reviewing operator's manual thoroughly.

U10;010005 BRX3 010782

*NOTE: This group lists the steps necessary to properly perform engine tune-up. Not all procedures are fully illustrated in this group. Detailed information can be obtained by referring to the group and section listed with the procedure.*

U10;010010 AX4 210682

### **MAKE PRELIMINARY ENGINE TESTS**

Before attempting to tune-up a tractor, it should be determined if a tune-up will restore operating efficiency. These preliminary tests will help determine if tractor should be tuned up.

1. After engine has been stopped for several hours, loosen crankcase drain plug and check for water seepage. A few drops can be due to condensation but any more may indicate the need for major engine repair.
2. With engine stopped, check coolant for oil film. With engine running, inspect for air bubbles. Either condition may indicate the need for engine repair.
3. Perform dynamometer test as instructed in Section 220, TM-1259. Record horsepower for later reference. PTO horsepower at 2200 engine rpm should be as follows:

4050 (Tractor Serial No. -006509) ...	75 kW (100 hp)
4050 (Tractor Serial No. 006510- ) ..	78 kW (105 hp)
4050E* .....	94 kW (126 hp)
4250 .....	90 kW (120 hp)
4250E* .....	106 kW (142 hp)
4450 .....	104 kW (140 hp)

4. Perform compression test as instructed in Section 220, TM-1259. Compression should be as follows:

4050 (Tractor Serial No. -006509) ... 3000-3410 kPa  
..... (34-34.1 bar) (435-495 psi)

4050 (Tractor Serial No. 006510- ) ..... 2400 kPa  
..... (24 bar) (350 psi) minimum

4050E\*, 4250, 4250E\* and 4450 ..... 2690-3100 kPa  
..... (26.9-31bar) (390-450 psi)

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information.

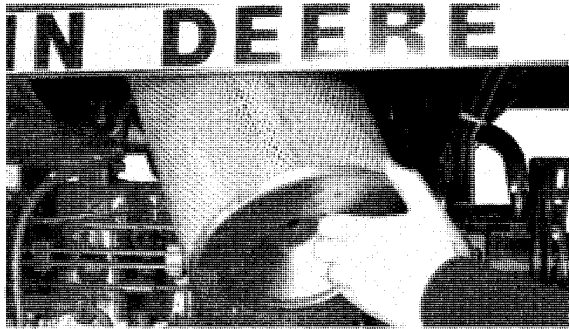
U10;010010 AX5 201087

## Tune-Up

### PERFORM TRACTOR TUNE-UP

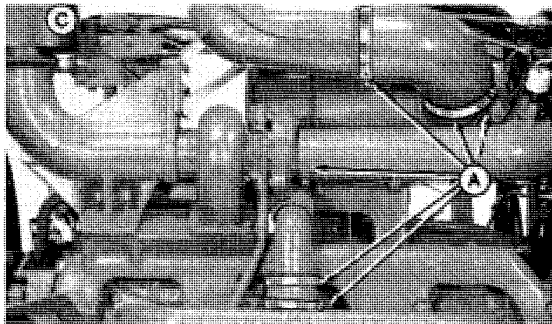
The following procedure indicates the steps that should be performed to properly tune-up the tractor.

1. **SERVICE AIR CLEANER.** Remove, clean and inspect air cleaner elements as instructed in Remove/Install air intake system, Section 30. Replace elements as needed.



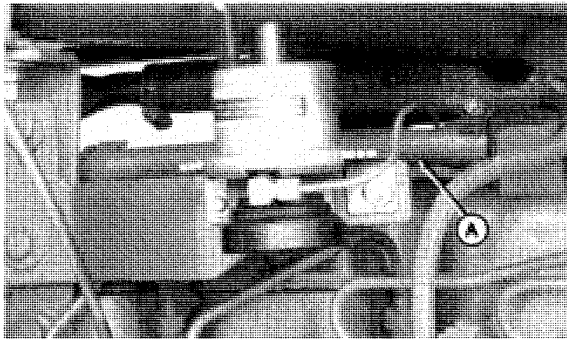
AC3;RW7717 U10;010010 CX4 210682

2. **TIGHTEN AIR INTAKE CONNECTIONS.** Tighten all air intake connections to 8.5 N·m (6 ft-lb).



AC4;RW7435 U10;010010 DX4 131087

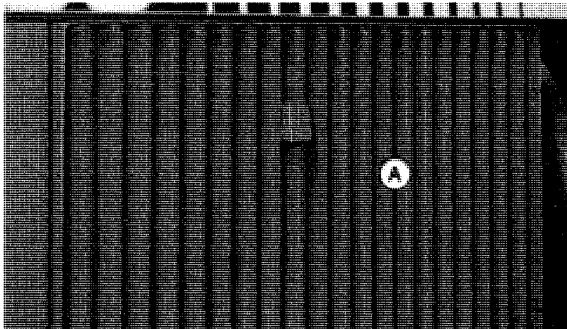
3. **CLEAN CRANKCASE BREATHER TUBE.** Remove and clean crankcase breather tube (A).



AC3;RW7718 U10;010010 EX4 210682

4. **CLEAN GRILLE SCREENS.** Remove grille screens (A, both sides) and clean out any trash that may have built up.

If equipped, remove engine compartment shields and clean out any trash.

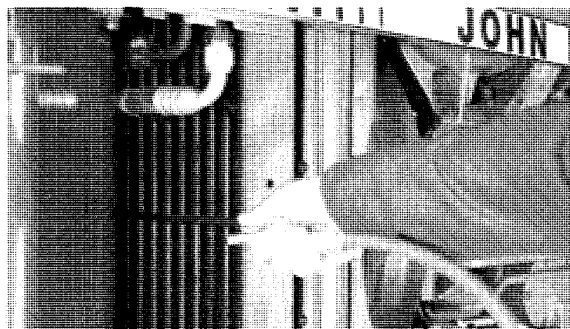


AC3;RW7431 U10;010010 FX4 210682

## Tune-Up

5. CLEAN RADIATOR AND OIL COOLER. Remove side shield and use compressed air to clean any trash build up from radiator and cooler-condenser.

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



AC3/RW7719 U10;010010 GX4 071087

6. TEST RADIATOR AND CAP. Perform radiator leak test and radiator cap pressure test as instructed in Remove/Install Cooling System, Section 20.

7. CHECK ALTERNATOR AND COMPRESSOR BELT TENSION. Adjust belt tension as instructed in Remove/Install Cooling System, Section 20.

8. CHECK AND ADJUST INJECTION PUMP TIMING. Check pump timing and adjust as necessary as instructed in Section 230, TM-1259.

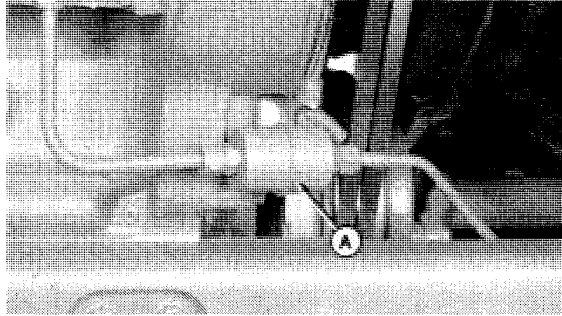
9. CHECK AND ADJUST IDLE SPEEDS. Check slow and fast idle speeds and adjust as necessary as instructed in Section 230, TM-1259.

U10;010010 HX4 090784

## Tune-Up

10. REPLACE FUEL FILTERS. Shut fuel off at bottom of tank. Push top of filter retainer in enough to release locking tab. Remove old filters and install new.

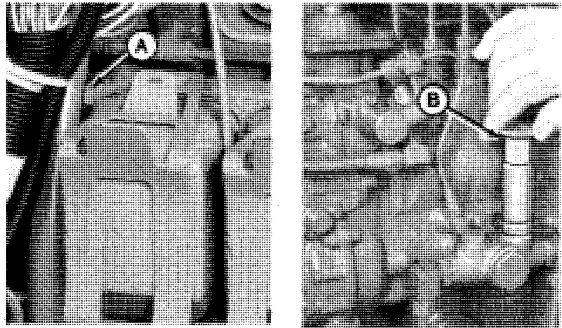
Disconnect inlet and outlet fittings from pre-filter (A) and replace. Turn fuel on at bottom of fuel tank.



AD9;RW7715 U10;010010 IX4 250985

11. BLEED FUEL SYSTEM. Loosen bleed plug (A) on filter. Unscrew hand primer (B) and pump until fuel flows from bleed plug. Tighten bleed plug.

Refer to Section 230, TM-1259 as necessary.



AC3;RW6834,RW6835 U10;010010 JX4 210682

**⚠ CAUTION:** Gas given off by batteries is explosive. Keep sparks and flames away from batteries. Make last connection and first disconnection at a point away from batteries. Fully charge batteries by attaching positive charger cable to positive terminal of starter solenoid. Attach negative cable to good ground on tractor frame.

12. SERVICE BATTERIES. Clean batteries as needed using solution of one part baking soda and four parts water.

**⚠ 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.

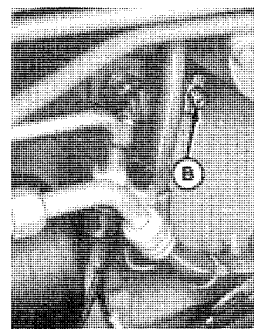
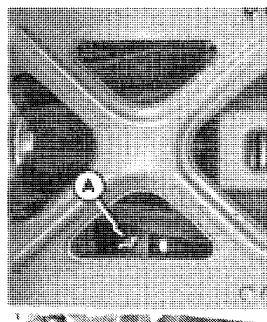
Check electrolyte level in each cell. If low, fill to bottom of filler neck with CLEAN, SOFT water.



AB6;TS204 U10;010010 KX4 071087

Tune-Up

13. MAKE YEARLY COOLING SYSTEM FLUSH (if needed). Open drain fittings on radiator (A) and engine block (B). Close fittings after coolant has drained and fill system with clean water.



Turn heater control valve in cab fully on.  
Start engine and bring to operating temperature.  
Stop engine and drain coolant.

Close drain fittings and fill system with solution of clean water and John Deere Cooling System Cleaner. Follow instructions provided with cleaner.

After cleaning procedure has been completed, fill system with 50% mixture of CLEAN, SOFT water and ethylene glycol antifreeze.

**IMPORTANT: Do not use methoxyl propanol antifreeze in the coolant solution. It may damage cylinder sleeves and seals.**

Cooling system capacity for tractors is:

4050 (Tractor Serial No. -005510) .. 19.9 L (21 qt.)  
4050 (Tractor Serial No. 005511- ) .. 25.6 L (27 qt.)  
4250 and 4450..... 25.6 L (27 qt.)

AC3;RW6841 RW6842 U10;010010 NX4 201087

14. MAKE FINAL ENGINE TEST. Repeat dynamometer test as instructed in Section 220, TM-1259. PTO horsepower at 2200 engine rpm should be as follows:

4050 (Tractor Serial No. -006509) ... 75 kW (100 hp)  
4050 (Tractor Serial No. 006510- ) .. 78 kW (105 hp)  
4050E\* ..... 94 kW (126 hp)  
4250 ..... 90 kW (120 hp)  
4250E\* ..... 106 kW (142 hp)  
4450 ..... 104 kW (140 hp)

\*An "E" following tractor designation on serial number plate for 4050 and 4250 tractors identifies tractors for Region II. If your tractor is identified for Region II, refer to Miscellaneous Options, Section 95, for specific information.

U10;010010 OX4 201087



*Tune-Up*

**LUBRICATE TRACTOR PROPERLY**

**IMPORTANT:** Correct selection and proper use of lubricating oils and grease is very important in keeping upkeep costs low, while providing long tractor life with satisfactory service.

Use only lubricants specified in this section. Lubricate at the intervals listed and according to the following instruction.

U10:010015 AX2 291081

**DIESEL ENGINE OIL**

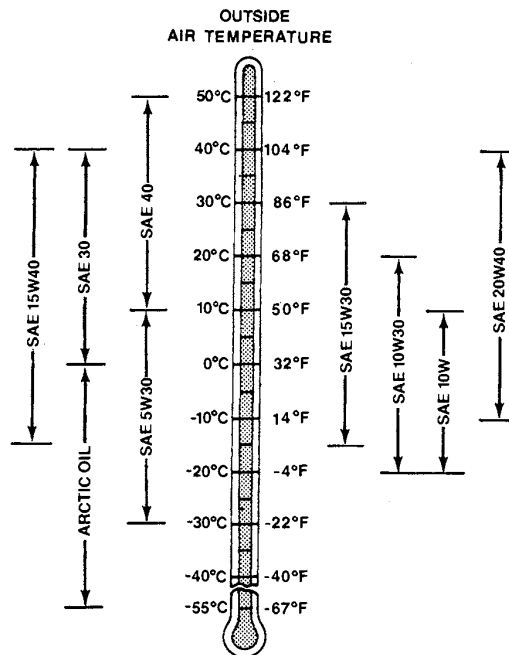
Depending upon the expected air temperature range between oil changes, use oil viscosity as shown on the adjoining temperature chart.

John Deere TORQ-GARD SUPREME® Engine Oil is recommended. Other oils may be used if they meet the requirements of one of the following:

- API Service Classifications CD/SF or CD/SE.
- Military Specification MIL-L2104D or MIL-L-2104C

SAE 5W30 viscosity grade oils meeting API Service Classification, CC/SF or CC/SE may be used, but oil and filter must be changed at 100 hour intervals.

Oils meeting Military Specification MIL-L-46167A are recommended as arctic oils. Other specially formulated oils may be used if they meet API Service Classification CC/SF or CC/SE and have a pour point at least 5°C (9°F) below the lowest expected air temperature during the 100 hour interval between oil and filter changes



AB6;TS196 053;ENGOIL 161285

## TRANSMISSION - HYDRAULIC OILS

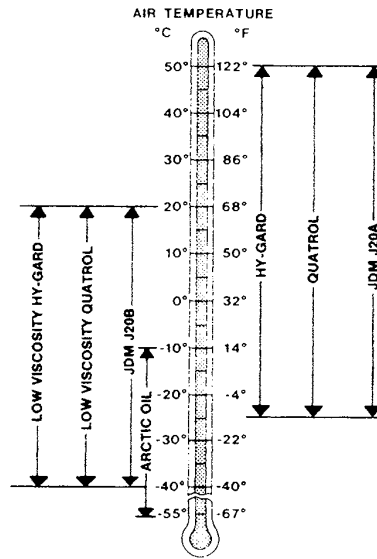
Use oil viscosity based on expected air temperature range during the drain interval.

John Deere HY-GARD® transmission and hydraulic oil is recommended.

You may also use oils that meet John Deere standards, or other oils meeting John Deere Standard JDM J20A or J20B.

At temperature below  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ), use arctic oils such as those meeting Military Specification MIL-L-46167.

If low viscosity HY-GARD® oils are used, be sure to drain and refill system with a regular viscosity oil at temperature indicated on chart. Steering circuit should be drained to take full advantage of low viscosity oils.



AK1;X9312 U01;FL05A X2 201087

## USE CORRECT HYDRAULIC-TRANSMISSION FILTER ELEMENT

To protect systems, replace transmission-hydraulic oil filter with a John Deere service filter element. Replacement element must be an equivalent 10-micron filter. Minimum and maximum performance specifications are printed on John Deere filters. Use of alternate filters that do not have their performance specified is not recommended.

U01;FL05B X2 280884

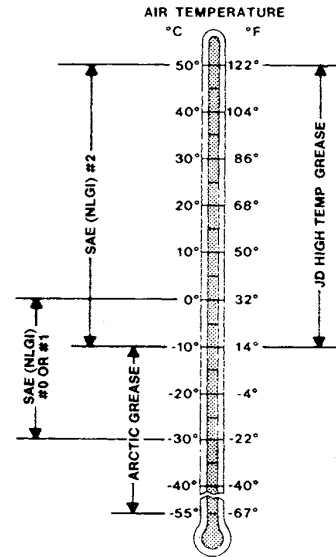
### HIGH TEMPERATURE/EXTREME PRESSURE GREASE

Use grease based on expected air temperature range during the service interval.

John Deere High Temperature/Extreme Pressure 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-10924C.



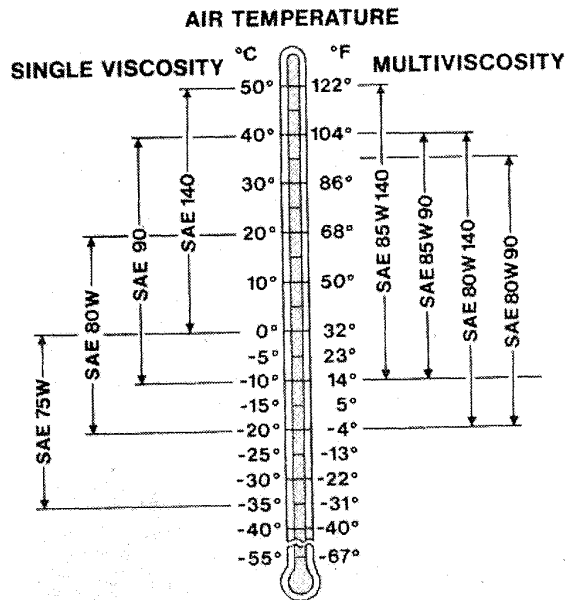
AB6;X9328 053;GREA1. 151286

### MFWD GEAR LUBRICANT

Use grease based on expected air temperature range during the service interval.

John Deere GL-5 Gear Lubricant, 85W-140, is recommended for use in MFWD axle housing and wheel hubs. If other oils are used, they must be oils meeting:

- API Service Classification GL-5
- Military Specification MIL-L-2105B
- Military Specification MIL-L-2105C



AK1;RW8659L U01;FLX1 02 201087

### **ALTERNATIVE LUBRICANTS**

Additional information on cold weather operation is available from your John Deere dealer.

Conditions in certain geographical areas may require special lubricants and lubrication practices which do not appear in this operator's manual. If you have any questions, consult your John Deere dealer to obtain the latest information and recommendations.

053;ALTER. 050886

### **STORE LUBRICANTS CORRECTLY**

A tractor can operate efficiently only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

U10;010015 CX2 291081

*Lubrication*

**LUBRICATION SPECIFICATIONS**

Engine Crankcase ..... 17.0 L (18 qt)

Transmission-Hydraulic System:

Power Shift without MFWD ..... 51.0 L (13.5 gal)  
 Power Shift with MFWD ..... 60.0 L (15.9 gal)  
 QUAD-RANGE® without MFWD ..... 60.5 L (16.0 gal)  
 QUAD-RANGE with MFWD ..... 65.0 L (17.2 gal)

Service Intervals:

Engine:

Check Oil Level ..... 10 Hours  
 Check Coolant ..... 10 Hours  
 Check Fuel Filter (4050 Tractor Serial No. 006510- ) ..... 10 hours  
 Change Oil and Filter\* ..... 200 Hours  
 Clean Vent Tube ..... 600 Hours  
 Replace Fuel Filter Element (4050 Tractor Serial No. 006510- ) ..... 600 Hours  
 Check Fuel Injection Nozzles ..... 1200 Hours  
 Replace Air Filter Elements ..... Annually  
 Change Coolant ..... Biennially  
 Replace Thermostats ..... Biennially  
 Replace Fuel Filter (4250 and 4450) ..... As required  
 Inspect or Replace Crankshaft Damper ..... As required  
 Check Side Frame Bolts ..... First 100 Hours or Before Installation of Loader

Transmission-Hydraulic System:

Check Oil Level ..... 10 Hours  
 Check Oil Level of MFWD  
     Axle Housing and Wheel Hub ..... 200 Hours  
 Change Transmission and Hydraulic Filters\* ..... 600 Hours  
 Clean Filter Screens ..... 1200 Hours  
 Change Oil ..... 1200 Hours  
 Change Transmission and Hydraulic Filters ..... Annually or as required  
 Check Accumulators: Brake, Shift, Seat ..... As required

Lubrication of Grease Fittings:

Rear Axle Bearings (wet conditions) ..... 10 Hours  
 Rear Axle Bearings (normal conditions) ..... 600 Hours  
 Front Wheel Bearings (wet conditions) ..... 10 Hours  
 Front Wheel Bearings (normal conditions) ..... 1200 Hours  
 Front Axle Pivots, Steering  
     Spindles, and Tie Rods (wet conditions) ..... 10 Hours  
 Front Axle Pivots, Steering  
     Spindles, and Tie Rods (normal conditions) ..... 200 Hours  
 MFWD U-Joints and Steering Knuckles  
     (wet conditions) ..... 10 Hours  
 MFWD King-Pins, Steering Knuckles and U-Joints (normal conditions) ..... 200 Hours  
 Wide Swing Drawbar ..... 10 Hours  
 Load Control Shaft Outer Bearings ..... 200 Hours  
 3-Point Hitch ..... 200 Hours  
 MFWD Hub and Axle Housings ..... 1200 Hours  
 Secondary Brake Linkage Pivot ..... 200 Hours

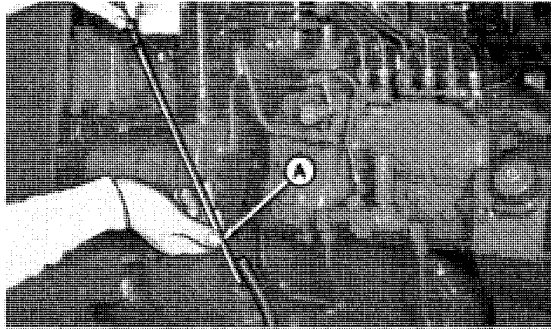
\*Change at 100 Hours during "break-in" period.

U10;010GEN IX5 071087

## CHECK ENGINE OIL LEVEL

### SERVICE INTERVAL: 10 HOURS

1. Check engine oil level. Bring oil level to full mark (A) with John Deere TORQ-GARD SUPREME™ engine oil or equivalent.

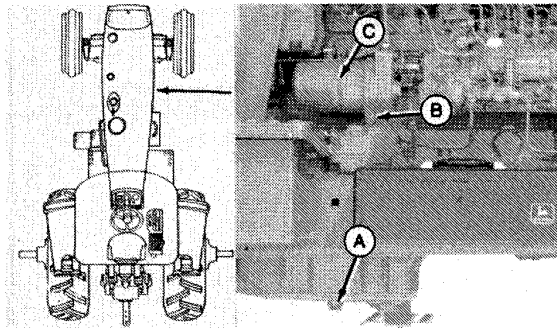


AC4;RW5730 U10;010015 AX5 220782

## CHANGE ENGINE OIL AND OIL FILTER

### SERVICE INTERVAL: 200 HOURS (100 HOURS DURING BREAK-IN PERIOD)

1. Run engine approximately 5 minutes to warm up oil. Shut engine off.
2. While oil is warm remove drain plug (A) and drain oil. If oil is especially dirty, or has been contaminated, also drain engine oil cooler (if equipped).
3. Drain oil filter housing (B). Remove engine oil filter (C).
4. Remove old filter packings and clean filter mounting pads. Oil new packings and install new elements. Hand tighten each element  $\frac{1}{2}$  to  $\frac{3}{4}$  turns after packing contacts filter housing.
5. Fill engine with John Deere TORQ-GARD SUPREME engine oil or equivalent. Use seasonal viscosity grade oil as specified (See Engine Oil, Section 10, Group 15).



AC4;RW6603 U10;010015 BX5 030583

## CLEAN CRANKCASE VENT TUBE

### SERVICE INTERVAL: 600 HOURS

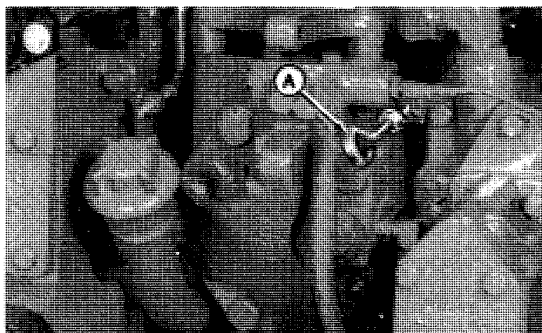
1. Remove and clean crankcase vent tube.

U10;010015 DX3 130782

## CHECK TRANSMISSION-HYDRAULIC OIL LEVEL

**SERVICE INTERVAL: 10 HOURS**

1. Check transmission-hydraulic oil level (A).
2. Bring oil level to full mark with John Deere HY-GARD™ transmission-hydraulic oil or equivalent.

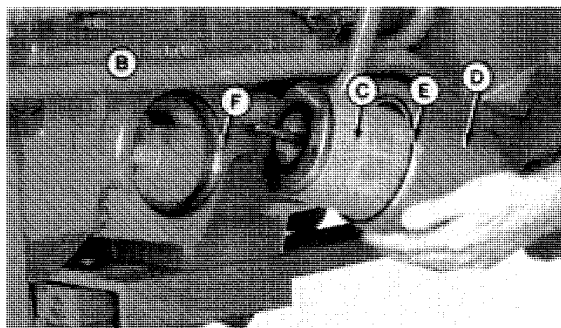
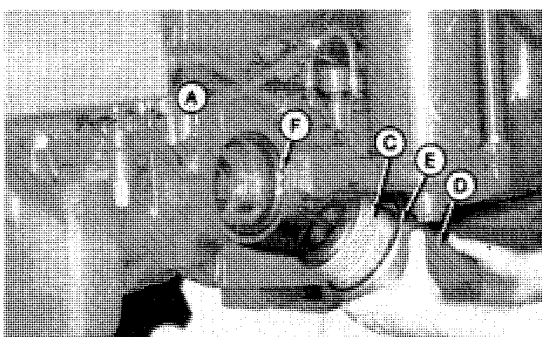


AC4/RW5733 U10;010015 CX5 220782

## REPLACE TRANSMISSION OIL FILTER

**SERVICE INTERVAL: 600 HOURS**

1. Remove filter element cover (D) and remove oil filter (C).
2. Replace packing (E) if defective and clean filter cover and mounting pad (F).
3. Place new filter element into filter cover and reinstall cover.



A—QUAD RANGE™  
B—Power Shift  
C—Oil Filter  
D—Element Cover  
E—Packing  
F—Mounting Pad

AC4/RW6619,RW6620 U10;010015 DX5 220782



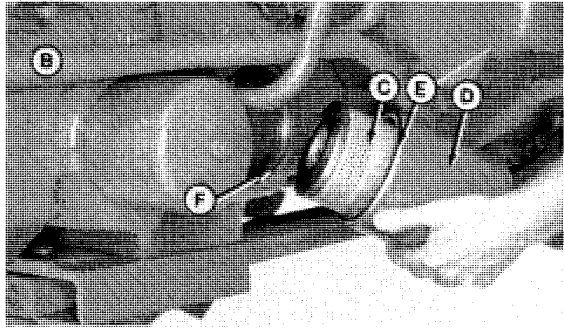
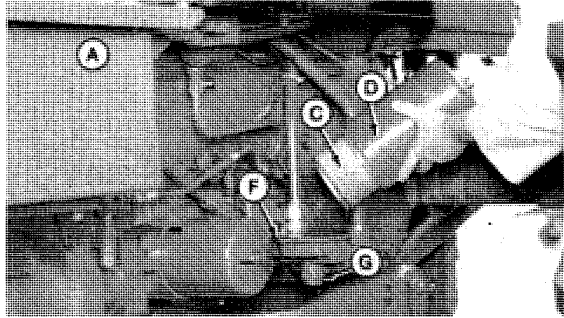
## REPLACE HYDRAULIC OIL FILTER

**SERVICE INTERVAL:** Annually or as required

1. Remove filter housing cover (D) and remove oil filter (C).
2. Replace packing (E) if defective and clean filter mounting pad (F).
3. Place new element into filter cover and reinstall cover.

**NOTE:** Packing on QUAD-RANGE™ mounts in filter mounting pad.

A—QUAD RANGE™  
B—Power Shift  
C—Filter Element  
D—Cover  
E—Packing  
F—Mounting Pad  
G—QUAD RANGE™ Filter  
Drain Plug

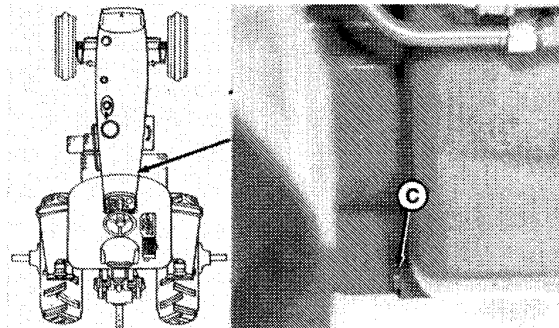
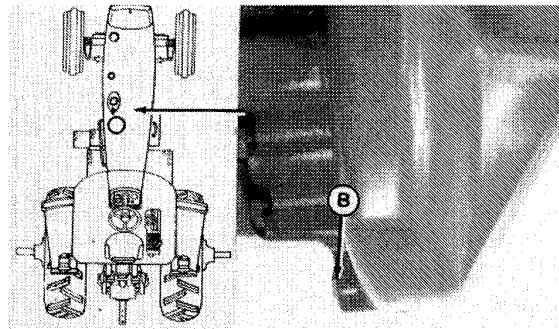
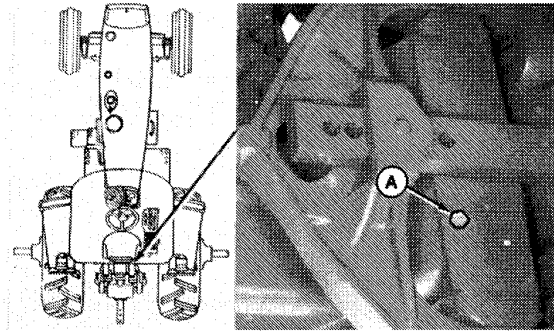


AC4;RW6621,RW6622 U10;010015 GX3 030583

## CHANGE TRANSMISSION-HYDRAULIC OIL

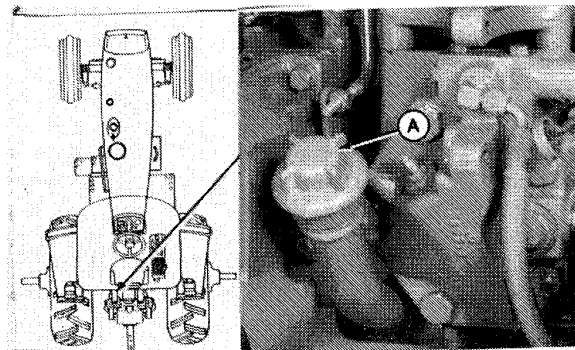
**SERVICE INTERVAL: 1200 HOURS**

1. Remove the 3 drain plugs; 1 in transmission case (A) 1 in clutch housing (B) and 1 on the MFWD drop housing (C) to drain transmission-hydraulic oil.



AC4;RW6629,RW6630,RW6638 U10;010015 FX5 220782

2. Replace plugs and refill system at transmission case (A) with John Deere Hy-Gard™ transmission-hydraulic oil or equivalent.



AC4;RW6609 U10;010015 IX3 130782

### LUBRICATE GREASE FITTINGS

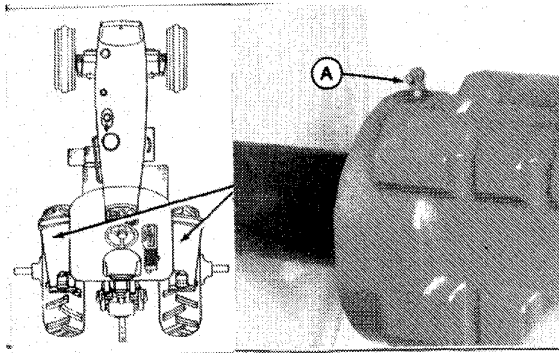
**⚠ CAUTION:** Shut off engine and remove ignition key before doing any lubrication procedure.

U10;010015 GX5 220782

### LUBRICATE AXLE BEARINGS

**SERVICE INTERVAL: 600 HOURS (10 HOURS IN WET CONDITIONS)**

1. Lubricate axle bearings at the outer end of each axle housing (A) with High-Temperature Extreme-Pressure grease.

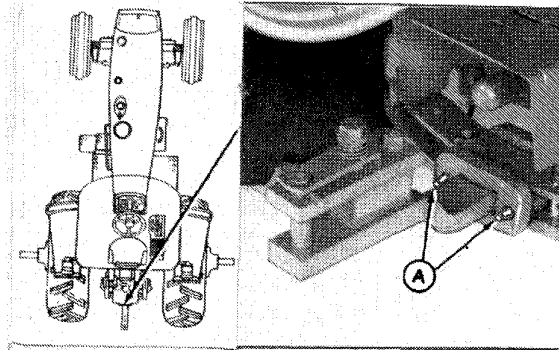


AC4;RW6595 U10;010015 JX3 030583

### LUBRICATE WIDE SWING DRAWBAR

**SERVICE INTERVAL: 10 HOURS**

1. Lubricate wide swing drawbar roller fittings (A).

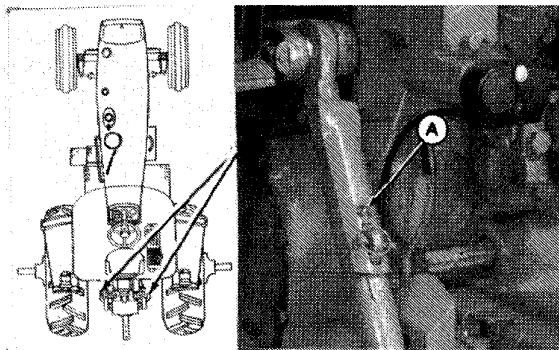


AC4;RW6599 U10;010015 KX3 130782

### LUBRICATE LIFT LINKS

**SERVICE INTERVAL: 200 HOURS**

1. Lubricate both lift links (A).



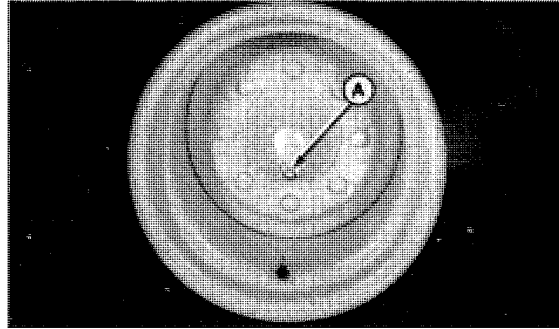
AC4;RW6617 U10;010015 HX5 220782

### LUBRICATE FRONT WHEEL BEARINGS ON TRACTORS WITHOUT MFWD

**SERVICE INTERVAL: 1200 HOURS**

1. Lubricate each front wheel bearing (A).

*NOTE: If tractor is operated in extremely wet or muddy conditions lubricate every 10 hours until bearings can be cleaned and packed.*

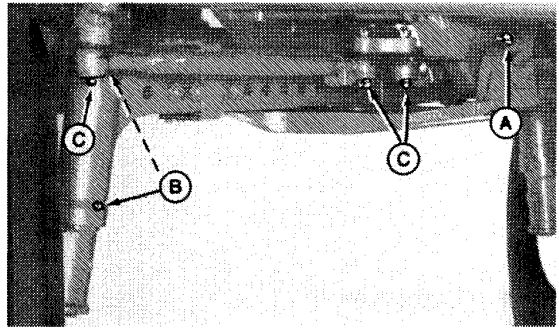


AC4;RW5740 U10;010015 MX3 130782

### LUBRICATE FRONT AXLES AND PIVOT PINS

**SERVICE INTERVAL: 200 HOURS (10 HOURS IN WET CONDITIONS)**

1. Lubricate pivot pins (A) steering spindles (B) and tie rods (C) (10 fittings).

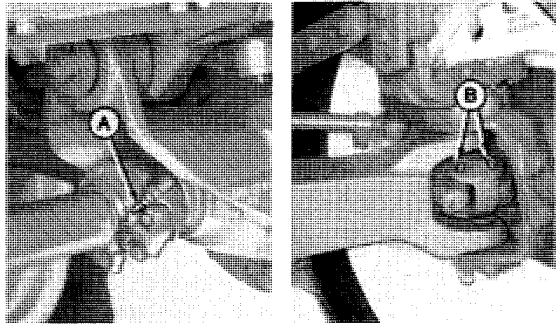


AC4;RW5736 U10;010015 NX3 030583

### LUBRICATE MFWD EQUIPPED TRACTORS

**SERVICE INTERVAL: 200 HOURS (10 HOURS IN WET CONDITIONS)**

1. Lubricate drive shaft universal joints (A) both front and rear. (May need to rotate drive-line shield for access.)
2. Lubricate drive axle universal joints (B) and steering knuckle bearings, both sides.

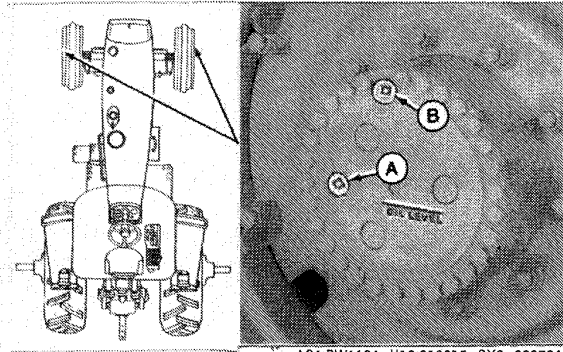


AC4;RW5734,RW5735 U10;010015 OX3 030985

### LUBRICATE MFWD AXLE DIFFERENTIAL AND PLANETARY DRIVE

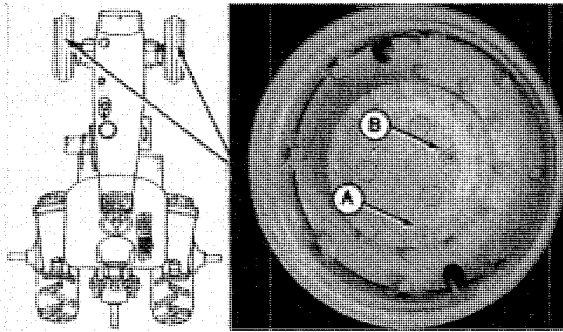
**SERVICE INTERVAL: 200 HOURS (CHECK)  
1200 HOURS (CHANGE)**

1. Check planetary drive oil level when oil level mark is horizontal. Remove check plug (A) and note oil level. Oil should be level with mark. SAE 85W-140 GL5 gear lubricant is recommended. Tighten plugs (A and B) to 70 N·m (52 lb-ft).



AC4;RW6604 U10;010015 QX3 090784

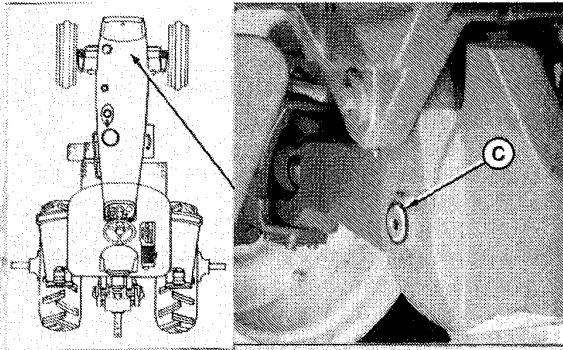
2. Drain outer planetary with drain plug (A) at bottom of planetary carrier. Refill when drain plug is at top of planetary carrier. SAE 85W-140 GL5 gear lubricant is recommended. Tighten plugs (A and B) to 70 N·m (52 lb-ft).



AC4;RW7422 U10;010015 RX3 120784

3. Check differential oil level by removing plug (C). Oil should be level with hole.

4. Drain by removing plug in bottom of differential drive housing. Refill oil should be level with refill plug hole. SAE 85W-140 GL5 gear lubricant is recommended. Tighten plug (C) to 190 N·m (140 lb-ft).



AC4;RW6605 U10;010015 SX3 160784

# Section 15 SEPARATION

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*Continued on next page*

U15;015CON AX3 050882

**CONTENTS—Continued**

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**Group 05**  
**FRONT AXLE**

**SPECIAL TOOLS**

*NOTE: Order tools from your SERVICE-GARD Catalog unless otherwise indicated.*

Number	Name	Use
D-05007ST	Splitting Stand	Remove front axle.
D-05149ST	Attachments	Adapt splitting stand to tractor.
JT27702	Heavy Duty Front Tractor Splitting Stand	Support front end, engine, and clutch housing.

U15;015005 AX4 220682

**SPECIFICATIONS**

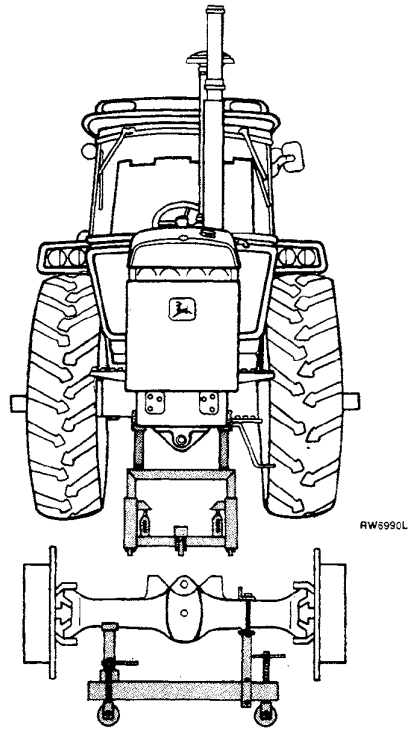
Item	Measurement	Part Dimension
Front Axle-to-Front Support .....	End Play .....	0.03 to 0.38 mm (0.001 to 0.015 in.)
<b>Cap Screw</b>		<b>Torque</b>
Front Support-to-Front Axle .....		298 N·m (220 ft-lbs)
Tie Rod End-to-Steering Arm .....		135 N·m (100 ft-lbs)
Front Wheel-to-Hub (No MFWD) .....		135 N·m (100 ft-lbs)
Front Wheel-to-Hub (MFWD) .....		450 N·m (332 ft-lbs)
Drive Shaft-to-Front Axle Yoke .....		68 N·m (50 ft-lbs)

U15;015005 AX3 090682



## Front Axle

### REMOVE FRONT AXLE

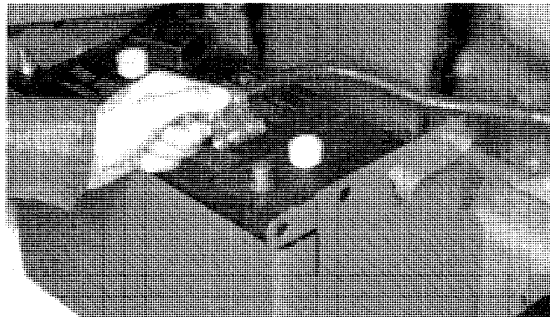


ACS;RW6990L U15;015005 BX3 090682

### SUPPORT TRACTOR AND FRONT AXLE

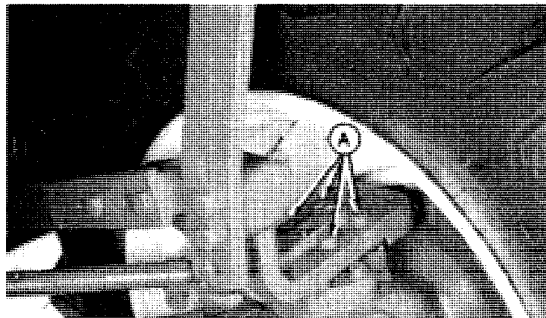
1. Remove right-hand battery box cover, and disconnect battery ground cable.
2. Remove front weights from weight support bracket.

*NOTE: Front wheels may be removed for easier handling of front axle.*



ACS;RW5519 U15;015005 DX4 311083

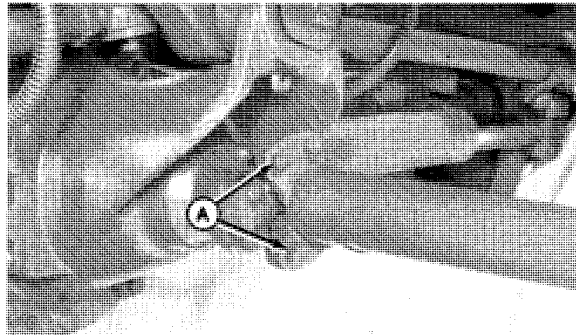
3. Remove fender mounting cap screws (A) and remove both front fenders.



ACS;RW6794 U15;015005 EX4 220682

## Front Axle

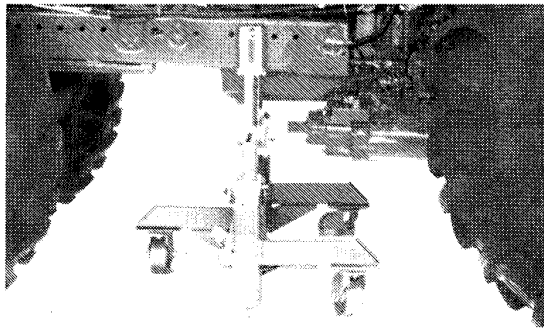
4. On MFWD tractors, disconnect drive shaft at front axle (A) and remove drive shaft.



AC5/RW6388 U15/015005 FX4 060582

*NOTE: Battery boxes, steps, and shielding are removed for illustrative purposes.*

5. Mount JT-27702 Heavy Duty Front Tractor Splitting Stand to side frames and support tractor.

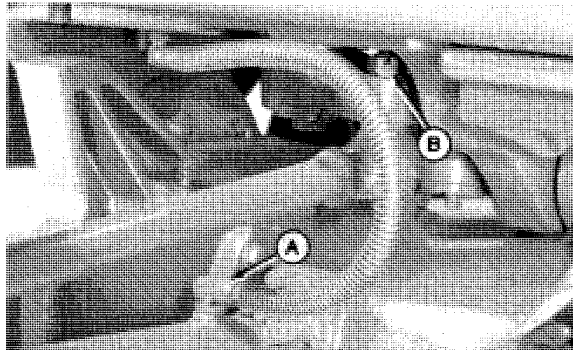


AC5/RW7504 U15/015005 GX4 060582



**CAUTION: Release pressure before loosening hydraulic lines. Pressure can be relieved by loosening brake bleed screw and pumping brake until pedal goes all the way down.**

6. On MFWD tractor, disconnect steering assist cylinder hoses (A).
7. Disconnect tie rods (B) at steering arm.



AC5/RW6791 U15/015005 IX4 311083

*Front Axle*

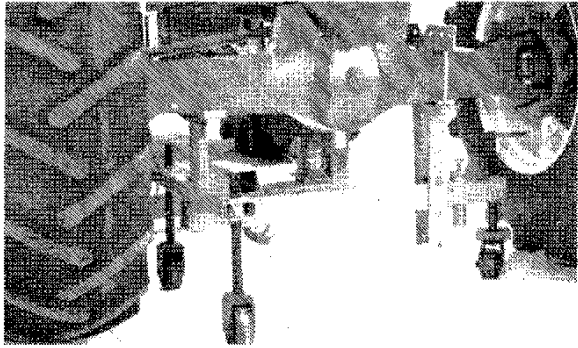
8. On MFWD tractor, place block (A) between steering stops and knuckle housings.



AC5;RW6795 U15;015005 CX3 311083

9. Mount D-05007ST Splitting Stand with D-05149ST attachments to front axle.

10. Support front axle.



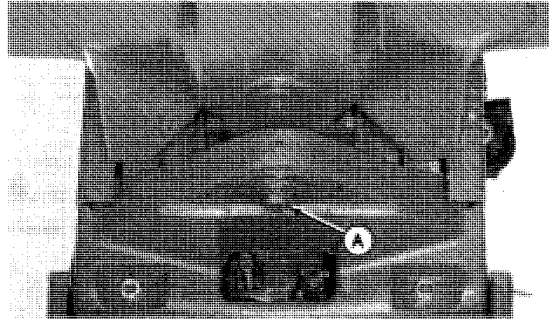
AC5;RW6793 U15;015005 HX4 311083

## Front Axle

### REMOVE FRONT AXLE

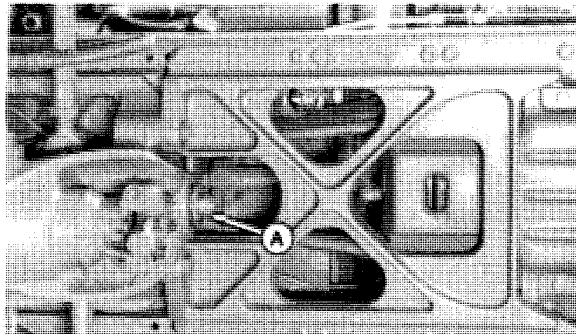
*NOTE: Front axle mounting bolt has shim washers to provide clearance between front axle and front support. Do NOT lose or misplace shims.*

1. Remove front axle mounting bolt (A).



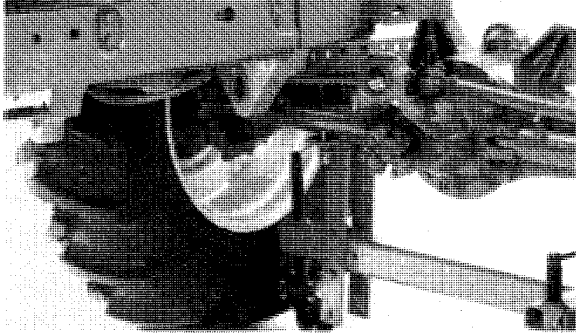
ACS/RW6796 U15;015005 KX4 060582

2. Remove front axle rear mounting bolt (A).



ACS/RW6797 U15;015005 LX4 060582

3. Carefully move front axle rearward off of axle pivot pins.
4. Remove front axle from under tractor.

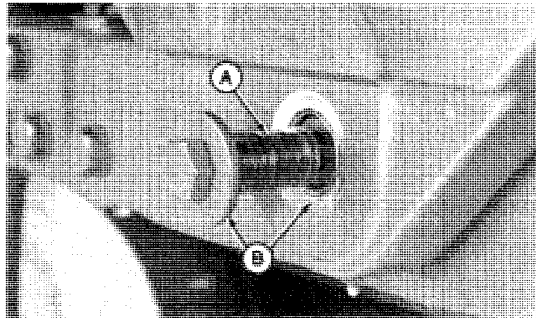


ACS/RW7391 U15;015005 DX3 090682

## INSTALL FRONT AXLE

Install front axle in reverse order of removal noting the following special instructions.

1. Install front axle shims (A) on front axle pivot bolt.
2. Torque front support-to-front axle bolts to 298 N·m (220 ft-lbs).
3. Use pry bar to force front axle away from front support.
4. Use feeler gauge to measure clearance (B) between front axle and front support.



**IMPORTANT: Front support-to-front axle clearance should be adjusted to provide for the minimum amount of clearance obtainable.**

5. Add or remove shims on front axle bolt to obtain minimum clearance between 0.03 and 0.38 mm (0.001 and 0.015 in.).

*NOTE: Shims are available in nominal thickness of 0.38 mm (0.015 in.).*

6. Torque tie rod end-to-steering arm nuts to 136 N·m (100 ft-lbs).
7. On tractors with NO MFWD, torque front wheel-to-hub studs to 135 N·m (100 ft-lbs).
8. On tractors with MFWD, torque front wheel-to-hub nuts to 450 N·m (332 ft-lbs).
9. On tractors with MFWD, torque drive shaft-to-front axle yoke cap screws to 68 N·m (50 ft-lbs).



**CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.**

**If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.**



10. Check all fluid levels and test tractor operation.

ACs;RW6799,X9811 U15;015005 EX3 311083

**SPECIAL TOOLS**

*NOTE: Order tools from your SERVICE-GARD Catalog unless otherwise indicated.*

Number	Name	Use
D-05007ST	Splitting Stand	Remove front end and axle.
D-05149ST	Attachments	Adapt splitting stand to tractor.
JDG317	Frame Cap Screw Socket	Remove frame-to-engine cap screws.
JT27706	Universal Support Stand	Support clutch housing.
Fabricated	Support Stand Adapter	Support clutch housing.

U15;015010 A1X3 090682

**SPECIFICATIONS**

Cap Screw	Torque
Side Frame-to-Engine	
12 Point .....	578 N·m (426 lb-ft)
6 Point .....	650 N·m (480 lb-ft)
4050 Serial No. (6510- ) .....	650 N·m (480 lb-ft)
Hydraulic Pump Support-to-Engine .....	115 N·m (85 lb-ft)
4050 Serial No. (6510- ) 5/8 in. cap screw .....	210 N·m (155 lb-ft)
4050 Serial No. (6510- ) 3/4 in. cap screw .....	366 N·m (270 lb-ft)
Lower Frame-to-Side Frame (No MFWD) .....	140 N·m (103 lb-ft)
Lower Frame-to-Tractor Front Support (MFWD) .....	475 N·m (350 lb-ft)
Lower Frame-to-Side Frame (MFWD) .....	140 N·m (103 lb-ft)
4050 Serial No. (6510- ) .....	150 N·m (110 lb-ft)
Drive Shaft-to-Front Axle Yoke (MFWD) .....	68 N·m (50 lb-ft)
Front Weight Support-to-Tractor Front Support .....	407 N·m (300 lb-ft)

U15;015010 A2X4 101186

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for your reading.**

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