

KAMSACK SASK  
1-306-542-4210  
1-306-542-2814 SERVICE  
(ARY)  
TIRE

**4700  
Self-Propelled  
Sprayer**

(Serial No. - N04700X006000)

Big TIRE's (W.D.E) 25 psi

Air bags

41 psi - front  
55 psi - rear

**OPERATOR'S MANUAL  
4700 Self-Propelled Sprayer**

OMN303773 Issue C2 (C-GEN SH)

**CALIFORNIA  
Proposition 65 Warning**

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

If this product contains a gasoline engine:

**⚠ WARNING**

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

The State of California requires the above two warnings.

# Introduction

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

**THIS MANUAL SHOULD BE CONSIDERED** a permanent part of your machine and should remain with the machine when you sell it.

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

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

**WRITE PRODUCT IDENTIFICATION NUMBERS** (P.I.N.) in the Specification or Identification Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. File

the identification numbers in a secure place off the machine.

**WARRANTY** is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer.

This warranty provides you the assurance that John Deere will back its products where defects appear within the warranty period. In some circumstances, John Deere also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied. Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

**THE TIRE MANUFACTURER'S** warranty supplied with your machine may not apply outside the U.S.

## CALIFORNIA PROPOSITION 65 WARNING

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



-UN-14JUL98

N42190EN

NXH8,M684,IFC -19-07JUL98

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*All information, illustrations and specifications in this manual are based on  
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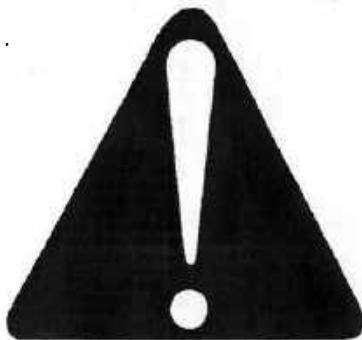
**Index**

# Safety

## RECOGNIZE SAFETY INFORMATION

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

Follow recommended precautions and safe operating practices.



DX,ALERT

-19-29SEP98

-UN-07DEC98

T81389

## UNDERSTAND SIGNAL WORDS

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

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

**DANGER**

**WARNING**

**CAUTION**

DX,SIGNAL

-19-03MAR93

-19-30SEP98

TS187

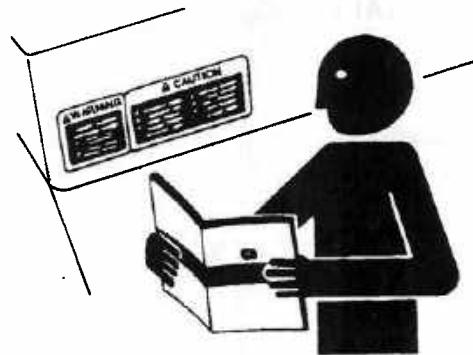
## FOLLOW SAFETY INSTRUCTIONS

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

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

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

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



-UN-23AUG98

TS201

DX,READ

-19-03MAR93

171299  
PN=4

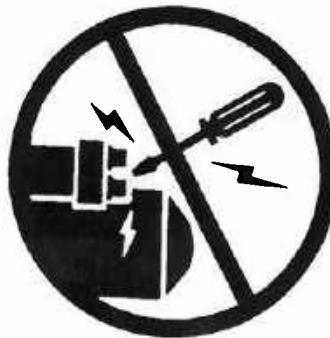


## PREVENT MACHINE RUNAWAY

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.



DX,BYPAS1

-19-29SEP98

-UN-11JAN89

TS177

-UN-23AUG88

TS205

## USE SEAT BELT PROPERLY

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

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



DX,ROPS1

-19-03MAR93

TS205

## OPERATE SAFELY

DO NOT start engine with hydro lever engaged.

DO NOT operate close to a ditch or creek.

DO NOT fold or unfold boom near overhead wires.

Always come to a complete stop before reversing directions.

Drive slowly over rough ground.

Slow down when turning.

Always shut off engine when leaving machine. Remove key when leaving machine unattended. Park brake will engage when engine is turned off regardless of hydro lever position.

Keep hands, feet and clothing away from moving parts.

Wear relatively tight and belted clothing to prevent from being caught on some part of the machine.

NX,4700,C1 -19-08OCT96

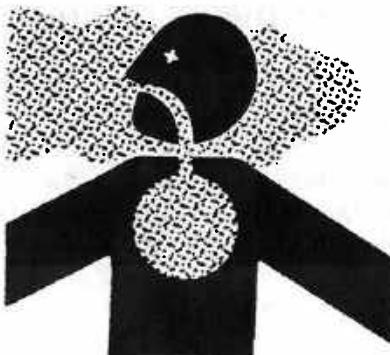
171299  
PN=5



## BEWARE OF EXHAUST FUMES

Prevent asphyxiation. Engine exhaust fumes can cause sickness or death to you or others.

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



-UN-23AUG88

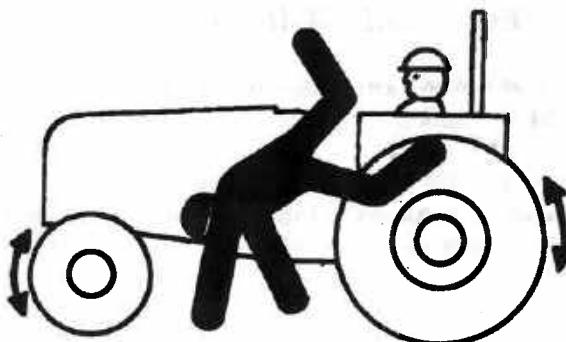
TS220

NX,4700,C1A -19-10AUG95

## 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.



-UN-23AUG88

TS290

DX,RIDER -19-03MAR93

## 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.



-UN-23AUG88

TS202

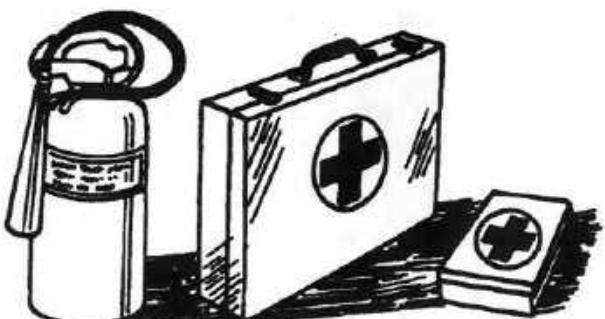
DX,FIRE1 -19-03MAR93

## 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.



-UN-23AUG88

TS291

DX,FIRE2 -19-03MAR93

171299  
PN=6



## WEAR PROTECTIVE CLOTHING

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

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



DX,WEAR2 -19-03MAR93

-UN-23AUG88

TS206

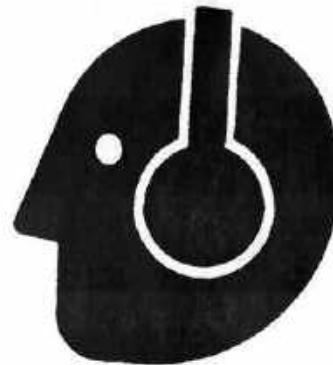
-UN-23AUG88

TS207

## PROTECT AGAINST NOISE

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

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



DX,NOISE -19-03MAR93

-UN-26NOV90

TS132

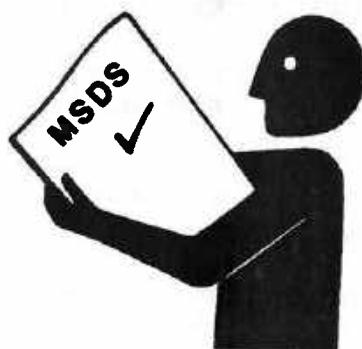
## HANDLE CHEMICAL PRODUCTS SAFELY

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with John Deere equipment include such items as lubricants, coolants, paints, and adhesives.

A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques.

Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then follow procedures and recommended equipment.

(See your John Deere dealer for MSDS's on chemical products used with John Deere equipment.)



DX,MSDS.NA -19-03MAR93

171299

PN=7



Keep dust away from skin and hair.

Keep containers low when pouring.

Let the wind blow fumes away from you when mixing or filling.

Wear a filtered respirator if you cannot avoid dust.



-UN-04OCT88

N35988

NXH8,M64005,A1 -19-15APR98

Wear goggles to protect your eyes.

Wash exposed skin areas frequently—do not leave chemicals on your skin.

Keep clean water tank filled with clean water.

Do not smoke while handling chemicals.

Properly dispose of chemical containers, unused chemicals and fertilizer.

Read and observe manufacturer's recommendations.



-UN-04OCT88

N35989

NX,250C,J -19-31DEC96

Store chemicals in a separate, plainly marked LOCKED building.

Store chemicals in original containers with labels intact.



-19-13MAR89

N36950

N01,250C,K -19-01OCT84

171299  
PN=8



Select an area to fill, flush, calibrate and decontaminate sprayer where pesticides will not drift or run off to contaminate people, animals, vegetation, water supply, etc. Locate area to provide absolutely no opportunity for children to come in contact with pesticides.

If spray material comes in contact with the body, wash IMMEDIATELY with clean water and detergent.

In event of nozzle clogging or other system malfunctions, stop engine, and release pressure from the system.

Never place nozzle tips or other parts to lips to blow out trash. Have spare tips available for replacement.

To minimize spray drift hazards:

- Use large nozzle tips operated at lower pressures.
- Do not operate machine solution system at pressure over 345 kPa (3.5 bar) (50 psi).
- Do not spray when winds exceed 16 km/h (10 mph).

Properly dispose of unused pesticide and flushing solutions.

Decontaminate equipment used in mixing, transferring and applying pesticide after use.



-19-31/JAN89

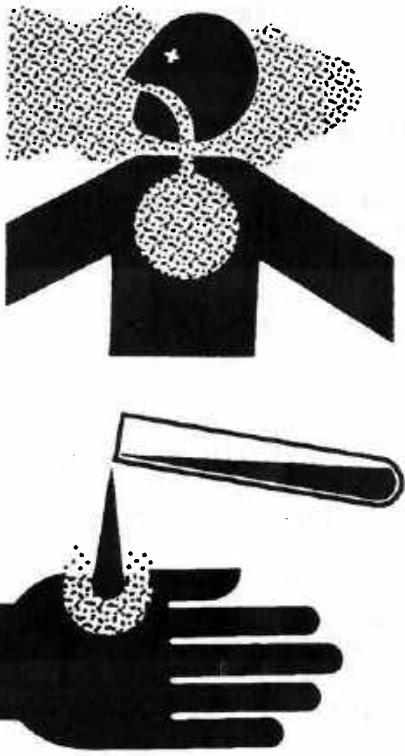
N93983

NXN,6500C,A5 -19-07AUG97

## Avoid Contact with Chemicals, Including Pesticides

**CAUTION: This enclosed cab does not protect against chemical exposure, including exposure to pesticides.**

1. When operating in an environment where harmful chemicals are present, wear a long-sleeved shirt, long-legged pants, shoes, and socks.
2. If chemical label requires respiratory protection, wear an appropriate respirator in the cab.
3. Wear personal protective equipment as required by the chemical label when leaving the enclosed cab:
  - into a treated area,
  - to work with contaminated application equipment, such as nozzles, which must be cleaned, changed, or redirected,
  - to become involved with mixing and loading activities.
4. Before re-entering the cab, remove personal protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container.
5. Clean or remove contaminated shoes or clothing before entering the cab.



TS220 -UN-23AUG88

TS272 -UN-23AUG88

OUO6092,0000337 -19-04MAR02-1/1

## Clean Vehicle of Hazardous Chemicals, Including Pesticides

**⚠ CAUTION:** During application of hazardous chemicals, including pesticides, residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous chemical.

When exposed to hazardous chemicals, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

OOU6092,0000338 -19-04MAR02-1/1

## Use Safety Lights and Devices

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

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



TS951 -UN-12APR90

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



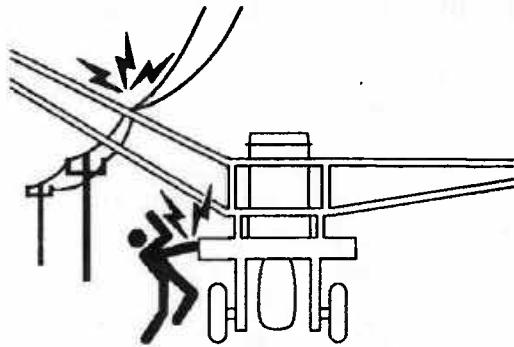
## TRANSPORT SAFELY

Keep away from overhead power lines. Serious injury or death to you or others can result should machine contact electrical wires. Know the transport height of your machine.

Stop slowly to avoid "nose diving".

Keep SMV emblem and reflectors clean and in place.

Do not exceed maximum transport speed of 45 km/h (28 mph).



-UN-27APR92

N44191

NX,4700,C2A -19-18SEP96

## PRACTICE SAFE MAINTENANCE

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

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

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

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

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



-UN-23AUG98

TS218

DX,SERV -19-03MAR93



## AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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



-UN-23AUG88

X9811

DX,FLUID -19-03MAR93

## CHECK HYDRAULIC HOSES

Hydraulic hoses can fail due to physical damage, kinks, age, and exposure. Check hoses regularly. Replace damaged hoses.

Escaping fluid under pressure can penetrate the skin causing serious injury to you or others. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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



-UN-23AUG88

X9811

NXN,9930,HYD -19-02DEC97

171299

PN=12



## SERVICE COOLING SYSTEM SAFELY

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

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.



DX,RCAP

-19-04JUN90

-UN-23AUG98

TS281

## SERVICE TIRES SAFELY

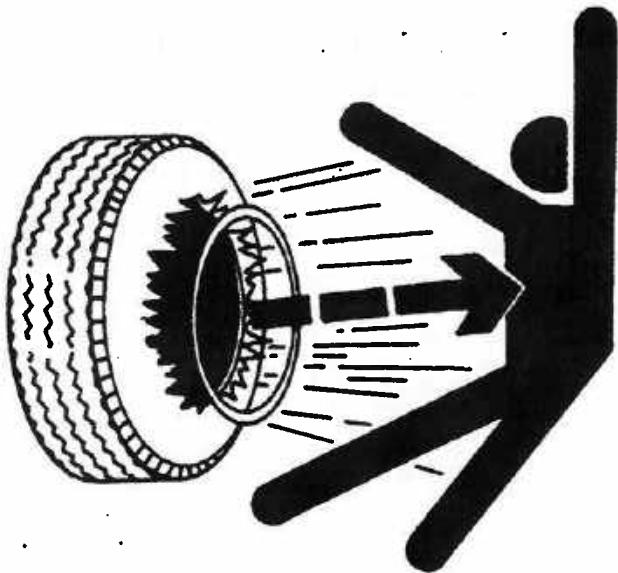
Explosive separation of a tire and rim parts can cause serious injury or death.

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

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

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

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



DX,RIM

-19-24AUG90

-UN-23AUG98

TS211



## DISPOSE OF WASTE PROPERLY

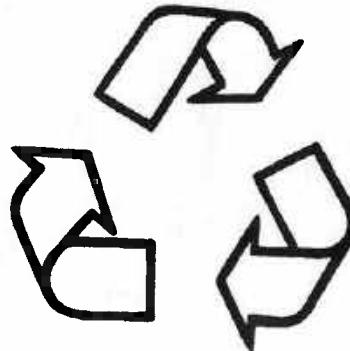
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

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

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

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

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



-JUN-26NOV90

TS1133

DX,DRAIN -19-03MAR93

# Safety Signs

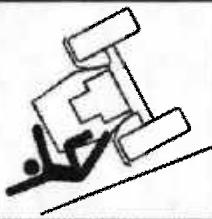
## SAFETY SIGNS



### CAUTION

1. Read Operator's Manual before operating this sprayer.
2. Keep all shields in place.
3. Make certain everyone is clear of machine before starting engine or operation.
4. Keep all riders off sprayer and equipment.
5. Keep hands, feet and clothing away from moving parts.
6. Reduce speed when turning or operating around hazards, on rough ground or steep slopes.
7. Use flashing warning lights on highway unless prohibited by law.
8. Stop engine, put hydro lever in PARK POSITION (never neutral detent) before dismounting.
9. Wait for all movement to stop before servicing machinery.
10. Remove key if leaving vehicle unattended.

### WARNING



AVOID CRUSHING:  
• Do not jump if machine tips.



USE  
SEAT  
BELT

• Pull belt fully from retractor and adjust for best protection.

### DANGER



To avoid injury or death do not contact electric lines when moving or operating this machine.

-19-27DEC96

N42173JK

NX,4700C,A1 -19-25FEB97



**! CAUTION**

1. Keep all shields in place.
2. Disengage and shut off all engine and/or motor power before servicing or unclogging machine.
3. Keep hands, feet and clothing away from power-driven parts.



**! CAUTION**

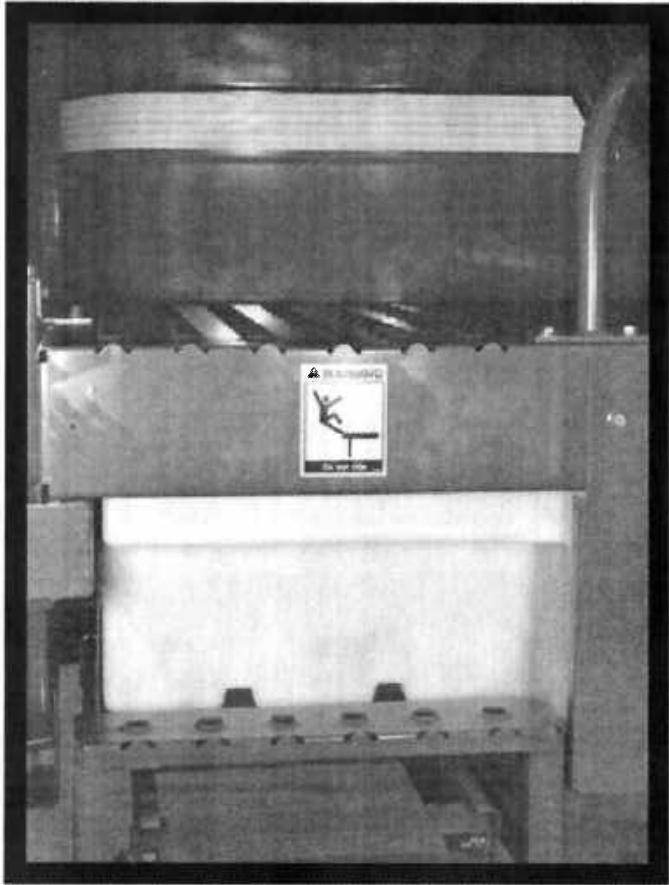
Agricultural chemicals can be dangerous. Improper selection or use can injure persons, animals, plants, soils or other property.

TO AVOID INJURY

1. Select the right chemical for the job.
2. Handle and apply it with care. Follow instructions issued by the chemical manufacturer.

N42173JL  
-19-27DEC96

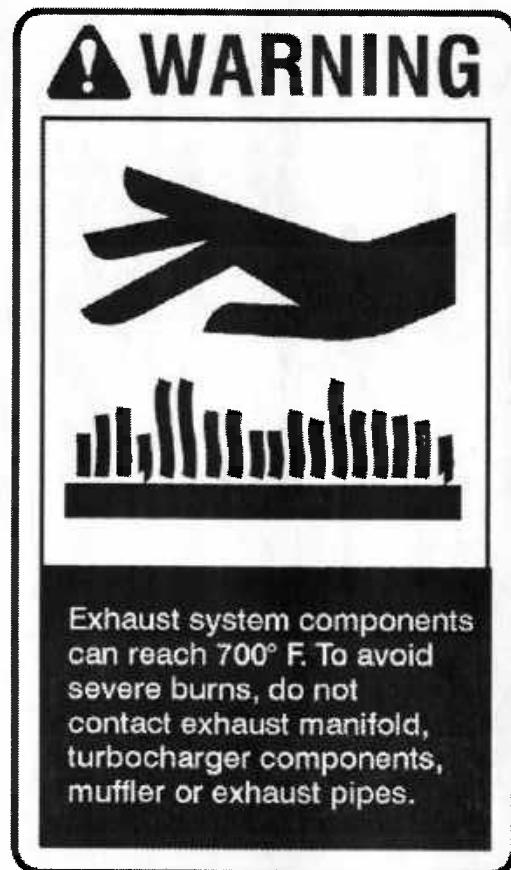
NX,OM4700,SS1 -19-31DEC96



-19-27DEC96

N42173J

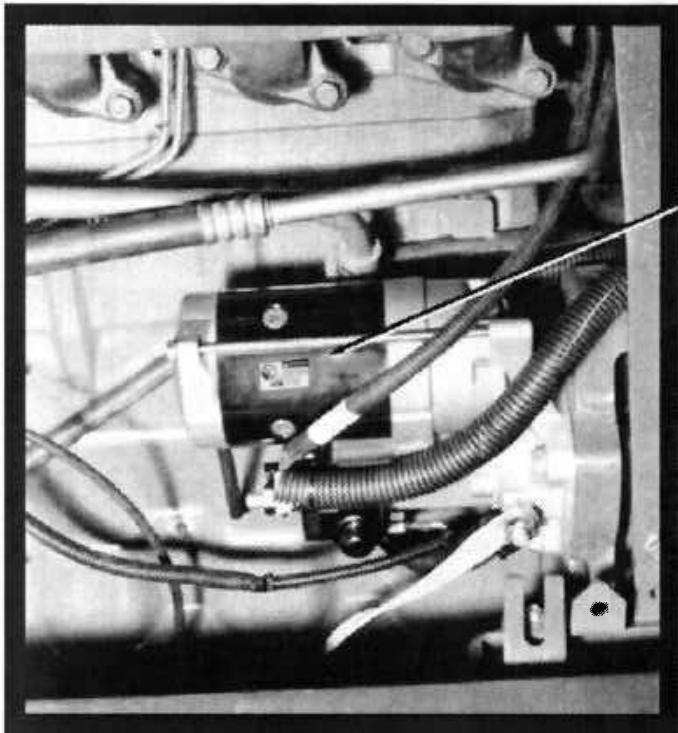
NX,OM4700,SS2 -19-31DEC96



NX,OM4700,SS3 -19-31DEC96

-19-27DEC96

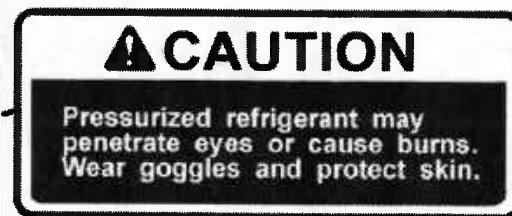
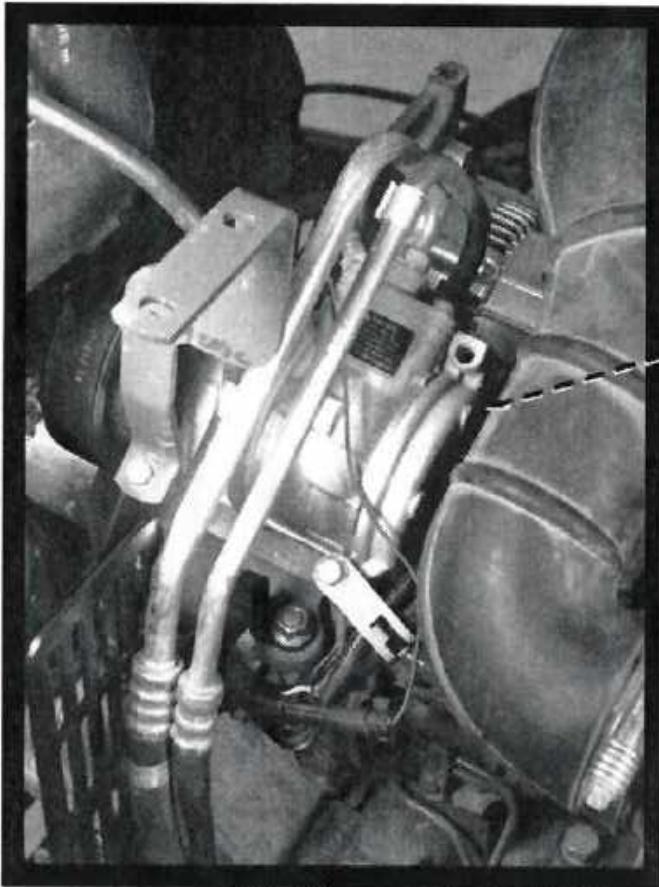
N42173JJ



-19-27DEC96

N421730A

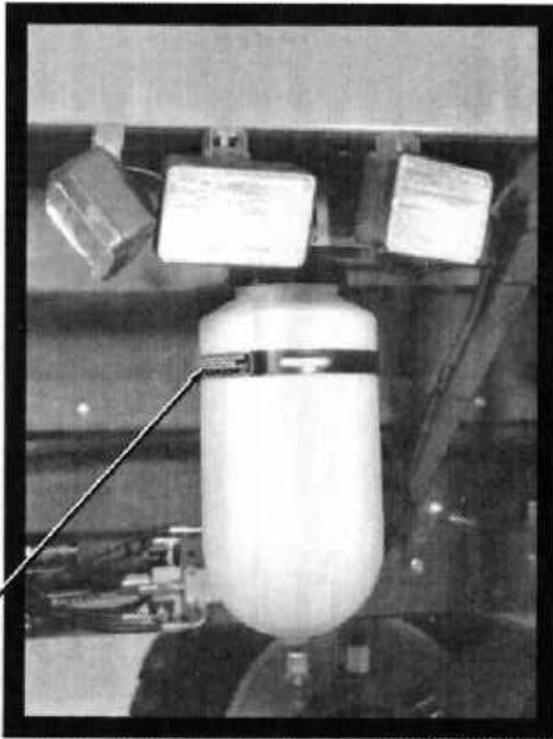
NX,OM4700,SS4 -19-31DEC96



-19-31JAN97

N42173ZI

NX,OM4700,SS5 -19-06FEB97



Water for rinse/wash purposes only. Do not drink from this container. Container may become contaminated by sprayer chemicals. Fill with clean rinse water only.

-19-27DEC96

N42173JN

NX,OM4700,SS6 -19-31DEC96

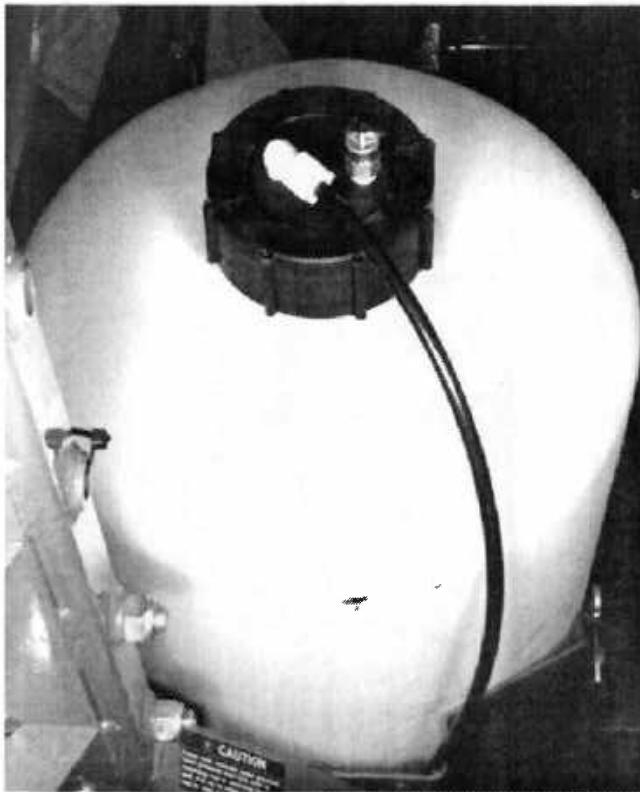


76 L (20 gal) Foam Tank

-19-27DEC96

N42173JH

NXH8.M68410,SS7-19-07;JUL98



**CAUTION**

Foam tank contents under pressure.  
Vent pressure from tank prior to  
removing cap or servicing foamer  
unit. Pull up on relief valve ring on  
cap to vent tank.

132 L (35 gal) Foam Tank

NXH8,M68410,SS8-19-07JUL98

-19-14JUL98

N42190GI



## CAUTION

Exposure to chemicals, including pesticides, can cause injury or death.

**DO NOT RELY ON THIS CAB, CAB PRESSURE INDICATOR, OR CAB AIR FILTERS TO PROTECT AGAINST CHEMICAL EXPOSURE.**

To reduce risk of chemical exposure:

Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer's label.

Allow only trained, certified applicators to apply chemicals.

Keep chemicals out of the cab.

Clean or remove contaminated shoes or clothing before entering the cab.

Keep cab interior clean.

Read and follow all instructions in:

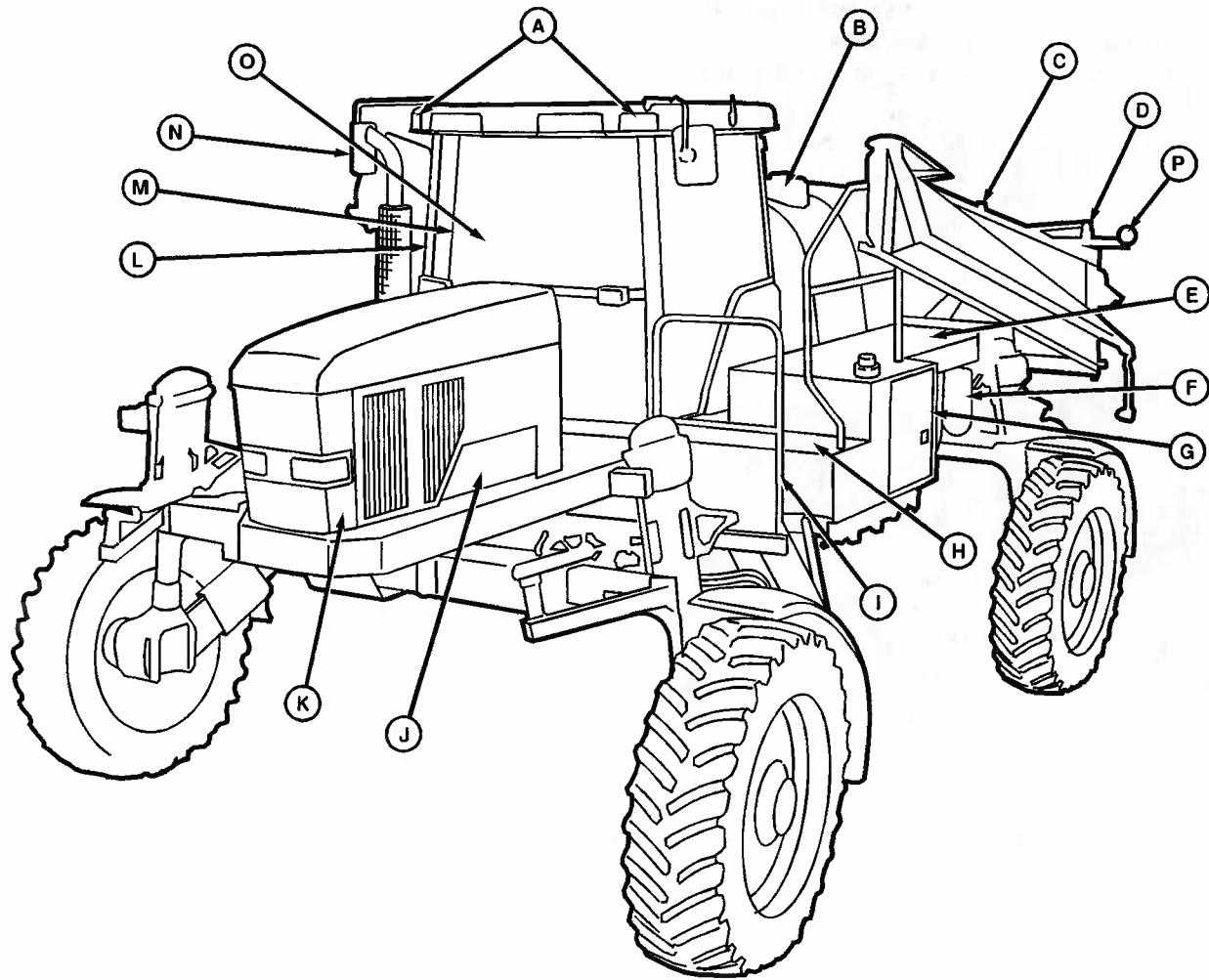
- Manufacturer's label for each chemical applied;
- US EPA Worker Protection Standard for Agricultural Pesticides;
- State or regional guidelines for worker safety and health;
- Operator's Manual for this machine.

Continued on next page

OUO6092,0000353 -19-06MAR02-9/10

# Safety Features

## SAFETY FEATURES



**A—FRONT AND REAR HAZARD LIGHTS—**  
Alert oncoming and following traffic of your presence on roads.

**B—HOSES ON TOP OF TANK—**Helps prevent tank drainage if a hose breaks.

**C—SMV EMBLEM—**Alerts following traffic of your presence on roads.

**D—REFLECTORS ON BOOM—**Alerts following traffic of your presence on roads.

**E—ANTI-SLIP SURFACES—**Help prevent slippage when walking on platform.

**F—CLEAN WATER TANK—**Provides a supply of clean water for in-field cleaning and emergency situations when working with chemicals.

**G—GROUND LEVEL FILLING—**Allows operator to add chemicals at ground level which helps prevent spilling or splattering.

**H—DIVOTTED STEPS AND PLATFORMS—**Help prevent slipping when on platform or ladders, also diminishes dirt and mud build up.

**I—HAND RAILS—**Give support when climbing onto machine or walking on platforms.

**J—STARTER SOLENOID SHIELDING—**For bypass start prevention.

**K—FAN GUARDING—**Protection from Engine Fan.

**L—EMERGENCY EXIT—**Exit from right side of cab if required.

**M—TRACTOR STYLE CAB WITH SEAT BELT—**For operator comfort.

**N—WINDSHIELD WIPERS AND LARGE REARVIEW MIRRORS—**For clear view of surroundings.

**O—AUTOMATIC PARK—**Shifts automatically into park when machine stops.

**P—LIGHTS ON BOOM ALERT**  
**oncoming and following traffic of your presence on roads**

-UN-06JUL98

N42190FF

## *Safety Features*

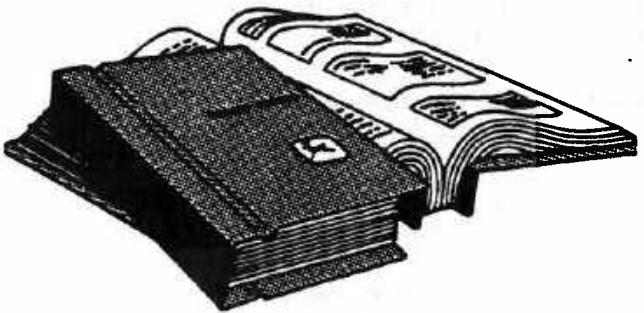
In addition to the safety features described here, other components and systems, safety signs on the 4700 Sprayer, safety messages in the Operator's Manual and elsewhere, as well as the care and concern of a capable operator contribute to the safety of operators and others nearby.

NX,OM4700,SAFA -19-14AUG97

# Chassis

## ADDITIONAL SERVICE INFORMATION

This is not a detailed service manual. It contains only information needed for operation and routine maintenance. If you want more detailed service information, use the form in the back of this manual to order a Repair and/or Operation and Tests Technical Manual.



-UN-13DEC98

FW408

NX,9960,O1

-19-31DEC96

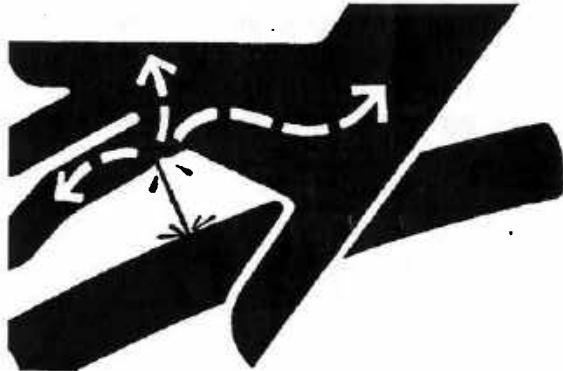
## AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

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



-UN-23AUG88

X9811

DX,FLUID

-19-03MAR93

## **PREVENT HYDRAULIC SYSTEM CONTAMINATION**

**IMPORTANT:** Cleanliness is very important when working on the hydraulic system. Prevent contamination by assembling the cylinders, hoses, couplers, and valves in a clean area of the shop.

Leave protective caps on the fluid openings until ready to make the connection. When charging the system, use a tractor or other source that contains clean oil, free of abrasive materials. Keep couplers clean. Abrasive particles, like sand or metal fragments, can damage seals, barrels and pistons, causing internal leakage.

NX,T9005AE -19-30NOV98

## **PRACTICE SAFE MAINTENANCE**

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

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

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

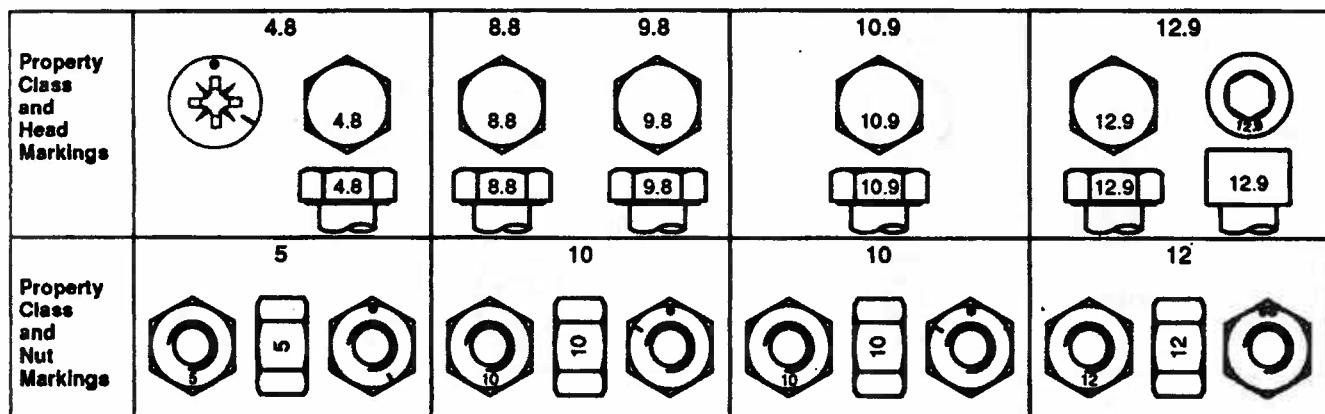
Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

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



-UN-25AUG98

TG218

**METRIC BOLT AND CAP SCREW TORQUE VALUES**

Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>		Lubricated <sup>a</sup>		Dry <sup>a</sup>	
	N-m	lb-ft	N-m	lb-ft												
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

<sup>a</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

## UNIFIED INCH BOLT AND CAP SCREW TORQUE VALUES

<b>SAE Grade and Head Markings</b>	<b>NO MARK</b>	<b>1 or 2<sup>b</sup></b>		<b>5</b>	<b>5.1</b>	<b>5.2</b>				<b>8</b>	<b>8.2</b>		
<b>SAE Grade and Nut Markings</b>	<b>NO MARK</b>	<b>2</b>											

TS1162

-19-04-MAR91

<b>Size</b>	<b>Grade 1</b>				<b>Grade 2<sup>b</sup></b>				<b>Grade 5, 5.1, or 5.2</b>				<b>Grade 8 or 8.2</b>			
	<b>Lubricated<sup>a</sup></b>		<b>Dry<sup>a</sup></b>		<b>Lubricated<sup>a</sup></b>		<b>Dry<sup>a</sup></b>		<b>Lubricated<sup>a</sup></b>		<b>Dry<sup>a</sup></b>		<b>Lubricated<sup>a</sup></b>		<b>Dry<sup>a</sup></b>	
	<b>N·m</b>	<b>lb·ft</b>	<b>N·m</b>	<b>lb·ft</b>												
1/4	3.7	2.8	4.7	3.5	6	4.5	7.5	5.5	9.5	7	12	9	13.5	10	17	12.5
5/16	7.7	5.5	10	7	12	9	15	11	20	15	25	18	28	21	35	26
3/8	14	10	17	13	22	16	27	20	35	26	44	33	50	36	63	46
7/16	22	16	28	20	35	26	44	32	55	41	70	52	80	58	100	75
1/2	33	25	42	31	53	39	67	50	85	63	110	80	120	90	150	115
9/16	48	36	60	45	75	56	95	70	125	90	155	115	175	130	225	160
5/8	67	50	85	62	105	78	135	100	170	125	215	160	240	175	300	225
3/4	120	87	150	110	190	140	240	175	300	225	375	280	425	310	550	400
7/8	190	140	240	175	190	140	240	175	490	360	625	450	700	500	875	650
1	290	210	360	270	290	210	360	270	725	540	925	675	1050	750	1300	975
1-1/8	400	300	510	375	400	300	510	375	900	675	1150	850	1450	1075	1850	1350
1-1/4	570	425	725	530	570	425	725	530	1300	950	1650	1200	2050	1500	2600	1950
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2150	1550	2700	2000	3400	2550
1-1/2	1000	725	1250	925	990	725	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Fasteners should be replaced with the same or higher grade. If higher grade fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

<sup>a</sup> "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings. "Dry" means plain or zinc plated without any lubrication.

<sup>b</sup> Grade 2 applies for hex cap screws (not hex bolts) up to 152 mm (6-in.) long. Grade 1 applies for hex cap screws over 152 mm (6-in.) long, and for all other types of bolts and screws of any length.

## FLAT FACE O-RING SEAL FITTING TORQUE CHART

1. Inspect the fitting sealing surfaces. They must be free of dirt or defects.
2. Inspect the O-ring. It must be free of damage or defects.
3. Lubricate O-rings and install into groove using petroleum jelly to hold in place.
4. Push O-ring into the groove with plenty of petroleum jelly so O-ring is not displaced during assembly.
5. Index angle fittings and tighten by hand pressing joint together to ensure O-ring remains in place.
6. Tighten fitting or nut to torque value shown on the chart per dash size stamped on the fitting. Do not allow hoses to twist when tightening fittings.



UN-18OCT88

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**FLAT FACE O-RING SEAL FITTING TORQUE**

Tube mm	Nominal O.D. (in.)	Dash Size	Thread Size in.	Swivel Nut	
				Torque N·m	Torque (lb·ft)
6.35	0.250	-4	9/16-18	24	18
9.52	0.375	-6	11/16-16	30	22
12.70	0.500	-8	13/16-16	47	35
15.88	0.625	-10	1-14	75	55
19.05	0.750	-12	1 3/16-12	114	84
22.22	0.875	-14	1 3/16-12	114	84
25.40	1.000	-16	1 7/16-12	155	115
31.75	1.250	-20	1 11/16-12	193	142
38.10	1.500	-24	2-12	225	166

*NOTE: Torque tolerance is +15 -20%.*

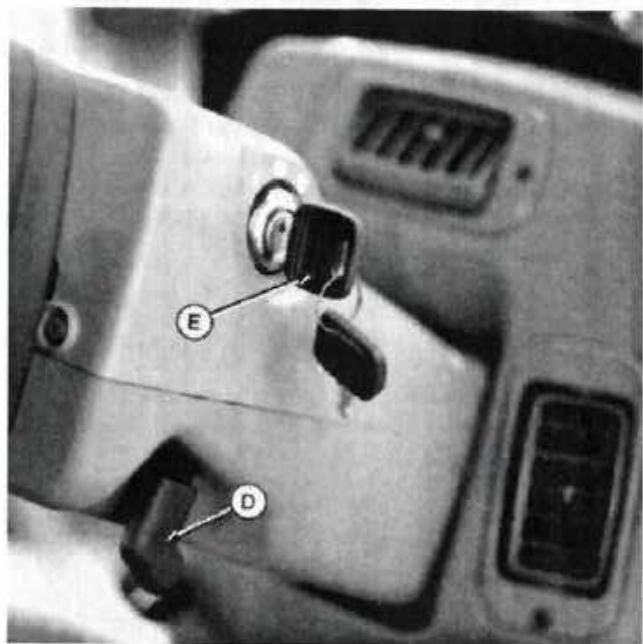
## FRONT CONSOLE

*NOTE: Starting aid switch is a factory installed option.  
Switch is inactive without option installed.*

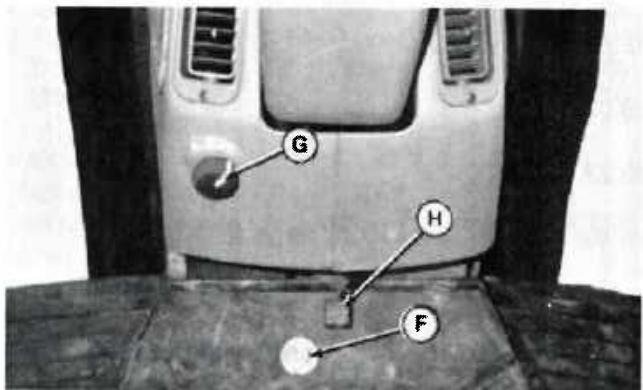
- A—Turn Signal Lever, Dimmer Switch, Horn, Flash-To-Pass
- B—Steering Wheel Telescope Release
- C—Cold Weather Starting Aid (Thermostart) Switch
- D—Steering Wheel Tilt Adjust
- E—Key Switch
- F—Boom Fold Mode/Roll Bias Option Switch
- G—Air Flow Direction Knob
- H—Steering Column Foot Release



N42159EP -UN-02AUG95

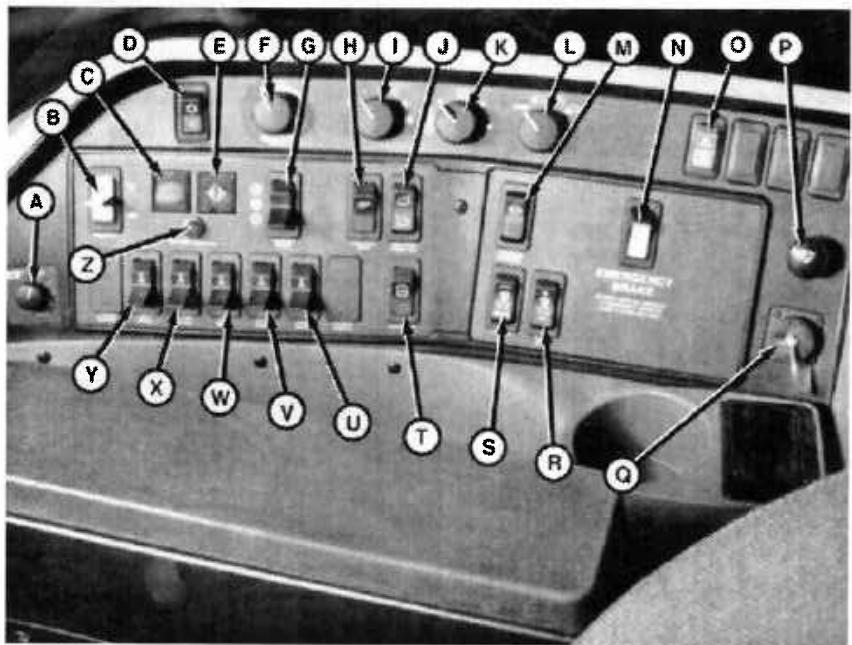


N42159EQ -UN-02AUG95



N42159ER -UN-02AUG95

NX,H80M47,20A -19-26MAY98

**SIDE CONSOLE SWITCHES**

N42183MF JUN-14 NOV97

A—Rate Select Switch  
 B—Throttle Switch  
 C—Stop Indicator  
 D—Air Conditioning Switch  
 E—Caution Indicator  
 F—Temperature Control Switch  
 G—Speed Range Switch  
 H—Solution Pump Switch  
 I—Blower Speed Switch

J—Solution Pressure Adjust Switch  
 K—Front Wiper Switch  
 L—Light Switch  
 M—Traction Control Switch  
 N—Emergency Brake Switch  
 O—Hazard Light Switch  
 P—Cigarette Lighter  
 Q—Accessory Electrical Outlet

R—Foam Rate High/Low Switch  
 S—Foam Marker Control Switch  
 T—Agitation Switch  
 U—Right Spray Control Switch  
 V—Right Center Spray Control Switch (Option)  
 • Left Fence Row Nozzle Switch  
 • Right Fence Row Nozzle Switch

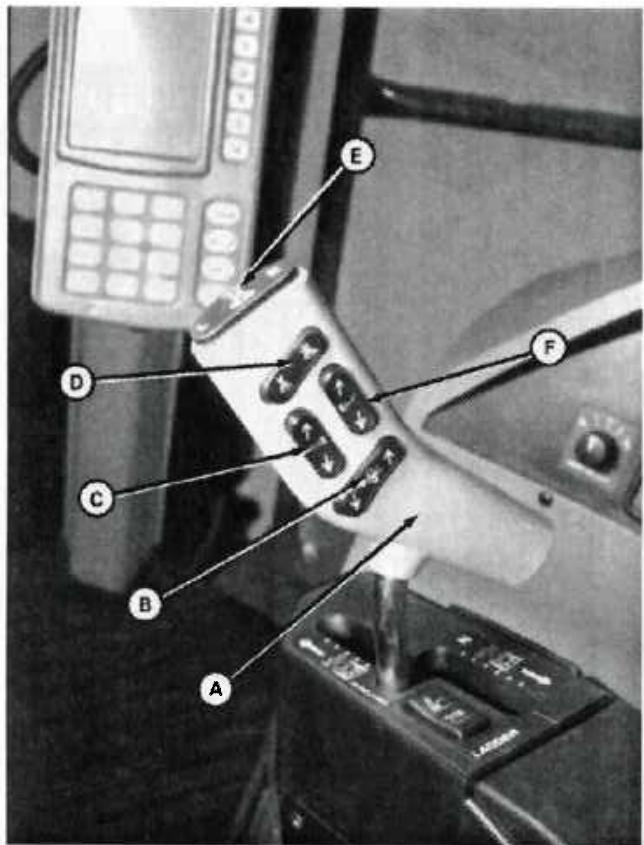
W—Center Spray Control Switch  
 X—Left Center Spray Control Switch (Option)  
 Y—Left Spray Control Switch  
 Z—Traction Control Indicator

*NOTE: Also available for installation with dealer installed options:*

NXH8,M68420,D4 -19-07JUL98

## **HYDRO LEVER**

- A—Hydro Lever**
- B—Boom Raise/Lower Switch (Roll Bias Option Switch)**
- C—Left-Hand Boom Fold/Level Switch**
- D—Master Spray ON/OFF Switch**
- E—Foam Marker Switch**
- F—Right-Hand Boom Fold/Level Switch**

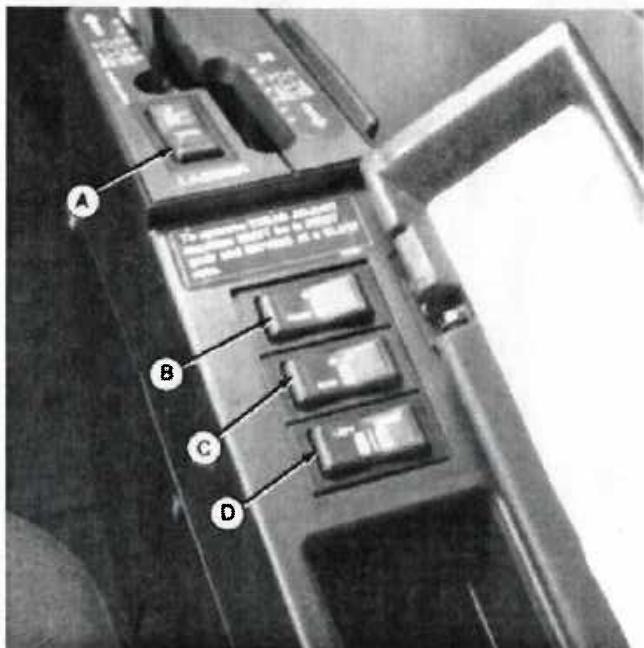


N42173NB -UN-23DEC96

NX,OM4700,AC1A -19-20NOV97

## **ARMREST SWITCHES**

- A—Ladder Switch**
- B—Front Tread Adjust Switch**
- C—Rear Tread Adjust Switch**
- D—Side Select Tread Adjust Switch**



N42173OI -UN-27DEC96

NX,4700,AD1 -19-31DEC96

## **SPRAYSTAR SYSTEM**

The following section provides specifications and operating parameters for the SprayStar system.

The SprayStar system is an electronic module with a general purpose display and general purpose key pad that can be used to display chassis or wet system information. Its primary purpose is to provide a display head for various sprayer sensors. It has the capability to simultaneously display information from multiple sensors.

*NOTE: When it's necessary to reset SprayStar system,  
turn engine key OFF, then ON again.*

NX,4700,MON1 -19-13JAN99

## SPRAYSTAR SYSTEM DISPLAY

The SprayStar display is the most visible component of the SprayStar System. The display is a common component on many John Deere products. This display can be removed from the 4700 Sprayer and used in other products if desired.

The top round switch adjusts LCD contrast. When the switch is pressed, the contrast will slowly change between minimum and maximum contrast. When the desired contrast is obtained, release the switch.

The "A" through "G" switches allow selection of options or features. When an option or feature is available, an arrow on the display will point to the associated switch. Text inside or adjacent to the arrow will describe the option or feature.

The numeric and decimal point switches ("0—9", ".") provide for numeric entry when that is required.

The clear switch ("CLR") allows a numeric entry in progress to be cleared and started again.

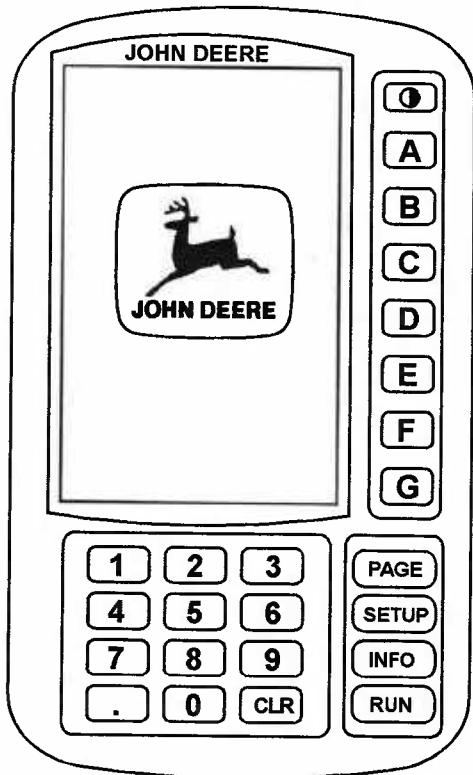
The PAGE switch is used to select between multiple display pages when they are present. When multiple pages are present, the current page is displayed. When only one page is present, no page number is shown.

The SETUP switch is used to select the setup mode which allows for setup of the sprayer sensors that are communicating with the SprayStar control unit.

The INFO switch allows access to information that is available for display which is resident within an implement monitor.

The RUN switch is used to select the normal operating display mode which displays spray and chassis information.

The key switch must be in the "ON" position for the SprayStar display to work. The engine does not need to be running.



## RUN—PAGE 1 OF SPRAYSTAR SYSTEM

Page 1 of the RUN menu displays the following:

**Line A**—Speed: Speed the sprayer is traveling. Radar symbol appears when radar is operating.

**Line B**—Pressure: Pressure at the boom section shut-off valves of wet system in kPa (psi).

**Line C**—Rate: Application rate that the sprayer is applying.

**Line D**—Three Targeted Rates: Application rates being targeted, programmed by operator.

OR

Manual Target Pressure: Pressure programmed by operator independent of speed.

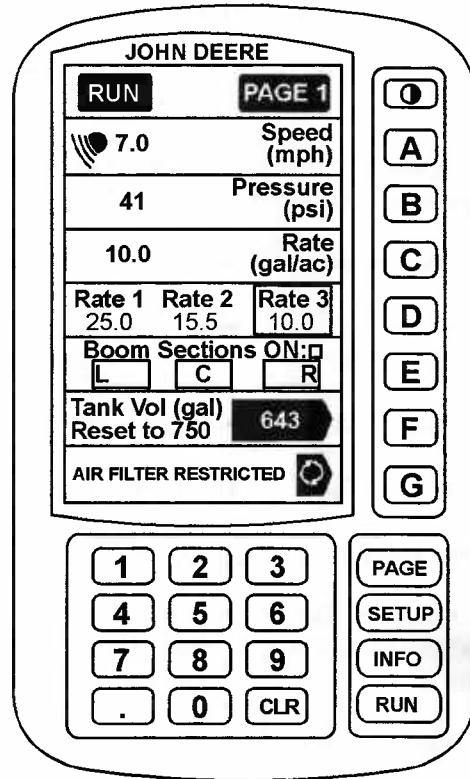
(The rate select knob is located on console. To select a rate, turn to Rate “1”, “2”, or “3”. To select manual setting, turn rate select knob to “0”.)

**Line E**—Boom Sections: Indicates which booms are spraying. (Boxes around left [“L”], center [“C”] or right [“R”] indicate which section is spraying.)

Fence Row Nozzles: When fence row nozzles are turned on, an “LF” or “RF” will appear above boom sections.

**Line F**—Solution Tank Volume: Indicates how much solution is left in solution tank. When reset, SprayStar will count down tank volume as solution is sprayed out.

**Line G**—Caution statements displayed in this location. These caution statements are for the chassis and sprayer sensors.



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NXH8,M64020,D9 -19-07JUL98

## RUN—PAGE 2 OF SPRAYSTAR SYSTEM

Press "PAGE" to bring up page 2. Page 2 displays the following:

**Line A**—Speed: Speed the sprayer is traveling. Radar symbol appears when radar is operating.

**Line B**—Engine speed in RPM.

**Line C**—Engine Coolant Temperature Gauge: Temperature of coolant.

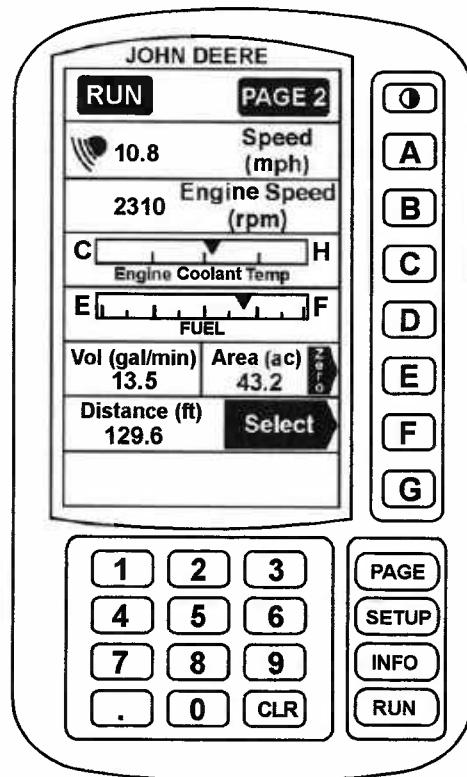
**Line D**—Fuel Tank Level: Amount of fuel left in tank.

**Line E**—Volume: Solution flow rate in lpm (gpm).

Area: Area sprayed since gauge was reset.

**Line F**—Distance: Distance sprayer has traveled. Distance counter will automatically switch over to kilometers at 1000 m or miles at 5280 ft.

**Line G**—Caution statement appears here also.



-UN-06JUL98  
NA2190FK

NXH8,M68420,D10-19-07JUL98

## SETUP OF SPRAYSTAR SYSTEM

The setup screen allows the operator to select screens for changing specific information. Press "SETUP" to view the setup screen.

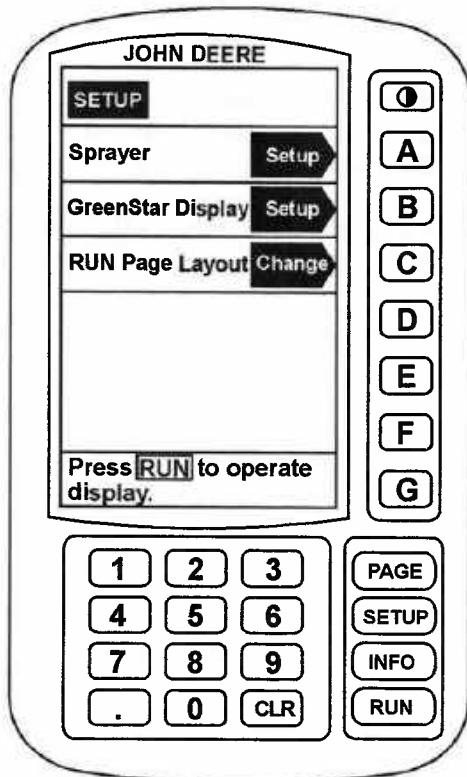
This page allows the setup of three different items:

**SPRAYER**—Setup or change information that corresponds with the sprayer.

**GREENSTAR DISPLAY**—Generic setup screen that allows operator to change units of measurement and background intensity of the display.

**RUN PAGE LAYOUT**—Not currently used.

(Do not press "C" or screen will go blank. If "C" is accidentally pushed, reset monitor by turning key OFF, then ON again.)



-19-28JUL97  
NA2194DL

NX,4700,MON3A -19-07AUG97

## SETUP SPRAYER

The Setup Sprayer menu allows the operator to program information that is needed for the sprayer, such as application rates, tank volume, calibration values and date. All information that is required for the sprayer to correctly operate that can be changed is in this menu. Two pages of the setup menu exist.

### SETUP SPRAYER—Page 1

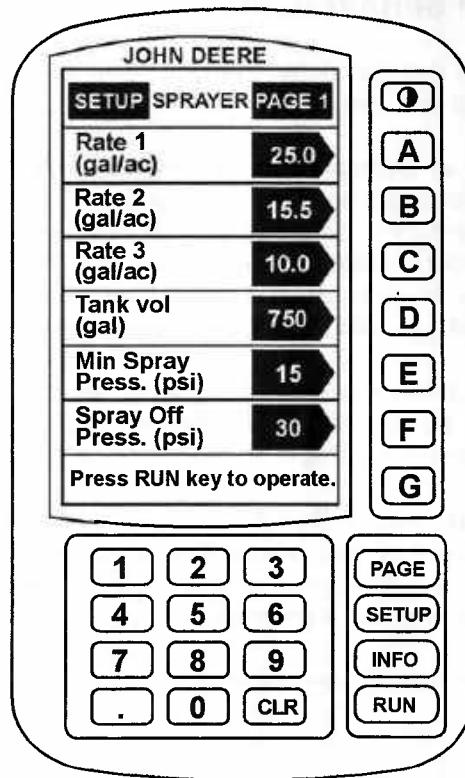
On page 1 of the Setup mode, the following are displayed and can be changed:

**Application Rates 1, 2, or 3**—Where the target application rates are programmed into SprayStar.

**Tank Volume**—Where tank volume is programmed into SprayStar.

**Spray On Pressure**—Where the spray on pressure is programmed into SprayStar. Spray on pressure is the minimum pressure maintained while spraying.

**Spray Off Pressure**—Where the spray off pressure is programmed into SprayStar. Spray off pressure is the pressure maintained while not spraying. Typically used to maintain high pressure setting for agitation when not spraying.



NXH8,M68420,D12-19-15JUL98

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-19-19UING98

## SETUP SPRAYER—PAGE 2

On Page 2 of the Setup Sprayer menu, the following are displayed and can be changed:

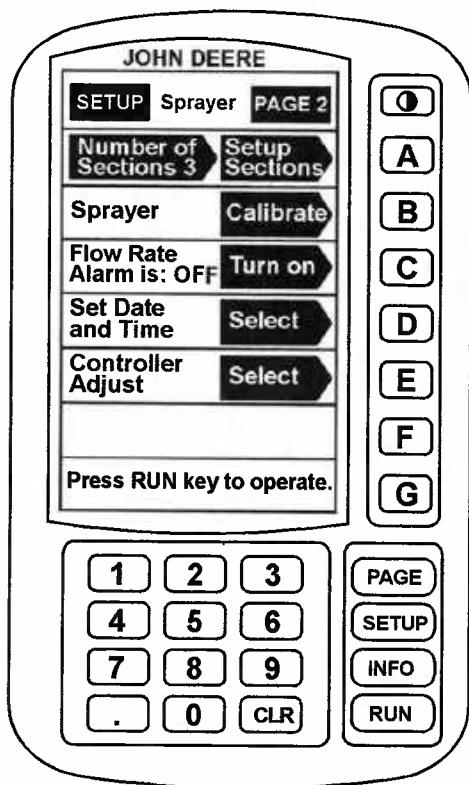
**Number of Sections—Setup Sections**—When the number sections are entered, operator can go to the Setup Section of the boom. At this location, number of nozzles per section, nozzle spacing and nozzle spray width can be entered. The section spray width and total spray width is calculated by the SprayStar system.

**Sprayer Calibrate**— By pressing “B” the operator can calibrate the following: flowmeter, pressure sensor, wheel speed sensor and radar sensor (optional).

**Flow Error Alarm On/Off**— Allows the operator to turn on or off a flow error alarm. This alarm will be displayed when the actual application rate is 20% under or over the target rate for 6 seconds.

**Set Date and Time**— Allows the operator to set date and time.

**Controller Adjust**— Allows the operator to change performance of the SprayStar rate control system. The operator can change the sprayer's response time, perform an auto calibration, reset calibration values to factory settings, and turn boom charge ON and OFF.



NXH8,M68420,D13-19-11JAN99

-19-25JUL97

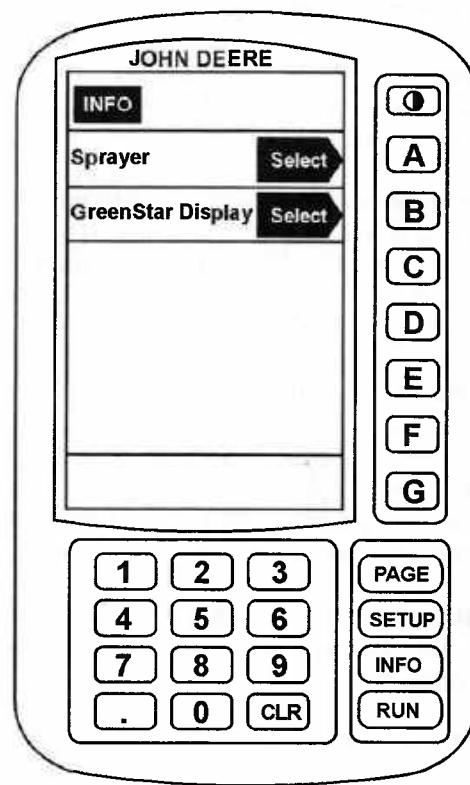
N42184BR

## INFORMATION MENU

The information menu contains important information about the sprayer.

**Sprayer**—Used to find important information about the sprayer. This information includes Job Summaries, Engine Hours, Service Interval Hour Counter, Nozzle Flow Check, Diagnostics, Date and Time.

**GreenStar Display**—Used for information dealing with the GreenStar display only, including setting backlight level and units.



NXH8,M68420,D14-19-07JUL98

-19-28JUL97

N42184DM

## SPRAYER INFORMATION

The sprayer information contains important information about the sprayer and its application. The sprayer information contains the following:

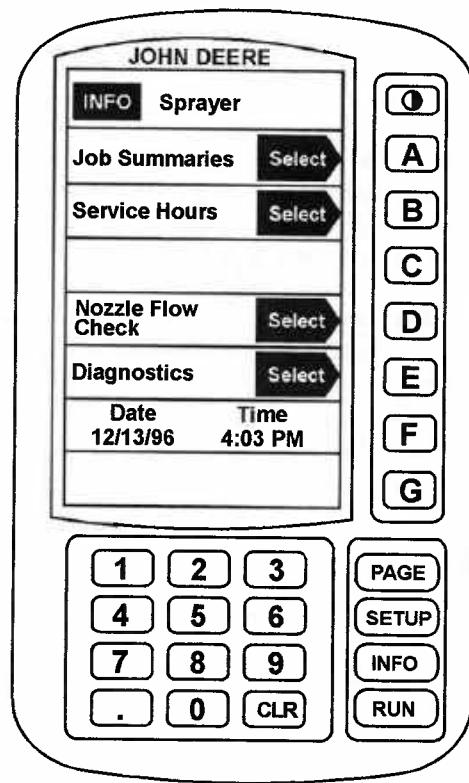
**Job Summaries**—Records of spraying jobs. Six spraying jobs or job summaries can be stored. These job summaries record the acres sprayed, volume applied, time it took to spray, acres per hour and volume per hour.

**Service Hours**—Where engine hours are shown and service interval hour counters are displayed.

**Nozzle Flow Check**—Allows the operator to check the application rate, pressure, flow rate of boom at a given speed and target application rate.

**Diagnostics**—Allows the operator to determine if switches are working properly and whether sensors are working properly.

**Date and Time**—The current date and time are shown.



NXH8,M68420,D15-19-15JUL98

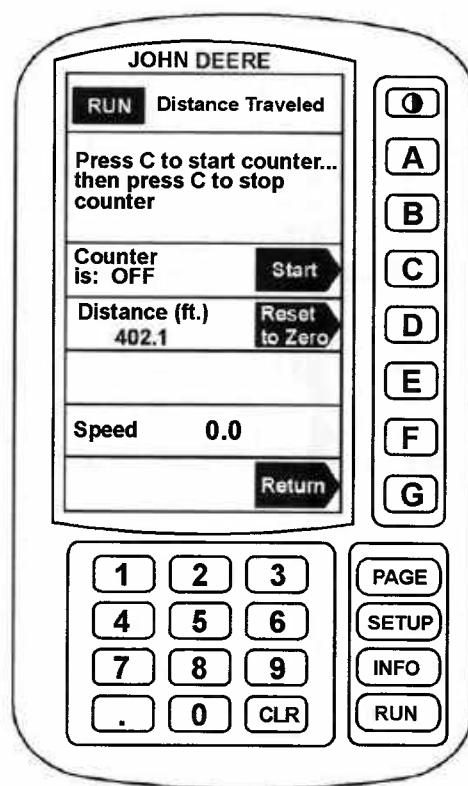
## OPERATING DISTANCE COUNTER

1. Press "RUN" to display RUN menu.
2. Press "PAGE" to display Page 2 of RUN.
3. Press "F" to select Distance Counter.

NX,OM554,ODC1 -19-29JUL97

4. Press "D" to "zero-out" Distance Counter.
5. Press "C" to start or stop Distance Counter.

*NOTE: Distance counter will automatically switch over to kilometers at 1000 m or miles at 5280 ft.*



NX,OM554,ODC2 -19-07AUG97

## SETTING APPLICATION RATES

1. Press "SETUP" to display SETUP menu.
2. Press "A" to setup sprayer.

NXN,4700,Z3A2 -19-25FEB97

3. Press "A" to change Rate 1.

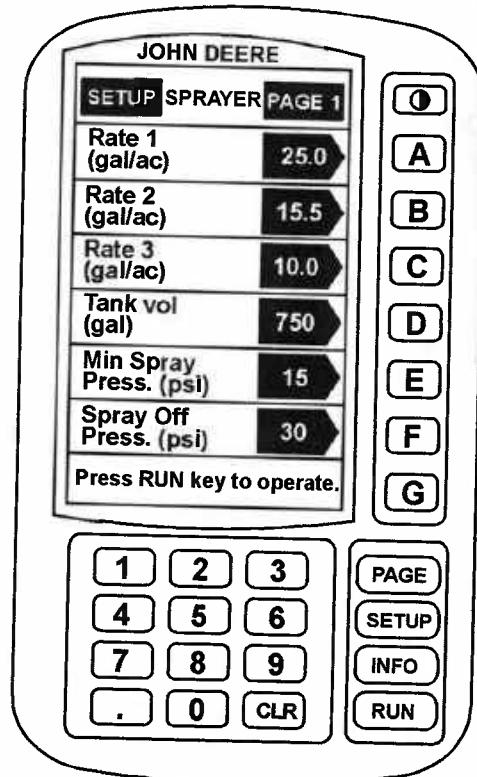
4. Enter the application rate.

For example, to enter 25 gal/ac press 2, 5, 0 and then "A". Decimal point is already in place and does not need to be entered.

5. Press "B" to change Rate 2 and enter the desired rate.

6. Press "C" to change Rate 3 and enter the desired rate.

7. Press "RUN" to return to Page 1 of RUN.



NXH8,M68420,D19-19-07JUL98

## SETTING TANK RESET VOLUME

*NOTE: Each time "F" is pressed on page 1 of the RUN mode, tank volume is reset to current Tank Reset Volume. (750 gal in this example.) Tank volume does not count below 0.*

1. Press "SETUP" to display SETUP menu.

2. Press "A" to setup sprayer.

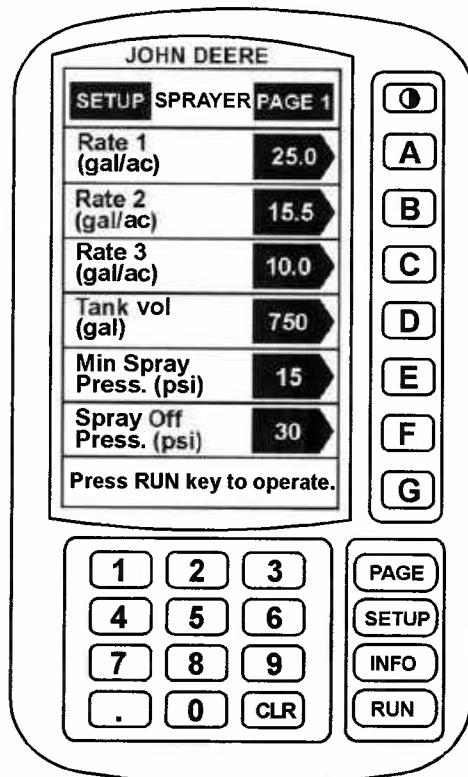
NXH8,M68420,D20-19-07JUL98

3. Press "D" to change Tank Reset Volume.

4. Enter the desired Tank Reset Volume.

For example, to enter 750 gal, press 7, 5, 0 and then "D".

5. Press "RUN" to display RUN page 1.



-19-JUN98

NXH8,M68420,D21-19-07JUL98

## SETTING SPRAY ON PRESSURE

*NOTE: Spray rate controller will attain the spray on pressure when master spray is ON and in auto mode and the vehicle slows down too much.*

*Set spray on pressure setting above nozzle body check valve pressure specification.*

*Do not set spray on pressure setting too high or over application will occur.*

*Agitation occurs at system pressure when machine is spraying.*

1. Press "SETUP" to display SETUP menu.

2. Press "A" to setup sprayer.

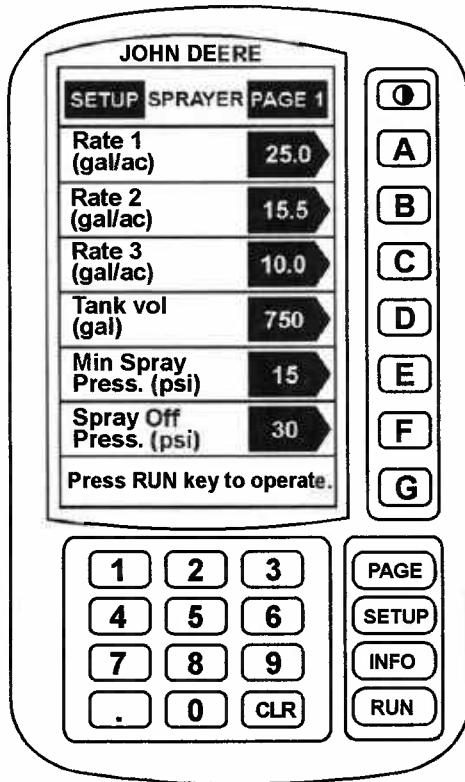
NXH8,M68420,D22-19-15JUL98

3. Press "E" to change minimum spray pressure setting.

4. Enter the desired minimum spray pressure.

For example, to enter 15 psi press 1, 5 and then "E". 15 psi is now the minimum pressure that will be maintained during spraying.

5. Press "RUN" to return to Page 1 of RUN menu.



N42190EA -19-19JUL98

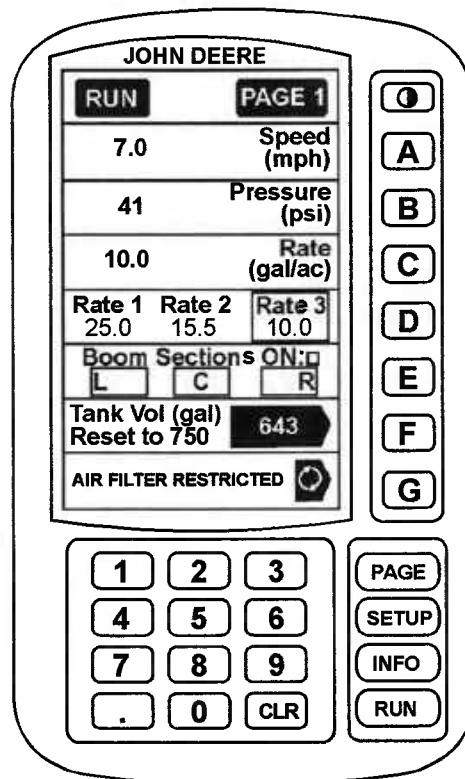
NXH8,M68420,D23-19-15JUL98

## SETTING MANUAL PRESSURE

The manual pressure setting allows the operator to spray at a given pressure, independent of speed and application rate.

1. Press "RUN" to display RUN menu.
2. Turn rate select knob console to "0" for manual pressure setting.
3. Press "D", enter the desired manual pressure setting and press "D".

For example 40 psi is the desired pressure setting. Enter 4 and 0 and press "D".



N42184BZ -19-25JUL97

NX,4700,MON8E -19-28JUL97

## SETTING SPRAY OFF PRESSURE

**NOTE:** Spray rate controller will attain the spray off pressure when master spray is off. Spray off pressure is the pressure the pump will maintain when not spraying. Spray off pressure is primarily intended to increase agitation when not spraying.

1. Press "SETUP" to display SETUP menu.
2. Press "A" to setup sprayer.

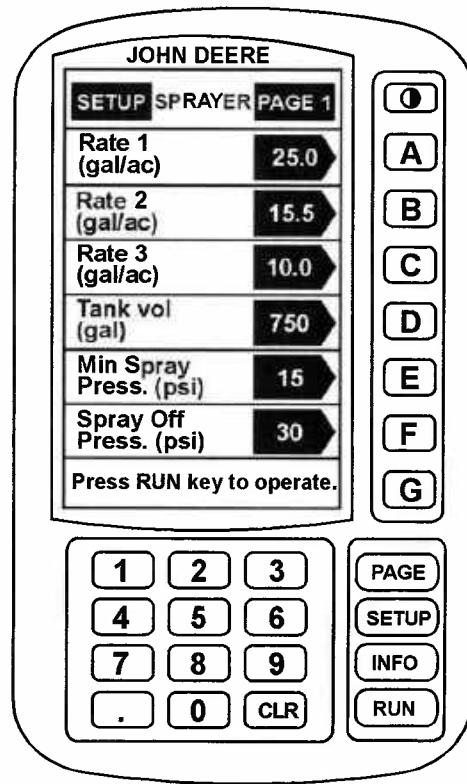
NXH8,M68420,D25-19-07JUL98

3. Press "F" to change spray off pressure.

4. Enter the desired spray off pressure.

For example, to enter 30 psi press 3, 0 and then "E". 30 psi is now the agitation that will be maintained.

5. Press "RUN" to return to Page 1 of the RUN menu.



N42190EA -19-JUN98

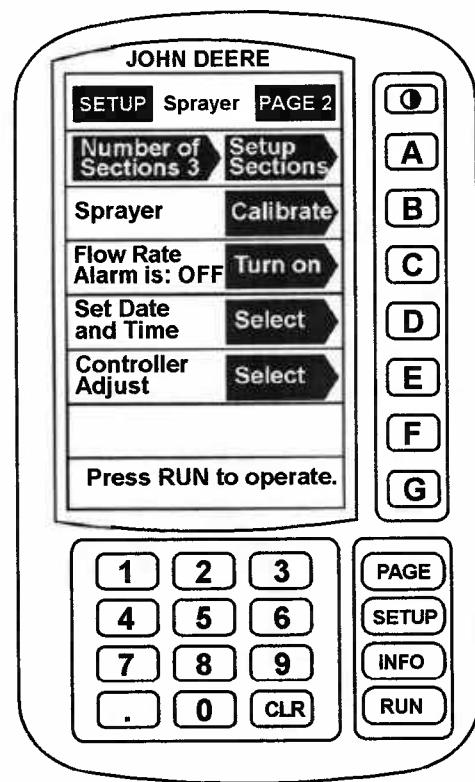
NXH8,M68420,D26-19-10JUL98

## **SETTING NUMBER OF BOOM SECTIONS, NUMBER OF NOZZLES AND SPACING**

1. Press "SETUP" to display SETUP menu.
2. Press "A" to setup sprayer.
3. Press "PAGE" to display sprayer SETUP menu.

NXN,4700,Z9A1 -19-28JUL97

4. Press "A" for Number of Sections.
5. Enter the desired number of sections, 3, 4 or 5 (this number should correspond with the number of boom section shut-off valves on the boom) and press "A". The SETUP section page appears.



-19-19FEB97  
N42712S

NXH8,M64020,D26-19-15APR98

6. Press "B", enter number of nozzles on left boom section and press "B". (Repeat for each section on boom.)

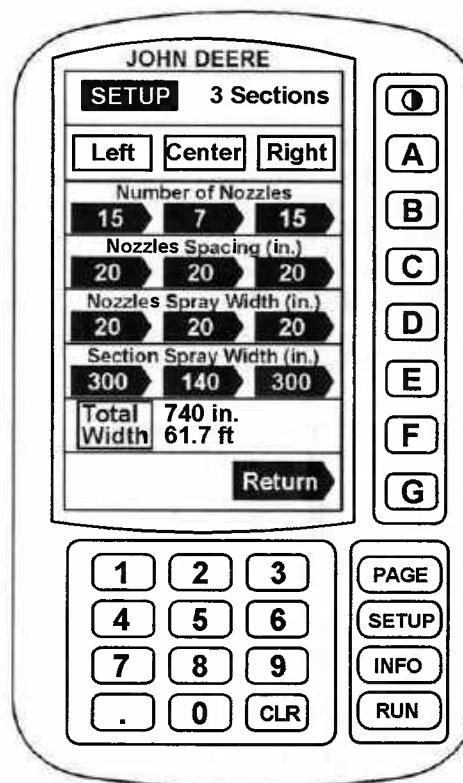
7. Press "C", enter nozzle spacing on left boom section and press "C". (Repeat for each section on boom.)

*NOTE: In broadcast spraying only, nozzle spray width is equal to nozzle spacing. Refer to back side of nozzle tip calculator to determine effective tip spray width.*

8. Press "D", enter nozzle spray width on left boom section and press "D". (Repeat for each section on boom.)

*NOTE: Section spray width and total width are calculated automatically from above settings.*

9. Press "G" to return to Page 2 of SETUP or "RUN" to return to Page 1 of the RUN menu.



-19-27DEC96

N42173NR

NXN,OM4700,Z9E1-19-20NOV97

## PROGRAMMING SPRAYSTAR FOR BAND SPRAYING

The SprayStar boom sections setup is programmed differently for band spraying than for broadcast spraying.

1. Press "SETUP" to get to Page 1 of SETUP mode.
2. Press "A" to setup sprayer.
3. Press "PAGE" to get to Page 2 of SETUP mode.
4. Press "A" for Number of Sections.
5. Enter the desired number of sections, 3, 4 or 5 (this number should correspond with the number of boom section shut-off valves on the boom), and press "A". The Setup Section page appears.

NX,H80M47,20C -19-21APR98

171299  
PN=49

6. Press "B", enter number of crop rows the boom section will be banding instead of number of nozzles the boom section has and press "B" again. (Repeat for each boom section.)

7. Press "C", enter the crop row width instead of nozzle spacing and press "C" again. (Repeat for each boom section.)

8. Press "D", enter band width instead of spray width and press "D" again. Band width should always be less than row width when banding.

9. Press "G" to return to Page 2 of SETUP or RUN to return to Page 1 of RUN menu.

*NOTE: Make sure target application rate is for banded area and not covered area.*

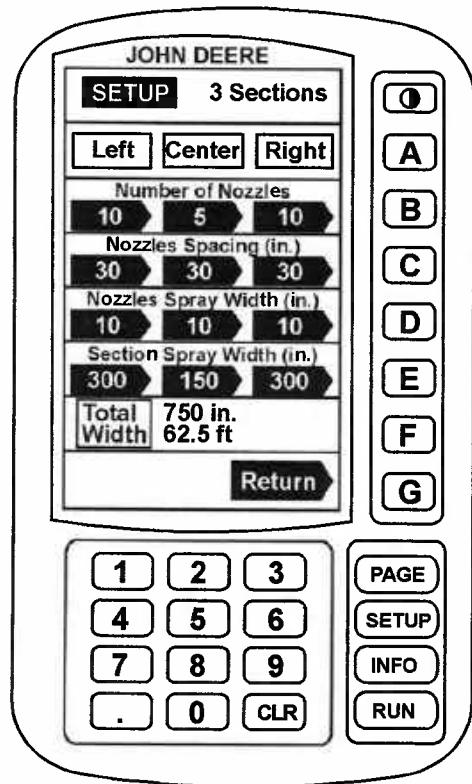
The acre counter on both Page 2 of Run and in Job Summaries records covered acres and not banded acres.

The application rate in Job Summaries is calculated by total volume applied divided by covered acres, NOT banded acres. When band spraying, the application rate in Job Summaries will always be a percentage of the target rate.

To determine if application rate in Job Summaries is correct, use the following equation:

$$\text{Job Summaries Application Rate} = \frac{\text{Target Application Rate} \times \text{Band Width}}{\text{Row Width}}$$

*NOTE: The sample SETUP screen on this page has been programmed for banding 30 in. rows with a banding width of 10 in. The outer sections cover ten rows and the center section covers five rows.*



## FENCE ROW NOZZLES

No setup in the SprayStar Display is needed for the fence row nozzles.

The SprayStar System will recognize the fence row nozzles when the fence row nozzle switches (A) are installed on the console. It will automatically adjust the Spray Rate Controller when the fence row nozzle is turned on. SprayStar will show additional nozzle on outer boom section with a spray width of 508 mm (20 in.).

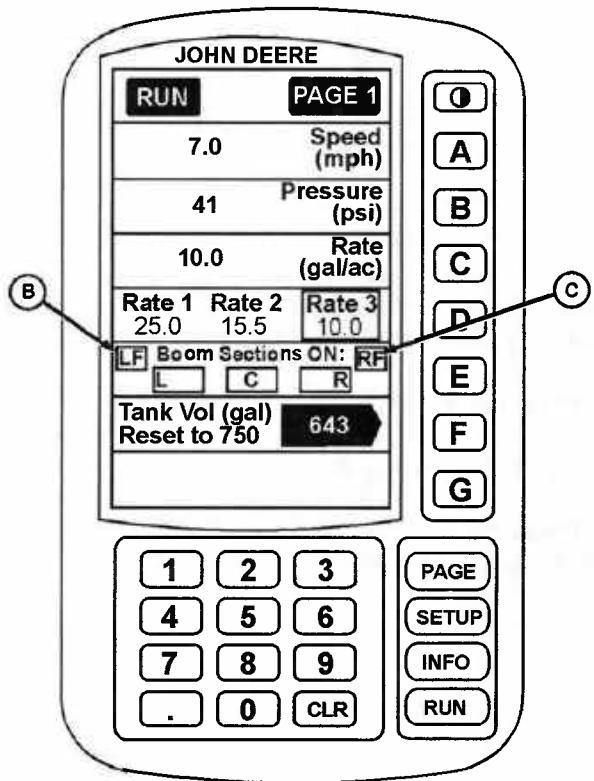
When the fence row nozzle is turned on, an "LF" (B) or "RF" (C) will appear above the boom sections on Page 1 of the RUN of the SprayStar Display.

The hectare (acre) counter on "RUN PAGE 2" and "JOB SUMMARIES PAGE" of SprayStar Display will record the additional spacing of 508 mm (20 in.) per end row nozzle when turned on.



-UN-13JAN97

N42177CG



-19-24FEB97

N42178J

NXH8,M64020,D30-19-15APR98

## SETTING FLOWMETER CALIBRATION NUMBER

*NOTE: Flowmeter is not recommended for boom flow rates under 15 Lpm (4 gpm).*

1. Press "SETUP" to display SETUP menu.
2. Press "A" to setup sprayer.
3. Press "PAGE" to display sprayer SETUP Page 2.
4. Press "B" for Sprayer Calibrate.

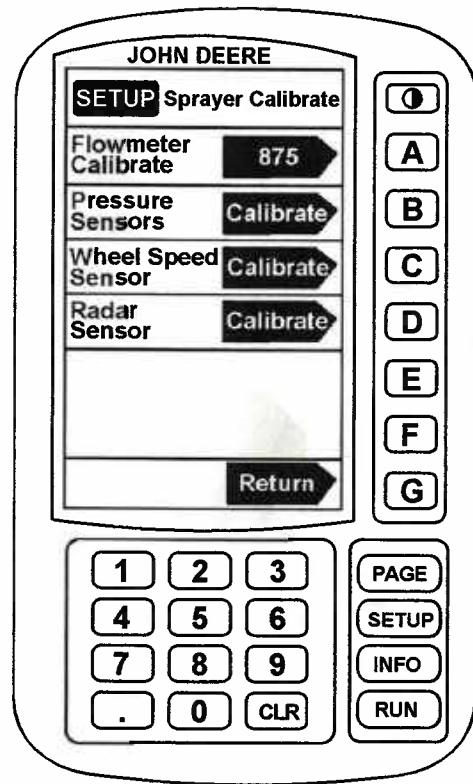
NXN,4700,Z11A2 -19-07AUG97

5. Press "A" to enter flowmeter calibration number. The flowmeter calibration number is stamped on the stainless steel tag attached to the back of the SprayStar display.

6. Enter calibration number and press "A" again.

*NOTE: Flowmeter calibration value range is 850-950.*

7. Press "G" to return to calibrate sprayer menu or press "RUN" to return to Page 1 of the RUN menu.



NXK,4700,Z11E2 -19-11JAN99

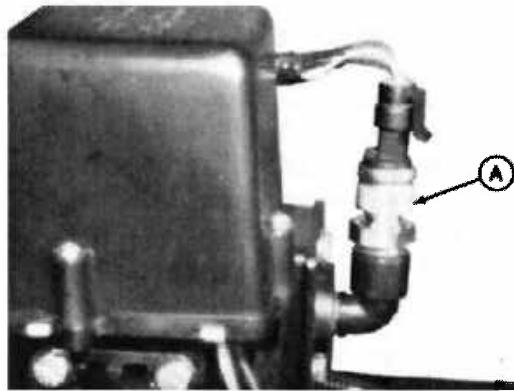
-19-27DEC96

N42173NS

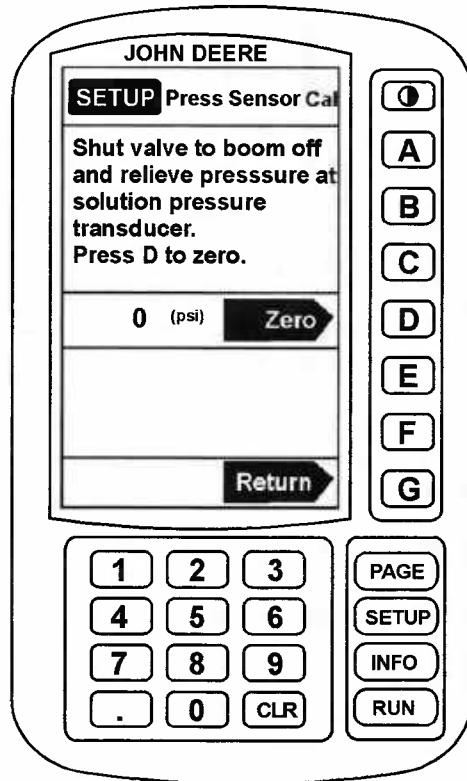
## CALIBRATING PRESSURE SENSOR

If pressure sensor (A) reading does not return to zero when there is no pressure or fluid in boom section shut-off valves, calibration of pressure sensor is necessary.

1. Turn tank selector valve to the closed position.
2. Turn key switch ON, but do not start machine.
3. Turn solution pump ON.
4. Turn master ON/OFF switch on hydro lever ON.
5. Turn all boom section switches ON.
6. Remove nozzle tip cap and check valve from a nozzle body from center section. This will drain all fluid from the boom section shut-off valves. Catch fluid in a container.
7. Press "SETUP" to display SETUP menu.
8. Press "A" to setup sprayer.
9. Press "PAGE" to display Page 2 of sprayer SETUP menu.
10. Press "B" for Sprayer Calibrate.
11. Press "B" to calibrate pressure sensor.
12. Press "D" to clear pressure reading. Pressure on monitor will now read zero when no pressure is in boom section shut-off valves.
13. Press "G" to return to Calibrate Sprayer or press "RUN" to return to page 1 of RUN menu.



N42184CO  
-JUN-28-JUL-97



N42184EA  
-19-08AUG97

NXH8,M64020,D33-19-15APR98

## CALIBRATING WHEEL SPEED SENSOR

*NOTE: Radar sensor overrides wheel speed sensor when radar sensor is installed. If using radar sensor, operator should calibrate wheel speed sensor for precautionary reasons. When calibrating wheel speed sensor, disconnect radar sensor and install dust cap with jumper wire on wiring harness.*

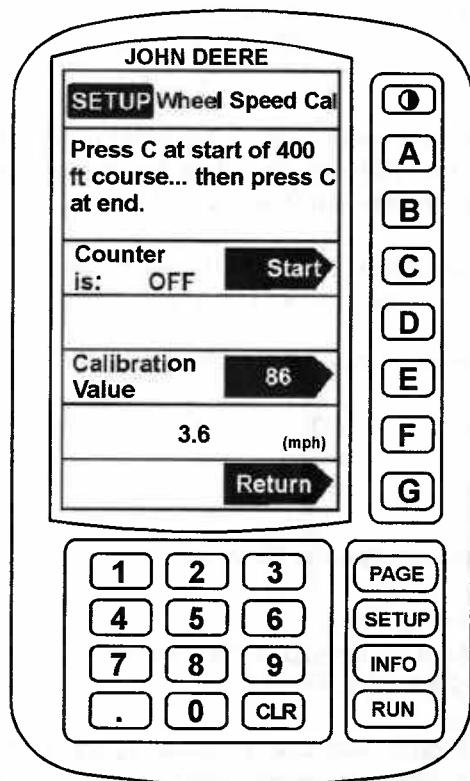
*When using wheel speed sensor, the radar symbol **SHOULD NOT** appear on line A of RUN pages one or two.*

1. Fill the solution tank half full of water or solution.
2. Measure a 122 m (400 ft) course with tape measure on flat terrain that is most typical of field conditions (loose, medium, hard-packed).
3. Mark both beginning and end of course with markers that are visible from cab.
4. Allow enough room at each end of course for sprayer to travel entire course without speeding up or slowing down.
5. Select the desired speed range (1st, 2nd) which spraying will most likely occur.
6. Press "SETUP" to display SETUP menu.
7. Press "A" to setup sprayer.
8. Press "PAGE" to display sprayer SETUP Page 2.
9. Press "B" to calibrate sprayer.
10. Press "C" for Wheel Speed Sensor.
11. Verify that calibration value is within specified calibration ranges for tires below.
12. If calibration value is not within range, enter a value within range.

*(Handwritten notes)*

85  
original  
Next 92.5

13. Start driving somewhere before beginning of the course and reach speed at which spraying will most likely occur.
14. While maintaining that speed, press "C" to turn wheel counter ON when the sprayer reaches the beginning of the course.
15. Keep constant speed over the course, and when sprayer reaches the end marker, press "C" to turn counter OFF.
16. Record calibration value that appears on line E.
17. Repeat steps 13—15 two more times and record calibration values.
18. Average the three calibration values.
19. Press "E", enter calibration average, and press "E" again.



July 2011  
BIG TIRES 85.50  
3.6 MPH

-UN-14NOV97

N4218GX

NXK7,4700,Z12F1-19-11JAN99

Q2.13

MAY 05 BIG TIRES RATE 34.94 WHEEL 95.5

JUNE 06 Switched to small tires for 1st time  
Value that I was spraying with was 85.00 however I was  
about 10% heavy ex. 80 acres was only 72 acres. (BIG TIRES)

CONTACTED KAMSAIK WAS TOLD I SHOULD BE AROUND 62.00 WITH SKINNY TIRES  
WAS ABOUT 10% HEAVY.

20. To verify calibration value, measure the course with the distance counter. (See Operating Distance Counter in this section.)

21. If the "Distance" is anything more or less than 120—123 m (395-405 ft), refine the previous wheel calibration number as follows:

Wheel Calibration Number x Recorded distance ÷ by 122 m (400 ft) = New Wheel Calibration Number

22. Enter new wheel calibration number.

23. Repeat Steps 20 and 21 if necessary.

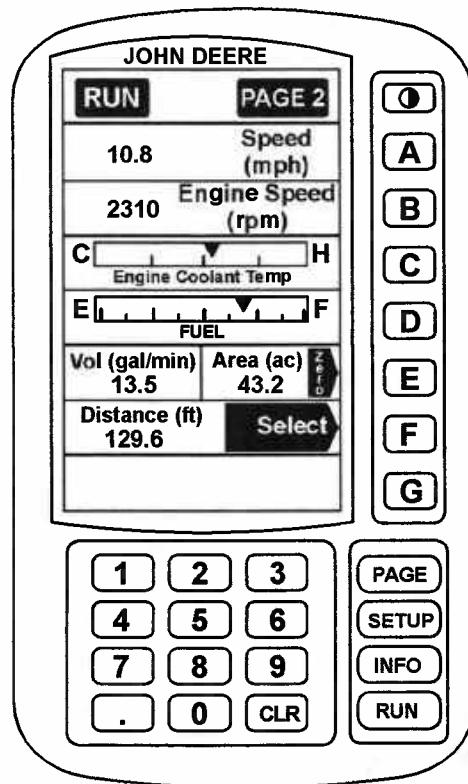
Calibration value ranges:

Standard/Narrow Tires: 80—92

Flotation Tires:

48 x 25.00—20, 10PR: 98—110  
23.1—26: 77—89

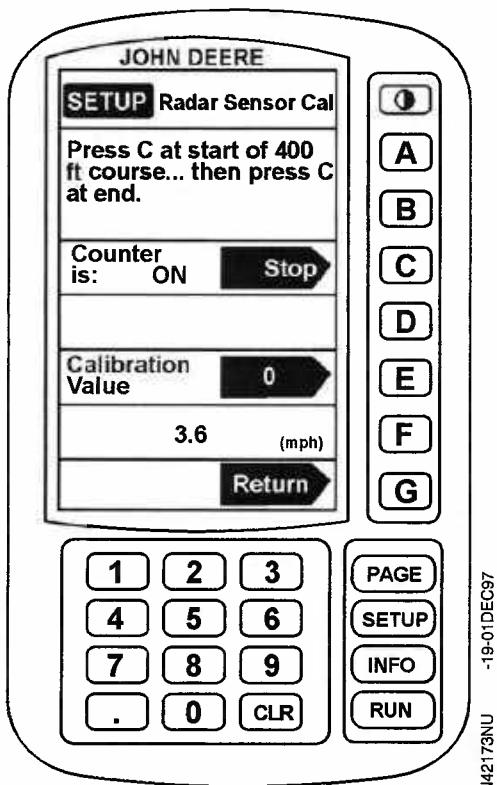
*NOTE: If radar was disconnected, connect after completing calibration of wheel speed sensor.*



NXH8,M68420,D36-19-15JUL98

N42173NP -19-27DEC96

## CALIBRATING RADAR SENSOR (OPTIONAL)



-19-01DEC97

*NOTE: If radar unit is removed from machine, dust cap with jumper wire must be installed on wiring harness or ground speed sensor will not work properly.*

*When radar unit is left on machine but not used, dust cap with jumper wire must be installed on wiring harness and dust cap (with seals installed in end) placed on radar unit wiring connector.*

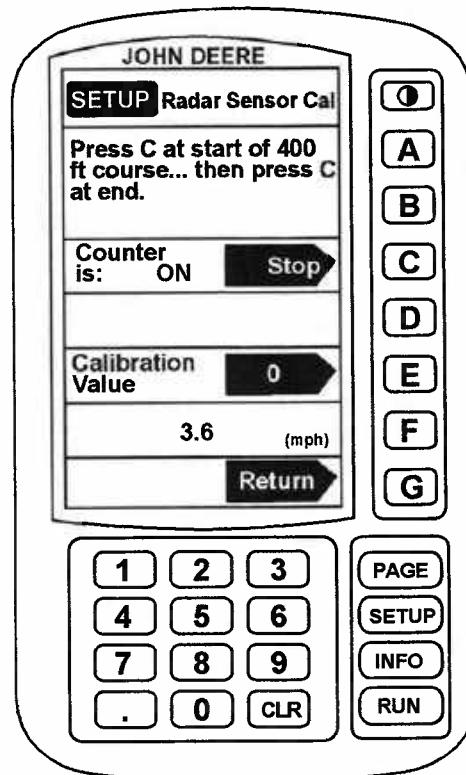
*Radar sensor overrides wheel speed sensor when radar sensor is installed.*

*Radar symbol will appear on line A of pages one and two of RUN when radar is operating.*

1. Fill the solution tank half full of water or solution.
2. Measure a 122 m (400 ft) course on flat terrain that is most typical of field conditions (loose, medium, hard-packed).

3. Mark both beginning and end of course with markers that are visible from cab.
4. Allow enough room at each end of course for sprayer to travel entire course without speeding up or slowing down.
5. Select speed range where spraying will most likely occur.
6. Press "SETUP" to display SETUP menu.
7. Press "A" to setup sprayer.
8. Press "PAGE" to display sprayer SETUP page 2.
9. Press "B" to calibrate sprayer.
10. Press "D" for Calibrate Radar Sensor.
11. Verify that calibration value is within range of 30 to 40. If not within range, enter value within range.

12. Start driving somewhere before beginning of the course and reach speed at which spraying will most likely occur.
13. While maintaining that speed, press "C" to turn radar counter on when the sprayer reaches the beginning of the course.
14. Keep constant speed over the course, and when sprayer reaches the end marker, press "C" to turn counter off.
15. Record calibration value that appears on line E.
16. Repeat Steps 13—15 two more times and record calibration values.
17. Average the three calibration values.
18. Press "E", enter calibration average, and press "E" again.



N42173NU -19-01DEC97

NXH8,M68420,D39-19-15JUL98

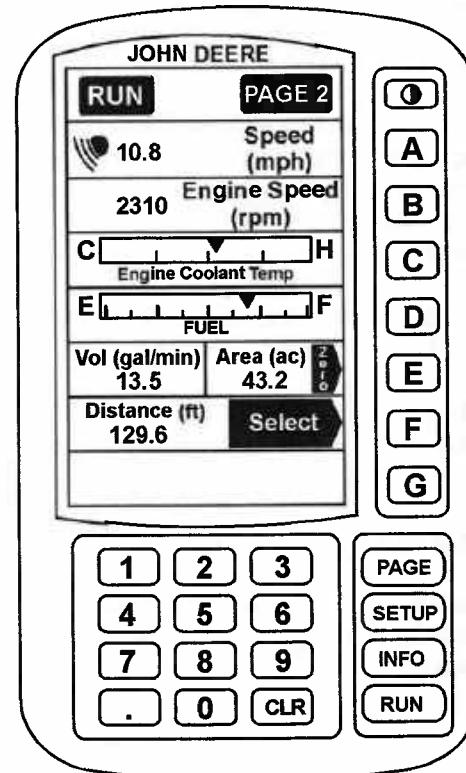
19. To verify calibration value, measure the course with the distance counter. (See Operating Distance Counter in this section.)
20. If the "Distance" is anything more or less than 120—123 (395—405 ft), refine the previous radar calibration number as follows:

Radar Calibration Number X Recorded distance ÷ by 122 m (400 ft) = New Radar Calibration Number

21. Enter new radar calibration number.
22. Repeat Steps 18 and 19 if necessary.

Calibration value range for radar: 30—40

*NOTE: Radar symbol will appear on line A of pages one and two of RUN when radar is connected.*



N42190FK -UN-06JUL98

NXH8,M68420,D40-19-15JUL98

## TURNING FLOW RATE ALARM ON/OFF

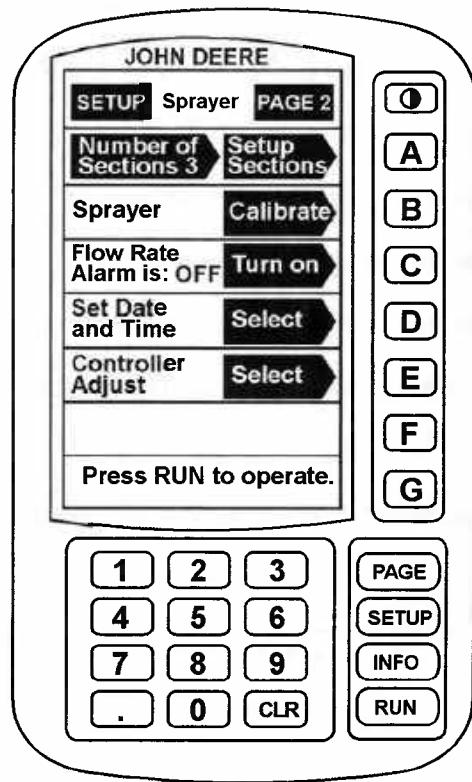
The flow rate alarm tells the operator when the sprayer applies more or less than 20% of the target application for 6 continuous seconds. "LOW SOLUTION FLOW" or "HIGH SOLUTION FLOW" also appears on the RUN pages.

To turn the alarm ON or OFF:

1. Press "SETUP".
2. Press "A" for Sprayer Setup.
3. Press "PAGE" to display Page 2 of Sprayer Setup.

NXH8,M68420,D41-19-11JAN99

4. Press "C" to turn flow error alarm ON or OFF.
5. Press "RUN" to return to Page 1 of RUN.



NX,4700,MON10A -19-11JAN99

## SETTING TIME AND DATE

1. Press "SETUP" to display SETUP menu.
2. Press "A" to setup sprayer.
3. Press "PAGE" display sprayer SETUP Page 2.
4. Press "D" for set date and time menu.

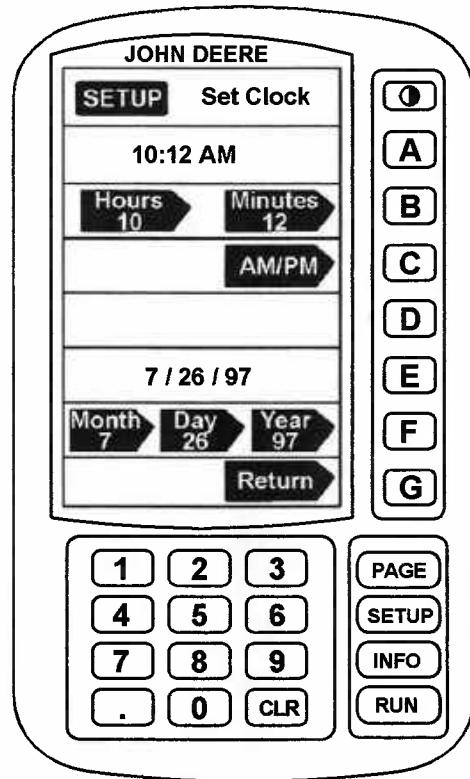
NXN,4700,Z6A1 -19-25FEB97

*NOTE: Time is shown at the top and date is shown on lower portion of screen.*

5. To set the time, press "B".
6. Enter the hour (1-12) and press "B".
7. Enter the minutes (01-59) and press "B".
8. Press "C" to change AM to PM or PM to AM.
9. To set the date, press "F".
10. Enter the month (01-12) and press "F".
11. Enter the day (01-31) and press "F".
12. Enter the year (97, 98, 99) and press "F".
13. Press "G" to return to page 1 of SETUP.

OR

14. Press "RUN" to return to RUN mode.



N42173NM 19-27DEC96

NXN,4700,Z6E1 -19-18FEB97

## **SETTING SPRAYER RESPONSE**

The Sprayer Response allows the operator to adjust the response time of the SprayStar rate control. This is the time it takes the actual application rate to reach the target application rate in auto mode.

The response time has five different settings. A "5" indicates the fastest response time (MAX) and a "1" indicates the slowest response time (MIN). Each step down from "5" requires more response time to adjust to the target rate.

For almost all situations, the response time should be set at "4" or "5" for all John Deere booms. If a different boom is installed, or an unusual configuration on a John Deere boom is installed, the response time may have to be reduced or slowed.

### **When To Change The Response Time Setting:**

- When the target application rate is never reached; the application rate always goes over or under when a steady speed is reached.
- When the time it takes the actual application rate to reach the target rate is quite long, approximately more than 4 seconds.

To change the response time do the following:

1. Press "SETUP" to setup sprayer.
2. Press "A" for Sprayer Setup.
3. Press "PAGE" for Page 2 of Sprayer Setup.
4. Press "E" for Controller Adjust.
5. Press "A" to change response time setting. Keep pressing "A" until desired setting is reached.

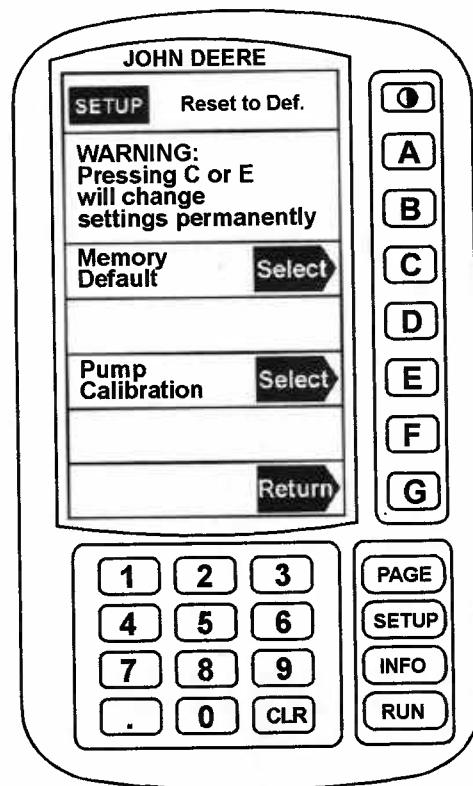
*NOTE: "1" is the minimum sprayer response setting and "5" is the maximum sprayer setting. To choose correct setting, start with response time setting of "5". If this response time does not provide acceptable performance, repeat Steps 1—5 using a lower setting.*

6. Press "RUN" to return to Page 1 of RUN menu.

NXH8,M68420,D45-19-07JUL98

## RESETTING TO DEFAULT

1. Press "SETUP" to setup sprayer.
2. Press "A" for Sprayer Setup.
3. Press "PAGE" for page 2 of Sprayer Setup.
4. Press "E" for Controller Adjust.
5. Press "C" for Reset to Default.
6. Press "E" to reset solution system to factory settings.
7. Press "C" to erase memory and reset to factory settings.
8. Press "E" or "C" again to confirm selection and complete reset to default.



NXH8,M68420,D46-19-15JUL98

-UN06JUL98  
N42190AQ

## AUTO CALIBRATING SPRAYER

The SprayStar system will automatically calibrate itself in order to provide an optimal control for a particular situation.

The only time auto calibration is needed is when the A and B values do not lie within their ranges or when one of the following has been replaced:

- solution pump/hydraulic motor assembly
- proportional valve
- hydraulic pump

*NOTE: The A and B ranges are:*

$$\begin{aligned}A &= 2000-4000 \\B &= 6500-9000\end{aligned}$$

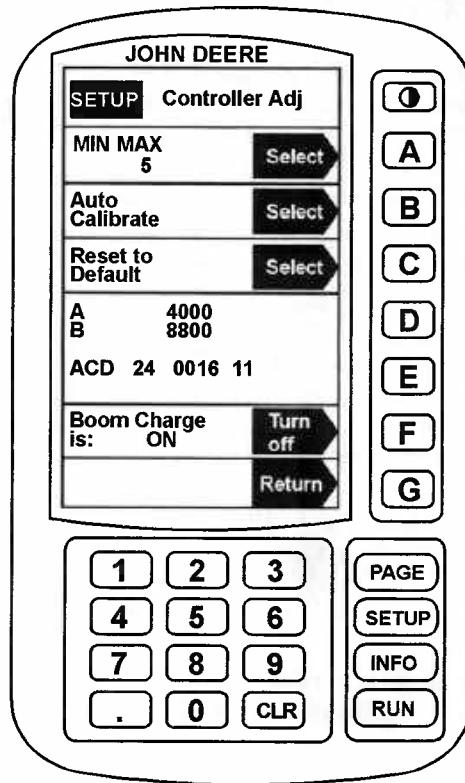
To auto calibrate the sprayer:

*NOTE: Solution pump switch should be turned off to perform this procedure.*

1. Operate engine at full throttle and warm hydraulic fluid temperature to normal operating range.
2. Fill solution tank with water or solution. Set solution control valves on valve manifold to spray position.
3. Press "SETUP" to setup sprayer.
4. Press "A" for Sprayer Setup.
5. Press "PAGE" for Page 2 of Sprayer Setup.
6. Press "E" for Controller Adjust.
7. Press "B" to select Auto Calibrate.

*NOTE: Auto calibration will take approximately 1-2 minutes. The solution pump will turn off when a "A" and "B" value appear and auto calibration is done.*

8. When the solution pump shuts down, auto calibration is now done. Press RUN to return to Page 1 of the RUN menu.



## BOOM CHARGE

Boom charge allows the operator to charge the boom at a manually specified or automatically calculated pressure (Boom Charge Pressure) for 3 seconds after the master ON/OFF switch is pressed "ON". After 3 seconds, the automatic rate control system will take over. This allows the spray rate control system to reach the target application rate faster when smaller flow rate nozzles are used.

Turn boom charge ON when solution flow rate is under 76 Lpm (20 gpm).

Determining Solution Flow Rate:

- When spraying, go to Page 2 of RUN and check solution flow rate on Line E.

OR

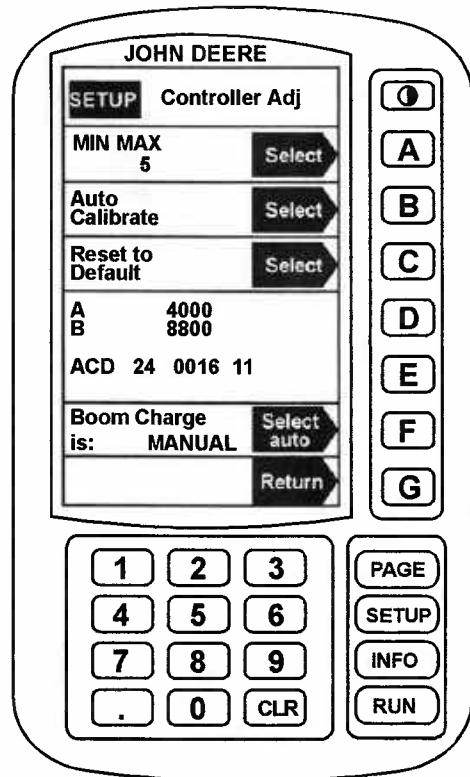
- Determine size of nozzles and multiply by the total number of nozzles on the boom.

Example: If 8003 type nozzles are installed and there are 37 on the boom:  $0.3 \text{ gpm} \times 37 = 11.1 \text{ gpm}$  (solution flow rate).

Operator would turn boom charge ON.

To turn boom charge on or off:

1. Press "SETUP" to set up sprayer.
2. Press "A" for Sprayer Setup.
3. Press "PAGE" for Page 2 of Sprayer Setup.
4. Press "E" for Controller Adjust.
5. Press "F" to move Boom Charge to "AUTO", "MANUAL" or "OFF" positions.
6. See Setting Boom Charge Pressure in this section to set desired boom charge pressure.



## SETTING MANUAL BOOM CHARGE PRESSURE

The boom charge pressure which the operator wants to spray for the initial 3 seconds after the master "ON" switch is pressed is the same pressure as the manual pressure setting.

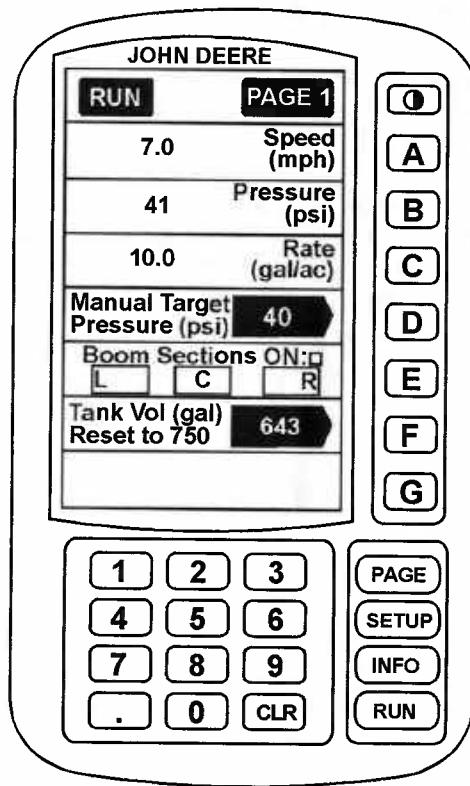
To set manual boom charge pressure:

1. Set the manual pressure setting to the desired manual boom charge pressure by pressing "RUN".

2. Turn rate select knob to "0".

**IMPORTANT: It is recommended to set manual boom charge manual pressure setting at the pressure where the machine will be operating most of the time.**

3. Press "D" to input manual target/boom charge pressure.



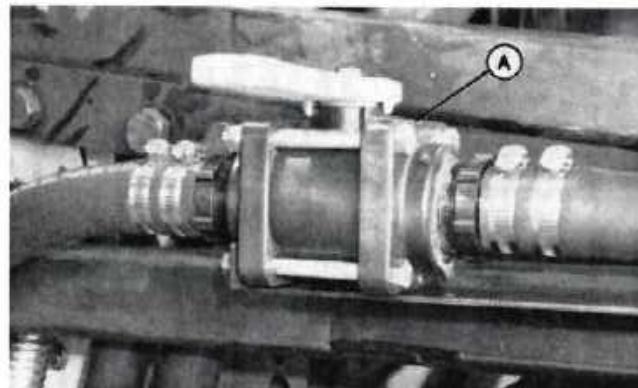
NXH8,M68420,DA -19-15JUL98

-19-15JUN98  
N42190DZ

## APPLYING LOW APPLICATION RATES

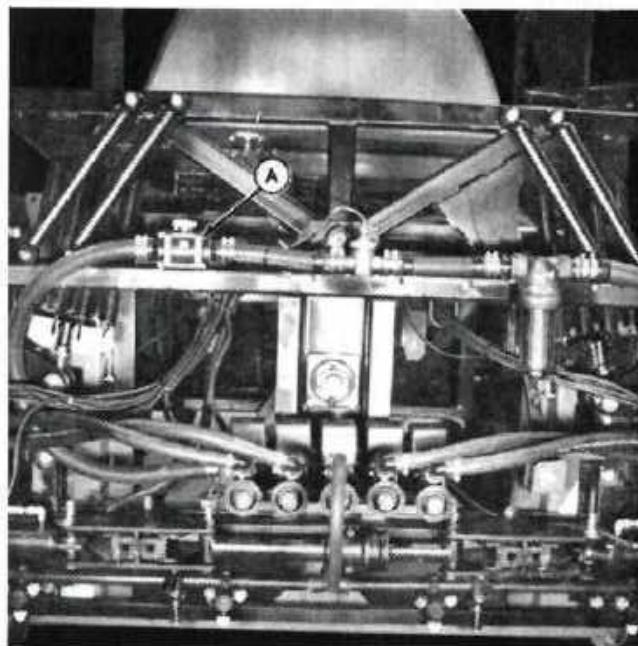
When applying low application rates, it may be necessary to turn high/low flow valve (A) to the closed (low) position.

To determine when to close high/low flow valve, calculate boom flow rate. When solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.



Valve in Closed (Low) Position

N42184DK  
-UN-28JUL97



NXH8,M64020,D50-19-07JUL98

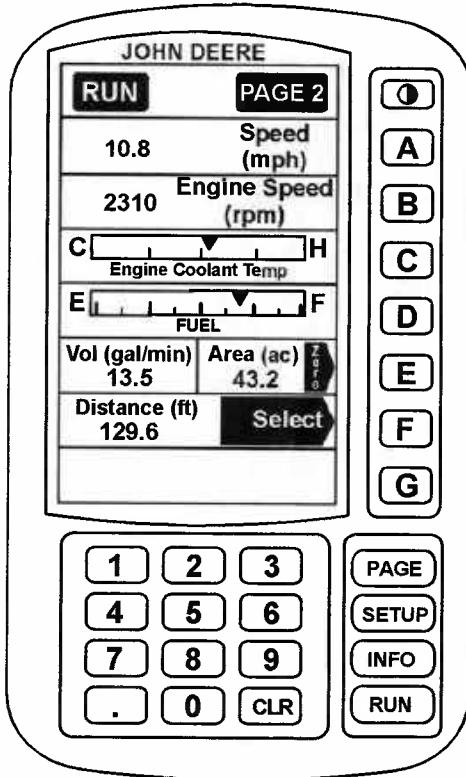
N42184ZE  
-UN-13APR98

## Determining Solution Flow Rate:

- When spraying, go to Page 2 of RUN and check solution flow rate on Line E. If solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.
- Determine size of nozzles and multiply by the total number of nozzles on the boom. If solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.

Example: If 8003 type nozzles are installed and there are 37 on the boom:  $0.3 \text{ gpm} \times 37 = 11.1 \text{ gpm}$  (solution flow rate).

Operator would close high/low flow valve.



-19-27DEC96

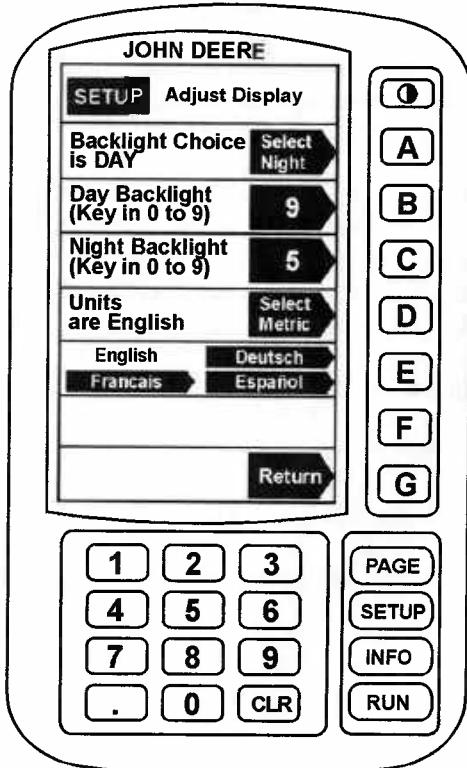
N42173NP NX,OM554,ALB1 -19-26NOV97

## SETTING BACKLIGHT LEVEL

- Press "SETUP", then "B" for Greenstar Display.

*NOTE: Backlight level controls the brightness of the screen. A number between 0—9 can be input. An input of 9 would give the brightest backlight.*

- Press "B" to change DAY backlight level.
- Key in a number of 0—9, and press "B" to enter the level.
- Press "C" to change NIGHT backlight level.
- Key in a number from 0-9, and press "C" to enter the level.
- Press "A" to select NIGHT or DAY backlight.
- Press "G" to return to Setup or "RUN" to return to page 1 of RUN.



-19-28JUL97

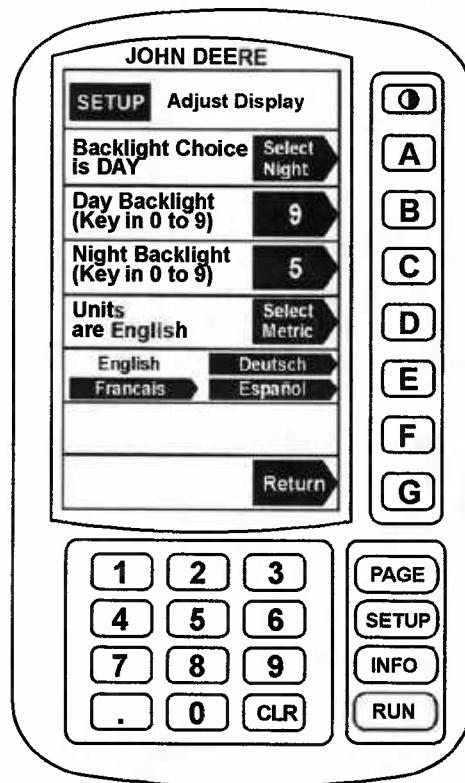
N42184DN

NX,4700,MON11T -19-07AUG97

## SETTING UNITS

*NOTE: Units can be either English or Metric.*

1. Press "SETUP", then "B" for Greenstar Display.
2. Press "D" for English or Metric units.
3. Press "G" to return to Setup or "RUN" to return to Page 1 of RUN.



NX,4700,MON12A -19-07AUG97

## OPERATING JOB SUMMARIES

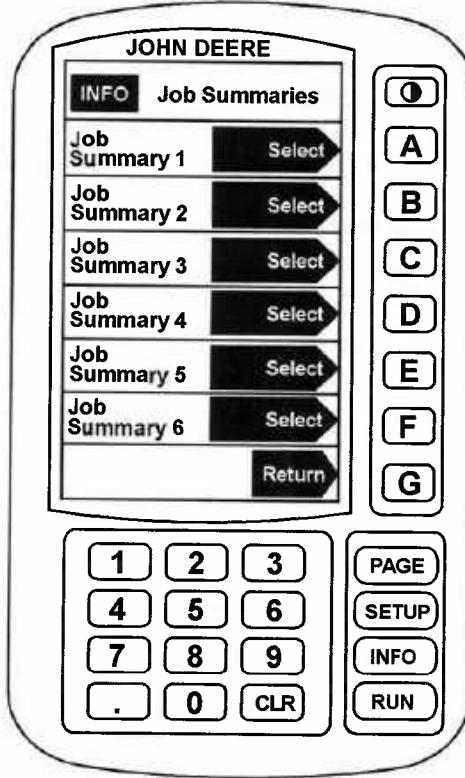
Job Summaries keeps track of acres sprayed, volume sprayed, time spent spraying, and the job's start and stop time, for up to six different jobs.

*NOTE: Vol/Acre is calculated on total volume applied by acres covered. If a small percentage of spraying occurs at minimum pressure, Vol/Acre in Job Summaries will typically be slightly higher than the target rate.*

To turn a job summary on or off:

1. Press "INFO".
2. Press "A" for Sprayer Information.
3. Press "A" for Job Summaries.

4. Select desired job summaries "A—F".



-19-10FEB97

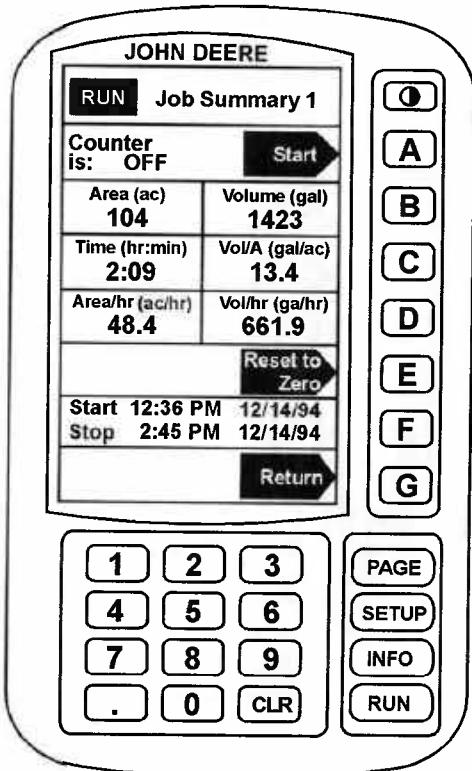
N42171WU

NX,4700,MON14 -19-26FEB97

5. Press "A" to turn job summary on or off.

*NOTE: By turning Job Summary off, the information in that job summary will be stored until it is turned on again or reset back to zero.*

6. To reset job summary to zero, press "E". All information is now reset.



-19-10FEB97

N42171WV

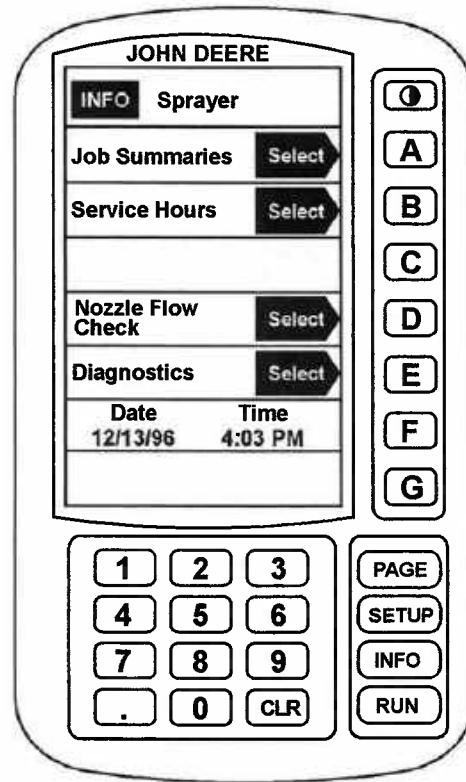
NXH8,M64020,MBC-19-26MAY98

## RECORDING ENGINE HOURS

**NOTE:** Engine hours are only displayed on the SprayStar display and will not be lost during loss of power to the SprayStar computer. Changing display monitors will not lose engine hours.

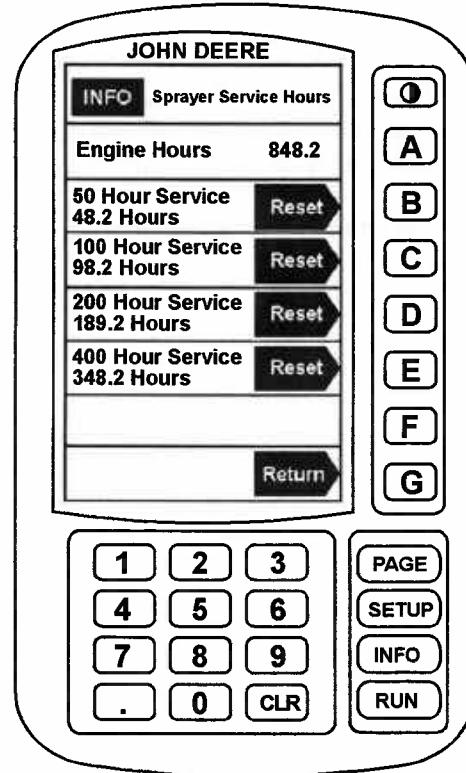
To find engine hours on sprayer:

1. Press "INFO".
2. Press "A" for sprayer.
3. Press "B" for service hours.
4. Engine hours are displayed on line A.



N42190EW -19-19-JUN98

N42190EW



N42190EX -19-19-JUN98

## RESETTING SERVICE INTERVAL COUNTER

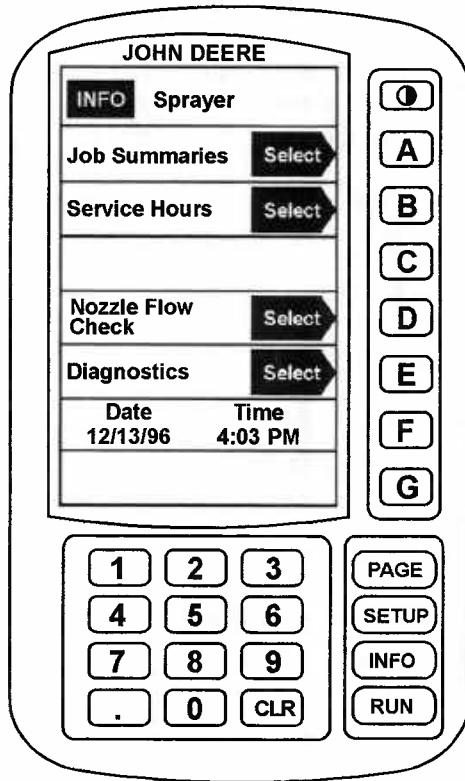
Service interval statements appear on the bottom of the RUN pages after a service interval has expired. The service interval statement informs the operator that the time has expired since the last service was performed. The service intervals that SprayStar monitors are 50, 100, 250 and 400 hours.

When a service interval statement appears on bottom of RUN pages, the operator should perform the service as soon as possible and then reset the service interval counter.

To reset a service interval counter:

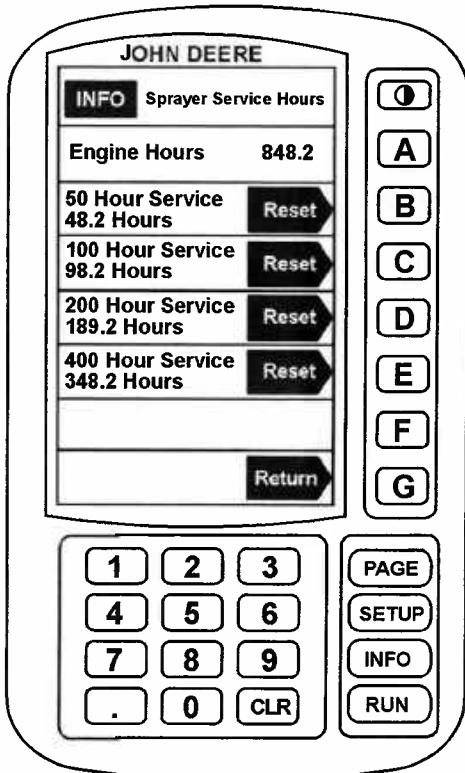
1. Press "INFO."
2. Press "A" for sprayer.
3. Press "B" for service interval counter.
4. When a service interval has been reached and service has been completed, push appropriate button (B—E) to reset the interval counter for the service that was performed.

*NOTE: Refer to the Lubrication and Maintenance sections in this manual for items to be serviced and their service intervals. SprayStar will not produce a service interval statement on the RUN pages until a service interval expires.*



N42190BW

-19-19JUN98



N42190BX

-19-19JUN98

## **NOZZLE FLOW CHECK**

Nozzle Flow Check is a procedure to check your application rate at a desired speed while the machine is not moving. The following items can be determined:

- If the actual application rate can meet the target application rate at a given speed.
- The actual flow rate in Lpm (gpm) out of the boom.
- Whether the nozzles are worn.
- The pressure at the spray control valves given a desired speed and application rate.
- If there is a pressure drop between the boom section shut-off valves and nozzles.

Always fill the solution tank with clean water to do a proper nozzle flow check.

NXH8,M64020,D58-19-15APR98

*NOTE: Master ON switch is disabled in third speed range. Spraying is only allowed in first or second ranges.*

1. Press "INFO".
2. Press "A" for Sprayer Information.
3. Press "D" for Nozzle Flow Check.

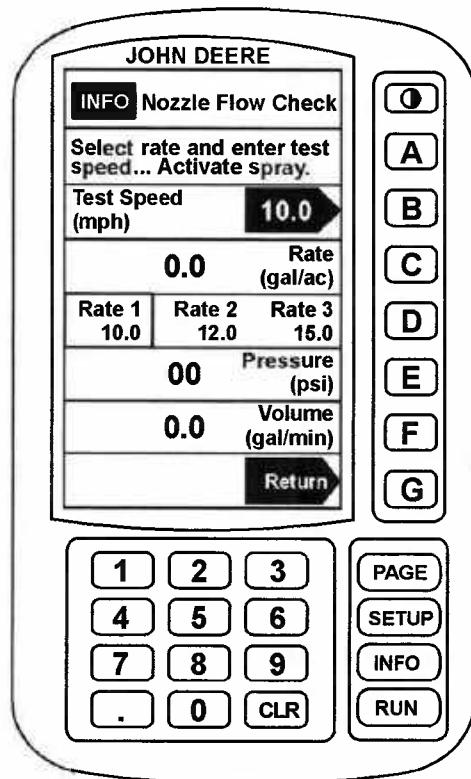
*NOTE: The sprayer cannot be spraying to select this function.*

4. Press "B", enter test speed and press "B" again.
5. Turn rate select knob to target application rate (1, 2, or 3) which is on line "D" of SprayStar Display.

*NOTE: The application rate to be tested must be pre-programmed into the SprayStar system. (See Setting Application Rates in this section.)*

6. Operate engine at maximum RPM and activate spray. Engage solution pump and turn master spray ON.

The actual application rate is shown on line C. Volume spraying out of the boom is shown on line F and the pressure at the boom section shut-off valves is shown on line E.



N42171ZT -19-17FEB97

NXH8,M64020,D59-19-15APR98

If the actual application rate does not get to the target rate, refer to nozzle calculator or nozzle chart to determine the correct nozzle size for the given application rate and speed.

If the volume is higher than expected and pressure is lower than expected, nozzle tips could be worn. Refer to nozzle information in Section 25.

If the pressure is higher than expected for the given output, nozzle tips could be partially plugged. Also a pressure drop could be occurring from boom section shut-off valves to nozzle tips (normally only associated with high flow rates.)

NXH8,M64020,D60-19-15APR98

## DIAGNOSTICS

The diagnostic mode allows the operator to determine if switches and sensors are operating correctly.

NX,4700,MON25 -19-25FEB97

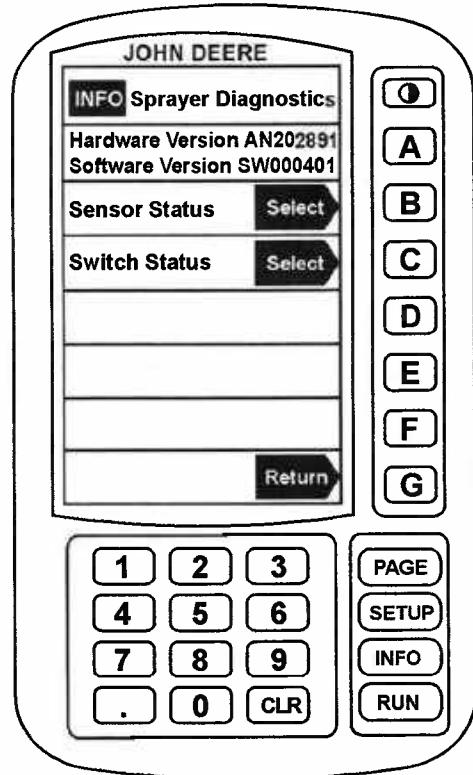
## DIAGNOSTICS OF SENSORS

The SprayStar system has the capability of telling the operator whether the sensors are operating within their specified range or not.

*NOTE: To check some sensors the sprayer has to be running, moving or spraying.*

To check if a sensor is operating correctly:

1. Press "INFO".
2. Press "A" for Sprayer Information.
3. Press "E" for Sprayer Diagnostics.
4. Press "B" for Sensor Status.
5. Press "PAGE" to page through three pages of Sensor Status.

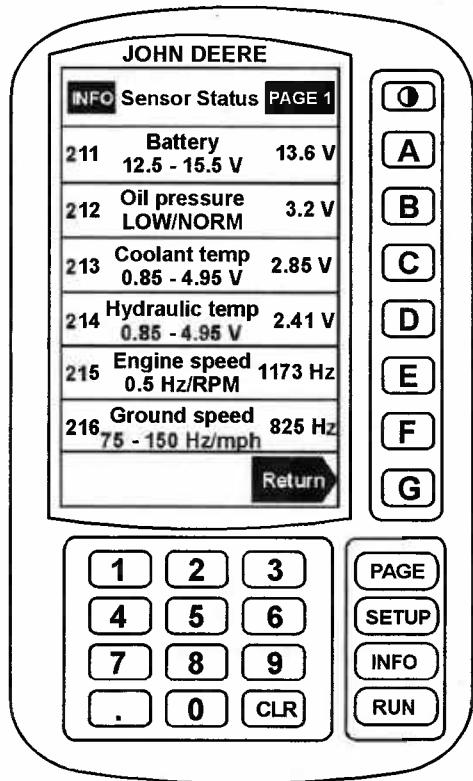


N42171 WO 10-10FEB97

NX,4700,MON26A -19-25FEB97

Sensor status is shown on the right-hand side of the screen. The status should lie within the range located below the sensor's title. In some cases, the sensor has to be under operating conditions for a status to appear in the desired range.

If the Sensor Status does not lie within that range when the sensor is under operating conditions, the problem could be due to a faulty sensor, corroded or bad connection or damaged wiring harness.



NX,4700,MON27 -19-18MAR97

N42171WP -19-17FEB97

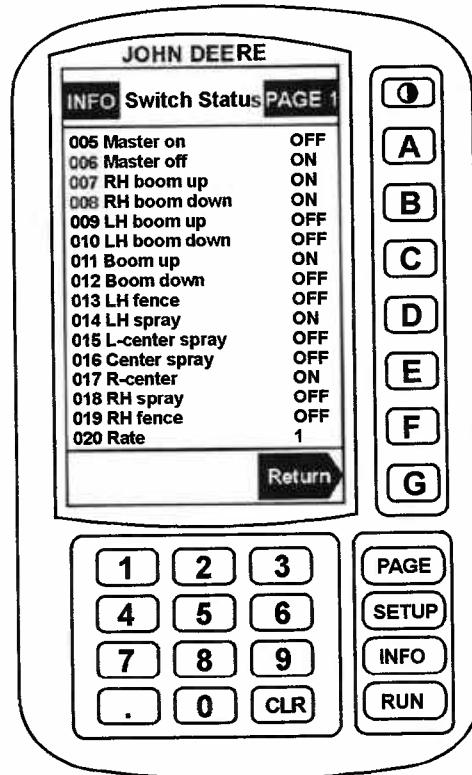
## DIAGNOSTICS OF SWITCHES

The SprayStar system has the capability of telling the operator whether switches are functioning properly.

To check if a switch is functioning properly:

1. Press "INFO".
2. Press "A" for Sprayer Information.
3. Press "E" for Sprayer Diagnostics.
4. Press "C" for Switch Status.
5. Press "PAGE" to page through two pages of Switch Status.
6. Turn desired switch on and off and watch the SprayStar Display to see if Switch Status corresponds with switch setting. (Switches such as Rate Select and Speed Range with multiple functions will show current rate or speed range.)
7. If Switch Status does not correspond with switch setting, check switch fuse and replace if necessary. If Switch Status and setting still do not correspond, check wiring and switch, replace if necessary.

**NOTE:** Foamer switches are normally closed. Foamer status is ON until switches are pushed. Pushing left-hand switch turns left-hand status OFF and pushing right-hand switch turns right-hand status OFF.



## SPRAYSTAR CAUTION AND WARNING STATEMENTS

The SprayStar system alarms and diagnostics are helpful and informative tools designed to alert the operator to many different conditions. Depending on the severity of the situation, many alarms are accompanied by an audible alarm from the SprayStar display.

There are 2 types of alarms:

- Continuous Caution
- Warning

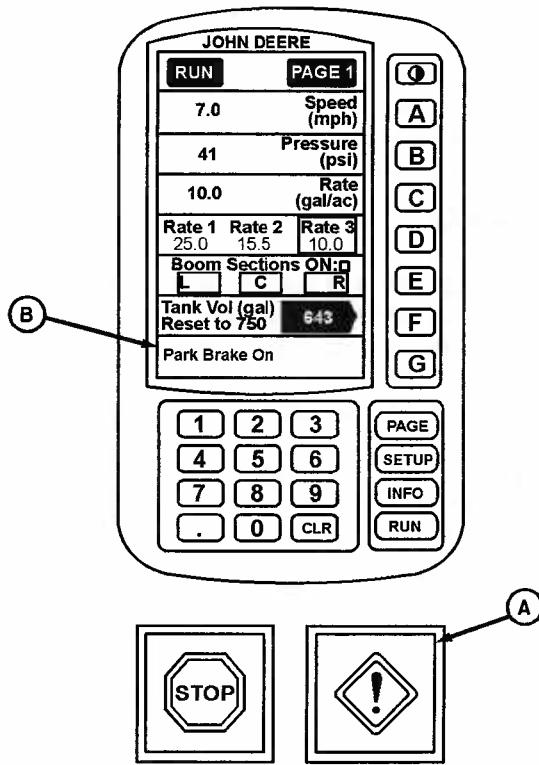
NXH8,M68420,D65-19-15JUL98

### CONTINUOUS CAUTION

The caution lamp (A) lights on the right-hand console. A caution message (B) appears in the SprayStar display's "G" segment. The message remains visible as long as the condition persists.

An audible alarm is sounded when the continuous caution first appears.

Example: Park Brake On or Ladder Down.



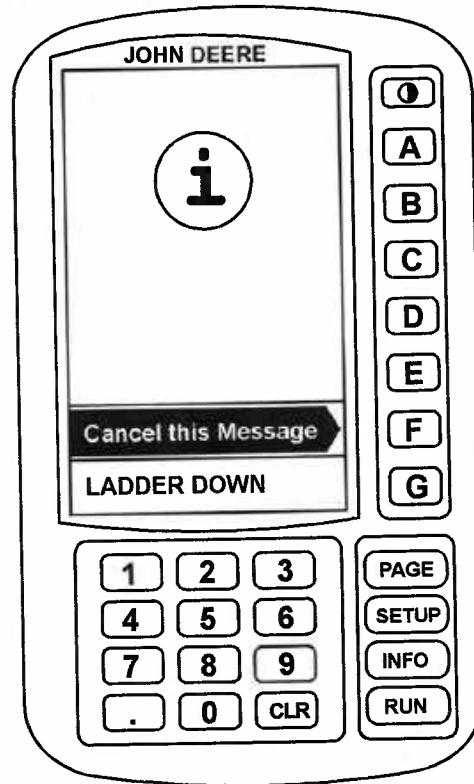
-19-10FEB97

N42171WY

NXH8,M68420,D66-19-15JUL98

## CONTINUOUS CAUTION (CONTINUED)

When in SETUP or INFO modes and a caution situation arises, a full-page caution will appear.



N42190FL -UN-06JUL98

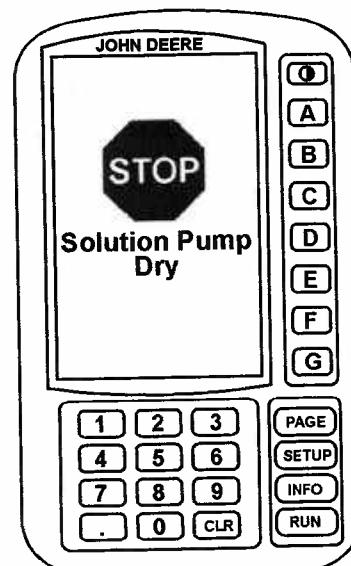
NXH8,M68420,CC -19-07JUL98

## WARNING

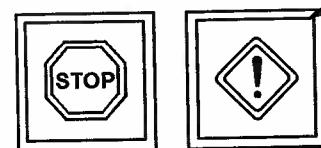
The warning lamp (A) lights and flashes on the right-hand console. The SprayStar display is cleared and a full-page warning message appears.

A continuous audible alarm is sounded.

Example: Solution Pump Dry



N42171XA -19-24FEB97



NX,4700,MON33 -19-28JUL97

## **ENGINE AND POWER TRAIN ALARMS**

- Engine Oil Low
- Hydraulic Oil Hot
- Engine Coolant Hot
- Air Filter Restriction

NX,4700,MON34A -19-20FEB97

### **ENGINE OIL LOW**

FULL-PAGE WARNING.

Engine oil pressure is low. Cold oil, low oil level or extreme off-level operation may cause alarm. Refer to Troubleshooting: Engine in Section 40.

A continuous audible alarm is sounded.

NX,4700,MON34C -19-07AUG97

### **HYDRAULIC OIL HOT**

CONTINUOUS CAUTION and initial audible alarm.

Temperature between 102—107° C (215—225°F).

Refer to Troubleshooting: Engine, in Section 40.

FULL-PAGE WARNING and continuous audible alarm.

Temperature exceeds 107° C (225°F).

Refer to Troubleshooting: Engine in Section 40.

NXH8,M68420,D71-19-07JUL98

## **ENGINE COOLANT HOT**

CONTINUOUS CAUTION and initial audible alarm.

Temperature between 107—113° C (225—235°F).

Refer to Troubleshooting: Engine, in Section 40.

FULL-PAGE WARNING and continuous audible alarm.

Temperature exceeds 113° C (235°F).

Refer to Troubleshooting: Engine in Section 40.

NXH8,M68420,D72-19-07JUL98

## **AIR FILTER RESTRICTION**

CONTINUOUS CAUTION and initial audible alarm.

Engine air filter restriction sensor indicates restriction.

Clean or replace engine air filter.

NX,4700,MON37 -19-20FEB97

## **CHASSIS ALARMS**

- Ladder Down
- Park Brake On
- Low Fuel
- Scheduled Maintenance Due

NX,4700,MON38A -19-20FEB97

## LADDER DOWN

CONTINUOUS CAUTION and initial audible alarm.

Vehicle speed exceeds 5 km/h (3 mph) and ladder is not raised completely. Crop could be damaged, depending on field conditions.

Raise ladder if desired.

NXH8,M68420,D75-19-15JUL98

## PARK BRAKE ON

CONTINUOUS CAUTION.

Park brake is on and vehicle is not moving.

FULL-PAGE WARNING and continuous audible alarm.

Vehicle is moving and emergency brake switch is on.

NXH8,M68420,D76-19-15JUL98

## LOW FUEL

CONTINUOUS CAUTION and initial audible alarm.

Fuel level is less than 6% of tank volume.

Fill fuel tank.

NXH8,M68420,D77-19-15JUL98

## SOLUTION SYSTEM ALARMS

- High Solution Flow
- Low Solution Flow
- Spray Disabled in Third Gear
- Solution Pump Dry
- Remote Load On

NX,4700,MO42A -19-07AUG97

## **HIGH SOLUTION FLOW**

CONTINUOUS CAUTION and initial audible alarm.

Solution flow rate exceeds the target rate by 20% for 6 seconds.

Refer to Troubleshooting: Spraying System, in Section 40.

NXH8,M68420,D79-19-15JUL98

## **LOW SOLUTION FLOW**

CONTINUOUS CAUTION and initial audible alarm.

Solution flow rate is less than the target rate by 20% for 6 seconds.

Refer to Troubleshooting: Spraying System, in Section 40.

NXH8,M68420,D80-19-15JUL98

## **SPRAY DISABLED IN THIRD GEAR**

CONTINUOUS CAUTION and initial audible alarm.

The sprayer is not allowed to spray in third gear.

Do not spray in third gear.

NX,4700,MON44 -19-20FEB97

## **SOLUTION PUMP DRY**

FULL-PAGE WARNING and continuous audible alarm.

Solution pump switch is on and pressure is under 48 kPa (0.5 bar) (7 psi) for 3 seconds with pump operating at 70% maximum rpm.

Refer to Troubleshooting: Spraying System, in Section 40.

NXH8,M68420,D82-19-15APR98

## **REMOTE LOAD ON**

CONTINUOUS CAUTION and initial audible alarm.

Remote load switch is on and solution pump is on.

Turn off remote load switch.

NX,4700,MON46 -19-20FEB97

## **ELECTRICAL SYSTEMS ALARMS**

- Low System Voltage
- High System Voltage

NX,4700,MON47A -19-20FEB97

## **LOW SYSTEM VOLTAGE**

Continuous Caution.

System voltage has dropped below 11.2 volts when engine is under 1500 rpm or when system voltage has dropped below 12.5 volts when engine is over 1500 rpm.

Alarm will cease when system voltage reaches 13.0 volts.

Refer to Troubleshooting: Electrical System, in Section 40.

NX,4700,MO47B -19-07AUG97

## **HIGH SYSTEM VOLTAGE**

Continuous Caution.

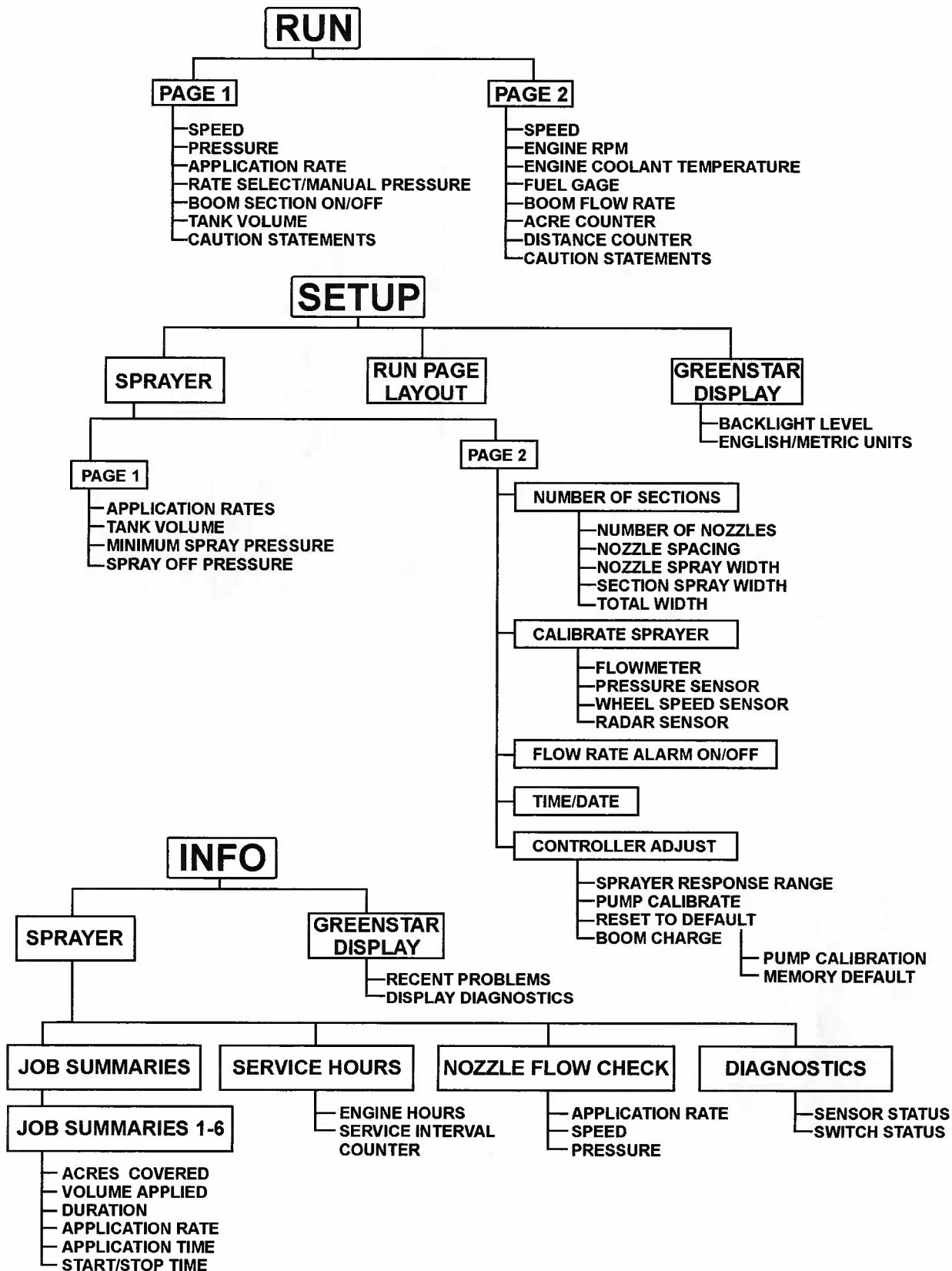
System voltage has reached above 15.5 volts at any engine rpm.

Alarm will cease when voltage drops to 14 volts.

Refer to Troubleshooting: Electrical System, in Section 40.

NX,4700,MON48A -19-07AUG97

## QUICK REFERENCE CHART OF SPRAYSTAR DISPLAY SCREENS



## HYDRO LEVER

To move machine forward, move hydro lever (A) slightly to the right and forward. Ground speed increases when lever is pushed forward.

To move machine rearward, move lever to extreme right and rearward. Move lever carefully. Ground speed increases as lever is pulled rearward.

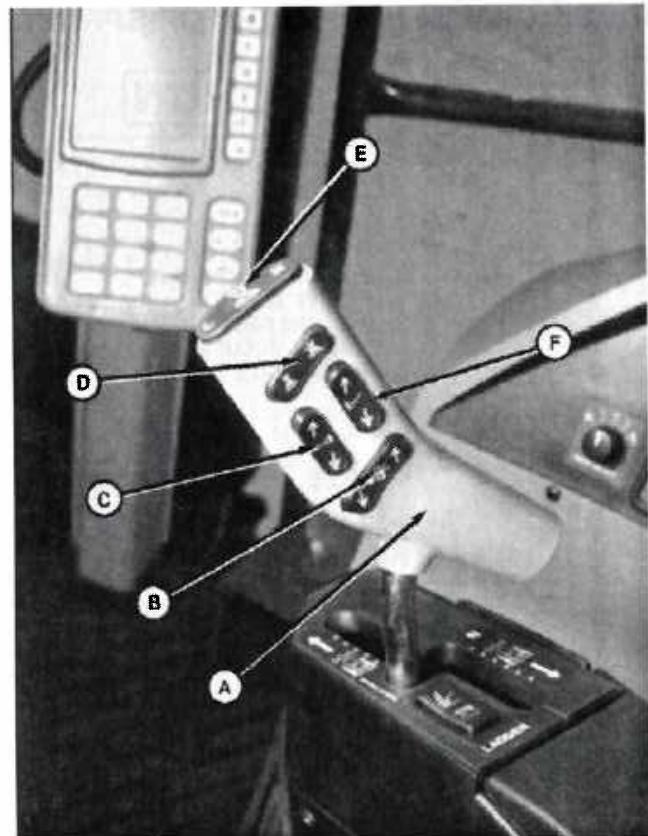
Push switch (B) to raise and lower boom.

Use switch (F) to level right-hand boom and with boom fold mode switch on cab floor to unfold right-hand boom; switch (C) to level left-hand boom and with boom fold mode switch on cab floor to unfold left-hand boom.

Press switch (D) to turn spray system ON and OFF.

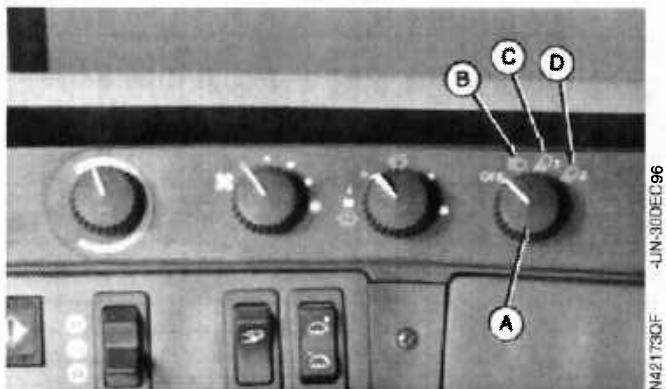
Press switch (E) to operate foam marker (if equipped).

- A—Hydro Lever
- B—Boom Raise/Lower Switch (Roll Bias Option Switch)
- C—Left-Hand Boom Fold/Level Switch
- D—Spray System Master ON/OFF Switch
- E—Foam Marker Switch
- F—Right-Hand Boom Fold/Level Switch



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NX,OM4700,AL1 -19-20NOV97

## OPERATING LIGHTS



A—Light Switch

B—Road Position

C—Field Position 1

D—Field Position 2

**CAUTION:** Accidental collision with another vehicle can cause serious injury or death to you or others. Always comply with traffic regulations when driving machine on a road. Dim headlights to low-beam for oncoming vehicles. Avoid using flood lights which could blind or confuse other drivers.

The light switch (A) has four positions—OFF, Road (B), Field 1 (C) and Field 2 (D) and operates regardless of the key position.

### •OFF POSITION•

Turns off all exterior lighting with exception of warning lights if hazard light switch is on.

*NOTE: See Light Operation Table in this section.*

NXH8,M64020,D89-19-21APR98

## OPERATING HAZARD LIGHTS

Push top of switch (A) to activate warning lights.

Turn signals operate as hazard lights regardless of key position.

*NOTE: Always turn hazard lights off when spraying.*



NXH8,M68420,D90-19-15JUL98

-UN-23DEC96

N42173NC

**LIGHT OPERATION TABLE**

ROAD LIGHT SWITCH	DIMMER SWITCH	LOW BEAMS	HIGH BEAMS	FRONT ROOF FLOODS	REAR ROOF FLOODS (OPTIONAL)	BOOM FLOODS (OPTIONAL)	MIDBODY FLOODS	OUTER FLOODS (OPTIONAL)	FRONT WRAPS
OFF	LOW	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
	HIGH	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
ROAD	LOW	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
	HIGH	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
FIELD 1	LOW	ON	OFF	ON	ON	OFF	OFF	ON	ON
	HIGH	ON	ON	ON	ON	OFF	OFF	ON	ON
FIELD 2	LOW	ON	OFF	ON	ON	ON	ON	ON	ON
	HIGH	ON	ON	ON	ON	ON	ON	ON	ON

ROAD LIGHT SWITCH	HAZARD SWITCH	TURN SIGNAL SWITCH	REAR TAIL (RED)	REAR TURN (RED)	BOOM CLEAR (AMBER)	ROOF (YELLOW)
OFF	OFF	OFF	OFF	OFF	OFF	OFF
		ON	OFF	ON T	ON T	ON T
	ON	OFF	OFF	OFF	ON W	ON W
		ON	OFF	ON T	ON T	ON T
ROAD	OFF	OFF	ON	OFF	ON W	ON W
		ON	ON	ON T	ON T	ON T
	ON	OFF	ON	OFF	ON W	ON W
		ON	ON	ON T	ON T	ON T
FIELD 1	OFF	OFF	OFF	OFF	OFF	OFF
		ON	OFF	ON T	ON T	ON T
	ON	OFF	OFF	OFF	ON W	ON W
		ON	OFF	ON T	ON T	ON T
FIELD 2	OFF	OFF	OFF	OFF	OFF	OFF
		ON	OFF	ON T	ON T	ON T
	ON	OFF	OFF	OFF	ON W	ON W
		ON	OFF	ON T	ON T	ON T

ONT—Indicates that light is on when turn signal switch is on.

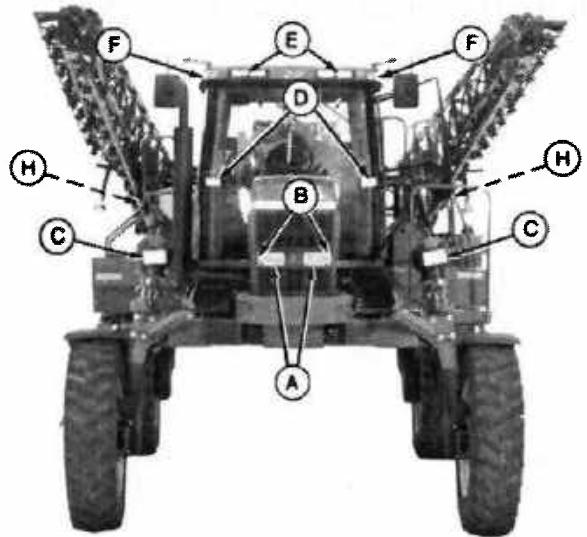
ONW—Indicates that light is on when hazard switch is on or when light switch is in road position.

*NOTE: See the following page for light locations.*

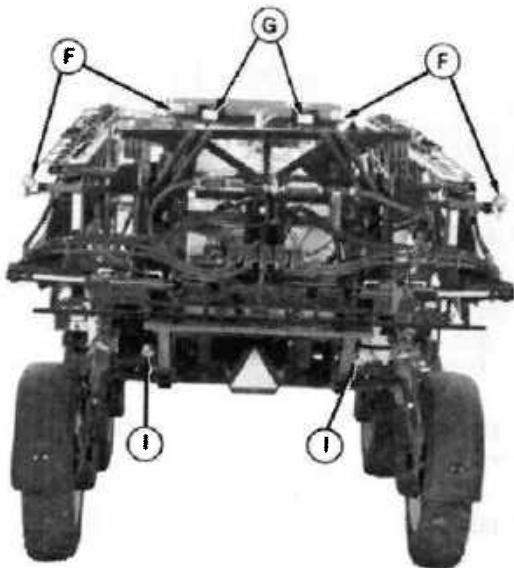
NX,4700,BAA3 -19-07AUG97

## LIGHT LOCATIONS

- A—High/Low Beam Headlights
- B—Front Wrap Lights
- C—Outer Floods (Optional)
- D—Mid-Body Flood Lights
- E—Front Roof Flood Lights
- F—Amber Warning Lights
- G—Rear Roof Floods (Optional)
- H—Boom Flood Lights (Optional)
- I—Red Lights



N42190FT -UN-14JUL98



N42190HI -UN-16JUL98

NXH8,M68420,D92-19-15JUL98

## **OPERATING TURN SIGNALS, HORN AND HIGH/LOW BEAM**

### **Turn Signals:**

Push lever (A) up for a right turn, or pull down for a left turn. Return lever to center position after completing turn.

### **Horn:**

Push inward on end of lever to activate horn.

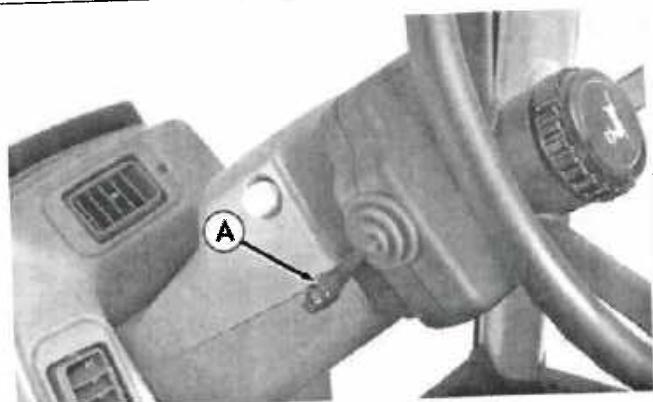
### **High/low Beam:**

Push lever forward to activate high beam head lights.

Pull lever into center position to operate low beam.

Pull lever toward you and release to flash high beam.

Dim headlights for oncoming vehicles. Adjust headlights correctly. (See Aiming Headlights in this section.)



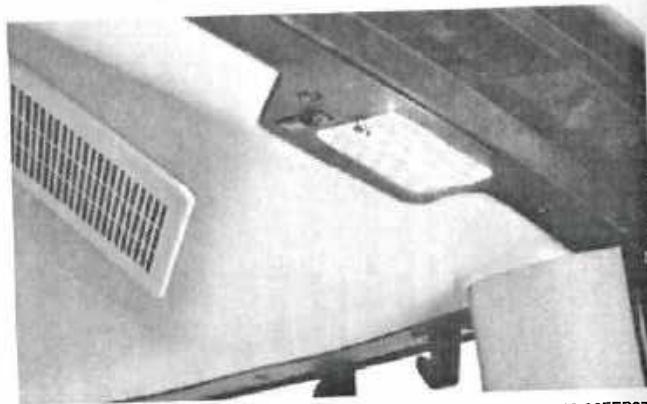
JN-14JUL94  
RW55225

NX,4700,BC -19-07AUG97

## **USING DOME LIGHT**

Dome light switch has three positions:

- OFF position
- ON position—Dome light will only be on when cab door is open.
- ON position—Dome light will be on all the time.



JN-14JUL94  
RW55430

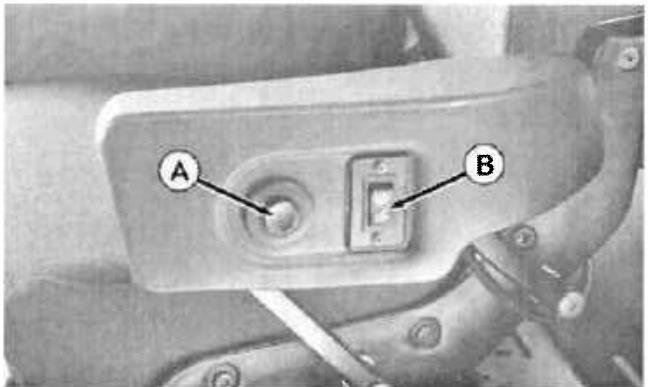
NX,4700,BD -19-06FEB97

## ADJUSTING AIR SUSPENSION SEAT

### Weight and Height Adjustment

Press switch (B) to raise or lower the seat. Each operator of different weight and height should:

- Lower seat (release pressure from air suspension).
- Raise the seat to adjust for individual weight and height.

RW55228  
-UN-14JUL94

### Fore-Aft Seat Position

Pull up on handle (C) to allow the seat to slide forward or backward.

### Lateral Attenuator Lock

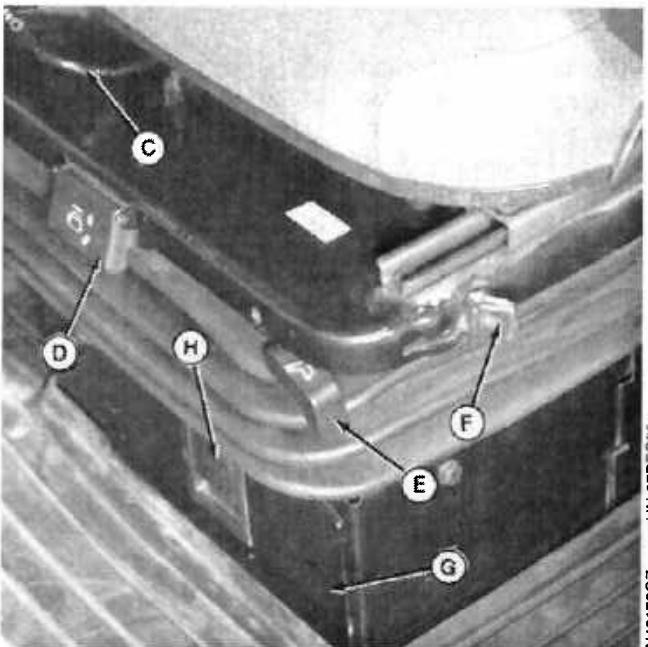
Pulling up on handle (D) allows the seat sideways movement. Push handle down to lock lateral movement.

### Fore-Aft Attenuator Lock

Lever (E) controls forward and backward movement. Push down on lever to lock seat in forward or rearward position.

### Damping

Lever (F) can be set to three positions for desired comfort. Move lever rearward (+) to firm the ride, and forward (-) to soften the ride.

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-UN-27DEC96

- A—Left-hand Armrest Height Adjustment
- B—Height Adjustment
- C—Fore-Aft Adjustment
- D—Lateral Attenuator Lock
- E—Fore-Aft Attenuator Lock
- F—Damping Lever
- G—Storage Drawer
- H—Storage Drawer Handle

NXH8,M64020,D95-19-07JUL98

## ADJUSTING STEERING WHEEL

### Telescope

Rotate knob (A) counter-clockwise to extend or retract the steering wheel. Rotate knob clockwise to lock.

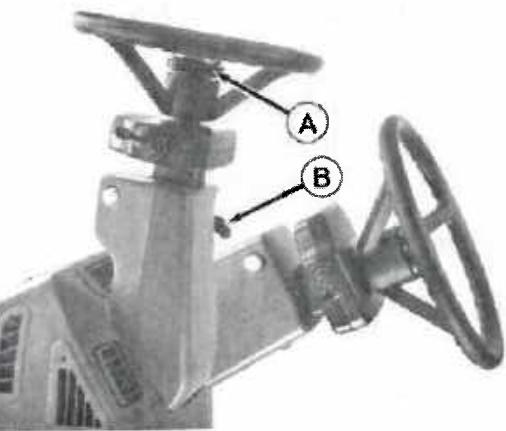
### Tilt

Pull up on lever (B) and move the steering column to the desired position. Release lever to lock.

### Memory

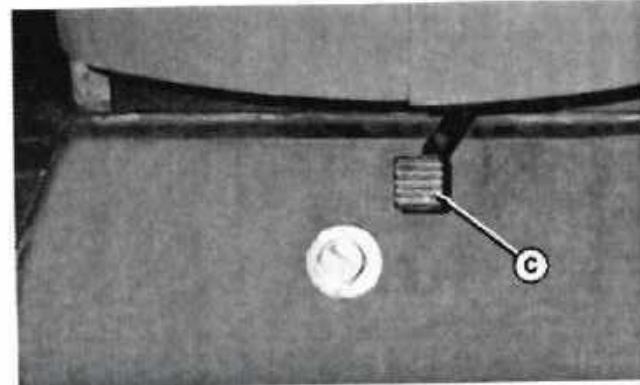
Push down on foot pedal (C) on floor of cab to permit steering column to move up, out of operator's way for easy entry or exit.

Push down on foot pedal and pull down on steering wheel to return steering column back to previous setting.



JN-14JUL94

RW5522



JN-5MAY95

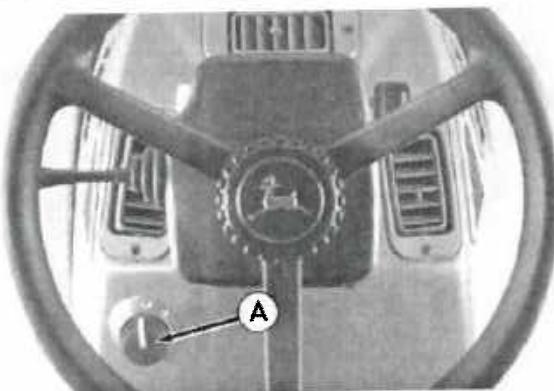
N42159DU

NX,4700,BF -19-06FEB97

## CONTROLLING AIR FLOW

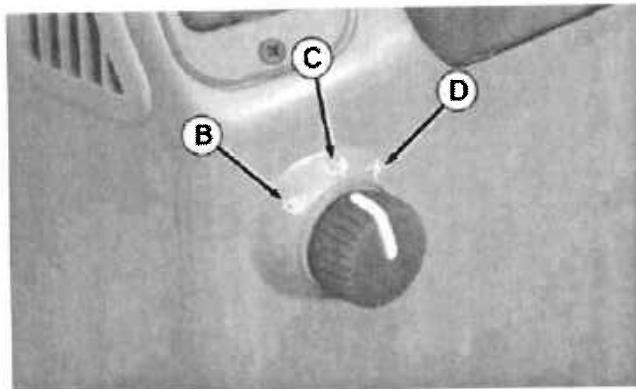
Turn air flow knob (A) to direct air flow between windshield and dash or a combination of both.

- A—Air Flow Knob
- B—Windshield
- C—Windshield and Dash
- D—Dash



JN-14JUL94

RW55204



JN-14JUL94

RW55236

NX,4700,25,4 -19-31DEC96

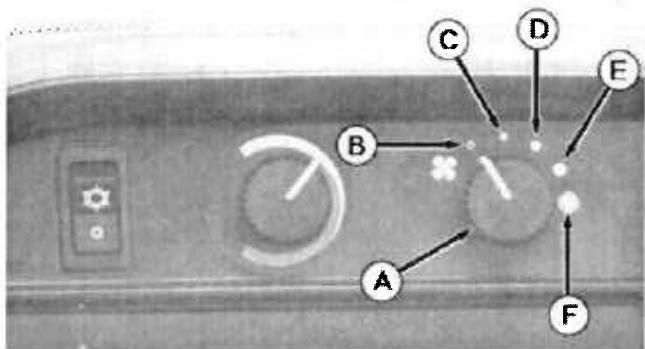
## ADJUSTING BLOWER SPEED

Turn blower knob (A) to desired blower speed.

*NOTE: The purge position (F) is designed to exhaust hot air rapidly from the cab.*

The blower operates whenever the blower switch is in the ON position.

- A—Blower Knob
- B—Off
- C—Low
- D—Medium
- E—High
- F—Purge



FW5237

-UN-28JUN94

N42173ND

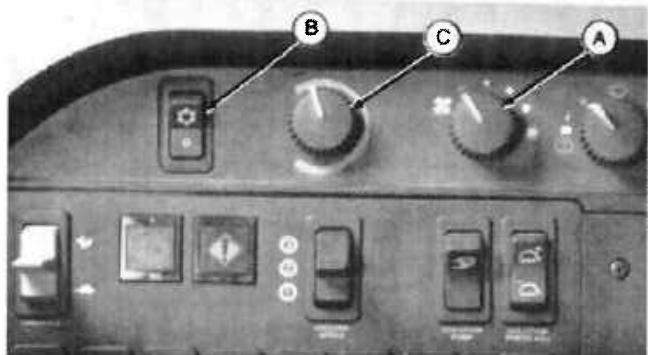
NX,4700,25,5 -19-28JUL97

## CONTROLLING TEMPERATURE

Blower knob (A) and defroster/air conditioning switch (B) must be in an ON position before the defroster/air conditioning system will operate.

Temperature knob (C) controls the heater and defroster/air conditioner temperature.

Put defroster/air conditioning switch in the ON position by pressing top of switch to defog the windows, and adjust temperature knob to desired temperature.



-UN-23DEC96

N42173ND

NX,4700,TMP -19-31DEC96

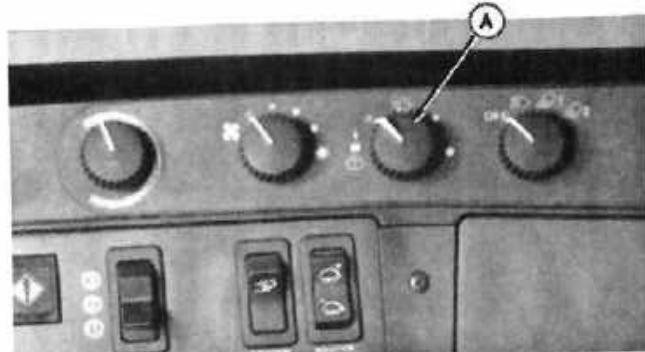
## OPERATING WINDSHIELD WIPER

Rotate knob (A) to activate four wiper positions:

- Off
- Intermittent
- Slow
- Fast

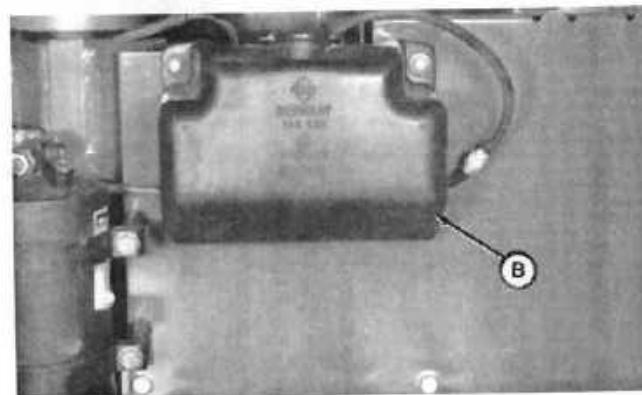
Push knob in to operate windshield washer.

Fill washer reservoir (B) below left front corner of cab with non-freezing solvent to prevent damage to washer system in cold temperatures.



-UN-27/DEC96

N42173NE



-UN-23/DEC96

N42173NF

NX,4700,BG1A -19-06FEB97

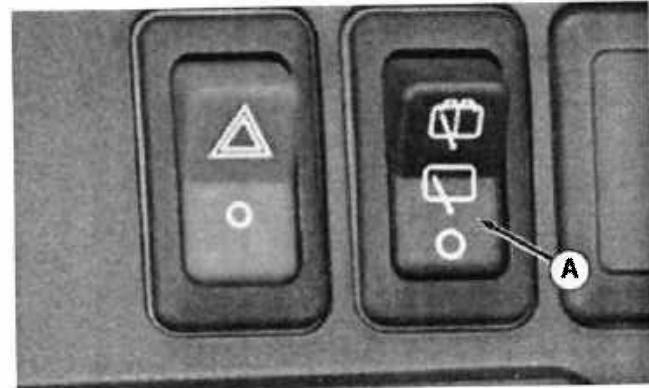
## OPERATING REAR WINDSHIELD WIPER AND WASHER—OPTIONAL

*NOTE: The front and rear wiper use the same washer reservoir. (Rear wiper is a dealer installed option.)*

**IMPORTANT:** Solution hoses can interfere with rear wiper. If rear wiper is installed, route hoses to make sure wiper travel is not restricted.

Switch (A) has three operating positions:

- Top **WASHER** position—hold switch down to activate washer
- Center **ON** position—windshield wiper is activated
- Bottom **OFF** position



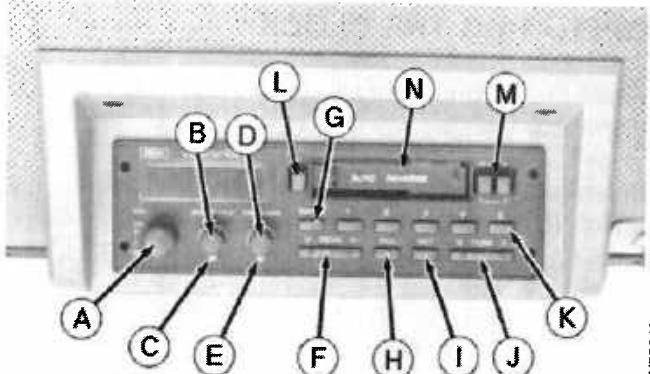
-UN-21/AUG96

FW56055

NX,4700,BH1 -19-06FEB97

## RADIO CONTROLS

- |                         |                     |
|-------------------------|---------------------|
| A—On-Off-Volume Control | I—Set               |
| B—Left-Right Balance    | J—Tune              |
| C—Front-Rear Fade       | K—Frequency Presets |
| D—Treble Control        | L—Cassette Eject    |
| E—Bass Control          | M—Fast Forward      |
| F—Seek                  | Fast Reverse        |
| G—Band                  | N—Cassette Insert   |
| H—Program Recall (RCL)  |                     |



NX,4700,BJ -19-31DEC96

## OPERATING THE RADIO

Press the BAND button (A) to select the desired AM, FM, or Weather Band.

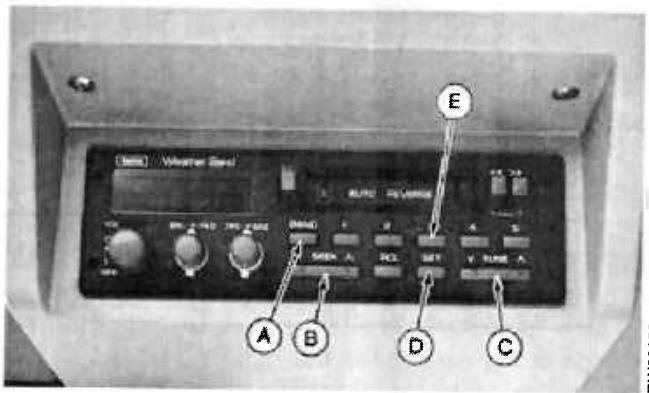
Press the manual TUNE (C) or the SEEK button (B) to locate a desired station.

*NOTE: The SEEK button will automatically search for the next available station. Another station will be found each time the SEEK button is pressed.*

Press the SET button (D). The station frequency will flash for 5 seconds or until the preset button is pushed.

Press one of the five PRESET buttons (E) to establish the preset for that station. The radio will now return to that frequency each time the preset button is pressed and released.

*NOTE: A total of fifteen stations can be preset—five AM, five FM, and five WX (Weather Band).*



- A—BAND Button**  
**B—SEEK Button**  
**C—TUNE Button**  
**D—SET Button**  
**E—PRESET Buttons**

NX,4700,BJ -19-31DEC96

## OPERATING THE CLOCK

Press the Program Recall (RCL) button (A) if time is not displayed.

Press and hold the SET button (B) and TUNE DOWN button (C) at the same time, until the correct HOUR appears.

Press and hold the SET button and TUNE UP button (D) at the same time, until the correct MINUTE appears.

- A—RCL Button
- B—SET Button
- C—TUNE DOWN Button
- D—TUNE UP Button



NW22052 -UN-21AUG92

NX,4700,BK -19-28JUL97

## OPERATING THE CASSETTE TAPE PLAYER

Insert a cassette tape into the door (A) with the raised portion of the cassette to the right.

*NOTE: The arrow displays the tape direction.*

Press BOTH direction buttons (B) simultaneously to change the tape direction.

Fast forward the tape by pressing the arrow button displayed. Lightly press the other arrow button to cancel and return to playing the tape.

Fast reverse the tape by pressing the opposite arrow button displayed. Lightly press the other arrow button to cancel and return to playing the tape.

Press the EJT button (C) to eject the cassette tape. The radio becomes operative when the tape is ejected.

*NOTE: Clean the cassette player tape head every 20—30 hours.*

*During cold weather operation, allow cab temperature to warm before playing cassette tapes. Remove tapes before leaving the machine.*



NW22054 -UN-21AUG92

NX,4700,BL -19-31DEC96

## **PREVENT MACHINE RUNAWAY**

**⚠ CAUTION:** Runaway machine can cause serious injury or death to you or others.

**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 hydro lever in neutral.**



-UN-11JAN89

TS177

NX,4700,DA -19-18SEP96

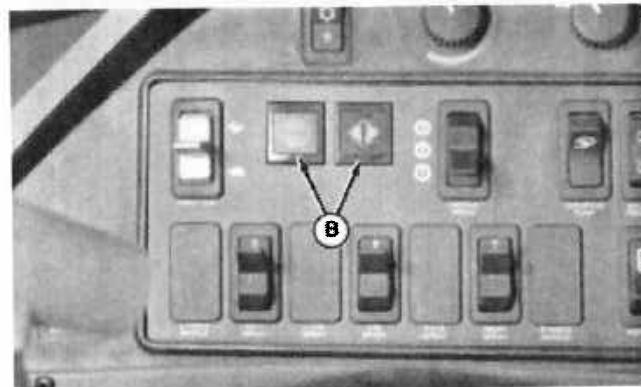
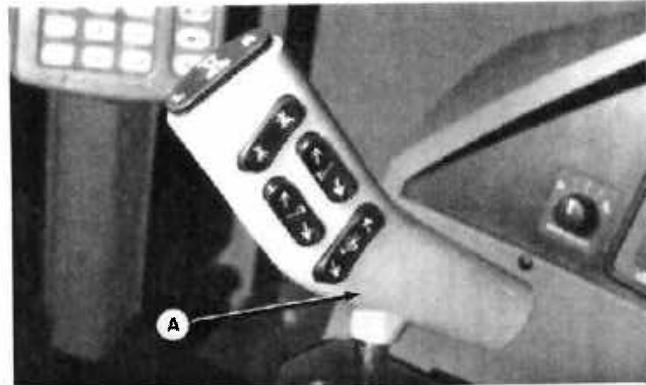
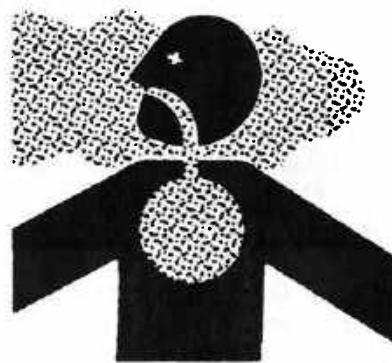
## STARTING THE ENGINE

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

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

*NOTE: Controls and switches must be in the position described, before starting the engine.*

1. Turn off switches, including radio and dome light.
2. Place hydro lever (A) in "PARK".
3. Turn ignition key to "ON" position. Indicator lights (B) should come on when key is in "ON" position and engine is not running.



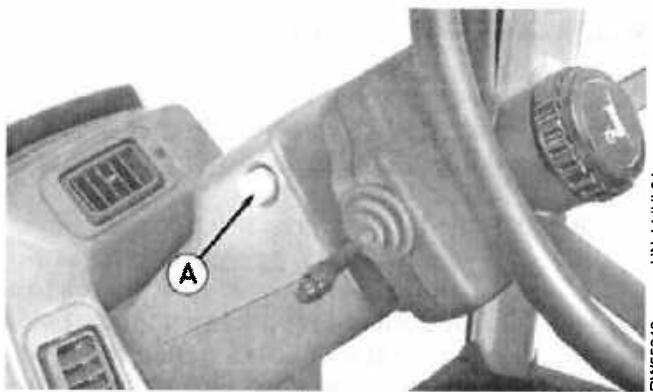
**IMPORTANT: Do not operate starter more than 30 seconds at a time or starter may be damaged. If engine does not start, wait at least 2 minutes before trying again. If engine does not start in four attempts, refer to Troubleshooting section.**

To assure adequate lubrication after engine starts, idle engine at approximately 1000 rpm with no load for 1 to 2 minutes. Extend this period when operating at temperatures below freezing.

4. If equipped with cold weather starting aid (Thermostart), depress button (A) and hold for 30 seconds.
5. Turn ignition key clockwise to engage starter. Release key when engine starts. If key is released before engine starts, wait until starter and engine stop turning before trying again.
6. Press "RUN" button, then "PAGE" button on monitor to view engine functions display on monitor screen.
7. When the engine has started, indicator lights should go off when start key is released.

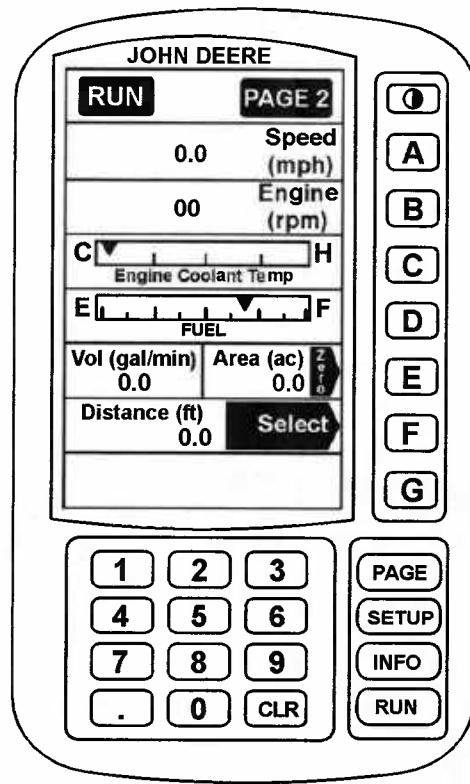
**IMPORTANT: Protect turbocharger during start-up by not accelerating above 1000 rpm until normal engine idle speed is established (800 rpm).**

*NOTE: Should engine stall while operating under load, restart it immediately to prevent overheating.*



-UN-14JUL94

FV55249



-19-13JAN97

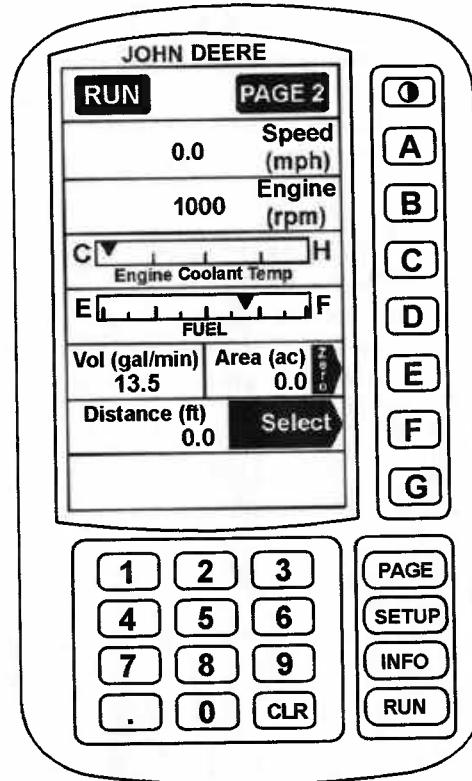
N42173TR

NXH8,64020,D108-19-15APR98

## WARMING THE ENGINE

Do not place engine under full load until it is properly warmed. Press "RUN" button, then "PAGE" button on monitor to view temperature reading on monitor screen.

**IMPORTANT: To provide proper lubrication after engine starts, operate engine at approximately 1000 rpm, no load for 1 to 2 minutes. At temperatures below freezing point, this period must be extended to 2 to 4 minutes.**



NXL,4700,DF1A -19-28JUL97

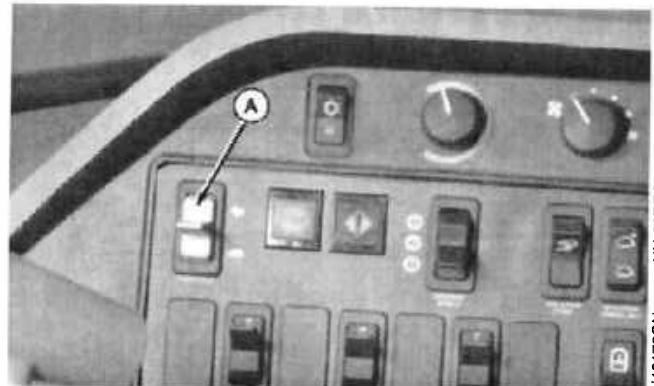
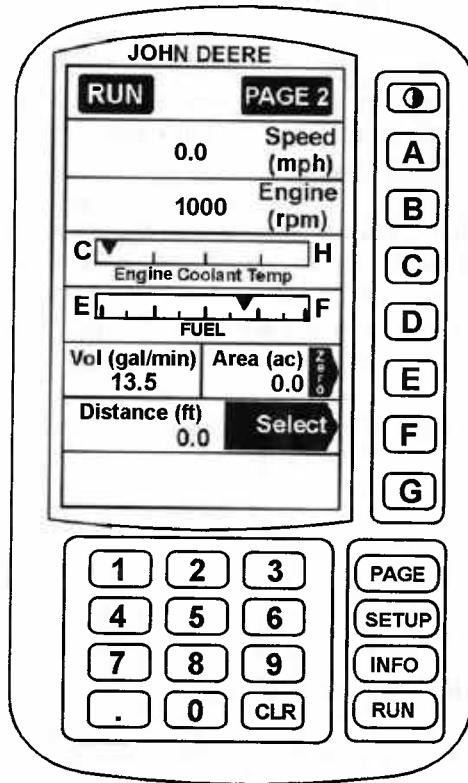
N42178TS

## IDLING ENGINE

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

If machine must be left with the engine running for more than 3 or 4 minutes, minimum engine speed should be 1000 rpm.

Press "RUN" button, then "PAGE" button on monitor to view RPM display on monitor screen. Lift up on throttle switch (A) until desired RPM is displayed.



NXL,4700,DG1A -19-28JUL97

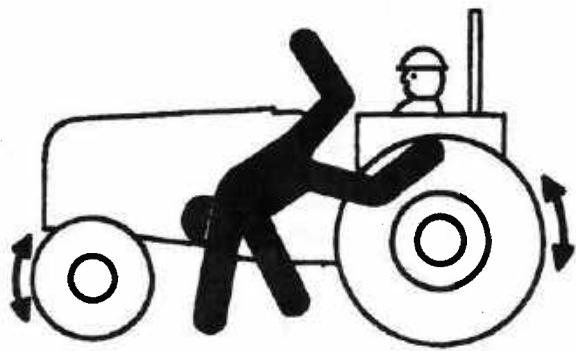
N42173TS -19-15JAN97

N42173QN -UN-30DEC96

## KEEP RIDERS OFF MACHINE

**CAUTION:** Serious injury or death to you or others can occur if riders are allowed on 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.



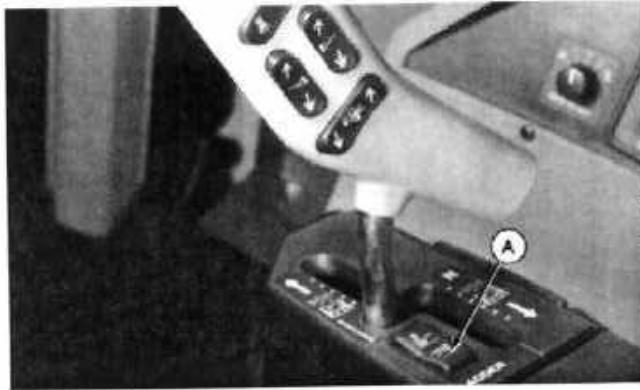
-UN-23AU088

TS290

NX,4700,EA -19-02JUN95

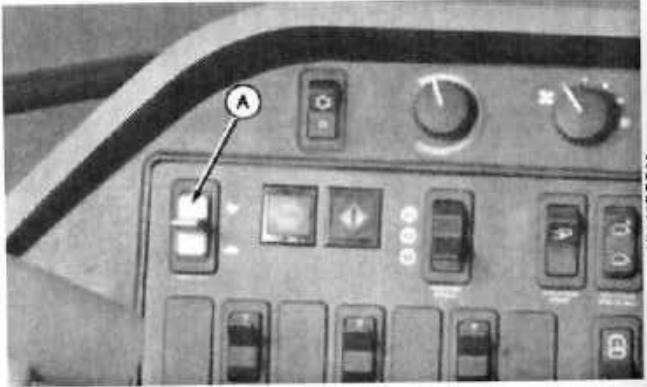
## DRIVING THE MACHINE

1. Press ladder switch (A) to raise ladder.



NX,4700,EC1A1 -19-16JAN97

2. Push and hold throttle switch (A) upward to achieve maximum engine speed.

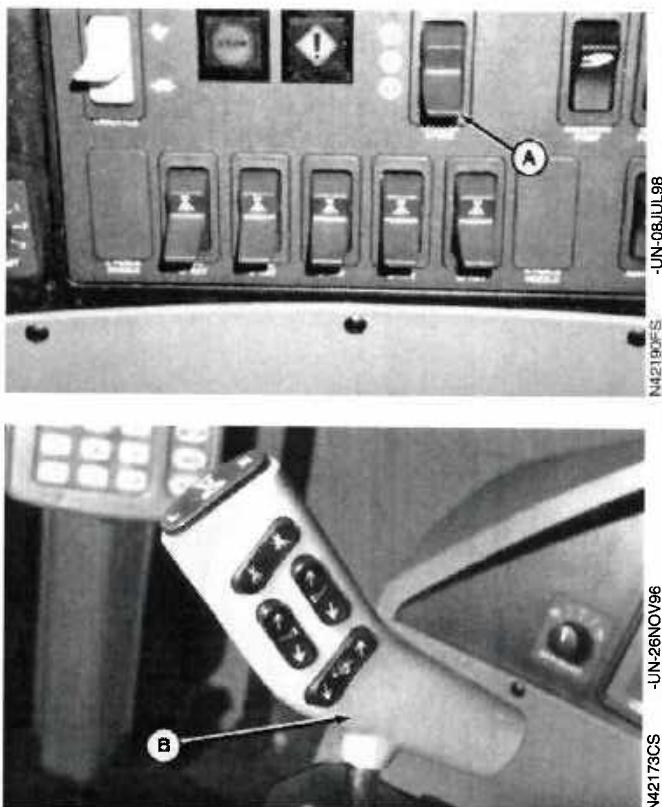


NX,4700,EC2 -19-06FEB97

**IMPORTANT:** Machine damage can occur if speed range switch is moved from a higher speed range to a lower speed range with engine exceeding 3000 rpms. Speed range can be changed when machine is moving or stopped.

Drive train damage can occur if hydro lever is advanced more than halfway when wheels are spinning (loss of traction).

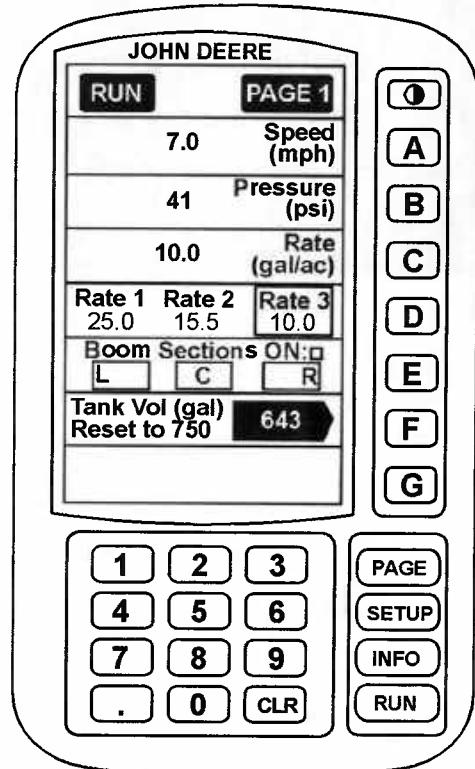
3. Place speed range switch (A) in first speed range.
4. Push hydro lever (B) slowly forward to start forward motion. Continue pushing lever forward to increase ground speed. Change speed range switch to higher speed range when engine reaches maximum RPM.
5. When operating in the field, pull back on hydro lever when engine RPM's start to drop to get maximum performance out of engine. Try to maintain at least 2400 RPM's (rated engine speed) at all times.



NXH8,M68420D114-19-10JUL98

6. Press "RUN" key on monitor to view travel speed (mph) on monitor screen.

*NOTE: Shift to a higher speed range only when maximum RPM are reached in current speed range. Always shift down to a lower speed range when maximum RPM are not maintained in current speed range.*

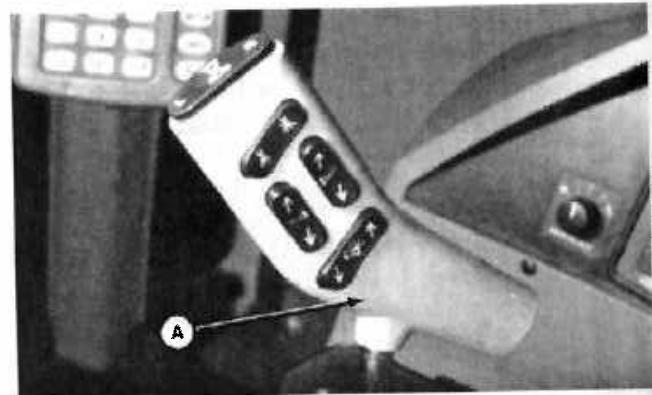
-19-13JAN97  
N42173TX-UN-08JUL98  
N42190FS-UN-28NOV96  
N42173CS

171299

PN=103

*Chassis*

7. Use hydro lever (A) to reverse direction of travel or to back machine up.
8. Always shift to first speed range to achieve maximum tractive effort in reverse.



NXH8,M68420D116-19-07JUL98

LIN-2840V96

N42173CR

## BRAKING THE MACHINE

**⚠ CAUTION:** To avoid possible serious injury or death to you or others, always use seat belt properly.

1. To slow down or brake machine, pull back on hydro lever (A) for primary braking.

*NOTE: Braking will occur from hydro system.*

2. If braking is not fast enough, move hydro lever into "PARK" position (B) for secondary braking. Prepare for a rapid decrease in speed.

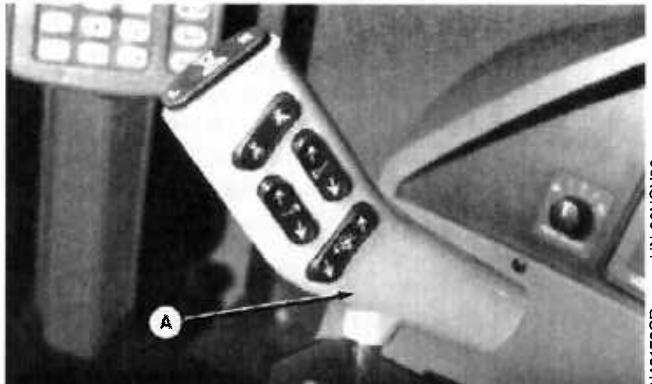
*NOTE: Dynamic braking will now occur from front caliper brakes.*

**⚠ CAUTION:** Pressing emergency brake switch will cause machine to suddenly stop and can cause serious injury or death. Wear seat belt. Be prepared for rapid decrease in speed. Only use emergency brake switch in an emergency braking situation.

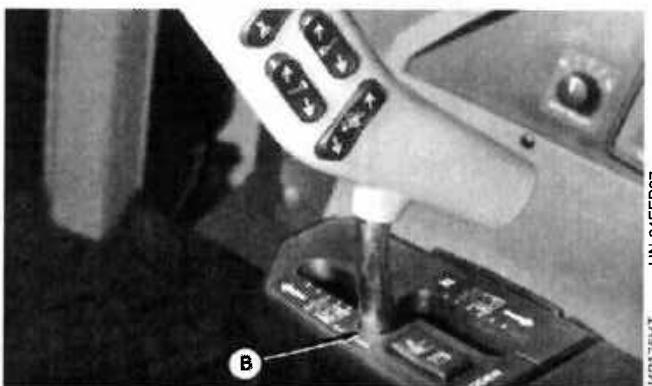
**IMPORTANT:** If emergency brake is pressed while machine is moving, rear brakes will need to be inspected. Contact your John Deere dealer.

3. If primary and/or secondary braking fails or emergency braking situation occurs, put the hydro lever in PARK position and depress emergency braking switch (C). Prepare for a very rapid decrease in speed.

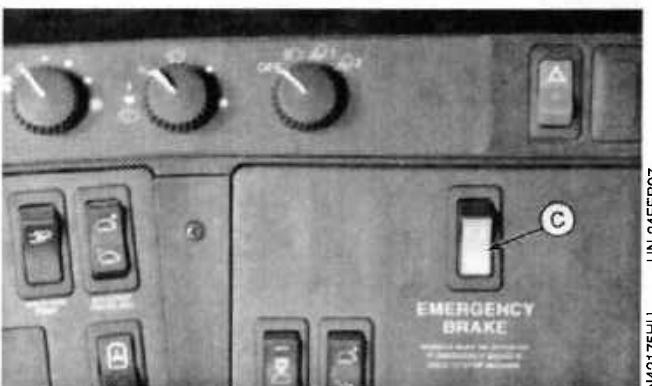
*NOTE: Dynamic braking will now occur from rear brakes also.*



-UN-26NOV96  
N42173CR



-UN-24FEB97  
N42175HT



-UN-24FEB97  
N42175HU

NXH8,64020,D117-19-15APR98

## OPERATING EMERGENCY BRAKE SWITCH

**CAUTION:** Pressing emergency brake switch will cause machine to suddenly stop and can cause serious injury or death. Wear seat belt. Be prepared for rapid decrease in speed. Only use emergency brake switch in emergency braking situation.

**IMPORTANT:** If emergency brake is pressed while machine is moving, rear brakes will need to be inspected. Contact your John Deere dealer.

Use emergency brakes only if primary brakes fail to stop machine within needed distance.

1. Pull back on hydro lever and place into "PARK" position.
2. Push top of emergency brake switch (A) to engage emergency brake.

Park brakes are automatically applied when engine is shut off, so emergency brake switch does not need to be engaged.



NAD1671.Z -JUN-03/FEB97

NXH8,64020,D118-19-26MAY98

## OPERATING TRACTION CONTROL (OPTIONAL)

Traction control can provide more tractive effort to wheels when one or more wheels start to "spin out". Only engage traction control when wheel(s) start to "spin out".

1. Start machine. Operate at 2600 RPM and shift to first speed range.

*NOTE: Traction control can only be operated in first speed range. When traction control is engaged in first speed range, shifting to second or third speed range will automatically disengage traction control.*

2. When wheel or wheels start to spin, engage traction control by pressing top of traction control switch (A). Traction control light (B) will be on when traction control is engaged.

*NOTE: Traction control can be engaged while machine is moving.*

3. When machine has gotten through terrain that has caused wheels to spin, disengage traction control by pressing top of traction control switch. Traction control light will turn off.

**IMPORTANT:** Always disengage traction control when not needed. When traction control is engaged, hydraulic oil will heat up. SprayStar will disengage traction control when hydraulic oil has reached 102°C (215°F) and will not allow it to be engaged until hydraulic oil has cooled.



-IN-20NOV97

N42184LN

NXH8,M68420D119-19-07JUL98

## PARKING THE MACHINE

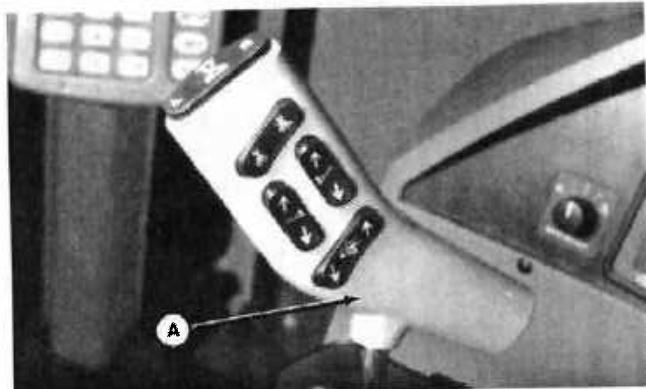
- To slow and stop the machine, slowly return the hydro lever (A) to "PARK".

**NOTE:** The parking brake will automatically be applied when SprayStar system reads "0" mph for 5 seconds and hydro lever is in "PARK" position or when engine is turned "OFF". Emergency brake switch DOES NOT need to be applied.

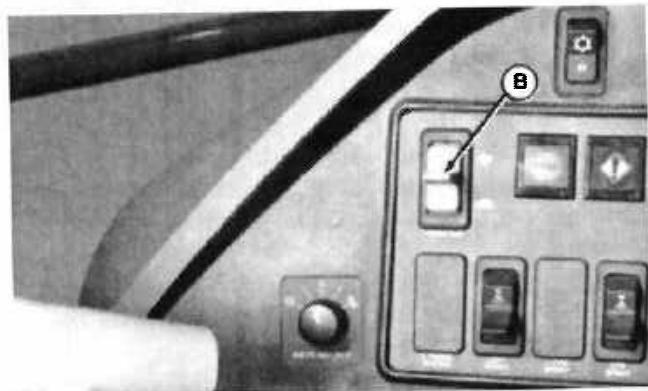
- Press downward and hold on throttle switch (B) to reduce engine speed to slow idle.
- Turn all lights and accessories "OFF".

**IMPORTANT:** Before stopping engine that has been operating at working load, idle engine for at least 2 minutes to cool hot engine parts to prevent engine damage.

- Turn key to "OFF" position. Remove key.
- Lower ladder.



N42173CR  
-JUN-26NOV96



N42173FA  
-JUN-26NOV96

NXK7,4700,EG1 -19-26NOV97

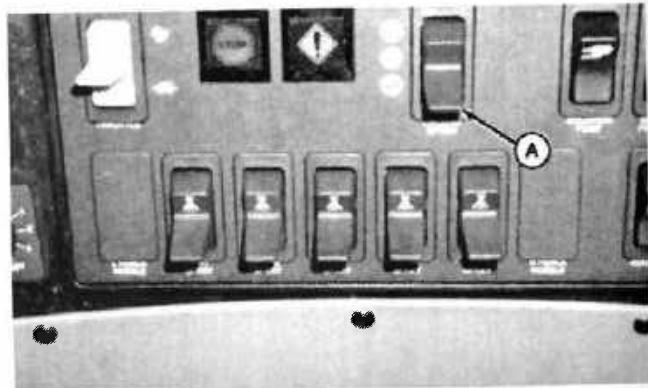
## ADJUSTING WHEEL TREAD—INDIVIDUALLY

**NOTE:** Wheels can be adjusted to any wheel spacing between 3048 mm (120 in.) and 3861 mm (152 in.).

Speed range switch must be in first speed range for tread adjust to work.

**IMPORTANT:** Machine damage can occur to suspension and wheel assembly if tread width is adjusted when machine is stopped or when machine is moving over 3 km/h (2 mph).

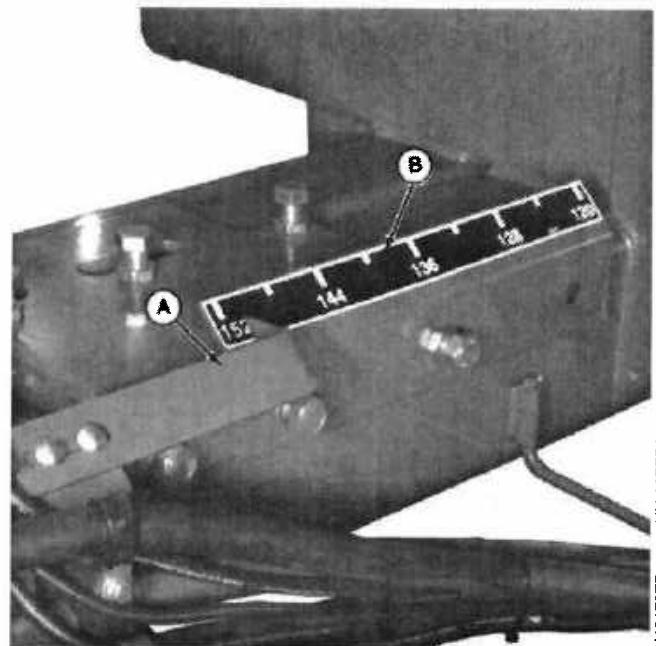
- Start machine, place speed range switch (A) in first speed range and drive forward slowly.



N42190FS  
-JUN-08JUL98

NXH8,M68420,WT1-19-10JUL98

**NOTE:** When adjusting wheel tread spacing, use indicators (A) and decals (B) at front and rear of machine. When indicators are at desired wheel tread setting, stop machine and verify wheel tread setting.



Left Front Shown

-UN-03FEB97

N42173ZP

NX,OM4700,WT1A -19-06FEB97

To adjust left front wheel:

2. Press left-hand side of side select switch (A).
3. Press and hold left-hand (out) or right-hand (in) side of front tread adjust switch (B) until wheel is at desired position.



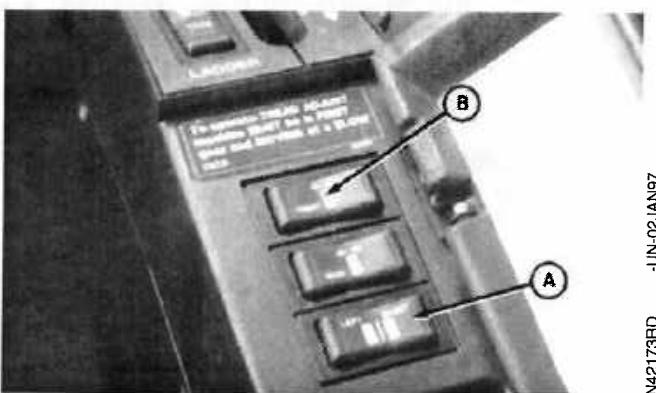
-UN-02JAN97

N42173RC

NX,OM4700,WT2 -19-31DEC96

To adjust right front wheel:

4. Press right-hand side of side select switch (A).
5. Press and hold left-hand (in) or right-hand (out) side of front tread adjust switch (B) until wheel is at desired position.



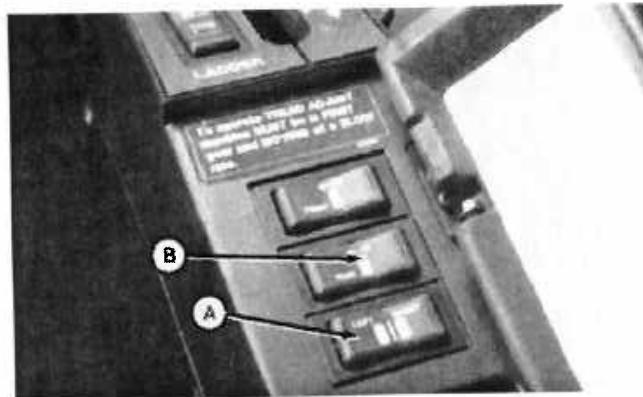
-UN-02JAN97

N42173RD

NX,OM4700,WT3 -19-31DEC96

To adjust left rear wheel:

6. Press left-hand side of side select switch (A).
7. Press and hold left-hand (out) or right-hand (in) side of rear tread adjust switch (B) until wheel is at desired position.



NX,OM4700,WT4 -19-31DEC96

-UN-02JAN97

N42173RE

To adjust right rear wheel:

8. Press right-hand side of side select switch (A).
9. Press and hold left-hand (in) or right-hand (out) side of rear tread adjust switch (B) until wheel is at desired position.



NX,OM4700,WT5 -19-31DEC96

-UN-02JAN97

N42173RF

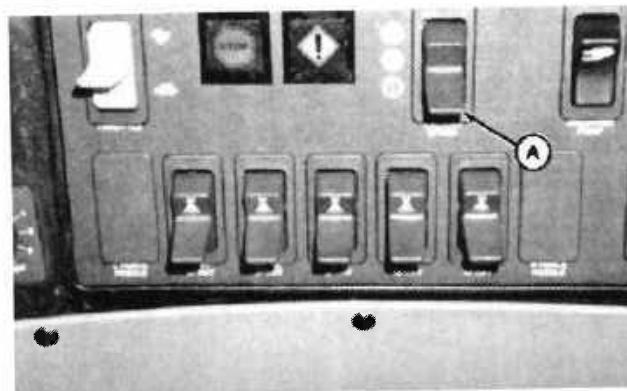
## ADJUSTING WHEEL TREAD—FRONT AND REAR WHEELS SIMULTANEOUSLY

**NOTE:** *Wheels can be adjusted to any wheel spacing between 3048 mm (120 in.) and 3861 mm (152 in.)*

*Speed range switch must be in first speed range for tread adjust to work. When front and rear wheels are moved simultaneously, wheels do not move at same speed.*

**IMPORTANT:** *Machine damage can occur to suspension and wheel assembly if tread width is adjusted when machine is stopped or when machine is moving over 3 km/h (2 mph).*

1. Start machine, place speed range switch (A) in first speed range and drive forward slowly.

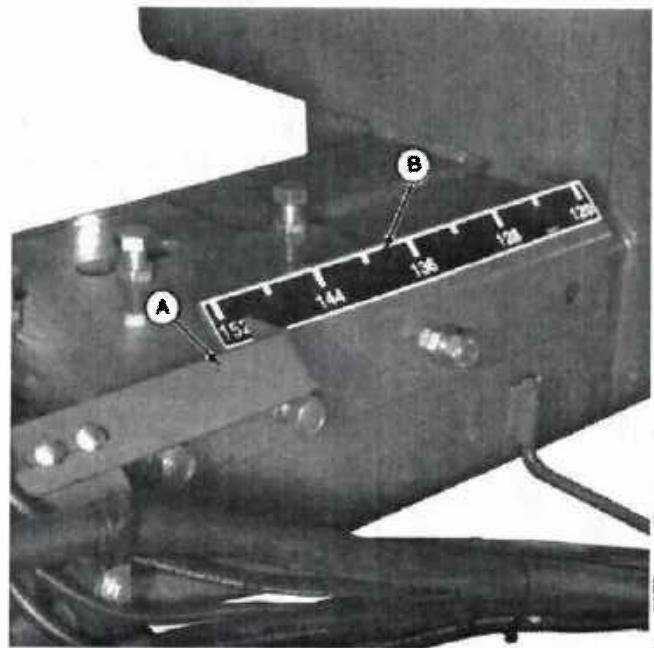


-UN-06JUL98

N42186FS

NXH8,M68420,WT6-19-10JUL98

**NOTE:** When adjusting wheel tread spacing, use indicators (A) and decals (B) at front and rear of machine. When indicators are at desired wheel tread setting, stop machine and verify wheel tread setting.



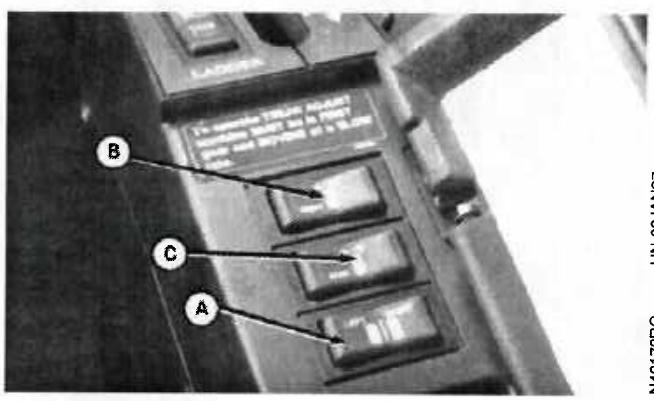
Left Front Shown

N42173ZP -UN-03FEB97

NX,OM4700,WT1A -19-06FEB97

To adjust left front and rear wheels:

2. Press left-hand side of side select switch (A).
3. Press and hold left-hand (out) or right-hand (in) side of front tread adjust switch (B) and rear tread adjust switch (C) until wheels are at desired position.

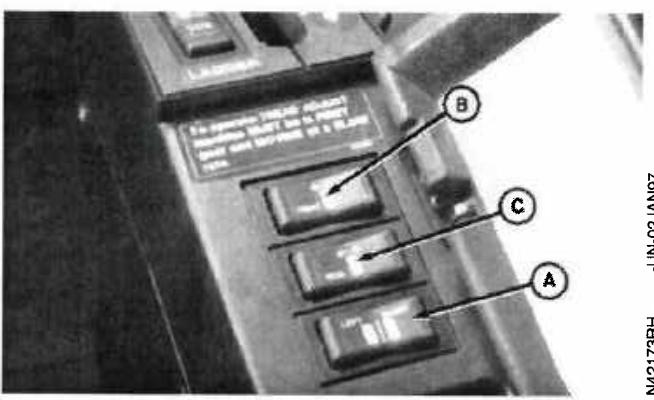


N42173FG -UN-02JAN97

NX,OM4700,WT7 -19-31DEC96

To adjust right front and right rear wheels:

4. Press right-hand side of side select switch (A).
5. Press and hold left-hand (in) or right-hand side (out) of front tread adjust switch (B) and rear tread adjust switch (C) until wheels are at desired position.



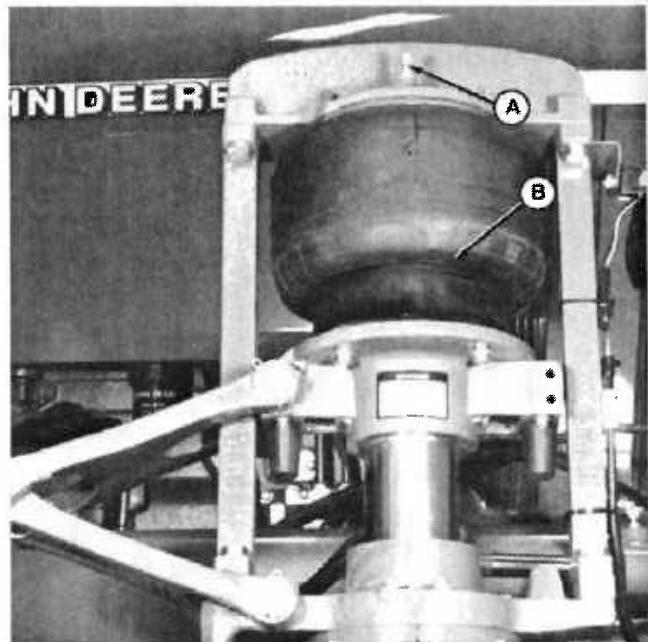
N42173RH -UN-02JAN97

NX,OM4700,WT8 -19-31DEC96

## ADJUSTING FRONT AND REAR SUSPENSION ASSEMBLIES

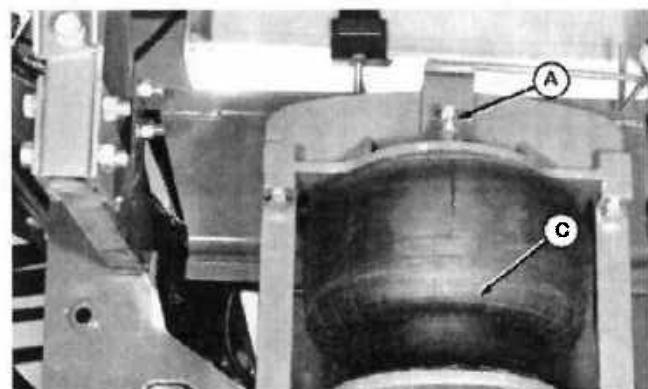
**CAUTION:** Air spring can explode causing serious injury or death to you or others. When adjusting suspension assemblies, do not exceed 689 kPa (6.89 bar) (100 psi). Keep hands and body away from suspension linkage.

1. Connect air hose to air valves (A) to inflate front air spring (B) to 282 kPa (2.8 bar) (41 psi) and rear air spring (C) to 379 kPa (3.8 bar) (55 psi).



N42190FG

-UN-08JUL98



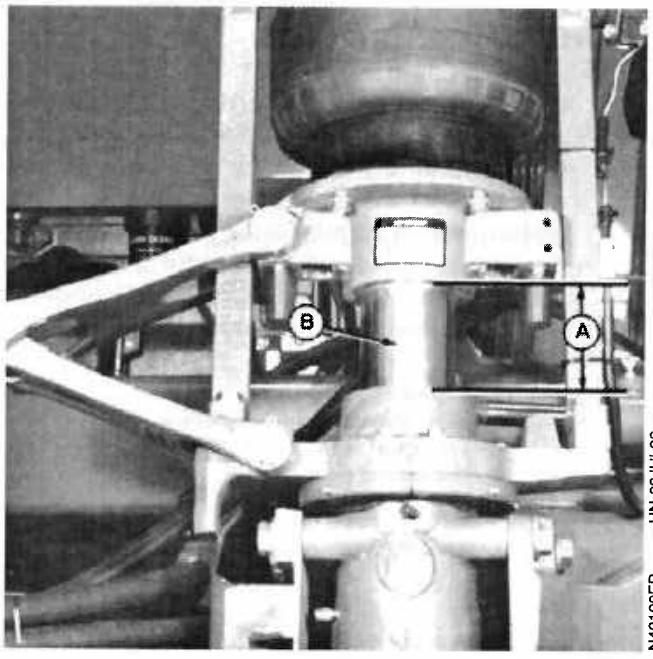
N42190FH

-UN-08JUL98

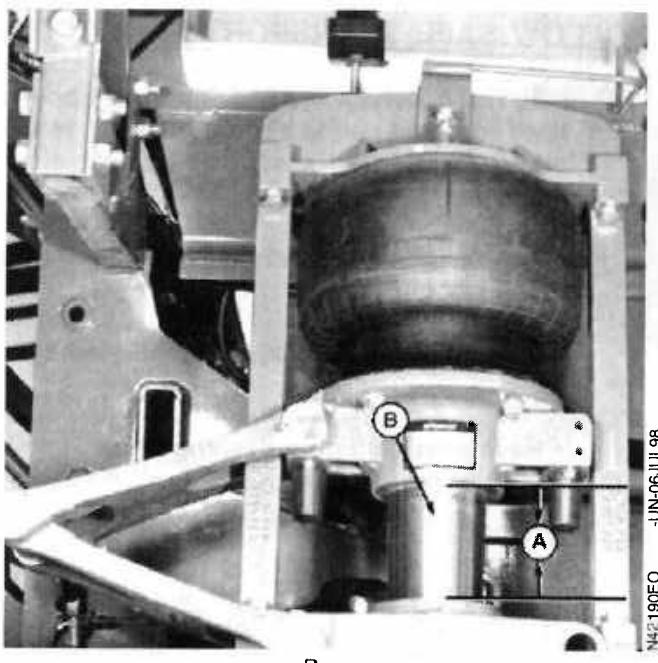
NXHB,64020 D131-19-07JUL98

2. Fill solution tank half full. (Refer to Section 25 to fill solution tank.)
3. Adjust air pressure in air springs until 102 mm (4 in.) (A) of shaft (B) is exposed on all four shafts.
4. Drive machine.
5. Verify 102 mm (4 in.) of shaft is exposed on each shaft.
6. If not, repeat steps 3, 4 and 5 until 102 mm (4 in.) distance is maintained on each shaft.

*NOTE: If 102 mm (4 in.) cannot be achieved, do not inflate air springs beyond 689 kPa (6.89 bar) (100 psi).*



*Front*



*Rear*

-UN-06JUL98

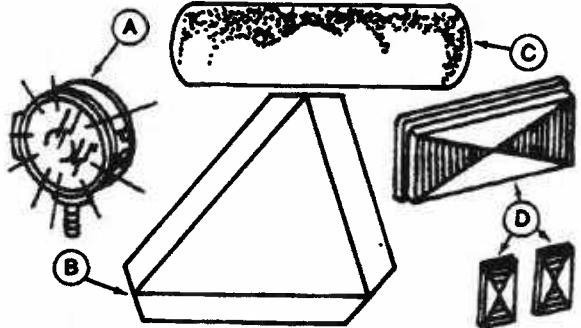
N42190EP

N42190E0 -UN-06JUL98

NXH8,M68420D132-19-15JUL98

## USING WARNING LIGHTS

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



-UN-10FEB89

N36564

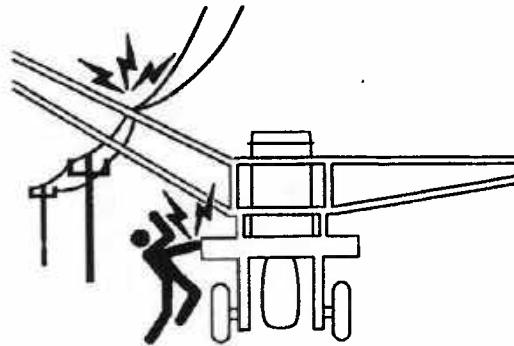
- A—Lights
- B—Slow Moving Vehicle Emblem
- C—Reflector Tape
- D—Reflectors

NX,4700L,A2 -19-31DEC96

## FOLLOW SAFE TRANSPORT PROCEDURES

**CAUTION:** Keep away from overhead power lines to avoid serious injury or death to you or others. Know the transport height of your machine.

- Keep all persons away from machine when folding boom.
- Maximum transport speed is 45 km/h (28 mph).
- Have warning lights flashing when transporting machine.



-UN-27APR92

N44191

NX,4700L,A4A -19-18SEP96

## TOWING THE MACHINE

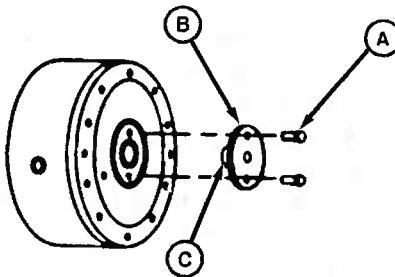
**IMPORTANT:** Towing the 4700 Sprayer is not recommended. The 4700 Sprayer should only be towed if the machine is stuck or cannot move under its own power. It should only be towed a short distance and at very slow speeds of 0 to 5 kph (0 to 3 mph).

Always disengage planetary hubs if towing to prevent machine damage.

**CAUTION:** Avoid serious injury or death to you or others. To prevent machine from rolling, engage and disengage hubs only when machine is attached to towing vehicle.

Remove two cap screws (A) and reverse center plate (B) so projection (C) depresses hub center pin. Replace cap screws and tighten evenly, alternating one turn on each bolt until center plate is tight.

*NOTE: Disconnecting drive motors allows all wheels to turn free. Reverse center plates after towing to engage motors and return drive system to normal operation.*



N42184E  
-UN-09OCT97

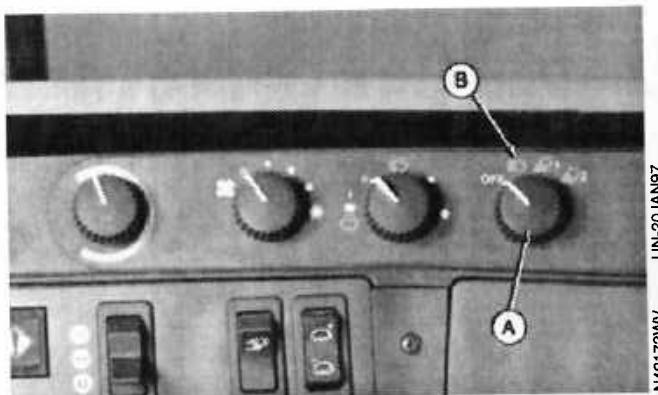
NXH8,64020,D135-19-26MAY98

## TRANSPORTING MACHINE

**CAUTION:** DO NOT exceed maximum transport speed of 45 km/h (28 mph) or you may lose control of machine, causing serious injury or death to you or others.

**IMPORTANT:** Traveling at high speeds while carrying heavy loads will increase tire wear and reduce tire life.

1. Be sure SMV emblem is installed on boom (or rear of machine).
2. Start engine.
3. Turn light switch (A) to transport position (B) (as necessary). Check that amber warning lights are flashing and that all lights are clean and visible.



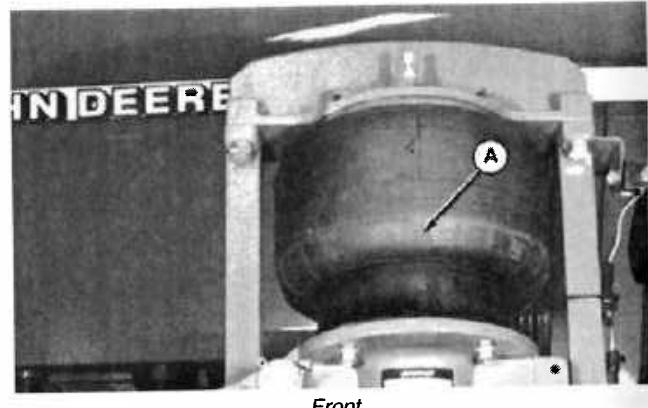
-UN-20JAN97

N42175WV

NXL4700L,A13A1-19-06FEB97

## PREPARING MACHINE WITH 18.3 M (60 FT) BOOM FOR TRANSPORT ON SEMI-TRACTOR TRAILER

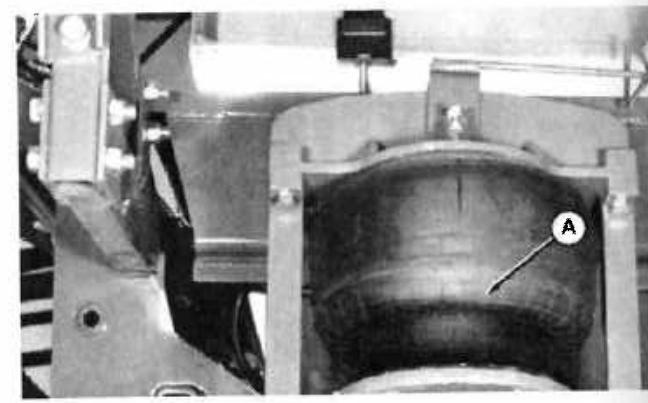
1. Empty solution tank and rinse tank.
2. Deflate suspension air springs (A).
3. Set wheels at 3048 mm (120 in.) tread setting.



-UN-06JUL1997

N42169FD

Front



-UN-06JUL1998

N42169FC

Rear

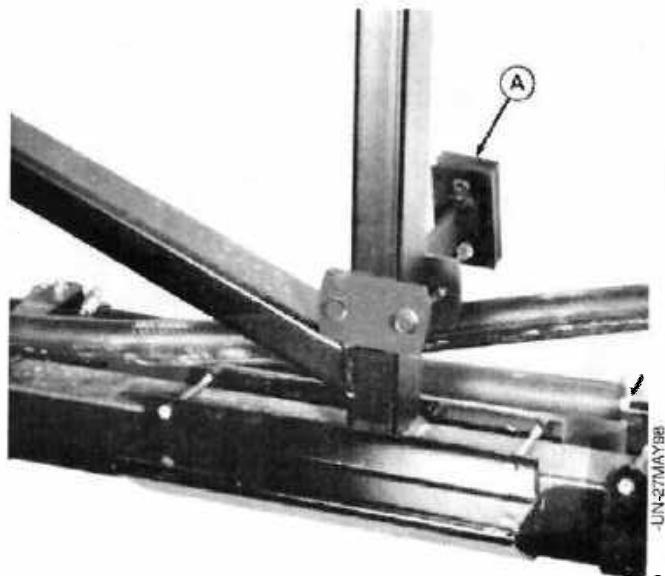
NXH8,M68420D137-19-07JUL98

171299

PN=116

*Chassis*

4. Remove boom stop (A) from each boom.

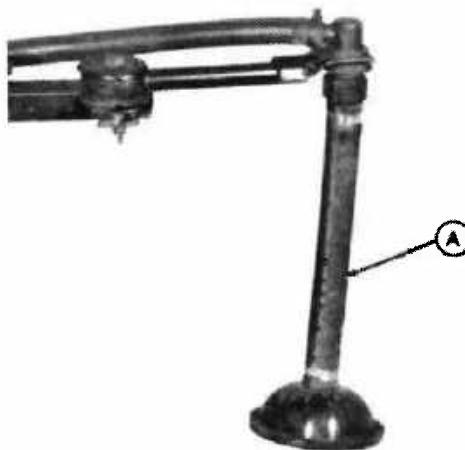


-UN-27/MAY/98

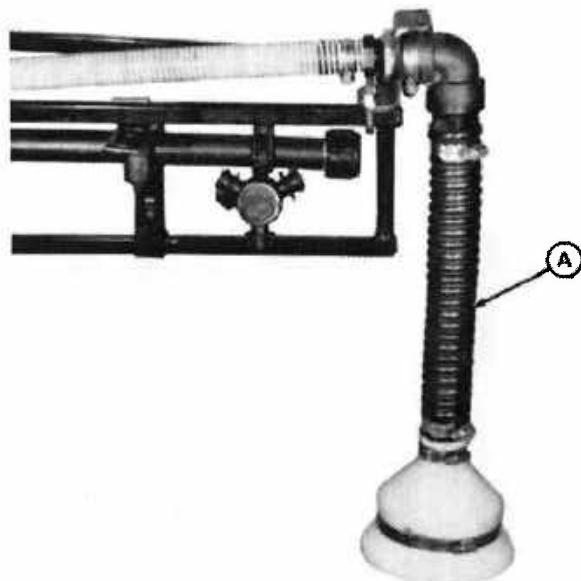
N42190AD

NXH8,OM4700,MT2-19-29APR98

5. Remove foamer boot (A) (if equipped) at end of each boom.



76 L (20 gal)



137 L (35 gal)

N42173SM -UN-07JAN97

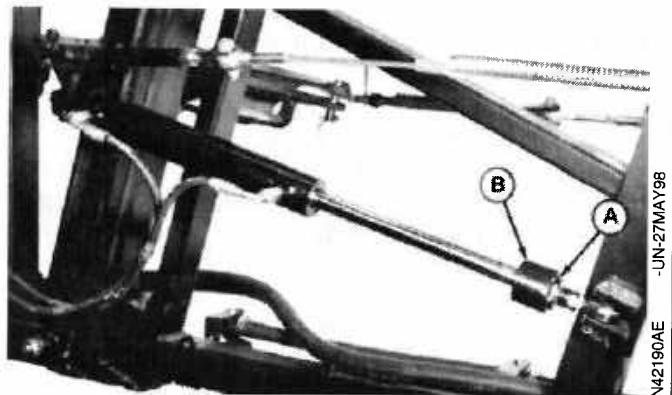
N42190EG -UN-08JUL96

NXH8,M68420D139-19-07JUL98

*Chassis*

6. Loosen jam nut (A) out as far as possible on the fold cylinders located between center section and intermediate sections of boom.

7. Adjust collar (B) out against jam nut on each cylinder.



-UN-27MAY98

N42190AE

NXH8,OM4700,MT4-19-29APR98

8. Tie outer boom assemblies to the intermediate boom sections at points (A) and (B).

9. Tie band booms to handrails.

NXH8,M64020,N -19-26MAY98

10. Raise ladder (A) on right-hand side of machine and tie band in transport position.



-UN-06JUL98

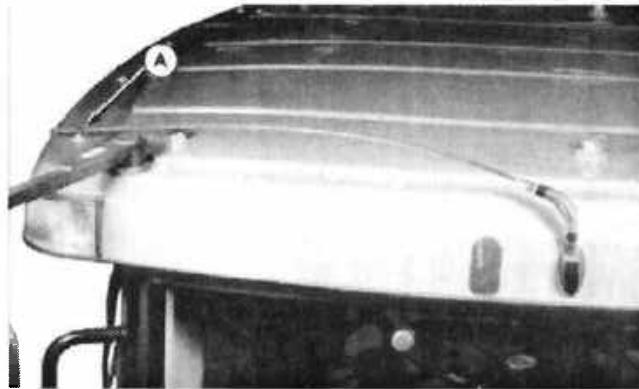
N42190ER

NXH8,M68420D142-19-07JUL98

11. Fold cab mirrors in and place antenna in retainer (A) on cab roof.

12. Drive machine onto trailer or truck.

13. Raise ladder on left-hand side of machine and carefully get down from machine.



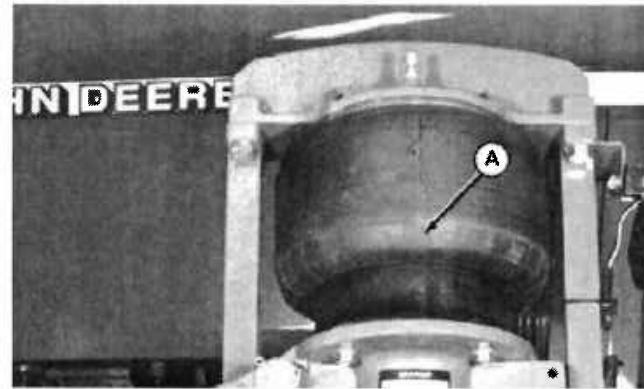
-JUN-07-JAN97

N421735Q

NXH8,M64020,P -19-26MAY98

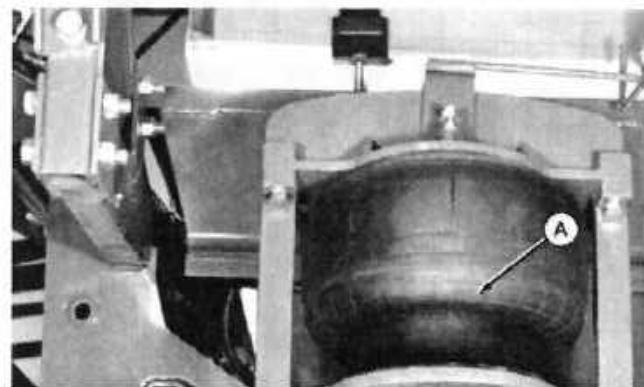
#### **PREPARING MACHINE WITH 24.4 AND 27.4 M (80 AND 90 FT) BOOM FOR TRANSPORT ON SEMI-TRACTOR TRAILER**

1. Empty solution tank and rinse tank.
2. Deflate suspension air springs (A).
3. Set wheels at 3048 mm (120 in.) tread setting.



-JUN-08-JUL98

N42190FD



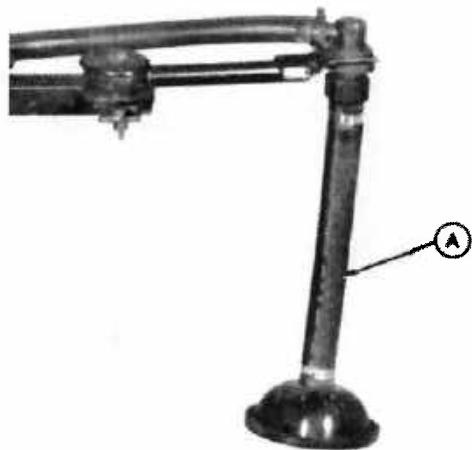
-JUN-06-JUL98

N42190FC

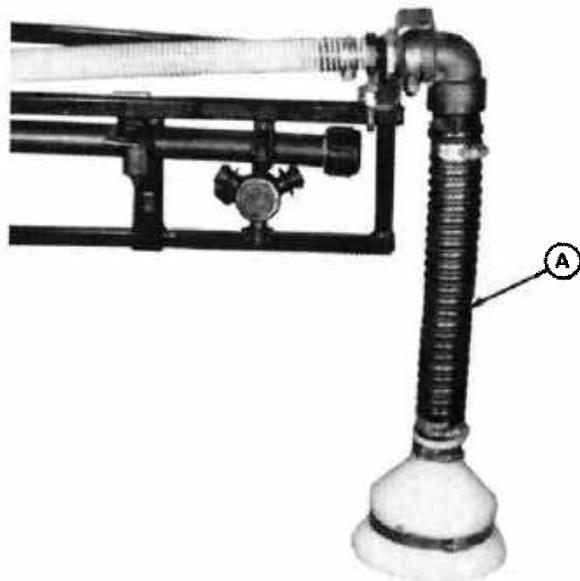
NXH8,M68420D143-19-07JUL98

*Chassis*

4. Remove foamer boot (A) (if equipped) at end of each boom.



76 L (20 gal)

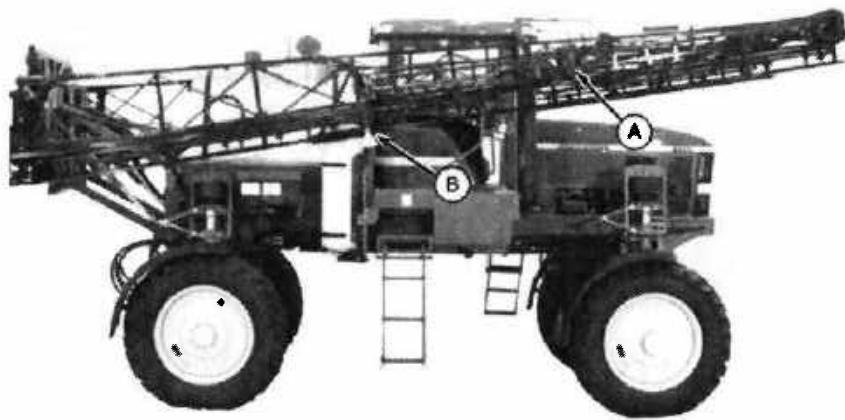


137 L (35 gal)

N42173SM -UN-07JAN97

N42190EEQ -UN-08JUL98

NXH8,M68420D144-19-07JUL98



-UN-14JUL98

N42190FX

5. Tie outer boom assemblies to the intermediate boom sections at point (A) and tie boom to transport cradle at point (B).

NXH8,M68420D145-19-07JUL98

6. Raise ladder (A) on right-hand side of machine and tie band in transport position.



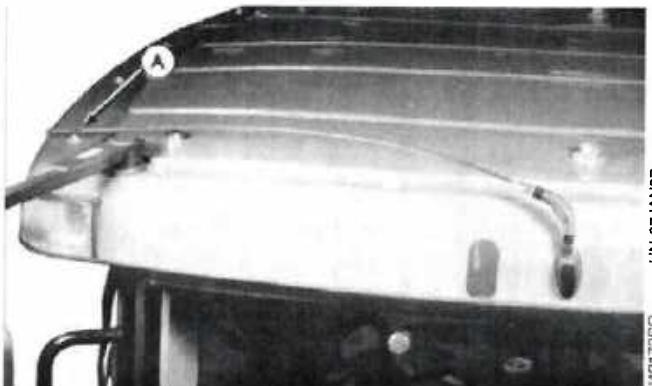
N42190ER -UN-06JUL98

NXH8,M68420D146-19-07JUL98

*Chassis*

7. Fold cab mirrors in and place antenna in retainer (A) on cab roof.

8. Drive machine onto trailer or truck.



NX,OM4700,205 -19-20NOV97

## **BEFORE OPERATING IN THE FIELD**

*NOTE: Make sure machine is properly prepared for field operations. Check the following items before operating:*

- All maintenance has been performed.
- Correct nozzle tips are installed and set for desired spray pattern and row spacing.
- Wheel tread width is adjusted for row spacing.
- SprayStar display has been correctly programmed with the following:
  - Application Rates
  - Tank Volume
  - Minimum Spray Pressure
  - Spray Off Pressure
  - Number of Boom Sections
  - Nozzle Spacing
  - Spray Width
  - Check Flowmeter Calibration Number
  - Calibrate Pressure Sensor
  - Calibrate Wheel Speed Sensor
  - Calibrate Radar Sensor (if equipped)
- Solution tank is filled, solution valves are correctly positioned and agitation valve (if necessary) is open.
- Operator is familiar with all machine controls, their functions, and safe operations.
- Clean water tank is filled with clean water.

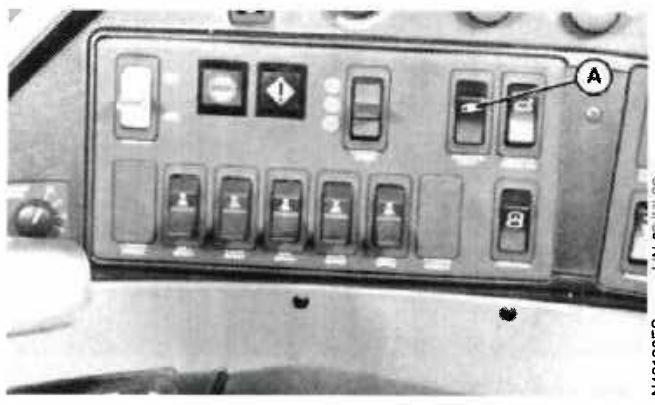
## OPERATING IN THE FIELD

1. Press raise/lower switch (A) to position boom at desired operating height.



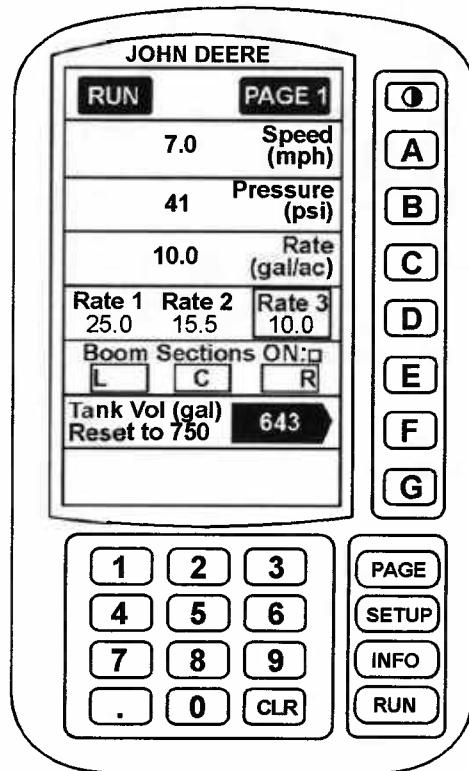
NX,4700J,A2A -19-07AUG97

2. Press top of solution pump switch (A) to engage solution pump.



NXH8,M68420D150-19-07JUL98

3. Press "RUN" button on monitor to view spray operation display on monitor screen.



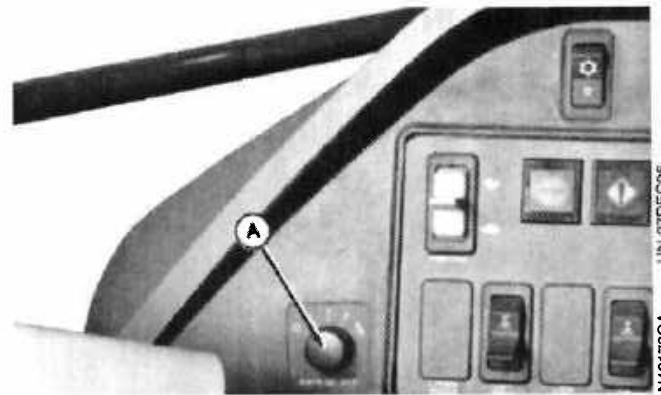
N42173TX -19-13JAN97

NXL,4700J,A6A1 -19-16JAN97

4. Turn rate control switch (A) to desired application rate (1, 2 or 3) or to manual pressure setting (0).

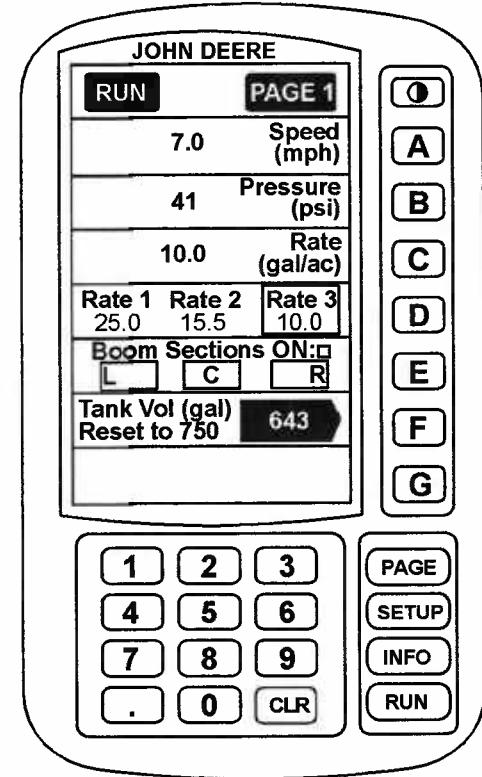
*NOTE: Rate selected will have a square around selected rate on monitor screen.*

*"Test" position on rate control switch is not used.*



-JUN-27DEC96

N421730A

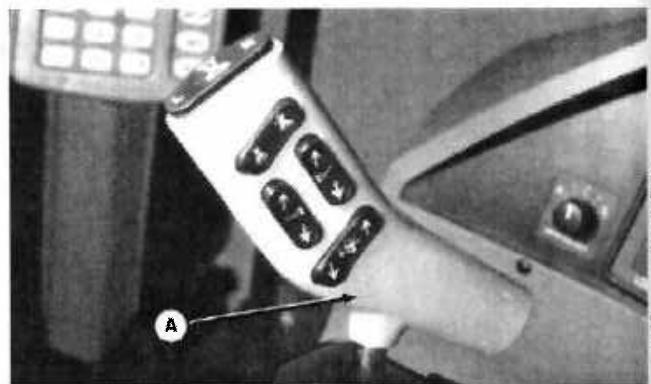


-19-13JAN97

N42173TX

NX,4700J,A4A1 -19-26NOV97

5. Push hydro lever (A) slowly forward to start forward motion.



-JUN-26NOV96

N42173CR

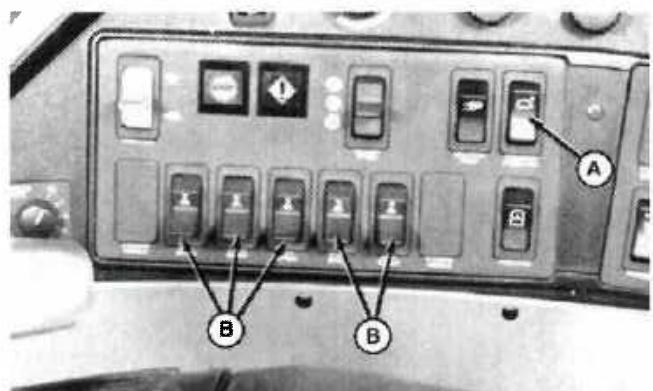
- If operating in manual pressure mode: Press top of increase/decrease switch (A) to increase solution pressure or press bottom of switch to decrease pressure.

*NOTE: The desired pressure settings can also be programmed manually into the SprayStar display.*

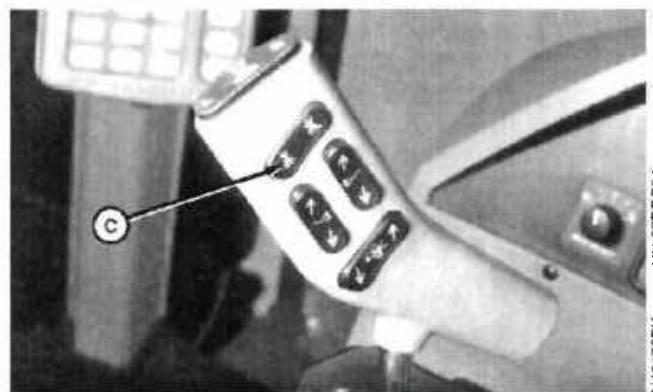
- Lift boom section switches (B).

- Verify that boom switches are turned on and press master ON/OFF switch (C) to start spraying operation.

*NOTE: On Page 1 of RUN a square will be around the sections that are spraying.*



-UN-08JUL98



-UN-27DEC96

N42175PY

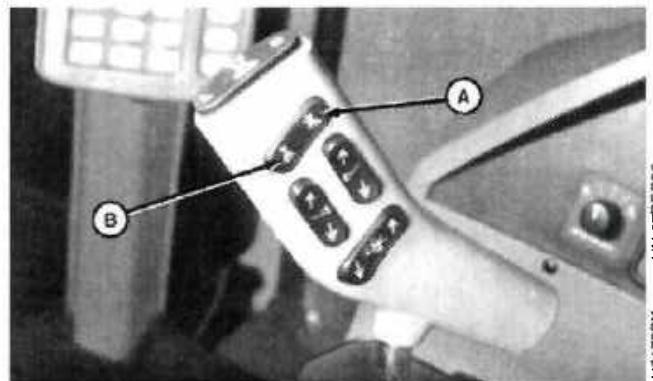
NXH8,M68420D156-19-07JUL98

*NOTE: Spray system shut-down is not immediate. Solution flow will continue for a short period of time (approximately 1-3 seconds) after pressing OFF switch. For best response time and coverage, turn spray OFF as you slow for row end.*

- At row end, depress right-hand side of master ON/OFF switch (A) to stop spraying. All other switches can remain in pre-set positions.

*NOTE: Spray system start-up is not immediate. To overcome delayed response, press ON switch while moving forward to start spraying just before solution is actually needed.*

- When aligned with next row, press left-hand side of master ON/OFF switch (B) to resume spraying.



-UN-27DEC96

N42173PX

NXH8,64020,D157-19-15APR98

## ACCESSORY ELECTRICAL OUTLET

The 12-volt accessory outlet (A) is used when connecting auxiliary equipment.

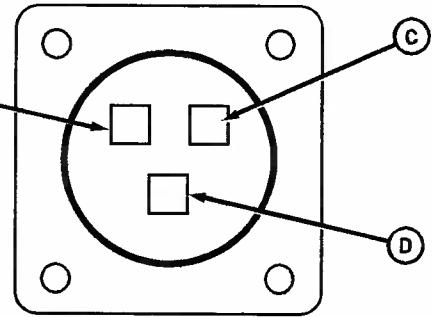
Pin (B) provides (key) switched power, pin (C) provides battery power (hot) and pin (D) is ground. Use auxiliary equipment installation instructions or see your John Deere dealer.

*NOTE: Outlet is protected by 30-amp fuse.*

- A—Accessory Outlet
- B—Switched Power Circuit Pin
- C—Battery Circuit Pin
- D—Ground Pin



JN-27DEC96



UN-39DEC96

N42173QD

NX,4700,BM1A -19-07AUG97

## AUXILIARY POWER STRIP

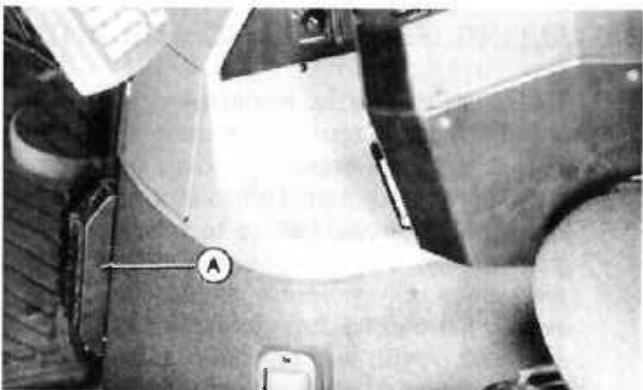
**IMPORTANT:** Auxiliary power strip is not a surge suppressor. Electrical equipment with program memory capacity for data storage requires protection from damage of electrical surges and spikes which could occur in systems without transient voltage protection.

The auxiliary power strip (A) provides six outlets of 12-volt power with grounds. This power is 30 amp switched and 30 amp un-switched. The connectors can be used when connecting auxiliary equipment.

Adapters plug directly into power strip as un-switched power. To change to switched power on cigar lighter adapter or standard adapter (with three wires), remove small tab at end of slot on plug and rotate plug 180°.

*NOTE: A small white dot on adapter plug face can be used to indicate whether plug is in switched or un-switched position. If dot is facing power strip cap (can't be seen), circuit is un-switched. If dot is opposite cap hinge side (visible), circuit is switched.*

Adapters are available from your John Deere dealer for the following: cigar lighter adapters, 3-way convenience adapters, and standard adapters.



-JUN-27DEC96

N42173OJ

NX,OM4700,POW1 -19-07AUG97

## INSTALLING MOBILE RADIO AND ANTENNA

**CAUTION:** Under no circumstances should mobile radio antenna be mounted to rear of cab or antenna cable be routed near harness for electrical system controllers or near operator controls. Failure to follow these precautions could expose operator to radio frequency energy levels higher than recommended by American National Standards Institute (ANSI) and/or could cause undesirable performance of electronically controlled systems.

**IMPORTANT:** Avoid possible interference of machine electronics by keeping radio, power, and antenna cables close to the cab roof.

Install radio as shown. A template is provided in this section to determine location of bracket (H). Align template with radii cut out around console light (F) and tapered edge along trim (G). Mount bracket within cross-hatch area.

Another mounting choice is to use the two studs on right rear cab post.

Remove existing entertainment radio bezel to gain access to power leads (E) and antenna cable (B).

**CAUTION: Prevent possible personal injury.**  
Disconnect battery ground cable before any electrical repair.

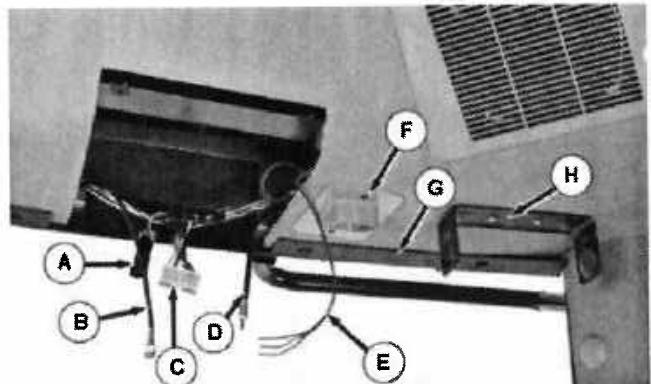
Choose the following connections for mobile radio:

1. Red wire No. 202 - mobile radio controlled by key switch.
2. Black wire - mobile radio ground.

Connect antenna cable to radio. Remove rain cap on outer roof and attach non-ground plane type antenna to the mount. Antenna mount is 1-1/8 in. - 18 thread. The cable connector for radio is a PL259 type. Adapters are available through radio equipment suppliers.

*NOTE: Antenna should be trimmed to appropriate variable standing wave ratio (VSWR). A professional installer is recommended.*

Install the radio bezel after the mobile radio cable and wires are routed.



- A—Rotary Beacon Connector
- B—Mobile Radio Antenna
- C—AM/FM Connector
- D—AM/FM Connector
- E—Mobile Radio Power Leads
- F—Console Light
- G—Roof Trim
- H—Mobile Radio Bracket

LIN-01 JUN 96  
FM56025

JUN-13 JUN 96

RW75064

*Chassis*

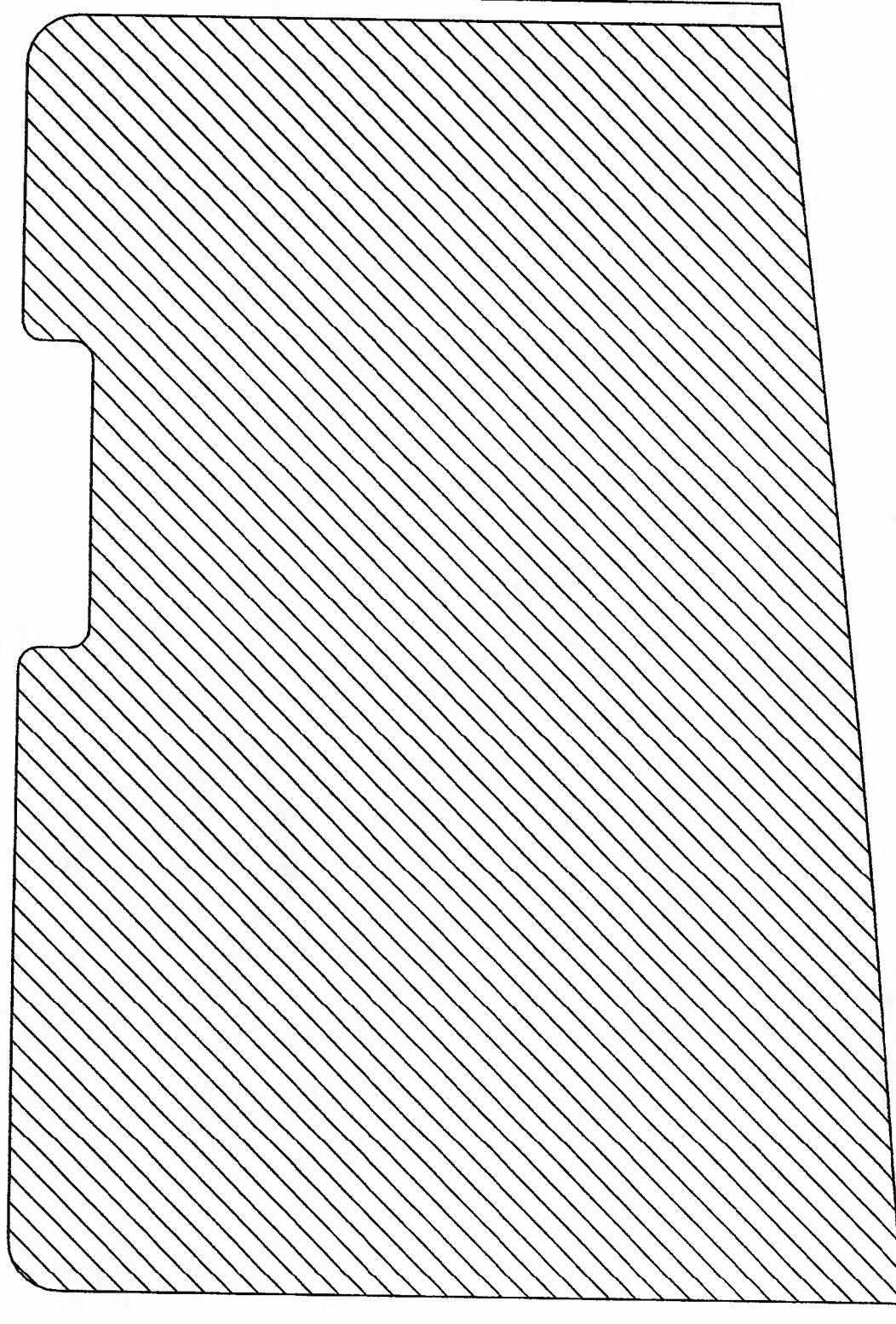
**20-105**

171299  
PN=131

**MOBILE RADIO BRACKET TEMPLATE**

**TEMPLATE**

*Chassis*



-UN-03JUL96

RW56026

NX,OM4700,POW4 -19-31DEC96

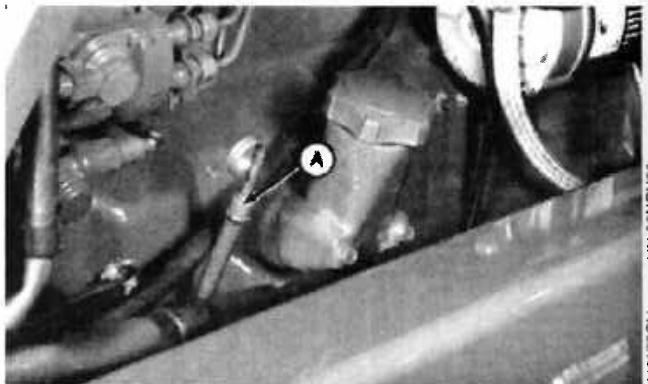
171299

PN=133

**20-107**

## CHECKING ENGINE OIL LEVEL

With machine parked on level surface, remove engine oil dipstick (A) and check oil level. Oil level should be between "ADD" and top of cross-hatch area of dipstick. See Lubrication and Maintenance in this manual for engine oil specifications. Do not operate with oil below "ADD" mark on dipstick. Add oil if necessary.



NX,4700,CA1 -19-28JUL97

N42173CU  
-UN-28NOV96

## CHECKING COOLANT LEVEL

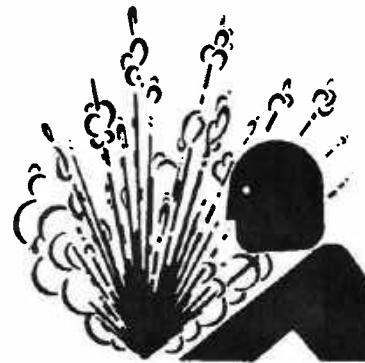
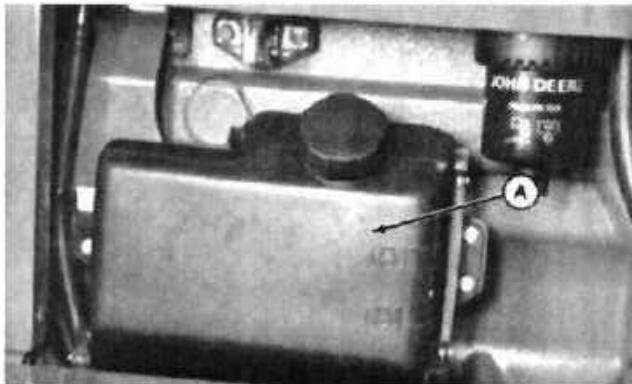
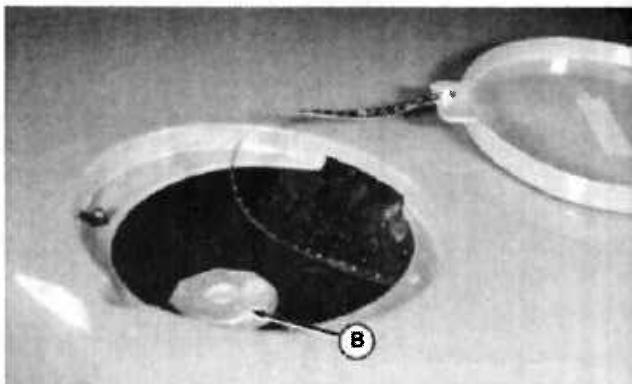
**CAUTION:** Explosive release of fluids from pressurized cooling system can cause serious burns to you or others.

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

Never add coolant when engine is overheated. Wait for it to cool.

Coolant level should be between "HOT LEVEL" and "COLD LEVEL" marks on overflow tank (A) depending on engine temperature.

Add coolant to overflow tank as needed. If overflow tank is empty, add coolant directly to expansion tank (B) under engine hood. (See Lubrication and Maintenance section in this manual for proper anti-freeze specifications.)

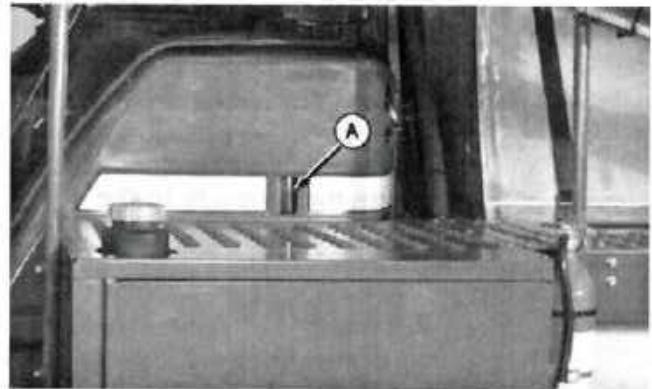
TS381  
-UN-23AUG88N42173CV  
-UN-28NOV96N42173PV  
-UN-27DEC96

## CHECKING HYDROSTATIC AND HYDRAULIC OIL LEVEL

**NOTE:** Place booms in boom rests and retract all hydraulic cylinders including tread adjust cylinders if checking oil level.

Hydraulic system capacity is approximately 163 L (43 gal) and reservoir capacity is 64 L (17 gal).

Oil should be at the 1/2 to 2/3 level on the sight tube (A). Add oil if necessary. (See Lubrication and Maintenance in this manual for hydraulic oil specifications.)



N42173PW  
-JN-27DEC96

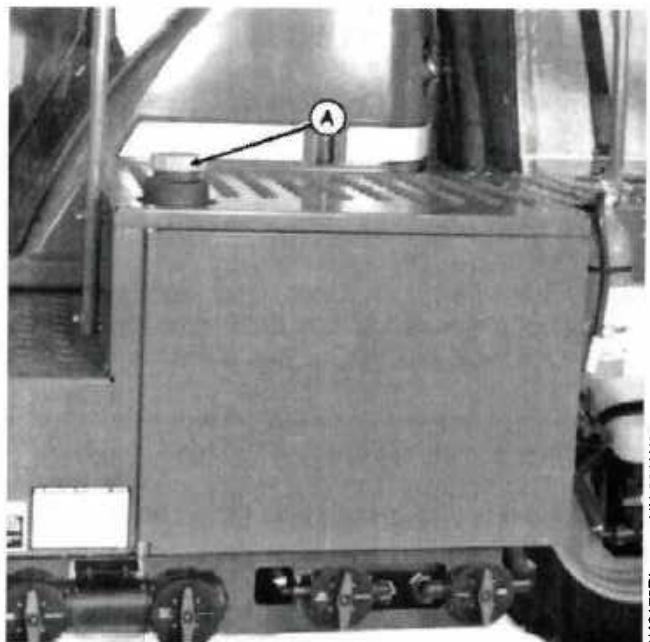
NXK7,4700,CC1 -19-26NOV97

## FILLING FUEL TANK

**NOTE:** Fuel tank capacity is 322 L (85 gal).

**CAUTION:** Shut off engine before filling fuel tank.

Remove fuel tank cap (A). Fill tank with proper grade diesel fuel. (See Lubrication and Maintenance in this manual for diesel fuel specifications.)



N42173FL  
-UN-06JAN97

NX,4700,CD1 -19-28JUL97

## DO NOT MODIFY FUEL SYSTEM

**IMPORTANT:** Modification or alteration of the injection pump, the injection pump timing, or the fuel injectors will terminate the warranty to the purchaser. (See warranty information inside front cover.)

**Do not attempt to service injection pump or fuel injectors. Special training and special tools are required. See your John Deere dealer.**

NX,4700,P1 -19-02JUN95

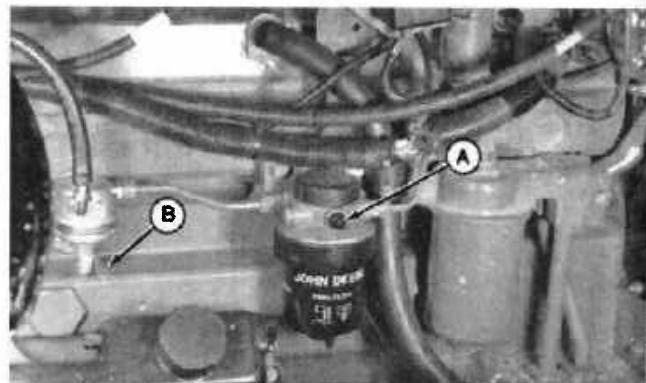
## BLEEDING FUEL SYSTEM

1. Turn key switch to ON position.
2. Loosen bleed plug (A) on fuel filter base.
3. Push hand primer (B) on fuel supply pump.

**NOTE:** If the primer does not pump fuel and no resistance is felt, turn the engine slightly with the starter to change the fuel pump cam position.

4. Push the hand primer until a smooth flow of fuel, free of bubbles, comes out of the filter bleed plug hole.
5. Tighten bleed plug and leave primer lever in the down position.

If the engine will not start, see Troubleshooting section in this manual or see your John Deere dealer.

-UN-17DEC96  
N42173UR

NX,4700,P4A -19-31DEC96

## **CHECKING ENGINE COMPARTMENT FOR ACCUMULATED TRASH AND DEBRIS**

Clean as necessary, especially around potential hot spots such as turbocharger, exhaust manifold, and muffler.

**IMPORTANT:** Never steam clean or pour cold water on an injection pump that is operating or hot. Pump could seize.

NX,OM4700,125N -19-31DEC96

## **SERVICING AIR CLEANER**

When cautionary statement appears on bottom of monitor screen, caution indicator glows and alarm sounds. Clean or replace PRIMARY filter element.

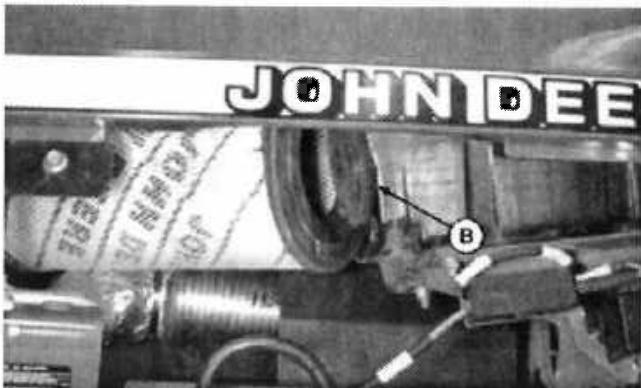
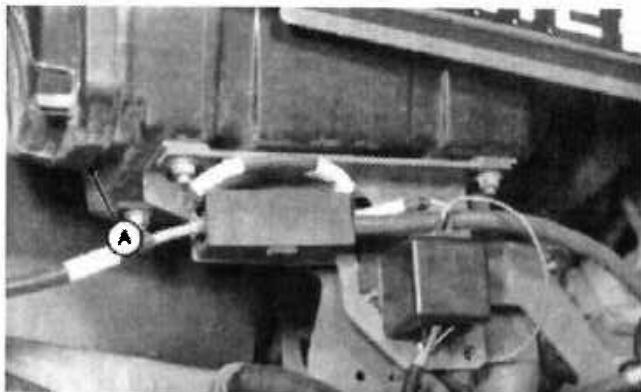
The smaller SECONDARY element should be removed only when being replaced, normally once a year.

See Removing Air Cleaner Element and Cleaning and Inspecting Primary Element in this section for removal and cleaning procedures.

NX,4700,P5A1 -19-14AUG97

## REMOVING AIR CLEANER ELEMENT

1. Remove cover (A) from air filter housing.
2. Pull primary element (B) out of filter housing as far as possible.



3. Simultaneously raise rear of element (A) up and pull front of element outward and down until there is enough clearance to remove element.

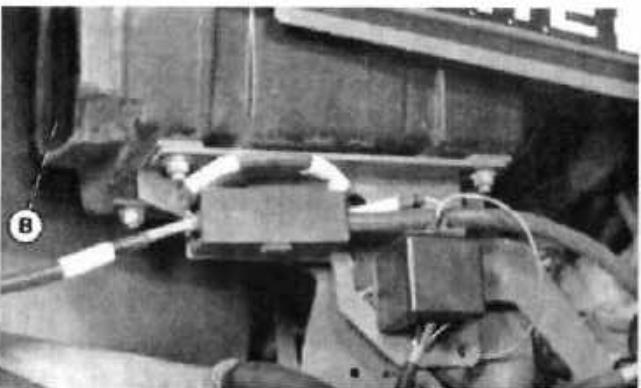
4. Clean dirt from inside of canister and cover.

**IMPORTANT: Remove secondary element ONLY if it is to be replaced. Do not attempt to clean secondary element.**

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

5. Remove secondary element (B) if element is to be replaced.

Air cleaner elements may be cleaned prior to replacement interval. (See Cleaning and Inspecting Primary Element in this section.)



## CLEANING AND INSPECTING PRIMARY ELEMENT



-UN-28JUL92

RW20416

### • CLEANING DUSTY ELEMENT

Tap the sides of element *gently* by hand to loosen dirt. Do not tap element against a hard surface.

If tapping element does not remove dust, clean element with compressed air. Hold nozzle next to inner surface and move up and down pleats.

**IMPORTANT:** Do not use more than 207 kPa (2.1 bar) (30 psi) if cleaning element with compressed air. Do not direct air against outside of element, as it might force dirt through to inside.

Repeat procedure to remove additional dirt.

Inspect element before installing.

### • CLEANING OILY OR SOOTY ELEMENT

Wash element in a solution of lukewarm water and detergent formulated specifically for air filter element cleaning. Soak element for approximately 10 minutes, then swirl it around in the solution for another 5 minutes. Rinse thoroughly with clean water. Shake excess water from element and allow it to dry at room temperature.

**IMPORTANT:** Never install a damp element or use compressed air to dry a wet element.

Inspect element for damage after cleaning.

### • INSPECTING

Hold a bright light inside element and check carefully for damage. Discard element if screen is damaged or element shows the slightest rupture or hole.

Make sure gasket is in good condition.

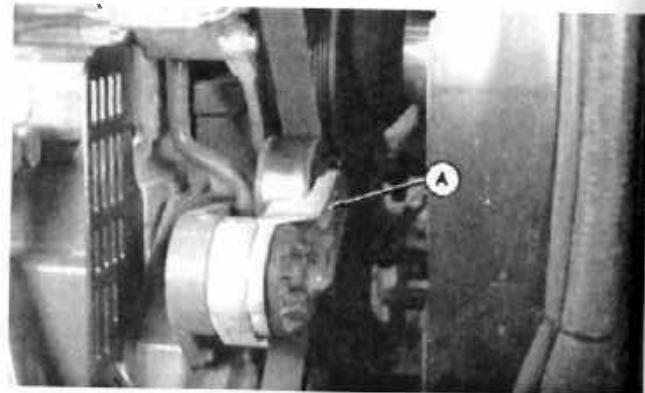
### • REPLACING ELEMENT

Replace filter element after one year of service or six cleanings or if air filter indicator remains on. Damaged filters should be replaced immediately.

## REPLACING FAN BELT

*NOTE: Fan drive belt is equipped with an automatic tensioner which does not require adjustment.*

1. Rotate tension arm by placing 13 mm (1/2 in.) breaker bar in arm (A).
2. Remove belt from fan drive pulley.
3. Relax tension and remove belt from crankshaft pulley and fan.
4. Replace belt.

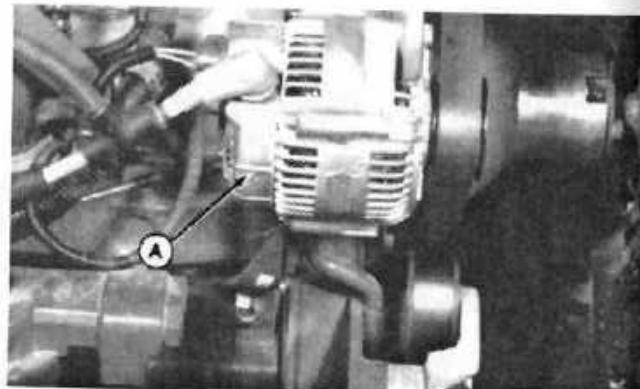


NX2173CW

NX.4700.P7A -19-31DEC96

## SAFEGUARDING ALTERNATOR AND REGULATOR

1. Always disconnect battery ground strap when working with the alternator (A) or regulator.
2. Never attempt to polarize alternator to regulator.
3. Never ground the alternator field terminal or field circuit.
4. Never connect or disconnect alternator or regulator wires with battery connected or alternator operating.



UN2173JS

NX.4700.P8A -19-31DEC96

## SERVICE TIRES SAFELY

**⚠ CAUTION:** Explosive separation of a tire and rim parts can cause serious injury or death to you or others.

Only attempt to mount a tire if 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.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

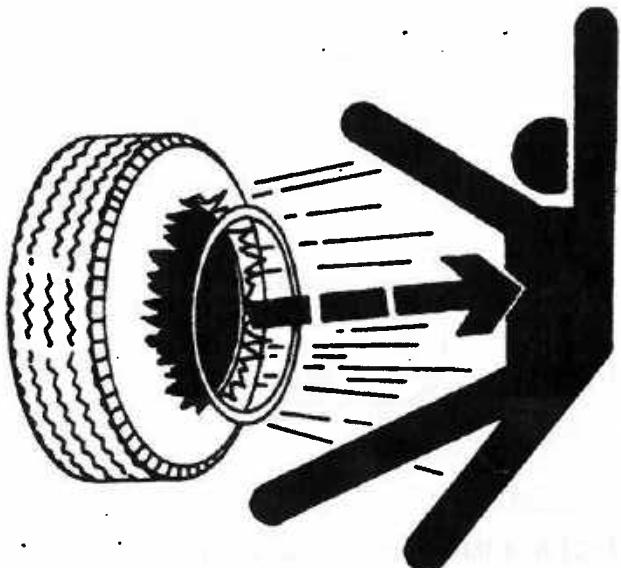
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand on one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.

Protect tires from exposure to sunlight, petroleum products and chemicals.

Try to avoid rocks and sharp objects; drive carefully.

Traveling at high speeds while carrying heavy loads will increase tire wear and reduce tire life.



-UN-23AUG88

TS211

NX,4700,P9A -19-16JAN97

## CHECKING TIRE PRESSURE

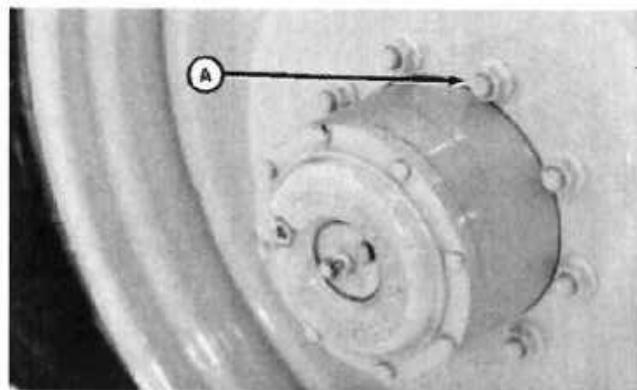
Tire Size	kPa	Bar	Psi
385/85R34	283	2.8	41
12.4—38, 14PR	386	3.9	56
48 x 25.00—20, 10PR	276	2.8	40
23.1—26	172	1.7	25

NXH8,M68420D177-19-15JUL98

## TIGHTENING WHEEL HARDWARE

Check torque on wheel hardware. Tighten wheel lug nuts (A) in a crisscross pattern to 244 N·m (180 lb-ft).

**IMPORTANT:** Damage to planetary hub and wheel can occur if the correct lug nut torque is not maintained. Tighten lug nuts in a crisscross pattern to 244 N·m (180 lb-ft). Tighten wheel lug nuts after first 1 hour of use and every 10 hours thereafter until correct torque is maintained. Check wheel lug nuts torque after every 100 hours of use.



N42173SC -UN-02JAN97

NX,HYD,S8 -19-13JAN99

## INSTALLING ROW CROP TIRES

1. Install tires on machine.
2. Apply oil to threads of wheel lug bolts.

**IMPORTANT:** Damage to planetary hub and wheel can occur if the correct lug nut torque is not maintained. Tighten wheel lug nuts in a crisscross pattern to 244 N·m (180 lb-ft). Tighten wheel lug nuts after first 1 hour of use and every 10 hours thereafter until correct torque is maintained. Check wheel lug nuts torque after every 100 hours of use.

3. Install wheel lug nuts and tighten in a crisscross pattern to 244 N·m (180 lb-ft).
4. Operate machine for one hour and tighten wheel lug nuts.
5. Tighten wheel lug nuts after every 10 hours of use until correct torque is maintained.
6. Check wheel lug nuts torque after every 100 hours of use.

NX,HYD,S9A -19-13JAN99

171299

PN=142

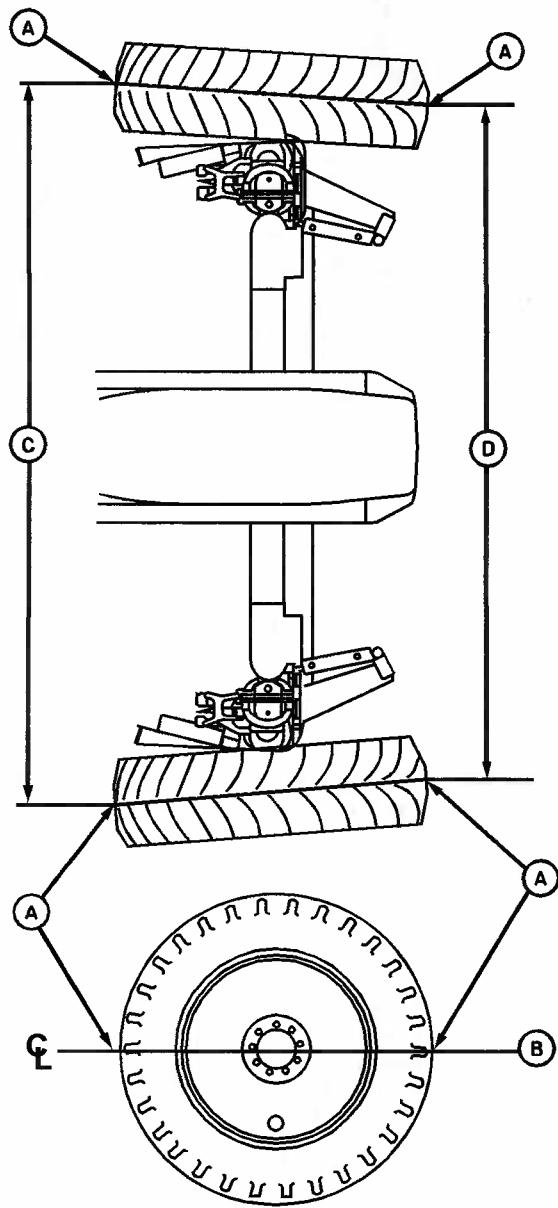
## CHECKING FRONT AXLE TOE-IN

*NOTE: Remove front wheel shields, if equipped.*

1. Position wheels for straight ahead travel.
2. Mark center (A) of each tire at front and rear, on centerline (B).
3. Measure from mark-to-mark on front of each tire. Record measurement for rear spacing dimension (C).
4. Measure from mark-to-mark on front of each tire. Record measurement for front spacing dimension (D).
5. Subtract front spacing from rear spacing to obtain toe-in dimension. Dimension (D) should be 10–25 mm (3/8–1.00 in.) less than dimension (C).

If dimensions are not within specified range, see Adjusting Front Axle Toe-In in this section.

**A**—Center of Tire  
**B**—Centerline  
**C**—Rear Spacing Dimension  
**D**—Front Spacing Dimension



N42173UX -UN-15JAN97

NXK7,OM4700,P13-19-01DEC97

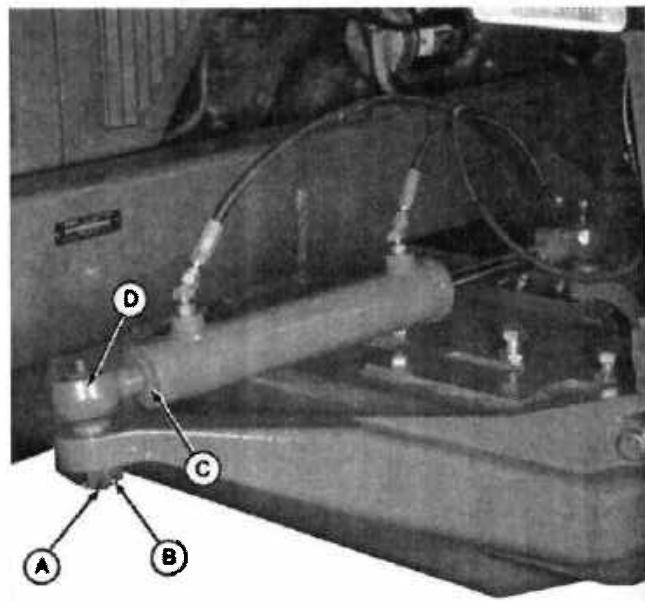
## ADJUSTING FRONT AXLE TOE-IN

1. Remove cotter pin (A).
2. Remove castle nut (B).
3. Loosen jam nut (C).
4. Lightly tap on bottom (thread end) of ball joint (D) to loosen it from tapered bore.
5. Repeat Steps 1-4 for opposite side of machine.
6. Move left and right tires evenly until difference between dimension (E) and dimension (F) are within specified range.

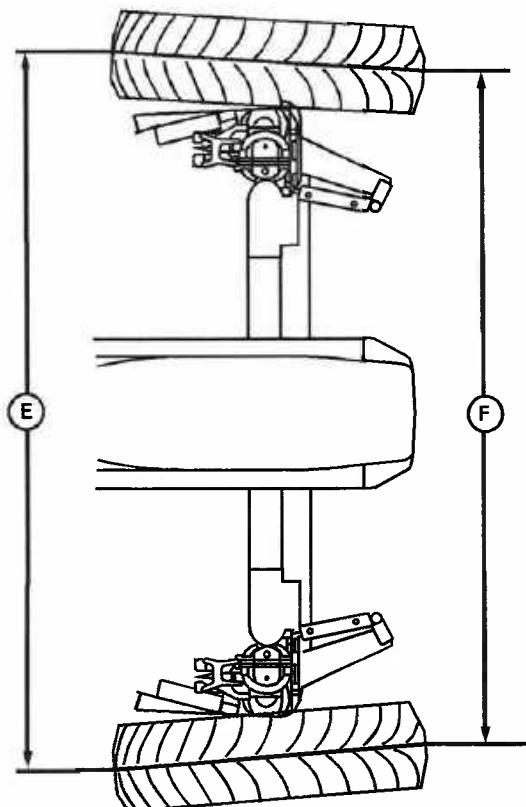
*NOTE: Dimension (F) should be 10 to 25 mm (3/8 to 1 in.) less than dimension (E).*

7. Screw ball joint in or out of cylinder until ball joint pin aligns with tapered bore.
8. Insert ball joint pin in tapered bore.
9. Install castle nut and tighten to a minimum of 135 N·m (100 lb-ft). Install cotter pins.
10. Tighten jam nut to 326-366 N·m (240-270 lb-ft).
11. Repeat Steps 7 and 8 on opposite side of machine.

- A—Cotter Pin
- B—Castle Nut
- C—Jam Nut
- D—Ball Joint
- E—Dimension
- F—Dimension



N42175ET -UN-14FEB97



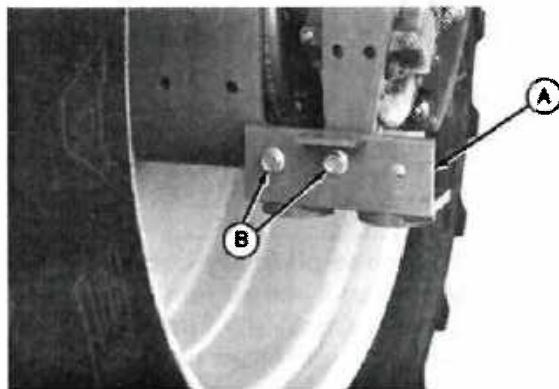
N42175EU -UN-14FEB97

NX,4700,P14 -19-28JUL97

## ATTACHING LIFT BRACKET TO RAISE MACHINE OR CHANGE TIRE

**CAUTION:** Machine is heavy and can fall causing serious injury or death to you or others. Lift bracket and hardware are required to provide a jack point to raise machine. Install lift bracket on machine before attempting to lift machine.

1. Remove wheel shield if equipped and motor shields.
2. Attach lift bracket (A) to machine in a horizontal position as shown with M12 x 80 mm cap screws pointing toward rear of machine and flange nuts (B) on inner side of casting. Tighten nuts securely.
3. When finished using lift bracket, remove bracket and hardware. Install wheel shield and motor shields.



-UN-14OCT97

N42184GQ

NXH8,M68420D181-19-07JUL98

## INSTALL FLOTATION TIRES (OPTIONAL)

1. Install flotation tires to machine with rings (A) on outside of machine.

2. Apply oil to threads of wheel lug bolts.

**IMPORTANT:** Damage to planetary hub and wheel can occur if the correct lug nut torque is not maintained. Tighten wheel lug nuts in a crisscross pattern to 244 N·m (180 lb-ft). Tighten wheel lug nuts after first 1 hour of use and every 10 hours thereafter until correct torque is maintained. Check wheel lug nuts torque after every 100 hours of use.

3. Install wheel lug nuts and tighten in a crisscross pattern to 244 N·m (180 lb-ft).

4. Operate machine for one hour and tighten wheel lug nuts.

5. Tighten wheel lug nuts after every 10 hours of use until correct torque is maintained.

6. Check wheel lug nuts torque after every 100 hours of use.



48 x 25.00—20, 10PR

N42194NO  
-UN-26NOV97

N42194NO



23.1—26

N42190HA  
-UN-15JUL98

N42190HA

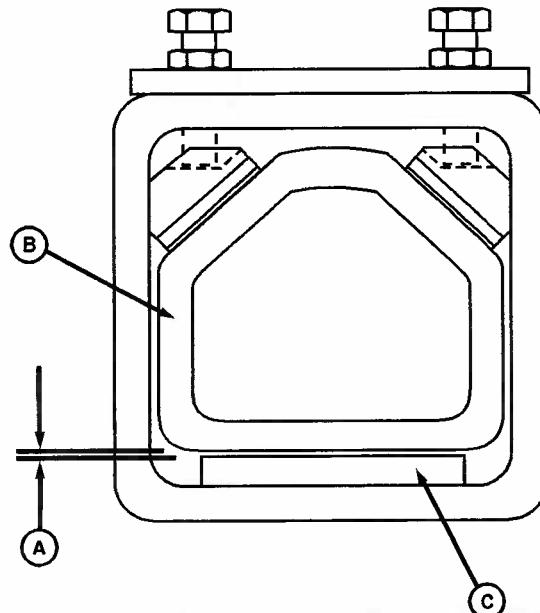
NX, HYD, S9 -19-13JAN99

## DETERMINING WHEN TO ADJUST SHIM GAP ON AXLE TREAD ADJUST

Shim gap adjustment should be made:

- If during operation it is observed that the suspension moves back-and-forth excessively.
- If tread adjustment becomes difficult or axle knee begins binding or catching during tread adjustment.
- When the gap (A) between the lower machined surface of axle knee (B) and upper surface of lower shim pad (C) exceeds 2 mm (0.060 in.) at outside end of pad.

*NOTE: Gap should not include the chamfered area of the pad.*



-JN-04FEB97

N49072

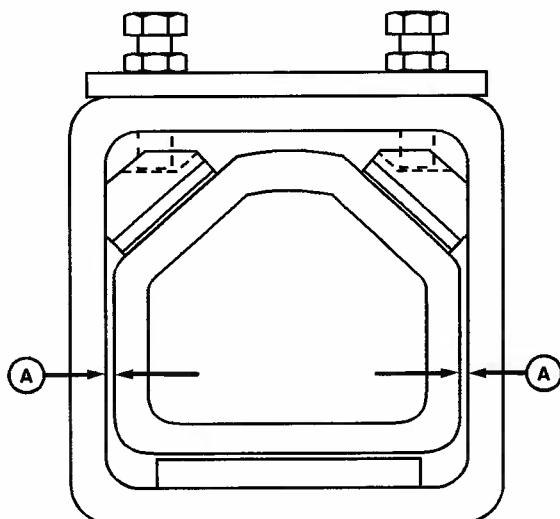
NX,OM554,DEC1 -19-25FEB97

## CHECKING SIDE GAP ON AXLE TREAD ADJUSTMENT

Measure gap (A) between mainframe axle tube and knee casting at both front and rear sides of axle tube. Both gaps should be equal.

If knee casting is centered in mainframe tube, proceed to Adjusting Shim Gap in this section.

If knee casting is not centered in mainframe tube, proceed to Adjusting Side Gap On Axle Tread Adjust in this section.

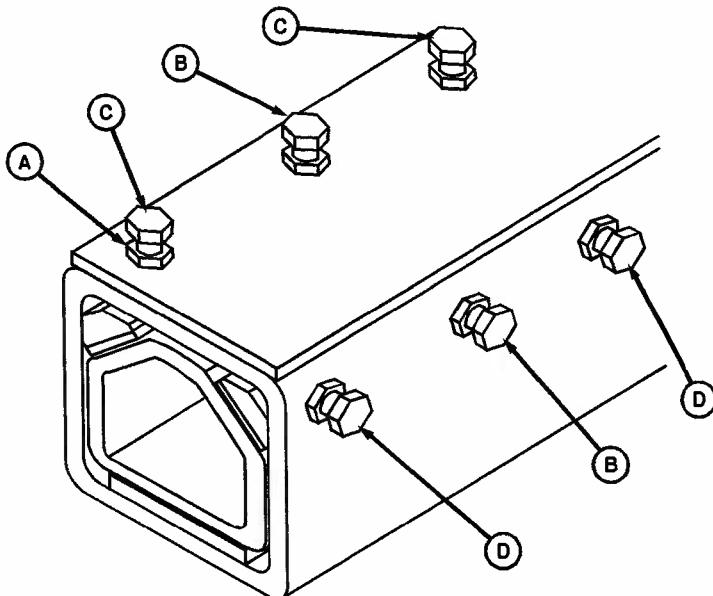


-JN-04FEB97

N49073

NX,OM554,DEC2 -19-07AUG97

## ADJUSTING SIDE GAP ON AXLE TREAD ADJUST



-UN-04FEB97

N49074

**A—Jam Nuts****B—Center Adjusting Bolts****C—Inner and Outer Adjusting Bolts  
(Side with Larger Gap)****D—Inner and Outer Adjusting Bolts  
(Side with Smaller Gap)***Left-hand Front Shown*

1. Loosen jam nuts (A) on all six adjusting bolts.
  2. Loosen two center adjusting bolts (B).
  3. On side of mainframe tube with largest gap, loosen the inner and outer adjusting bolts (C) 1/2 turn.
  4. Tighten either the inner, outer or both adjusting bolts (D) on side with smaller gap 1/2 turn.
  5. Measure side gap again. If equal on both side of knee and on both ends of knee, proceed to Adjusting Shim Gap on Axle Tread Adjust in this section.
- If gap is not equal, repeat Steps 4 and 5 until gap is equal.

NX,OM554,DEC3 -19-07AUG97

## ADJUSTING SHIM GAP ON AXLE TREAD ADJUST

Shim gap adjustment can be made using two different methods:

- With wheel off ground. This is the preferred method.
- With wheel on the ground.

NX,OM554,DEC4 -19-03FEB97

171299

PN=148

## **ADJUSTING SHIM GAP WITH WHEEL OFF GROUND (PREFERRED)**

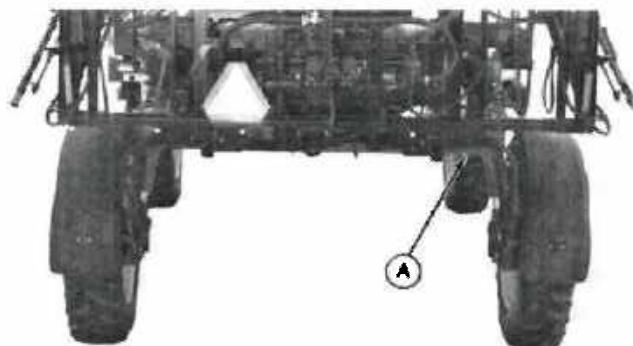
**⚠ CAUTION:** Solution tank can contain hazardous materials which can cause serious injury or death to you or others. Wear protective clothing, eye wear and gloves while draining tank. Drain solution in an area where people, animals, vegetation and water supplies, etc. cannot be contaminated.

1. Drain solution tank. (See Using Rinse System in Wet System Section.)
2. Adjust axle wheel tread to 3048 mm (120 in.). (See Adjusting Wheel Tread—Individually in this Section.)

NX,OM554,DEC5 -19-07AUG97

**⚠ CAUTION:** Sprayer weighs approximately 7076 kg (15 600 lb). To avoid injury or death to you or others, lift machine using a 2268 kg (2-1/2 ton) jack. Apply jack pressure only at lift brackets on each axle being shimmed. Do not apply jack pressure at any other spot on axle.

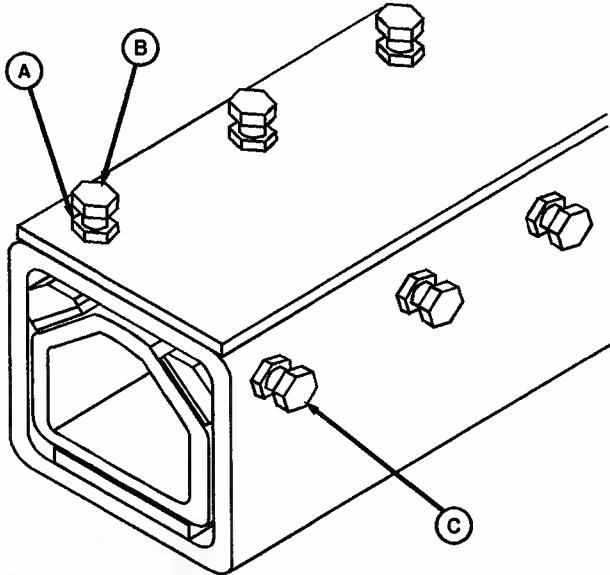
3. Lift machine off ground by placing jack or overhead lifting device near end of mainframe tube (A) on bottom surface.



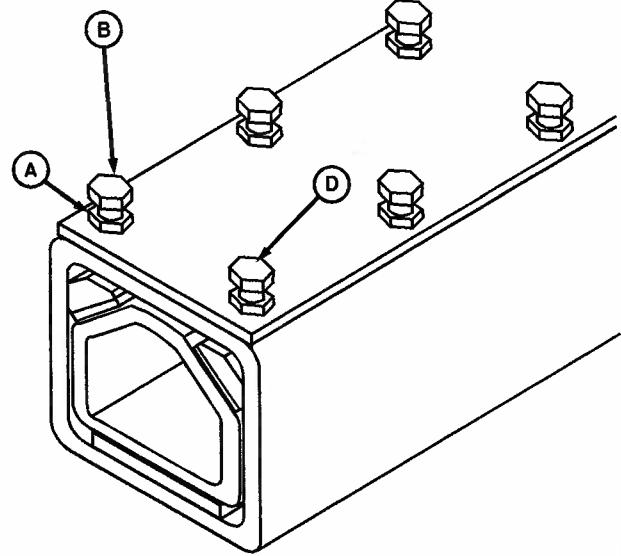
-UN-10FEB97

N4217XM

NXK,OM554,DEC6A-19-20NOV97



Left-hand Front



Left-hand Rear

4. If not already loose, loosen all jam nuts (A) on adjusting bolts.
5. Tighten top front adjusting bolts (B) 1/4 turn.
6. Tighten adjusting bolts (C) on front axles or adjusting bolts (D) on rear axles 1/4 turn.

*NOTE: This sequence will help maintain the side gaps between mainframe tube and axle knee.*

7. Repeat Steps 5 and 6 until everything is solid, then back-off each adjusting bolt 1/6 turn.
8. Tighten all jam nuts.
9. Lower machine and remove jack.

**A—Jam Nuts**  
**B—Adjusting Bolts**  
**C—Rear Adjusting Bolts (Front Axle)**  
**D—Rear Adjusting Bolts (Rear Axle)**

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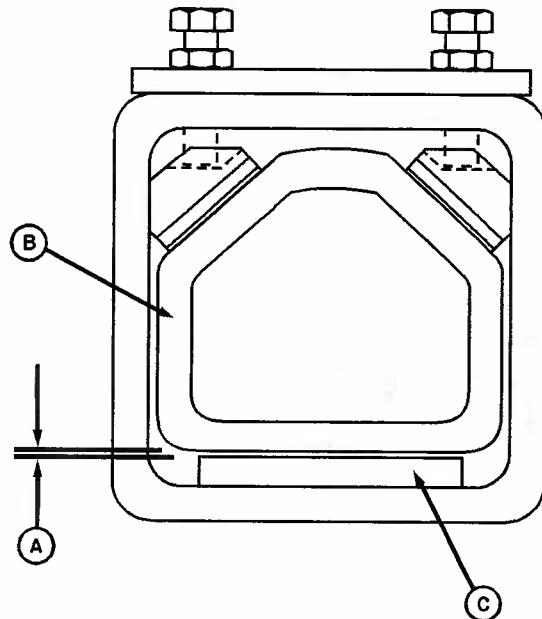
N49075

-UN-04FEB97

N49076

10. Check gap (A) between the lower machined surface of axle knee (B) and upper surface of lower shim pad (C). Gap should be 0.25 to 0.51 mm (0.010 to 0.020 in.) at outside end of pad.

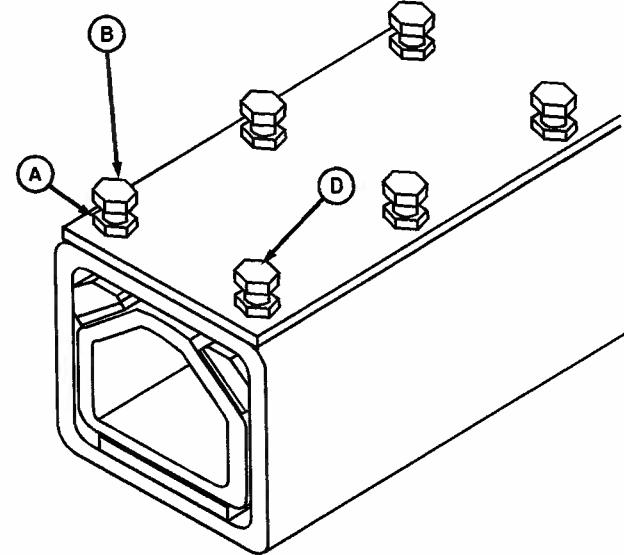
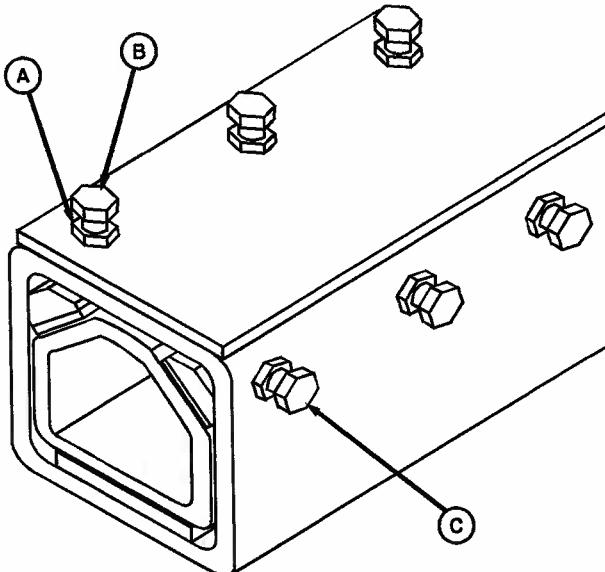
*NOTE: Gap should not include the chamfered area of the pad.*



NX.OM554.DEC8 -19-03FEB97

-UN-04FEB97

N49072



-UN-04FEB97

N49075

-UN-04FEB97

N49076

If gap is not within the 0.25 to 0.51 mm (0.010 to 0.020 in.) range:

- Loosen jam nut (A) on outer adjusting bolts (B) and (C) or (B) and (D).
- Adjust bolts (B) and (C) or (B) and (D) until proper gap is obtained.
- Tighten jam nuts.

11. Operate the machine and adjust the tread in-and-out to make sure no binding occurs.

**A—Jam Nuts  
B—Adjusting Bolts  
C—Rear Adjusting Bolts (Front Axle)  
D—Rear Adjusting Bolts (Rear Axle)**

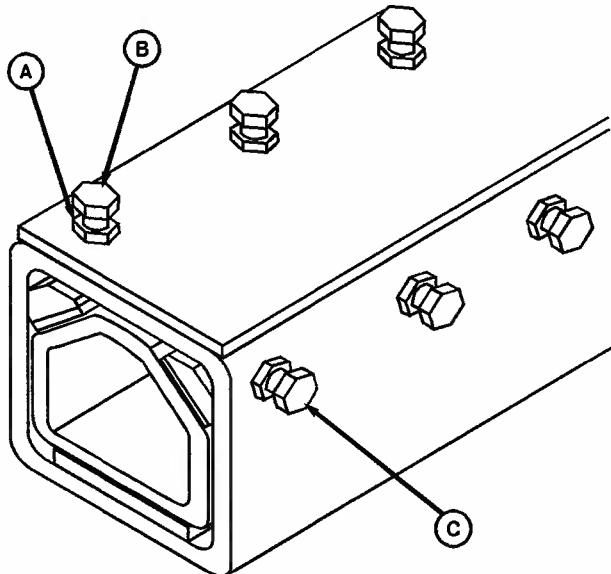
NX,OM554,DEC9A -19-28JUL97

## **ADJUSTING SHIM GAP WITH WHEEL ON GROUND**

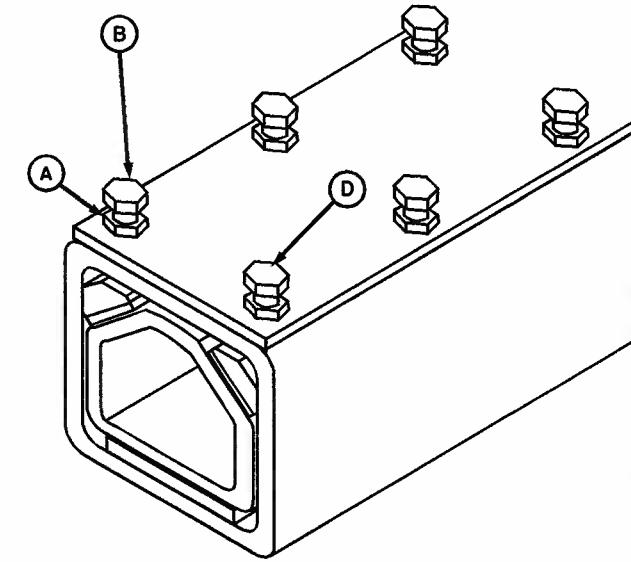
**!** **CAUTION:** Solution tank can contain hazardous materials which can cause serious injury or death to you or others. Wear protective clothing, eye wear and gloves while draining tank. Drain solution in an area where people, animals, vegetation and water supplies, etc. cannot be contaminated.

1. Drain solution tank. (See Using Rinse System in Section 25.)
2. Adjust axle wheel tread to 3048 mm (120 in.). (See Adjusting Wheel Tread—Individually, in this section.)

NX,OM554,DEC10 -19-20NOV97



Left-hand Front



Left-hand Rear

3. If not already loose, loosen jam nuts (A) on outside adjusting bolts (B) and (C) or (B) and (D).
4. Tighten front adjusting bolts (B) 1/4 turn.
5. Tighten adjusting bolts (C) on front axles or adjusting bolts (D) on rear axles 1/4 turn.

*NOTE: This sequence will help maintain the side gaps between mainframe tube and axle knee.*

**A—Jam Nuts**  
**B—Front Adjusting Bolts**  
**C—Rear Adjusting Bolts (Front Axle)**  
**D—Rear Adjusting Bolts (Rear Axle)**

-UN-04FEB97

N49075

-UN-04FEB97

N49076

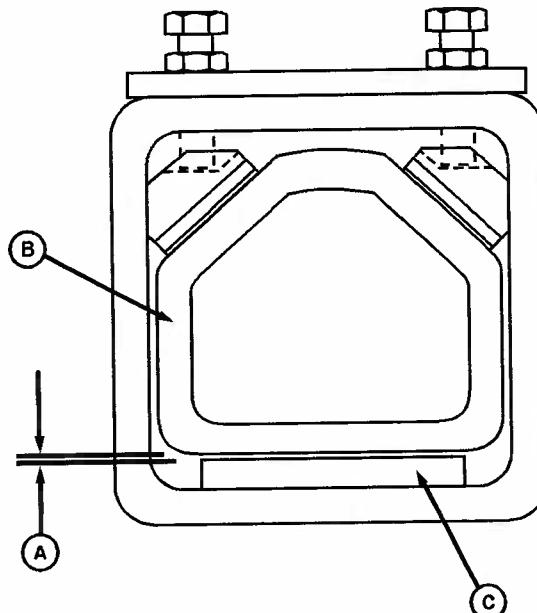
6. Repeat Steps 4 and 5 until gap (A) between the lower machined surface of axle knee (B) and upper surface of lower shim pad (C) is 0.25 to 0.51 mm (0.010 to 0.020 in.) at outside end of pad.

*NOTE: Gap should not include the chamfered area of the pad.*

7. Finger tighten remaining adjusting bolts.

8. Tighten jam nuts.

9. Operate the machine and adjust the tread in-and-out to make sure no binding occurs.



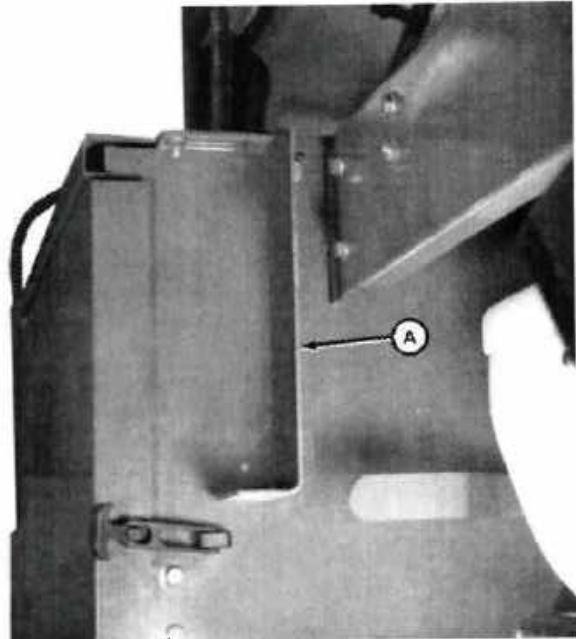
-UN-04FEB97

N49072

NX,OM554,DEC12 -19-03FEB97

### INSTALLING FIRE EXTINGUISHER (IF EQUIPPED)

1. Attach bracket (A) to machine with two M10 x 25 flanged cap screws.

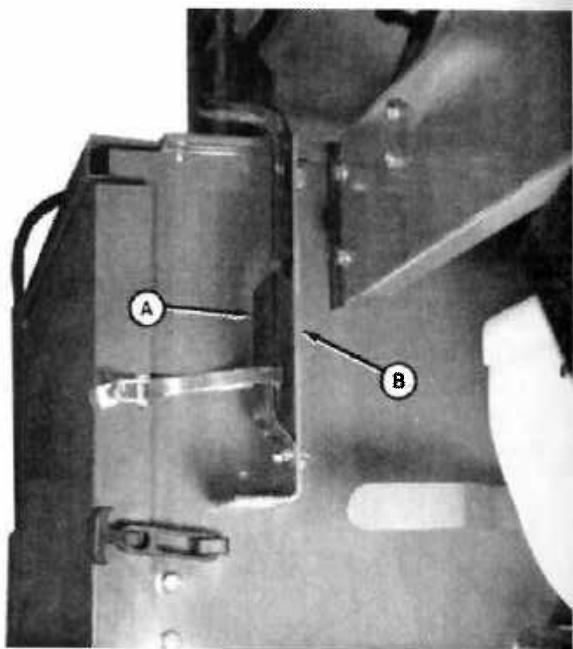


-UN-07JAN97

N42173SX

NX,OM4700,FEX1 -19-25FEB97

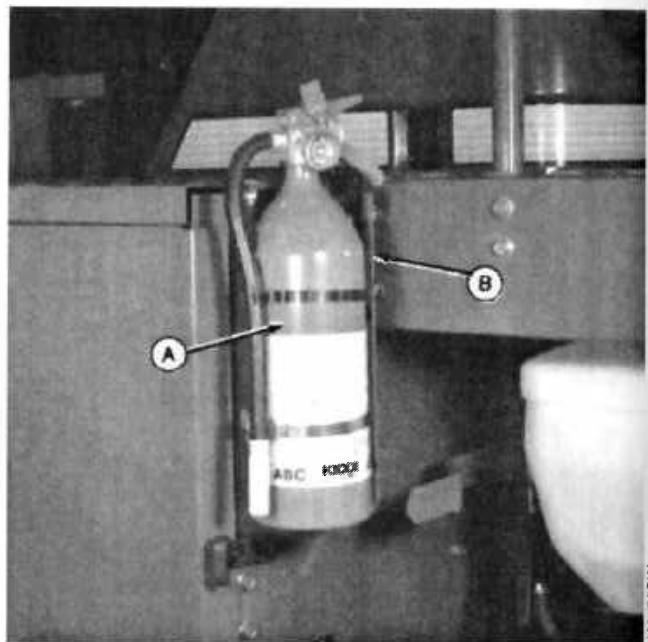
2. Attach bracket (A) to bracket (B) with three M6 x 16 flanged cap screws and serrated nuts.



N42173XA -UN-20JAN97

NX,OM4700,FEX2 -19-06FEB97

3. Install fire extinguisher (A) in bracket assembly (B).



N42173EW -UN-07JAN97

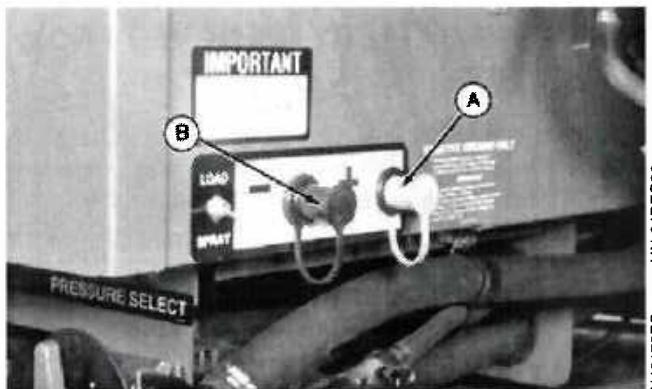
NX,OM4700,FEX3 -19-07JAN97

## USING A BOOSTER BATTERY

**CAUTION:** Gas given off by batteries is explosive and can cause serious injury or death to you or others. Keep sparks and flames away from batteries. Make last connection and first disconnection at a point away from booster battery.

**IMPORTANT:** Be sure polarity is correct before making connections. Reversed polarity will damage electrical system or possibly cause an explosion of a battery.

1. Remove covers from remote terminals.
2. Attach positive battery cable (red) to the positive remote terminal (A) and positive terminal of booster battery.
3. Attach the negative battery cable (black) to negative terminal of booster battery. Attach other end to the negative remote terminal (B) of machine.
4. To disconnect, remove cables in reverse order of connection.
5. Place covers on remote terminals.



UN04DEC96

NXL4700, DI1A

NXL4700, DI1A -19-31DEC96

## CHARGING BATTERY (REMOVED FROM MACHINE)

If open-circuit voltage is 12.4 volts or less, charge the battery at no more than a 20 ampere rate (approximately 2 hours) until voltage reaches 12.6 volts.

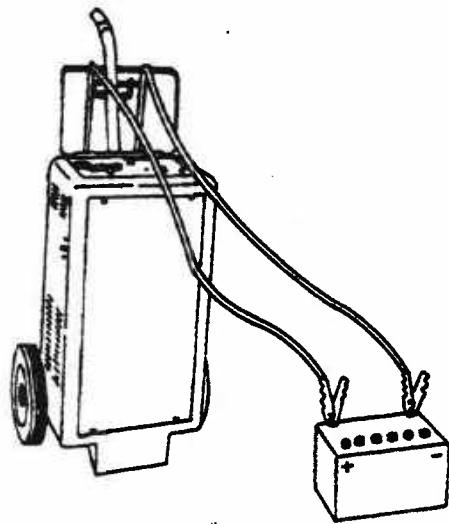
**IMPORTANT:** Batteries which have been stored, particularly for long periods or in warm locations, will require longer charging time. If open-circuit voltage is less than 11.7 volts double the charging time. Be sure to observe all instructions and precautions furnished by the battery charger manufacturer.

Ventilate the area where batteries are being charged.

Do not charge a frozen battery. Warm to 16°C (60°F) before charging.

Do not connect or disconnect live circuits. Turn off charger and connect ground cable last, away from battery.

Stop or cut back charging rate if battery case feels hot, or is venting electrolyte. Battery temperature must not exceed 52°C (125°F).



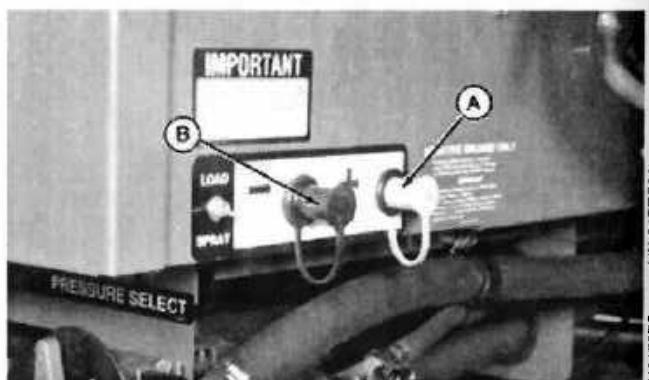
-UN-07CCT88

N36890

NX,4700,P17 -19-07AUG97

## CHARGING BATTERIES (ON MACHINE)

1. Remove covers from remote terminals.
2. Attach positive charger lead to positive remote terminal (A) with charger in the OFF position. Attach negative charger lead to negative remote terminal (B).
3. Turn charger to ON position and charge batteries following manufacturer's instructions for using the charger.
4. Turn charger to OFF position. Remove negative charger lead first, then the positive lead.
5. Place covers on remote terminals.



-UN-04DEC96

N42173FO

NXL,4700,P18A -19-31DEC96

## SERVICING BATTERIES

**CAUTION:** Batteries can explode causing serious injury or death to you or others. Do not attempt to service batteries unless you have the proper equipment and experience to perform the job. Have it done by your John Deere dealer or other qualified dealers.

Use John Deere batteries or an equivalent with a rating of at least 625 cold cranking amps at -18°C (0°F).

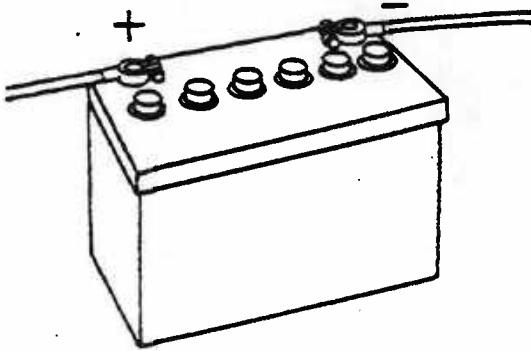
Proper battery maintenance is vital to dependable service. Keep battery water level even with bottom of cell filler neck and never below the top of cell plates. Do not add water in freezing weather unless engine is run 2 or 3 hours to mix electrolyte.

Keep batteries clean. Keep all connections clean and tight. Remove any corrosion, and wash terminals with solution of baking soda and water. Coat with grease prior to attaching cables.

Keep batteries fully charged, especially during cold weather.

**IMPORTANT: BATTERY IS NEGATIVE GROUNDED.**

Always connect starter cable to positive (+) terminal of battery and battery ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator can result in permanent damage to electrical system.



-UN-07OCT88

N36877

NXH8,64020,D201-19-21APR98

## PREVENTING BATTERY DAMAGE

Be sure alternator connections are correct before cables are connected to battery.

Carefully observe polarity when attaching booster battery.

Do not operate the engine with alternator or battery disconnected.

Do not short across battery or alternator terminals, or allow battery positive (+) cable or alternator wire to become grounded.

Do not polarize the alternator.

Disconnect battery cables before using an electric welder on the machine.

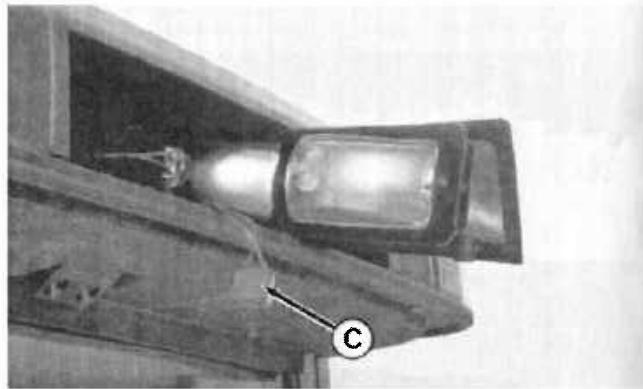
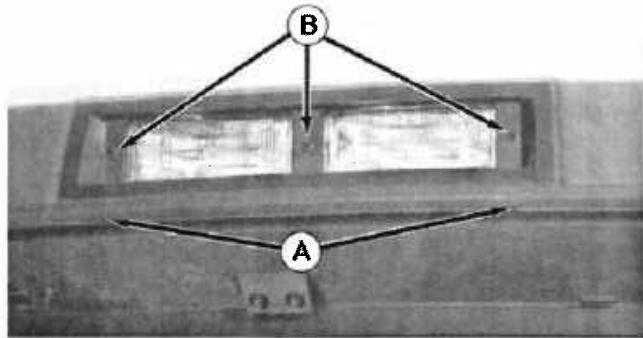
Store batteries below 27°C (80°F) for maximum shelf life. Check voltage after storage, and recharge as needed, as recommended by battery manufacturer.

Do not store batteries in discharged state, or stack batteries on top of each other.

NXH8,64020,D202-19-21APR98

## REPLACING ROOF FRONT FLOOD LIGHT

1. Remove screws (A) holding lamp bezel in roof.
2. Remove screws (B) to remove lamp from bezel.
3. Disconnect lamp from connector (C) and connect new lamp.



-UN-14JUL94

RW55420

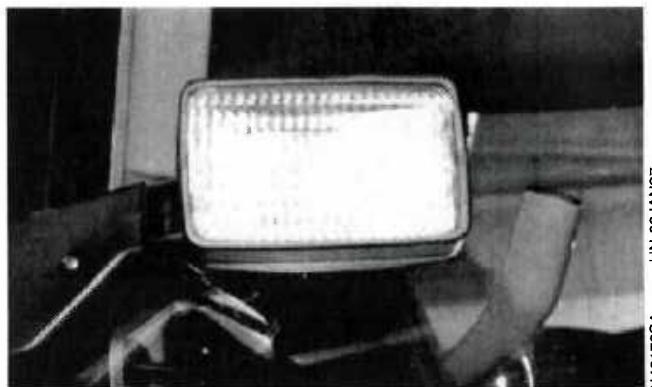
-UN-14JUL94

RW55421

NX,OM4700,13A -19-31DEC96

## REPLACING MID-BODY FLOOD LIGHT

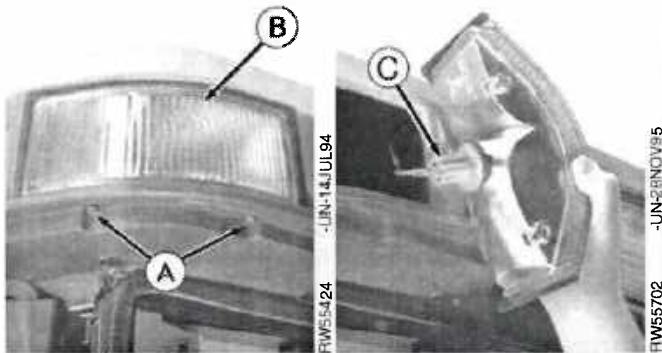
1. Disconnect electrical connector from lamp.
2. Remove lamp bracket hardware and remove lamp.
3. Attach new lamp to machine with mounting hardware previously removed.
4. Connect electrical connector to lamp.



NX,4700,P20A1 -19-16JAN97

## REPLACING FRONT AND REAR WARNING LIGHT—OPTIONAL

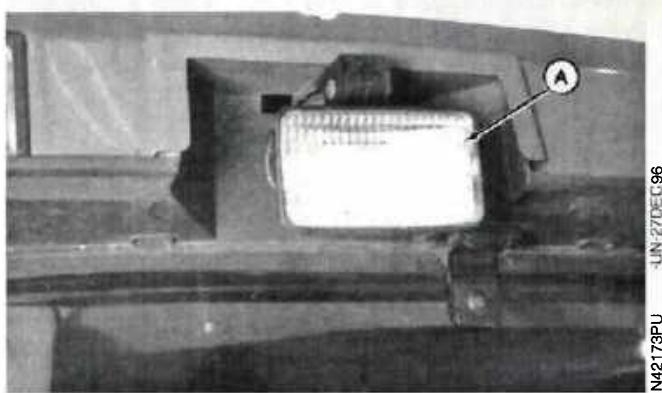
1. Remove screws (A) holding lamp in roof.
2. Pull lamp housing (B) from roof.
3. Replace bulb (C).
4. Replace housing.



NX,OM4700,16A1 -19-07AUG97

## REPLACING ROOF REAR FLOOD LIGHT—OPTIONAL

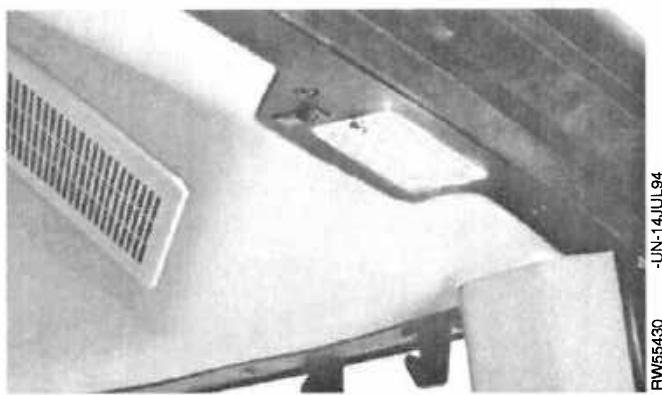
1. Disconnect electrical connector from lamp (A).
2. Remove lamp bracket hardware and remove lamp.
3. Attach new lamp to machine with mounting hardware previously removed.
4. Connect electrical connector to lamp.



NX,OM4700,17A -19-31DEC96

## REPLACING DOME/ENTRANCE LIGHT

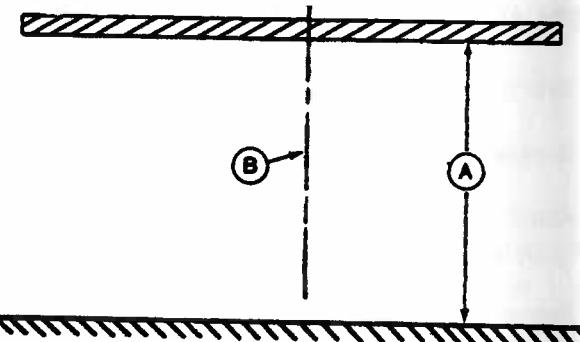
1. Remove screws from bezel.
2. Replace bulb.



NX,OM4700,20A -19-31DEC96

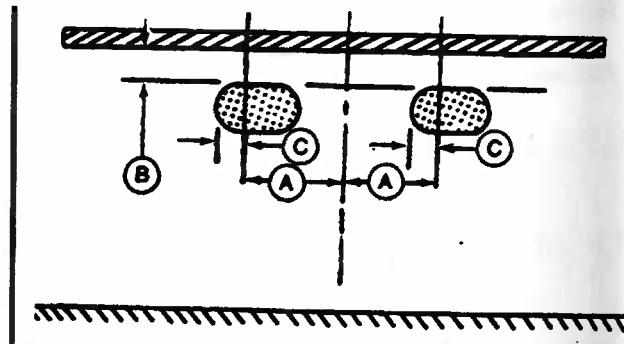
## AIMING HEADLIGHTS

1. Empty sprayer solution tank.
2. Park machine on level ground with lights 8 m (25 ft) from a wall.
3. Measure height of headlights above the ground, and place a strip of masking tape on wall at same height (A).
4. Sight across steering wheel and hood ornament to locate machine centerline. Mark this spot on tape (B).



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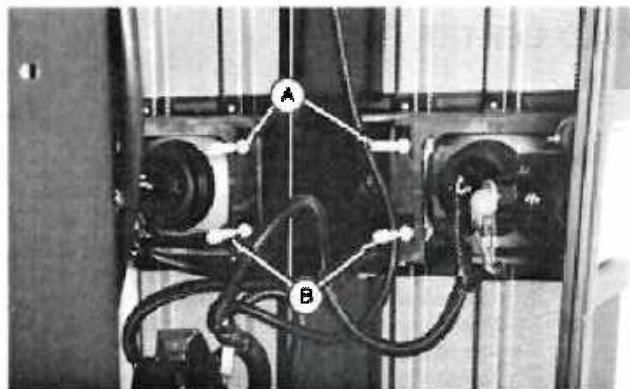
5. From machine centerline mark a point 920 mm (36 in.) out in each direction (A). This mark locates a point directly in front of each lamp center.
6. Turn light switch to low beam.
7. Locate small zone of bright light projected by each lamp. Cover other lamps if necessary. Top of zone (B) should be 127 mm (5 in.) below tape. Left edge of zone (C) should be 127 mm (5 in.) left of lamp location mark (A).



NXH8,64020,D209-19-15APR98

8. Adjust headlights by turning self-locking screws on the inner top (A) and inner-bottom (B) of each light.

Beam Direction	Screw Adjustment
Raise	Turn Screw (A) Counterclockwise Turn Screw (B) Clockwise
Lower	Turn Screw (A) Clockwise Turn Screw (B) Counterclockwise
Inward	Turn Screw (A) and (B) Counterclockwise
Outward	Turn Screw (A) and (B) Clockwise



FW20731 -UN-28JUL92

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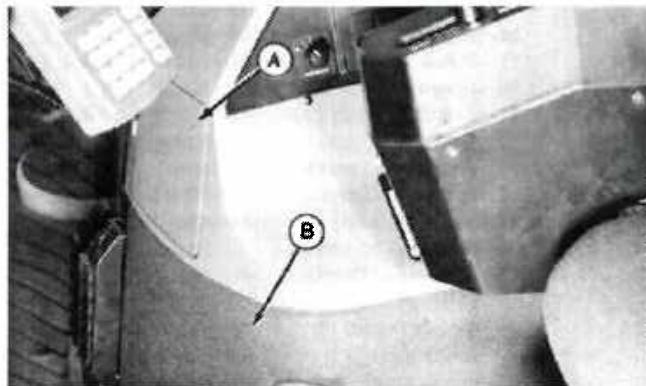
## REPLACING FUSES

Remove cover to access fuse panel (A).

Remove upholstery (B) from side console to access relays.

All electrical circuits are protected by fuses. Amperage rating is marked on each fuse plus fuses are color coded to ensure proper replacement.

Fuse Rating	Color
3 Amp	Purple
5 Amp	Brown
10 Amp	Red
15 Amp	Blue
20 Amp	Yellow
25 Amp	Clear
30 Amp	Green



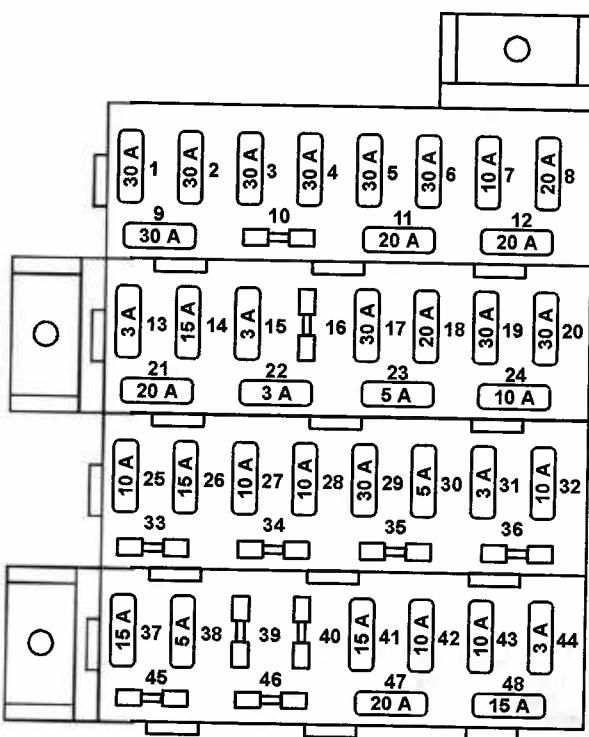
N42173OW -IN-30DEC96

**IMPORTANT:** Do not replace original fuse with higher rated fuse or machine damage may occur. If original size fuse will not carry electrical load and continues to blow, have the electrical system checked by your John Deere dealer.

NX.4700.P24A1 -19-16JAN97

## LOAD CENTER FUSES

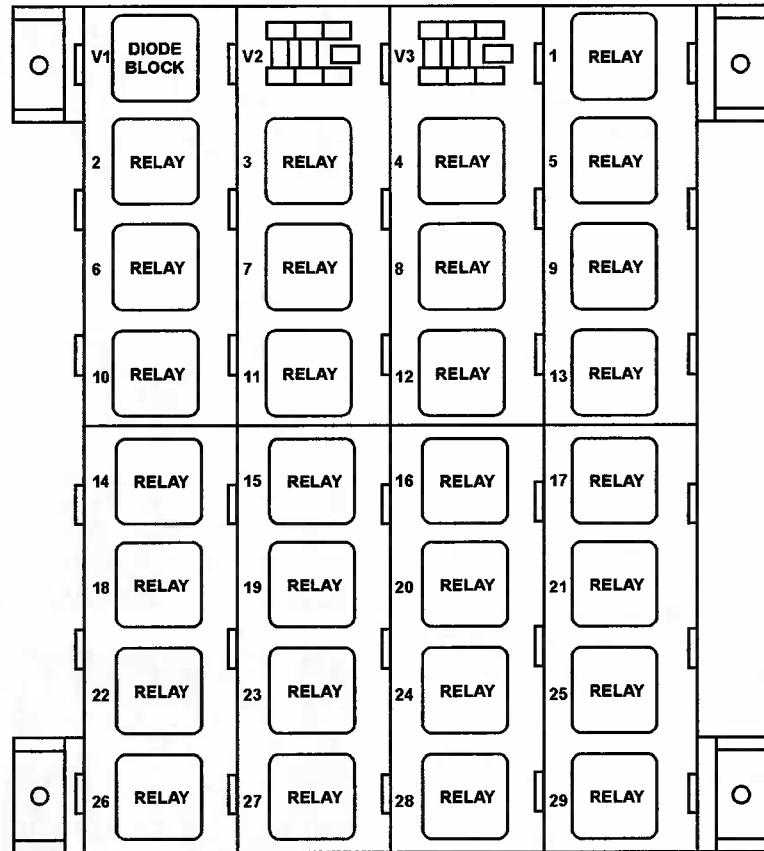
- |  |   |
|--|---|
| 1—Key Switch (30 amp)                  | 26—Ground                               |
| 2—Accessories (30 amp)                 | Speed/Tread                             |
| 3—Light Switch (30 amp)                | Adjust/Traction                         |
| 4—Bright and Dim Headlights (30 amp)   | Control (15 amp)                        |
| 5—Roof Lights (30 amp)                 | 27—Throttle (10 amp)                    |
| 6—Auxiliary Lights (30 amp)            | 28—Park Brake (10 amp)                  |
| 7—Horn and Bright Light Relay (10 amp) | 29—Auxiliary Plug (30 amp)              |
| 8—Hazard, Turnsignal Lights (20 amp)   | 30—Radio Memory, Dome Lights (5 amp)    |
| 9—Ladder (30 amp)                      | 31—CCU Memory (3 amp)                   |
| 10—Spare                               | 32—Lighter (10 amp)                     |
| 11—Front Wiper (20 amp)                | 33—Spare                                |
| 12—Rear Wiper (20 amp)                 | 34—Spare                                |
| 13—Hydro Handle (3 amp)                | 35—Spare                                |
| 14—Boom (15 amp)                       | 36—Spare                                |
| 15—Pulse (3 amp)                       | 37—CCU Drive (15 amp)                   |
| 16—Spare                               | 38—CCU Logic (5 amp)                    |
| 17—Auxiliary Plug (30 amp)             | 39—Spare                                |
| 18—Blower (20 amp)                     | 40—Spare                                |
| 19—Blower (30 amp)                     | 41—Solution Pump (15 amp)               |
| 20—Seat (30 amp)                       | 42—Boom Section Spray Switches (10 amp) |
| 21—Ignition (20 amp)                   | 43—Radio (10 amp)                       |
| 22—SprayStar Display (3 amp)           | 44—Cab Blower Relay (3 amp)             |
| 23—Boom Select (5 amp)                 | 45—Spare                                |
| 24—Air Conditioning (10 amp)           | 46—Spare                                |
| 25—Turn Signal Switch (10 amp)         | 47—Agitation (20 amp)                   |
|  | 48—Foam Marker (15 amp)                 |



N42173UZ -19-15JAN97

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## LOAD CENTER RELAYS AND DIODES



NA42183CZ

-19-08AUG97

V1—Flash Lamp  
Diodes—Roof Lamp  
Control Diodes  
V2—Spare  
V3—Spare  
1—Right Foamer Relay  
2—Electronics Power Relay  
3—Accessory Power Relay  
4—Traction Control Relay  
5—Left Foamer Relay  
6—Wiper Relay

7—Wiper Latch Relay  
8—Wiper Pulse Relay  
9—Cab Blower Relay  
10—Cab Blower Purge Relay  
11—Pressure Blower Relay  
12—Left-hand Boom Raise  
Relay  
13—Left-hand Boom Lower  
Relay  
14—Center Frame Raise  
Relay

15—Center Frame Lower  
Relay  
16—Right-hand Boom Raise  
Relay  
17—Right-hand Boom Lower  
Relay  
18—Park Brake Relay  
19—Hydro Lever, Neutral  
Switch  
20—Auxiliary Plug Relay

21—Horn Relay  
22—Roof Lights Relay  
23—Auxiliary Lights Relay  
24—Dim Lights Relay  
25—Bright Lights Relay  
26—Right-hand Turn Relay  
27—Left-hand Turn Relay  
28—Right-hand Taillight  
Relay  
29—Left-hand Taillight Relay

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## SERVICING AIR CONDITIONER

**CAUTION:** Escaping refrigerant under pressure can penetrate eyes and skin causing serious injury to you or others. Do not attempt to repair or service refrigerant system. See your John Deere dealer.

**IMPORTANT:** R134a refrigerant must be used. This requires special equipment and procedures. See your John Deere dealer.

**NOTE:** Some oil seepage from compressor shaft seal on the lower front is normal.

Check the following if air conditioner will not cool or cooling is intermittent:

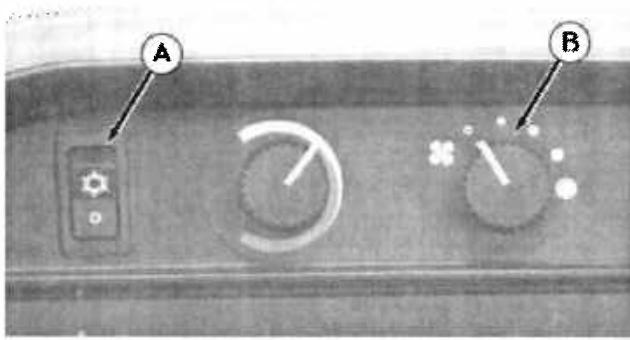
- If air conditioner clutch slips after machine has been in storage, compressor may be stuck. Stop engine and turn key switch to OFF position. Remove clutch cover. Rotate clutch hub back and forth to free compressor.
- Run engine at 2000 rpm. Set defroster/air conditioner switch (A) to ON position by pressing top of switch and set blower switch (B) to HIGH position. Check sight glass on receiver/dryer (C) below left front corner of cab for bubbles. If bubbles do not disappear, system may be low on refrigerant. See your John Deere dealer.

**NOTE:** Bubbles may appear in sight glass on receiver/dryer when operating at temperatures below 18°C (65°F). This is normal. Bubbles will disappear as temperature rises.

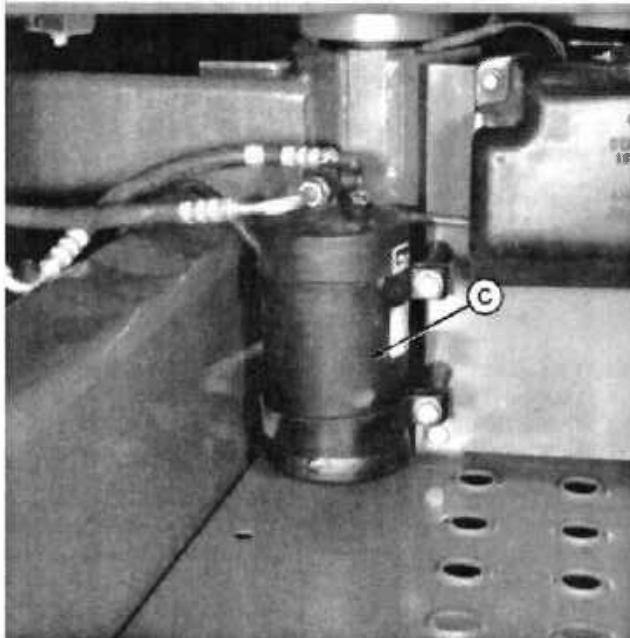
- If cooling is intermittent, clean grille, side screens, radiator and condenser. If problem is not solved, see your John Deere dealer.
- Inspect cab body filters for restriction. Clean filters. If problem persists, see your John Deere dealer to have evaporator core cleaned.



-UN-23AUG88



-UN-28JUN94



-UN-26NOV98

## Avoid Exposure to Chemicals



**CAUTION:** Exposure to chemicals, including pesticides, can cause injury or death.

**DO NOT RELY ON THIS CAB, CAB PRESSURE INDICATOR, OR CAB AIR FILTERS TO PROTECT AGAINST CHEMICAL EXPOSURE.**

**To reduce risk of chemical exposure:**

**Wear PERSONAL PROTECTIVE EQUIPMENT in accordance with chemical manufacturer's label.**

**Allow only trained, certified applicators to apply chemicals.**

**Keep chemicals out of the cab.**

**Clean or remove contaminated shoes or clothing before entering the cab.**

**Keep cab interior clean.**

**Read and follow all instructions in:**

- Manufacturer's label for each chemical applied;
- US EPA Worker Protection Standard for Agricultural Pesticides;
- State or regional guidelines for worker safety and health;
- Operator's Manual for this machine.

Numerous requirements must be met, including but not limited to EPA regulations.

Even while inside cab, always wear long sleeves, long pants, shoes, and socks when applying chemicals, including pesticides.

If necessary to leave cab when chemicals, including pesticides, are present, always use personal protective equipment recommended by chemical manufacturer.

Before re-entering cab, remove personal protective equipment used to handle chemicals, including pesticides, and store equipment in accordance with EPA guidelines to prevent contaminating cab.

OUO6092,0000339 -19-04MAR02-1/1

## Cab Pressure Indicator



**CAUTION:** Exposure to chemicals, including pesticides, can cause injury or death. Wear PERSONAL PROTECTIVE EQUIPMENT, in accordance with chemical manufacturer's label.

**DO NOT RELY ON THIS CAB, CAB PRESSURE INDICATOR, OR CAB AIR FILTERS TO PROTECT AGAINST CHEMICAL EXPOSURE.**

Cab air pressure indicator (A) is located in cab left-hand upper rear corner.

Air pressure indicator assists in identifying air flow through fresh air filter and potential leaks in cab seals. With door and windows closed and blower ON, numbers on indicator provide a relative indication of pressure only. Operator should note initial indicator reading when filter is new. Indicator reading is normally in numeric middle range and decreases as filter collects dust and debris.

If indicator reading falls to either scale end, refer to TROUBLESHOOTING section of this manual.



**A—Cab Air Pressure Indicator**

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OOU06092,000033A -19-04MAR02-1/1

## Cab Air Filters



**CAUTION:** Exposure to chemicals, including pesticides, can cause injury or death. Wear PERSONAL PROTECTIVE EQUIPMENT, in accordance with chemical manufacturer's label.

**DO NOT RELY ON THIS CAB, CAB PRESSURE INDICATOR, OR CAB AIR**

### FILTERS TO PROTECT AGAINST CHEMICAL EXPOSURE.

Cab air filters reduce amounts of dust and contaminants in cab. Make sure that John Deere activated carbon filters, or appropriate substitutes, are installed at all times.

OOU06092,000033B -19-04MAR02-1/1

## Checking and Replacing Cab Air Filters

**CAUTION:** Exposure to chemicals, including pesticides, can cause injury or death. Wear PERSONAL PROTECTIVE EQUIPMENT, in accordance with chemical manufacturer's label, when removing air filters.

Dispose of used filters in accordance with federal, state, and local laws/regulations.

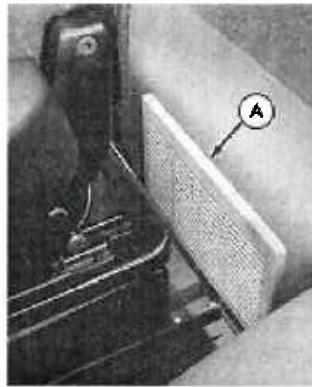
**IMPORTANT:** DO NOT clean recirculation air filter or fresh air canister filter. Replace filters at service interval or when performance indicates.

### Recirculation Air Filter

**IMPORTANT:** DO NOT clean filter. Replace filter at service interval or when performance indicates.

**NOTE:** Use John Deere activated carbon air filter or appropriate substitute. See your John Deere dealer.

1. Remove filter cover (A) behind seat. Remove filter.
2. Inspect filter for holes, seal damage, and other damage. Replace filter if any damage is detected. In dusty conditions, this service can be required more often.
3. Install filter and filter cover.



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A—Filter Cover

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**Fresh Air Filter**

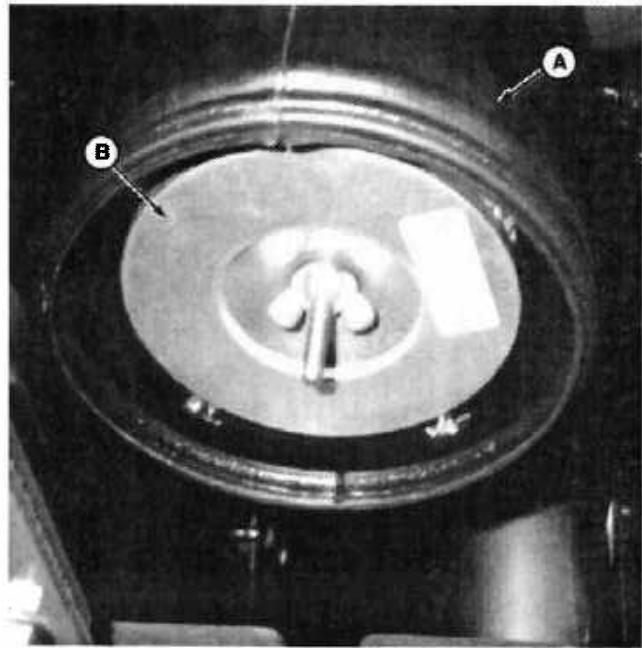
1. Remove cover from filter housing (A) under cab right-hand side.

**IMPORTANT: DO NOT clean canister filter. Replace filter at service interval or when performance indicates.**

**NOTE:** Use John Deere activated carbon air filter or appropriate substitute. See your John Deere dealer.

2. Remove air filter (B).
3. Remove foam pre-filter sleeve. Wash pre-filter in water or mild detergent and allow to dry. Inspect and replace as necessary.
4. Inspect air filter for holes, seal damage, and other damage. Replace filter if any damage is detected. In dusty conditions, this service can be required more often.
5. If air filter is replaced, record date and engine hours on decal (C).
6. Slide dry foam pre-filter sleeve on canister filter.
7. Install air filter and filter housing cover.

**A—Filter Housing**  
**B—Air Filter**  
**C—Decal**



N59956 -UN-26FEB02

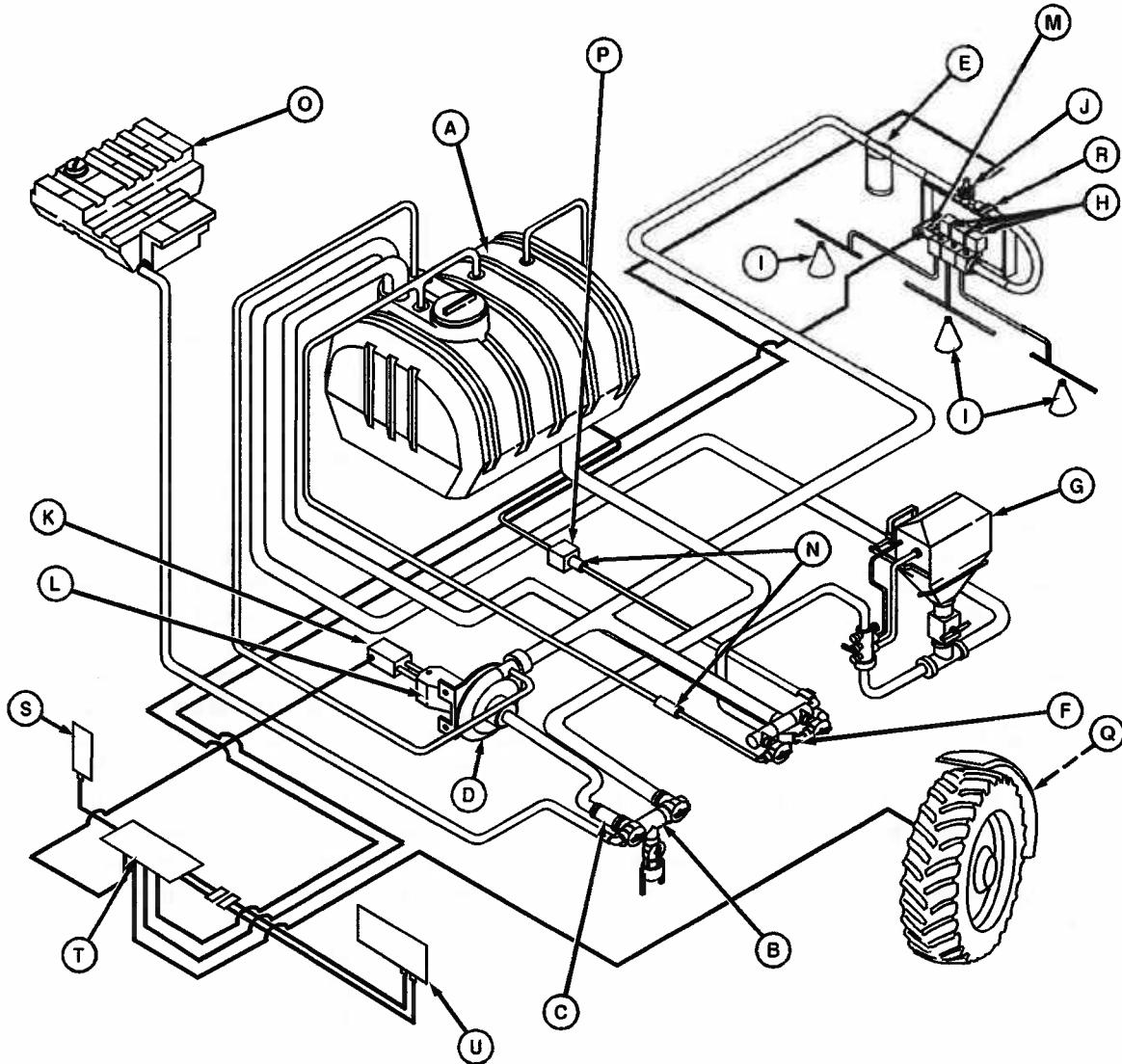


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# Wet System

## SOLUTION SYSTEM



-UN-090CT97

N42184AA

A—Solution Tank  
B—Solution Manifold  
C—Suction Strainer  
D—Centrifugal Pump  
E—Filter  
F—Pressure Manifold

G—Eductor  
H—Boom Section Shut-off Valves  
I—Spray Nozzles  
J—Solution Flowmeter  
K—Proportional Valve

L—Hydraulic Pump  
M—Pressure Transducer  
N—Check Valves  
O—Rinse Tank  
P—Agitation Solenoid Valve

Q—Wheel Speed Sensor  
R—High/Low Flow Valve  
S—Radar  
T—CCU/SRC  
U—SprayStar Display

NXH8,64025,E1 -19-15APR98

**SYSTEM COMPONENTS:**

The solution spray system consists of a tank, suction manifold, suction strainer, centrifugal pump, high/low flow valve, filter, pressure manifold eductor hopper, spray control valves and spray nozzles mounted on the boom.

Solution tank is made from polyethylene or stainless steel and has a capacity of 2839 L (750 gal). An access/fill cap is located at the top of the tank. At the back of the machine is a clear tube and graduated scale that indicates solution level in liters and gallons. Located at the bottom of the tank is the shut-off/solution outlet valve.

The suction manifold has three functions:

- The pump pulls solution from the tank to pressurize the spray system.
- The pump pulls on fresh water through the quick fill attachment to fill the tank.
- The pump pulls clean water from the fresh water tank to flush the system.

The suction strainer located on the suction manifold is a noncorrosive flush through type that eliminates the need for frequent cleaning.

The solution pump is a centrifugal type that is driven by a hydraulic motor. Engagement and disengagement of the pump is controlled by a switch located on the hydro lever. Any air trapped in the pump is allowed to escape through a bleed-off line. This helps prevent pump cavitation.

A filter is located on the back of the boom in line before the flowmeter. The filter removes sediment before it reaches flowmeter and boom valves.

A high/low flow valve is located on the boom to the left of the flowmeter. It is used to improve the control of the spray rate control system when smaller nozzles are used. The valve is set in open position for medium to high flow rates and in closed position for a flow rate of 76 Lpm (20 gpm) or less.

Agitation jets are in two locations on the bottom of the tank. The jet creates a vigorous fan type agitation throughout the tank to keep chemicals, such as wettable powders, in suspension. A valve is located on the side of the pressure manifold that can be adjusted to attain the desired agitation effect. A valve controlled by a switch on the console can be used to turn the agitation on and off.

**Pressure manifold does one of three things:**

- Directs fill water to the eductor manifold.
- Directs clean water to the tank rinse system.
- Directs water or solution directly to the tank.

The eductor manifold directs fill water through a ventura at the bottom of the hopper to create a vacuum to pull the chemical into the water stream. The manifold directs water to the hopper rinse and the jug rinse through two valves.

Spray control valves are motorized ball valves that cycle completely open or completely closed. The valves are operated by switches on the operator's side console.

The spray nozzles, located on the center frame and boom, meter, atomize and dispense the solution into specific patterns. Solution flow is metered by the size of the orifice in the nozzle tip. Within limits, solution flow through a nozzle can be increased or decreased by adjusting system pressure.

Most nozzles are designed for optimum performance at specific pressures. However, the range of adjustment is relatively narrow. Line pressures too high or too low will affect atomizing the solution and create variations in the spray pattern. The solution atomizes when the liquid is forced through the orifice in the nozzle. The shape of the spray pattern is determined by the shape of the orifice.

**SYSTEM OPERATION:**

When the pump is activated, solution is drawn from the solution tank, through the suction manifold and suction filter. The pump pushes the solution to the pressure manifold, then to the filter and on to the spray control valves.

When the spray control valves are open, the solution flows to the nozzles, where it is atomized and sprayed.

The flowmeter on the boom sends an electronic signal to the CCU/SRC, which compares that signal to the operator-programmed application rate. If there is a difference in the signal from the flowmeter and the programmed rate, the compensator in the proportional valve assembly will open or close as needed until the system is stabilized.

When the compensator opens, more hydraulic oil is sent to the hydraulic motor, causing the solution pump to increase its flow. When the compensator closes, less hydraulic oil is sent to the hydraulic motor, causing the solution pump to decrease its flow.

The Spray Rate Controller (SRC) provides the ability to maintain application within a range of application rates while changing speeds. Application rate consistency depends on a number of things such as nozzle tip size, application rate, and rate of speed change. The SRC provides quick response, but some differences in application rates can be observed if the operator makes rapid speed changes or operates at the extremes of the solution pressure range.

Principle parts of the SRC system are a speed sensor (either a wheel speed sensor on left front wheel motor or a radar speed sensor at front of machine), the spray rate controller, a variable speed solution pump, a flowmeter, and a solution pressure sensor. The speed sensor and flowmeter provide speed and flow rate information to the spray rate controller. The spray rate controller provides target (programmed by the operator) application rates by analyzing speed and flow data, and then making appropriate adjustments to the variable solution pump.

The spray rate controller is part of the Chassis Computer Unit/Spray Rate Control Unit (CCU/SRC) located under the floor plate inside the cab. The spray rate controller has an internal warning system that alerts the operator if the actual flow rate varies from the programmed flow rate by 20% of actual or more for 10 seconds. The SRC system is a volume-regulating system, so pressures displayed on the SprayStar display may vary at a given ground speed.

The solution pressure required for a given application rate is determined by speed and nozzle tip size. Before attempting to use the SRC, refer to a nozzle tip calculator or nozzle tip selection charts, and make sure the spray boom is equipped with spray tip nozzles that will provide desired application rates at desired pressures and speeds. Ground speed variation is limited by the operating pressure range of the nozzle tips.

The master "on/off" button located on the hydro lever is an integral part of the SRC system. When "off" is pushed, electrical power closes the boom valves and the variable solution pump slows to maintain minimum pressure (as set by the operator).

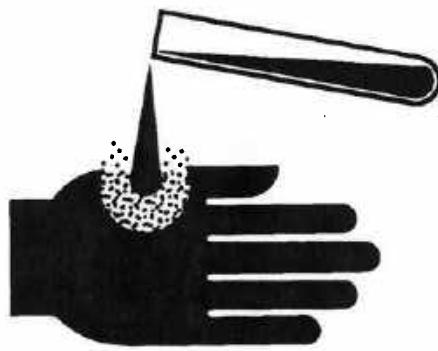
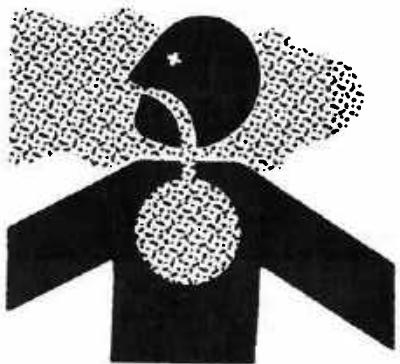
Solution may continue to spray from the boom for a short period of time after master "off" is pushed. This is due to pressure remaining in the line. The time interval that spray will continue flowing depends upon pressure in the spray line, boom hose lengths and routings, nozzle tip size, and use of nozzle check valves. In order to compensate for the boom shut-off lag time, master "off" should be pressed prior to reaching the turnrow.

Once master "on" has been pressed, if the machine is moving slowly or is not moving, the variable solution pump will maintain the minimum solution pressure as set by the operator. This may result in an application rate that is higher than the target rate (programmed by the operator). Likewise, if the machine is moving too fast, the variable solution pump will maintain the maximum solution pressure. This may result in an application rate that is lower than the target rate.

## Avoid Contact with Chemicals, Including Pesticides

**⚠ CAUTION: This enclosed cab does not protect against chemical exposure, including exposure to pesticides.**

1. When operating in an environment where harmful chemicals are present, wear a long-sleeved shirt, long-legged pants, shoes, and socks.
2. If chemical label requires respiratory protection, wear an appropriate respirator in the cab.
3. Wear personal protective equipment as required by the chemical label when leaving the enclosed cab:
  - into a treated area,
  - to work with contaminated application equipment, such as nozzles, which must be cleaned, changed, or redirected,
  - to become involved with mixing and loading activities.
4. Before re-entering the cab, remove personal protective equipment and store either outside the cab in a closed box or some other type of sealable container or inside the cab in a pesticide resistant container.
5. Clean or remove contaminated shoes or clothing before entering the cab.



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## REPLACING NOZZLES

*NOTE: Nozzles should be replaced when flow rate has increased by 10% from the desired rate at a given pressure.*

Nozzles are the most important part of the sprayer. No matter how well-engineered the rest of the machine is, if the nozzles are bad it is impossible to obtain good spray coverage. Therefore, it is extremely important to carefully choose the type and size of nozzles as well as maintain or replace them when needed.

As nozzles wear, their orifices increase in size. The monitor compensates for this by reducing the pressure to maintain the desired application rate. However, as nozzles wear they begin to lose their overlap and may apply almost twice as much chemical or pesticide under the nozzles as they do between the nozzles.

Inaccurate spray pattern can cause chemical or pesticide to be ineffective in controlling weeds, pests and disease. This can require another trip across the field with the subsequent fuel and labor costs, as well as the use of more chemical or pesticide. This added expense is much more than the expense of replacing nozzles.

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## NOZZLE TYPES

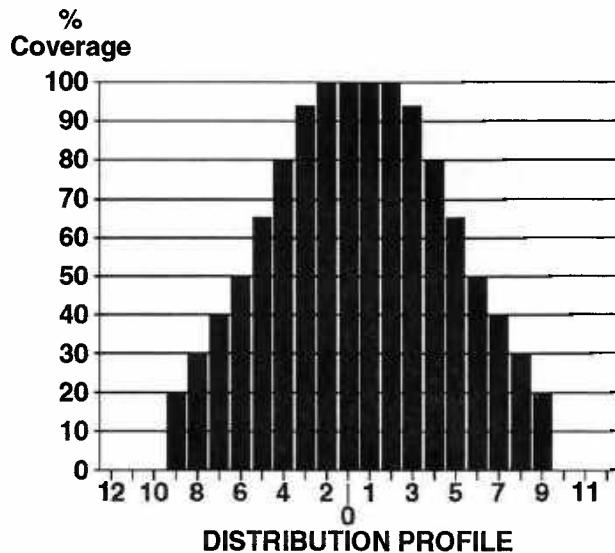
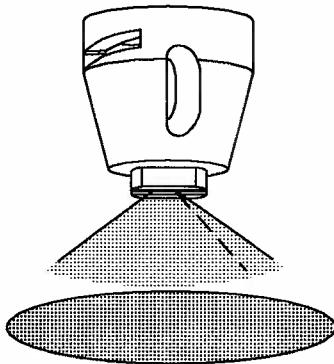
Basic nozzle types are:

- Flat Fan Nozzles
- Even Spray Nozzles
- Hollow Cone Nozzles
- Flood Nozzles

Each nozzle type is designed to produce a specific spray pattern and are offered in different sizes to achieve desired application rate.

Refer to the following information for general description of each nozzle type.

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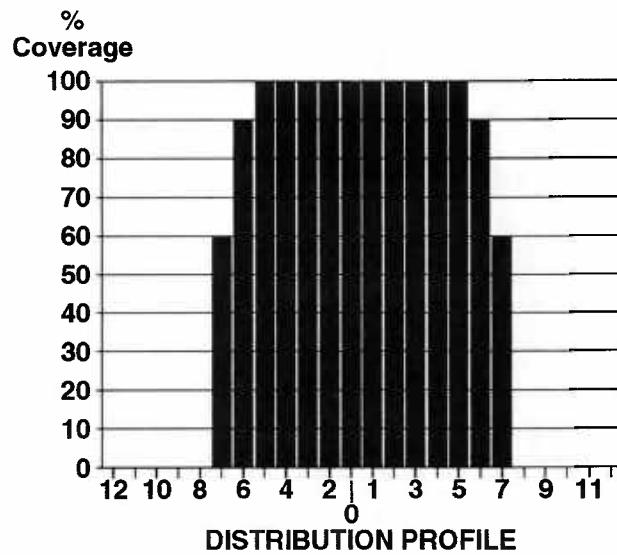
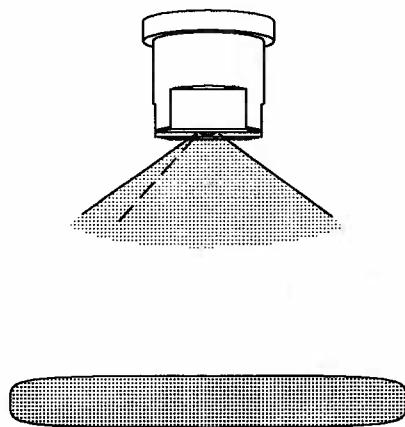
**FLAT FAN NOZZLE**

Flat Fan nozzles are an ideal choice for broadcast spraying when it is desirable to have a uniform amount of chemical applied across the entire width of the boom.

Flat Fan nozzles apply solution in an elliptical pattern.

To achieve uniform application, it is necessary to overlap these nozzles. Usually this is done with nozzles spaced 508 mm (20 in.) apart and positioned 457—559 mm (18—22 in.) above the target surface. Most flat fan nozzles are designed to operate in the 207—414 kPa (2—4 bar) (30—60 psi) range.

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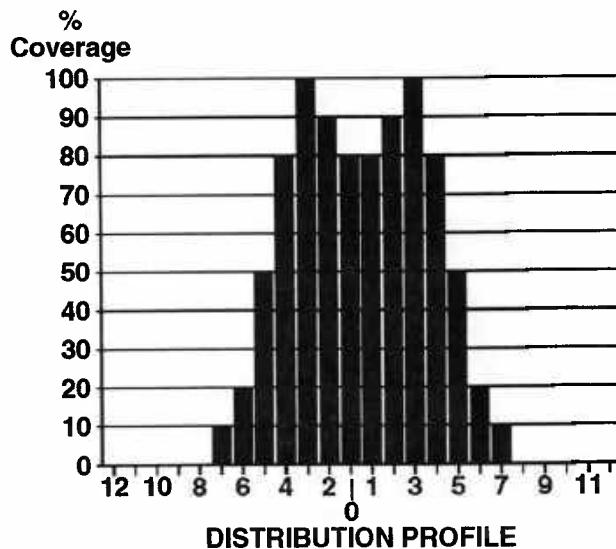
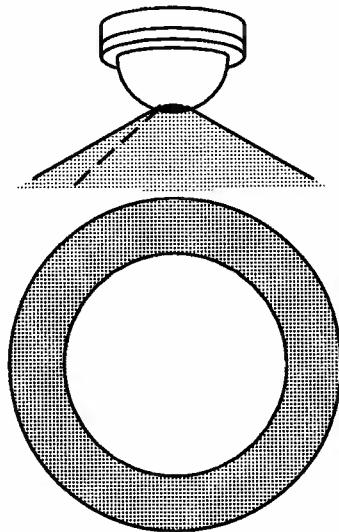
**EVEN SPRAY NOZZLE**

Even spray nozzles are used for banding applications as they apply a uniform amount of chemical over almost the entire width of the spray pattern. Simply by adjusting the nozzle height above the target surface, the operator can control the width of the spray band.

*NOTE: Even spray nozzles should not be used for broadcast spraying, because it is difficult to accurately adjust boom height to eliminate overlap or skips.*

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**HOLLOW CONE NOZZLE**

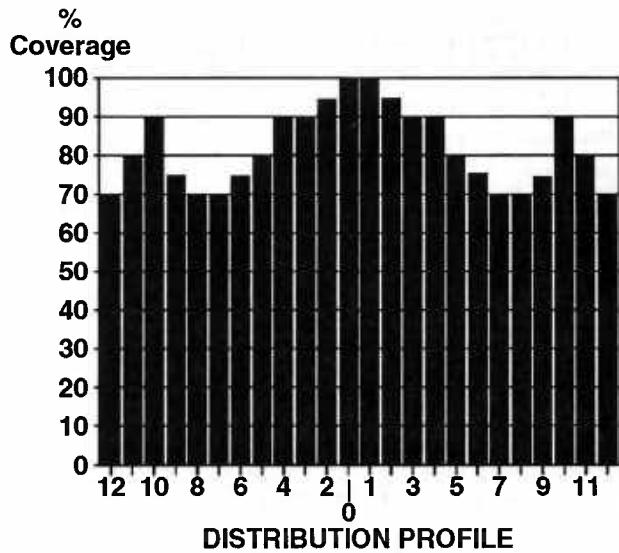
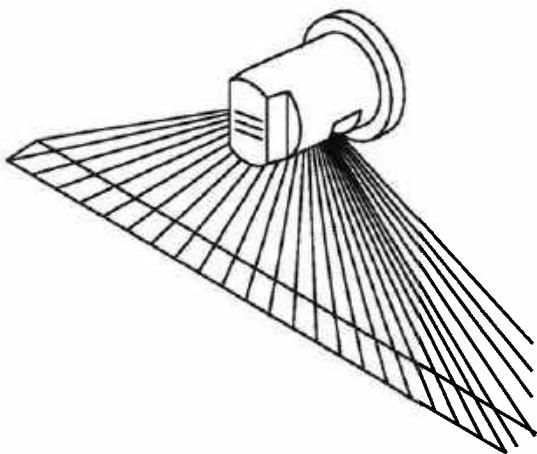
Hollow Cone nozzles are also used for banding applications, as they spray in a hollow circular pattern. Because the spray pattern is not uniform, these nozzles can also be used in broadcast applications, unlike Even Spray nozzles. However, they will not be as accurate as Flat Fan nozzles. The spray from Hollow Cone nozzles tends to swirl down

into the plants, which may help chemical make contact farther into the crop canopy and sometimes on the underside of leaves, too.

Hollow Cones also operate in a much wider pressure range 207-2586 kPa (2-26 bar) (30-375 psi) than Flat Fan and Even Spray nozzles.

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## FLOOD NOZZLE



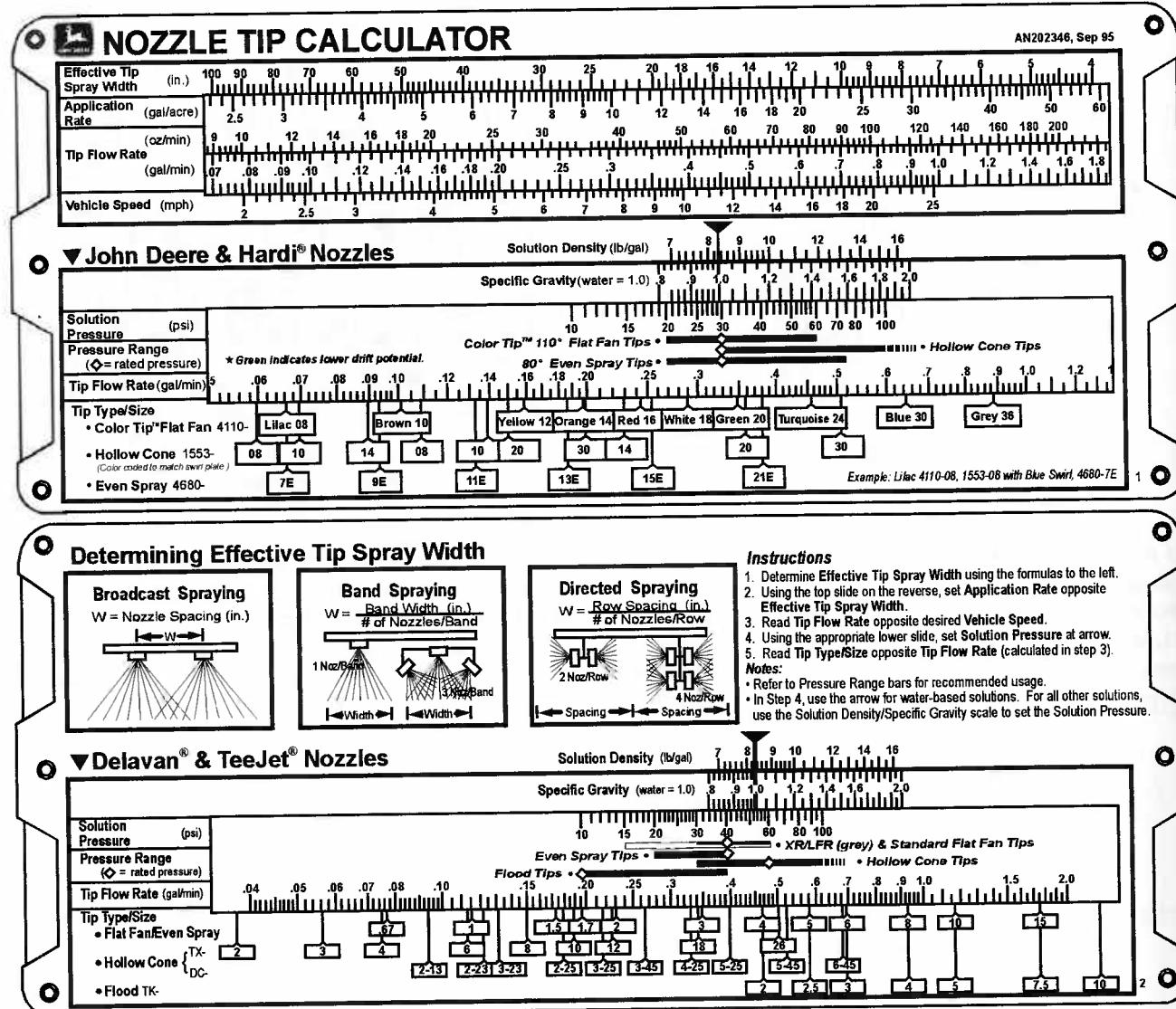
Flood nozzles are used when large quantities of solution must be applied and a quality distribution pattern is not critical. They have an extremely large orifice, which makes them very difficult to clog. They

operate at very low pressures and have a wide spray pattern. Often these nozzles are spaced 1016 mm (40 in.) apart on the boom.

NX,OM4700,A6A -19-28JUL97

N47071  
-19-28SEP95

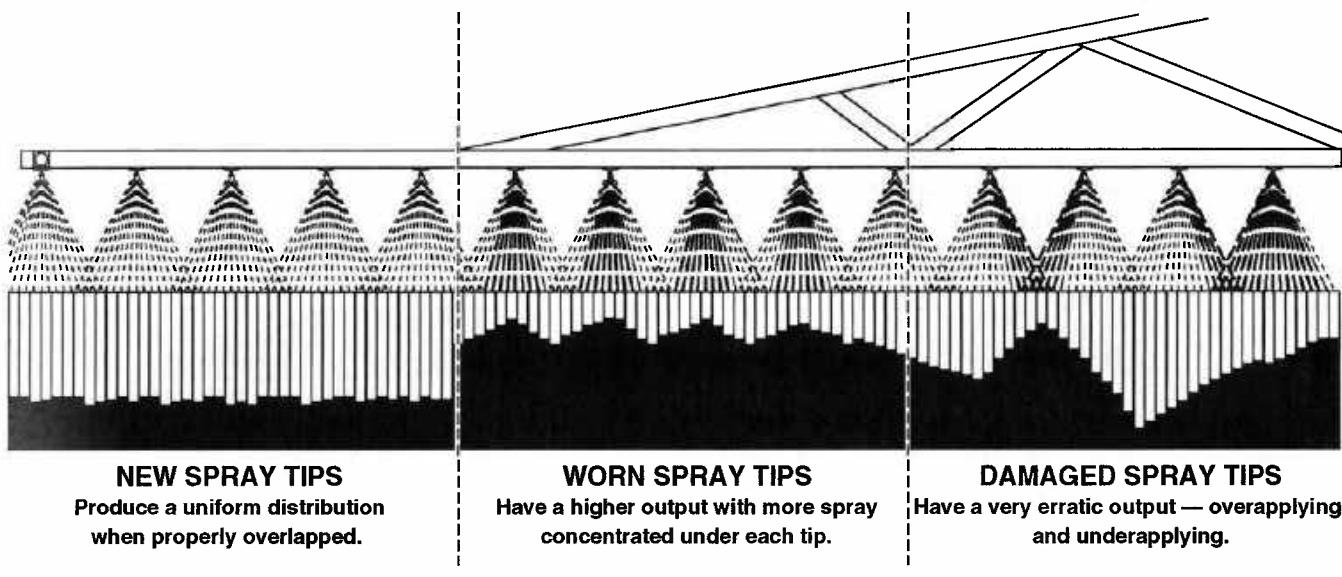
## USING NOZZLE TIP CALCULATOR AND SELECTOR



Follow directions on calculator to determine tip size.

**NOTE:** Calculator does not include all types of nozzles. Refer to Spray Master catalog if your nozzle type is not described.

## CHECKING AND REPLACING WORN NOZZLES



A major cause of improper spray application is nozzle wear. Maintenance and timely inspection helps to identify worn nozzles and extend service life.

Over-application can cause:

- Crop damage

- Chemical carry-over, affecting future crops
- Ground water contamination

Under-application may:

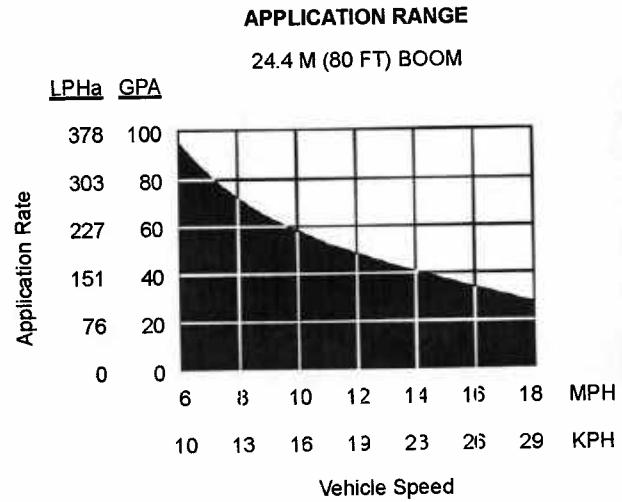
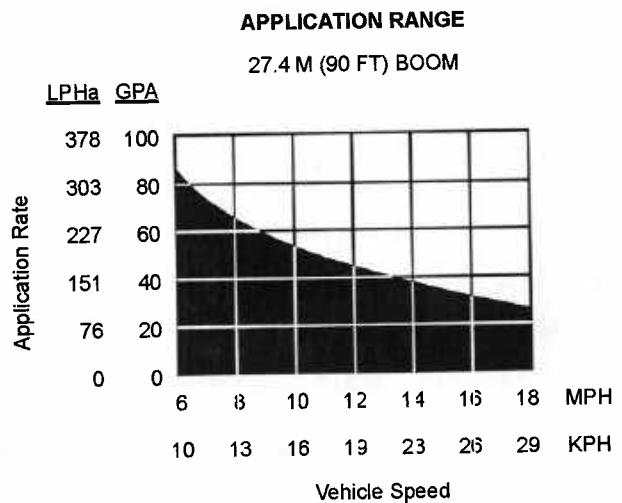
- Require additional field passes
- Cause inadequate weed, pest or disease control, all of which impact crop yields

NX,OM4700,WNOZ -19-14AUG97

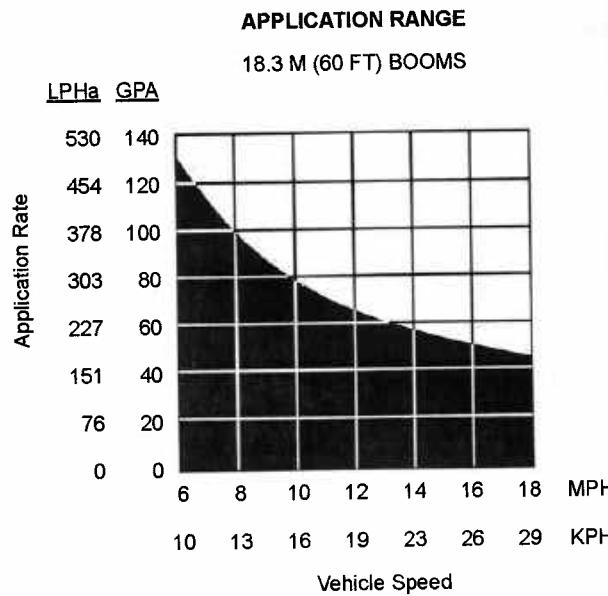
-19-29SEP95

NA7067

## BOOM FLOW CHARACTERISTICS—APPLICATION RATE VS. SPEED



N42184IL

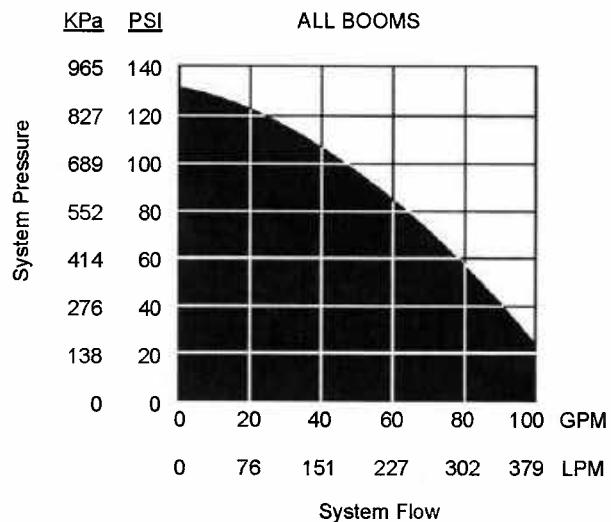


## BOOM FLOW CHARACTERISTICS—BOOM FLOW RATE VS. PRESSURE

*NOTE: Boom flow rate is not recommended under 15 L/min (4 gpm).*

\* A pressure drop occurs between the pressure sensor located on boom section shut-off valves and the nozzle tip. The larger the flow rate, the larger the pressure drop. No pressure drop occurs at very low flow rates 19 Lpm (5 gpm), but when the flow rate increases the pressure drop increases to a maximum of 62—69 kPa (.6—.7 bar) (9-10 psi) drop at 284 Lpm (75 gpm).

LIQUID SYSTEM PERFORMANCE



N42184LK -19-20NOV97

NXH8,64025,E15 -19-15APR98

## CALIBRATING NOZZLES

### FREQUENCY OF CALIBRATION

Even though a sprayer's operation can be theoretically determined using mathematical formulas, there are still many reasons to verify that the output is what it should be. For example,

- wear (especially on nozzles)
- damaged or malfunctioning parts (such as pressure gauges)
- plugged or restricted passages (such as strainers and hoses)

Obviously, pre-season visual checks are not adequate for accurate application, nor is the fact that equipment and nozzle tips are new. Also, manufacturer's catalogs are only guidelines; fine-tuning a sprayer is the operator's responsibility.

A sprayer's output should be checked:

- after any adjustments
- when switching to a new chemical or application rate
- after a week of continuous use under the same circumstances

Verifying the results of an adjustment is standard procedure for all John Deere products. Combine technicians would never make adjustments to a concave without then checking the hopper for cracked grain and the machine's path for grain passed on through. Likewise, you should never make adjustments to a sprayer without then verifying the output from the nozzles.

Cost	Applied to Sprayers	Combine Comparison
Wasted Resources	Over-or-Under-Application of Expensive Chemicals	Loss of crop in field
Reduced Yield/Quality	Chemical stress, pest pressure remaining	Crop damaged in threshing operation
Effect on Future Crops	Chemical Carryover	Volunteer crop next year
Custom Operator Fees	Usually \$4—\$6/acre	Approximately \$12/acre

## CALIBRATION PROCEDURE

To Verify the Sprayer's Output:

- 1. Put clean water in the tank.** Never perform tests with chemical or fertilizer solution in the tank.
- 2. Turn on the master spray and adjust the pressure to the desired level.** The engine speed should be the same as it would be under field conditions.
- 3. Hold a graduated pitcher under a nozzle for a certain length of time.** Use a stopwatch or other watch that shows seconds to know how long the pitcher was collecting solution. Calculate the tip's flow rate as follows. (Tip Flow Rate [Lpm] equals Volume Collected [L] over Time to Collect [sec] times 60.)
- 4. Compare the tip's actual flow rate with the required flow rate.**
- 5. Repeat Steps 3-4 with a couple nozzles in each section of the boom.** It is necessary to check several nozzles to get an average output. Even brand new nozzles will most likely not yield the exact flow rate expected.
- 6. Replace nozzles if necessary.** If any nozzle varies from the required flow rate by more than 10%, replace it. If two or more nozzles fail to pass, replace all the nozzles.
- 7. Adjust the pressure if necessary, then repeat the entire procedure.** If the average flow rate of the tips which were checked exceeds the required flow rate, reduce the pressure slightly. If the average flow rate was too low, increase the pressure slightly.

### Liters per minute

$$\text{Tip flow rate (lpm)} = \frac{\text{Volume (L)}}{\text{Collection Time (sec.)} \times 60}$$

OR

$$\text{Tip flow rate (lpm)} = \frac{\text{Volume (mm}^3\text{)}}{\text{Collection Time (sec.)} \times 60 \times 1000}$$

### Gallons per minute

$$\text{Tip flow rate (gpm)} = \frac{\text{Volume (gal)}}{\text{Collection Time (sec.)} \times 60}$$

OR

$$\text{Tip flow rate (gpm)} = \frac{\text{Volume (ounces)}}{\text{Collection Time (sec.)} \times 60 \times 128}$$

-19-05FEB97

N42167LW

NX,OM4700,CNOZZ-19-14AUG97

## CONVERSION FACTORS (CALIBRATING FOR CARRIERS OTHER THAN WATER)

For the purpose of choosing nozzle sizes for carriers other than water, a conversion factor must be applied to desired application rate of solutions lighter or heavier than water. To match nozzle tip output to solution, multiply the desired application rate of solution (gallons-per-minute or gallons-per-acre) by the conversion factor listed to arrive at Adjusted Calibration Rate (if using water).

Weight of Solution lb/gal (kg/l)	Example	Specific Gravity	Conversion Factor
7.00 (0.84)		0.84	0.92
8.00 (0.96)		0.96	0.98
8.34 (1.00)	Water	1.00	1.00
9.00 (1.08)		1.08	1.04
10.00 (1.20)		1.20	1.10
10.65 (1.28)	28% Nitrogen Solution	1.28	1.13
11.00 (1.32)	7-27-7 Fertilizer	1.32	1.15
11.06 (1.33)	32% Nitrogen Solution	1.33	1.15
11.40 (1.37)	10-34-0 Fertilizer	1.37	1.17
11.50 (1.38)	12-0-0-26 Fertilizer	1.38	1.17
11.60 (1.39)	11-37-0 Fertilizer	1.43	1.20
12.00 (1.44)		1.44	1.20
14.00 (1.68)		1.68	1.30

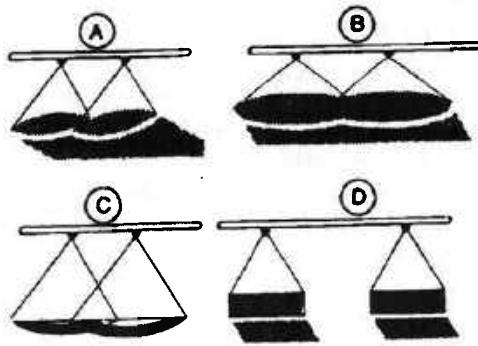
When spraying 32% Nitrogen Solution at 25 Gallons-per-acre (GPA), the nozzle tips should be selected (using water) to deliver 28.75 Gallons-per-Acre, due to the higher density of nitrogen solution.

25 X 1.15 = 28.75 Desired Application Rate x  
Conversion Factor = Adjusted Calibration Rate for Water

*NOTE: SprayStar target application rate will remain at 95 Lpm (25 gpa) since SprayStar is a flow based system.*

## INSTALLING AND POSITIONING NOZZLE TIPS AND STRAINERS

1. Use nozzle tip calculator to determine size of tips.
2. Install nozzle tips.
3. Position nozzles for the desired spray pattern. Set flat or even nozzles (A) or (D) so the slot in the bottom is at right angles to the row.
4. Install strainers if desired. Several different sized mesh strainers are available. See your John Deere dealer.



-UN-05JUN89

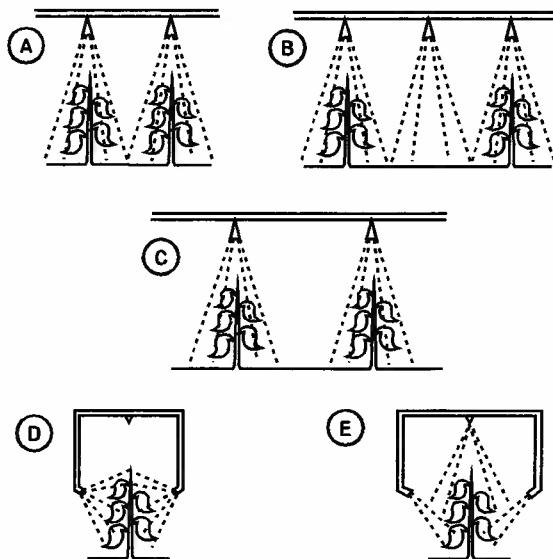
N33978

- A**—Flat Spray (Weed Control, Broadcast, Pre-Emerge)  
**B**—Cone Spray (Insect Control)  
**C**—Flood Spray (Broadcast)  
**D**—Even Spray (Banding)

NX,6500I,A45A -19-07AUG97

5. Position nozzles for either broadcast spraying or banding.

- A**—One Nozzle Per Row (Broadcast)  
**B**—Two Nozzles Per Row (Broadcast)  
**C**—One Nozzle Per Row (Banding)  
**D**—Two Nozzles Per Row (Banding)  
**E**—Three Nozzles Per Row (Banding)



-UN-26NOV96

N42173CZ

NX,OM4700,A46A2-19-28JUL97

## CLEANING HARDI SINGLE NOZZLE BODIES AND CHECK VALVES

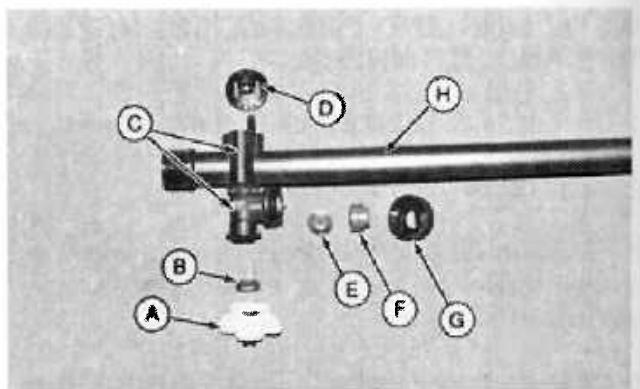


**CAUTION:** Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing or you could swallow or inhale hazardous chemicals which will poison causing serious injury or death to you or others.

**IMPORTANT:** Do not allow solvent or diesel fuel to contact rubber washers in caps as it will cause deterioration.

1. Clean periodically and any time irregular or uneven spray patterns are noticed.
2. Wash in soapy water using a soft bristle brush to clean.

**NOTE:** Service life of plastic nozzle tips can be greatly extended through careful cleaning. Do not use metal tools for cleaning as they can scratch hardened surfaces which will accelerate wear and shorten service life.



**A**—Nozzle Cap with Plastic Tip  
**B**—Strainer Screen  
**C**—Nozzle Body  
**D**—Nut  
**E**—Diaphragm  
**F**—Check Valve  
**G**—Retainer  
**H**—Spray Tube

N45319  
-JUN-01 JUN 93

NX,OM4700,CLN1A-19-18AUG97

## CLEANING HARDI TRIPLET NOZZLE BODIES AND CHECK VALVES

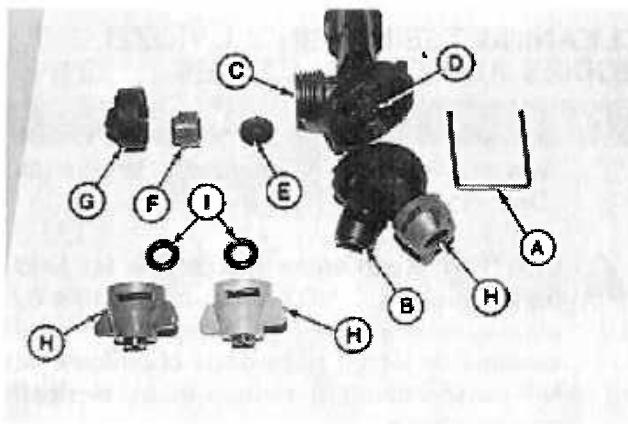
*NOTE: Hardi Triplet nozzle bodies and check valves are optional equipment. See your John Deere dealer.*

**CAUTION:** Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing or you could swallow or inhale hazardous chemicals which will poison causing serious injury or death to you or others.

**IMPORTANT:** Do not allow solvent or diesel fuel to contact rubber washers in caps as it will cause deterioration.

1. Clean periodically and any time irregular or uneven spray patterns are noticed.
2. Wash in soapy water using a soft bristle brush to clean.
3. Remove U-pin (A) to disassemble triplet holder.

*NOTE: Service life of plastic nozzle tips can be greatly extended through careful cleaning. Do not use metal tools for cleaning as they can scratch hardened surfaces which will accelerate wear and shorten service life.*



-JN-28SEP95

N47139

- A—U-pin
- B—Tip Holder
- C—Triplet Body
- D—O-ring (3 Used)
- E—Diaphragm
- F—Check Valve
- G—Retainer
- H—Nozzle Tip (3 Used)
- I—O-ring (1 each tip)

NX,OM4700,CLN2B-19-30OCT98

## CLEANING TEEJET SINGLE NOZZLE BODIES AND CHECK VALVES

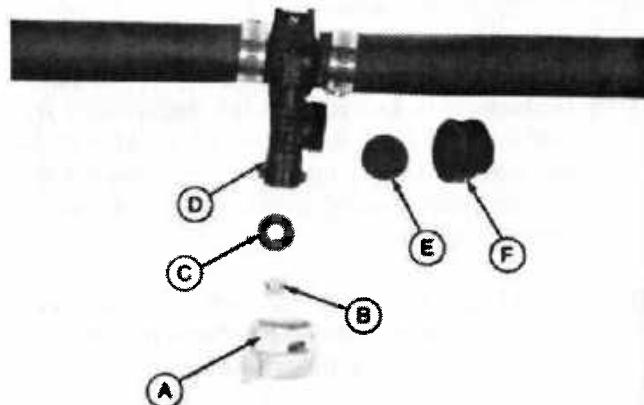
*NOTE: Spraying Systems nozzle bodies and check valves are optional equipment. See your John Deere dealer.*

**CAUTION:** Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing or you could swallow or inhale hazardous chemicals which will poison causing serious injury or death to you or others.

**IMPORTANT:** Do not allow solvent or diesel fuel to contact rubber washers in caps as it will cause deterioration.

1. Clean periodically and any time irregular or uneven spray patterns are noticed.
2. Wash in soapy water using a soft bristle brush to clean.

*NOTE: Service life of plastic nozzle tips can be greatly extended through careful cleaning. Do not use metal tools for cleaning as they can scratch hardened surfaces which will accelerate wear and shorten service life.*



**A**—Nozzle Cap  
**B**—Spray Tip  
**C**—O-ring  
**D**—Nozzle Body  
**E**—Diaphragm  
**F**—Check Valve

N42173WA  
-UN-15JAN97

NXH8,M68425,E23-19-07JUL98

## CLEANING TEEJET TRIPLET NOZZLE BODIES

**NOTE:** Spraying Systems Triplet nozzle bodies are optional equipment. See your John Deere dealer.

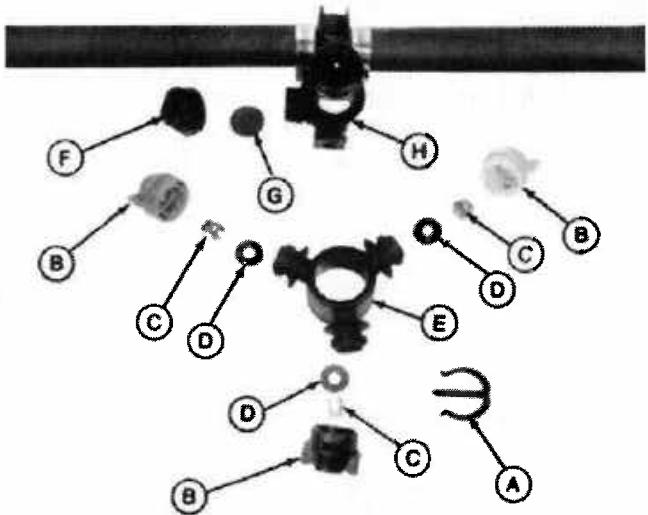
**CAUTION:** Keep spare nozzle tips for field replacement. DO NOT clean nozzle tips by placing in mouth and blowing or you could swallow or inhale hazardous chemicals which will poison causing serious injury or death to you or others.

**IMPORTANT:** Do not allow solvent or diesel fuel to contact rubber washers in caps as it will cause deterioration.

1. Clean periodically and any time irregular or uneven spray patterns are noticed.
2. Wash in soapy water using a soft bristle brush to clean.

**NOTE:** Service life of plastic nozzle tips can be greatly extended through careful cleaning. Do not use metal tools for cleaning as they can scratch hardened surfaces which will accelerate wear and shorten service life.

After cleaning triplet body, apply a silicone based lubricant to large O-ring on triplet body.



A—Retainer Clip  
 B—Nozzle Cap  
 C—Spray Tip  
 D—O-ring  
 E—Tip Holder  
 F—Check Valve  
 G—Diaphragm  
 H—Triplet Body

N42173WB -UN-15JAN97

NXH8,M68425,E24-19-07JUL98

## CLEANING SUCTION STRAINER

**CAUTION:** Spray system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves. Drain solution and clean strainer in an area where people, animals, vegetation and water supply etc., cannot be contaminated.

**NOTE:** Clean suction strainer if the following conditions exist:

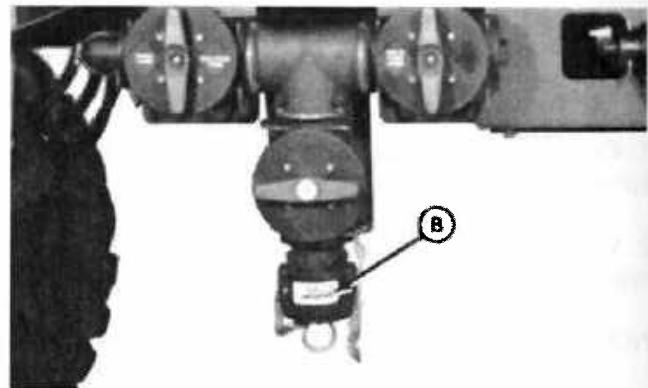
- Pump won't prime
- Pump fails to obtain maximum flow rate
- Pump fails to maintain desired pressure
- Application rates or pressure fluctuates

Suction strainer is located behind tank selector valve (A).

1. Pivot quick-fill down.
2. Open lock levers and remove cap (B).



N42173UE -JUN-13JAN97



N42173UE -JUN-13JAN97

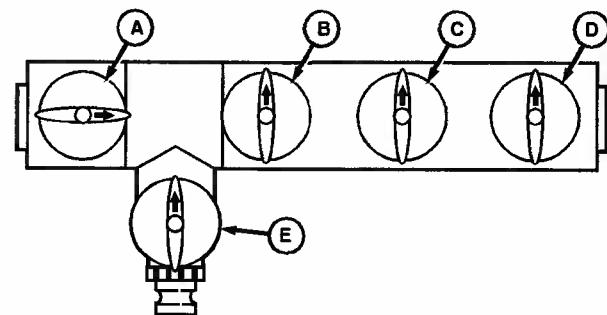
N42173UE -JUN-13JAN97

3. Turn valve (A) to "SOLUTION TANK" position.

4. Close valves (B), (C), and (D).

**CAUTION:** Do not drain solution onto the ground. Drain into a container. Drain solution in an area where people, animals, vegetation and water supply, etc., cannot be contaminated.

5. Open valve (E) and drain solution into a bucket or suitable container.
6. After solution has drained, close valve (E).



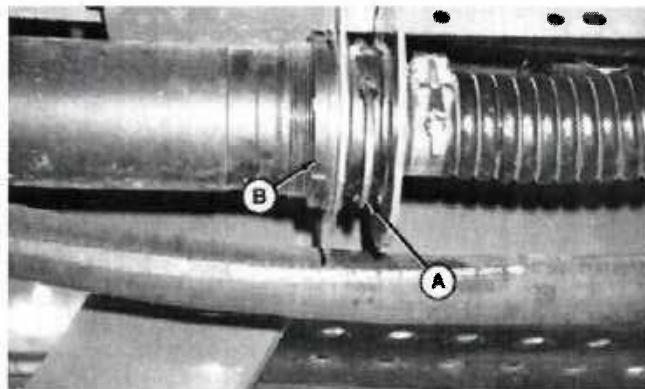
N42173UE -JUN-20JAN97

- A—Tank Selector Valve
- B—Solution Tank Open/Close Valve
- C—Tank Rinse Nozzles/Eductor Valve
- D—Bypass Valve
- E—Quick-fill Valve

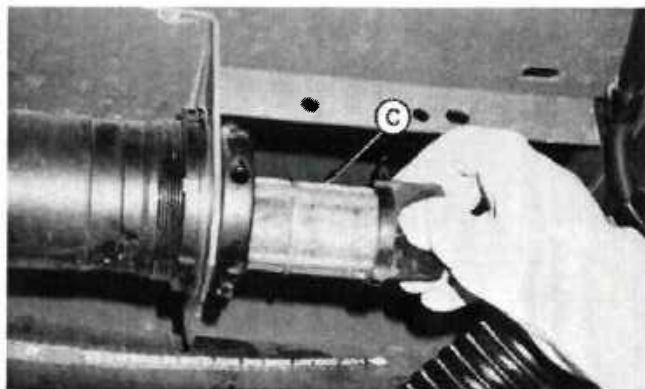
NXK7,OM55425,C6-19-26NOV97

*NOTE: Suction strainer is located behind tank selector valve.*

7. Remove fork (A) from pump suction end of strainer body (B).
8. Pull off pump suction hose and fitting on strainers.
9. Grasping plastic cap, pull strainer (C) out of strainer body.
10. Empty strainer and rinse with clean water.
11. Insert strainer into strainer body with plastic cap at outlet end.
12. Install suction hose and fitting.
13. Insert fork.



N42184DA -UN-28JUL97



N42184DB -UN-28JUL97

NX,4700,P32A3 -19-28JUL97

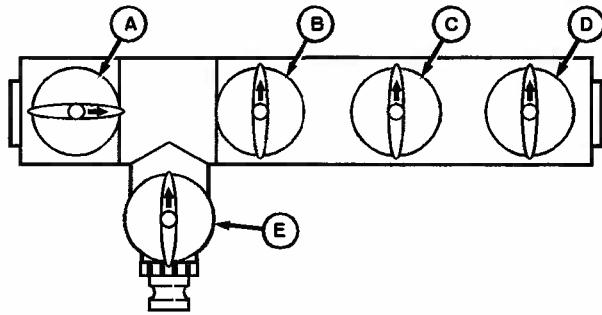
### CLEANING BOOM FILTER—AS REQUIRED

**CAUTION:** Spray system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves. Clean filter in a area where people, animals, vegetation and water supply etc. cannot be contaminated.

*NOTE: Clean boom filter if the following conditions exist:*

- Pump will not prime
- Pump fails to obtain maximum flow rate
- Pump fails to maintain dead head pressure
- Application rates fluctuate

1. Turn valve (A) to "SOLUTION TANK" position.
2. Close valves (B), (C) and (D).
3. Open valve (E) and collect solution in a bucket or suitable container.



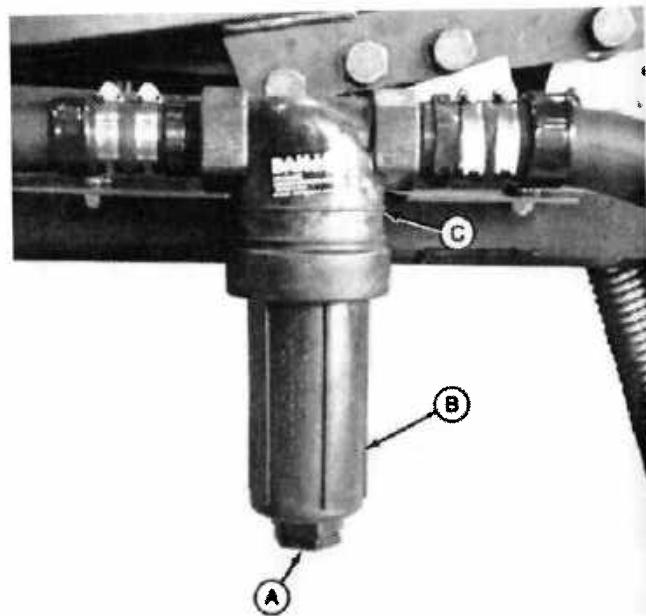
N42173PQ -UN-20JAN97

- A**—Tank Selector Valve  
**B**—Solution Tank Open/Close Valve  
**C**—Tank Rinse Nozzles/Eductor Valve  
**D**—Bypass/Boom Spray Valve  
**E**—Quick-Fill Valve

NXK7,OM55425,C8-19-26NOV97

**CAUTION:** Do not drain solution onto the ground. Drain into a container. Drain solution in an area where people, animals, vegetation and water supply, etc., cannot be contaminated.

4. Remove plug (A) to allow strainer to drain.
5. Remove cover (B) from strainer housing (C).

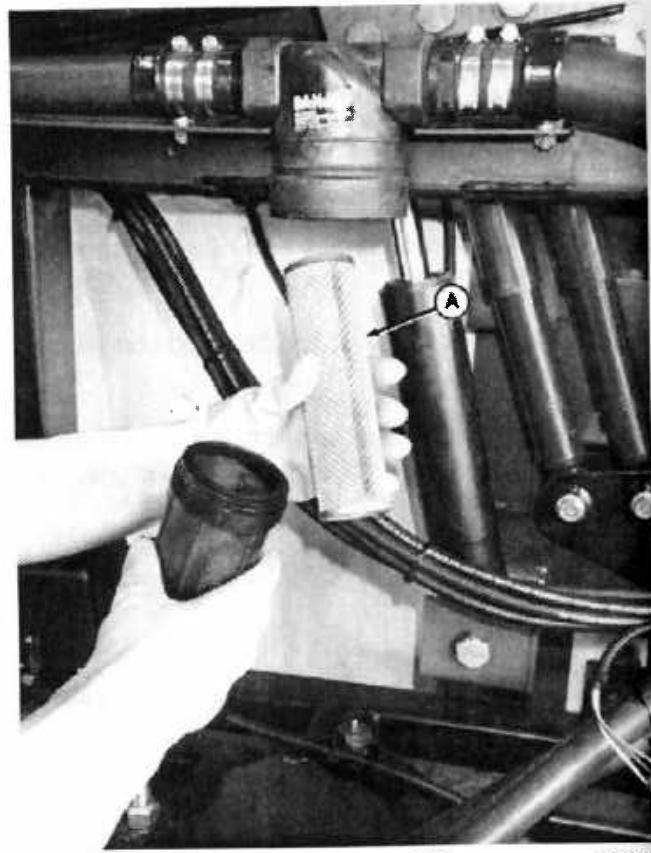


-UNI-SDOC197

N42184GZ

NXH8,64025,E29 -19-15APR98

6. Remove screen (A) and wash with clean water.
7. Install screen and cover on housing.
8. Install plug.



-UNI-SDOC197

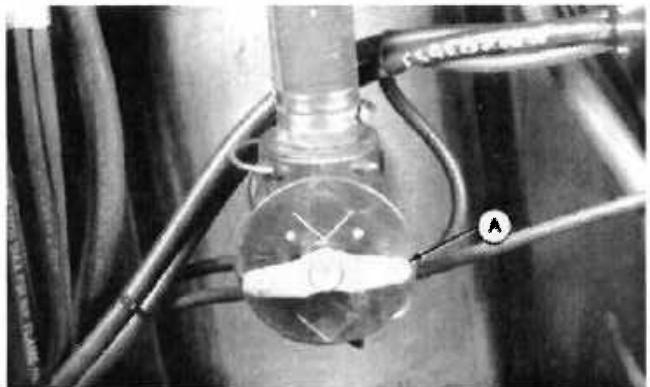
N42184CZ

NXOM470025,WE -19-04NOV97

## **OPERATING SOLUTION TANK SHUT-OFF VALVE**

The shut-off valve (A) under solution tank is closed when arrow on valve handle is pointing at either circle (handle points to side of machine).

The arrow on valve handle should point towards "FRONT" of machine when solution system is in operation.



-JUN-26NOV96

N42173DA

NXL,4700I,A3A -19-18FEB97

## **FILLING SOLUTION TANK WITHOUT USING QUICK-FILL**



**CAUTION:** Read carefully the directions printed on the chemical manufacturer's labels before handling chemicals or you may be exposed to hazardous or poisonous materials which can cause serious injury or death to you or others.

**IMPORTANT:** Do not add chemical to tank until just before field use. Follow the chemical manufacturer's instructions for mixing the spray solution to obtain the desired application rate and effect.

Instructions on the manufacturer's container label, regarding mixing proportions, should be read and strictly followed. The concentrate should not be poured into the empty tank. Open the tank lid and fill the tank about half full with clean, clear water, add the chemical concentrate, and then finish filling the tank with water.

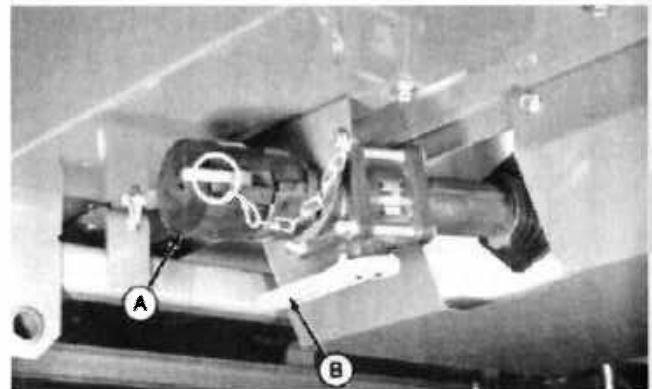
Keep spray material away from skin. If spray material comes in contact with the body, wash it off immediately with clean water and detergent.

NX,OM470025,WF -19-04NOV97

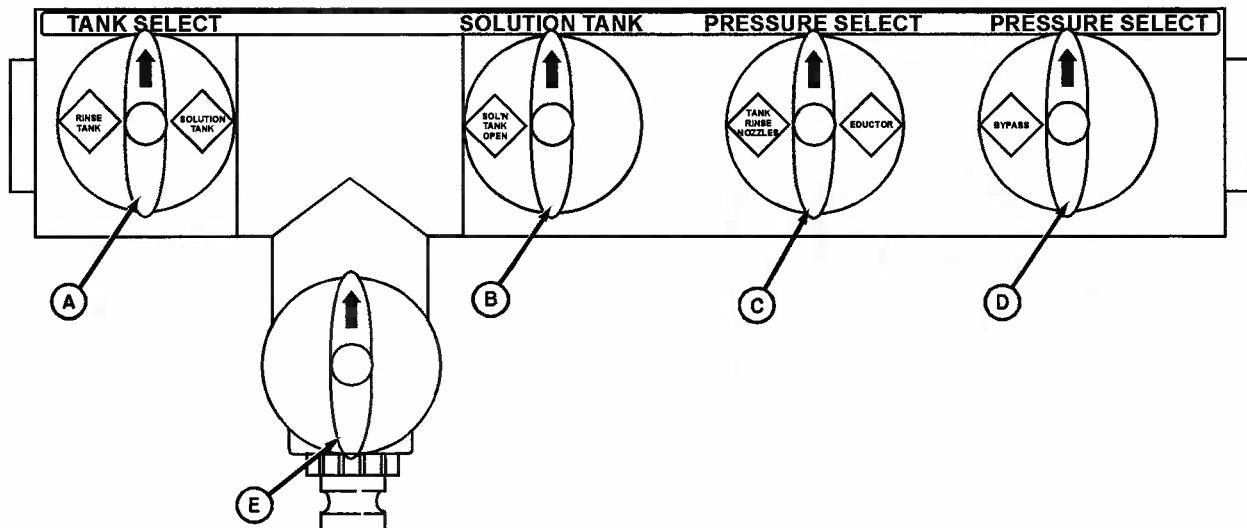
**FILLING RINSE TANK (IF EQUIPPED)**

*NOTE: Rinse tank is located on right-hand side of machine below the platform.*

1. Remove cap (A).
2. Connect fill hose to adapter.
3. Open valve (B) and fill rinse tank.
4. After tank is finished filling, close valve and remove fill hose.
5. Install cap on adapter.

-IN 15/JAN97  
N42173WC

NX,OM554,FRT -19-16JAN97

**WET SYSTEM VALVES**-19-08AUG97  
N42184DW

A—Tank Selector Valve  
B—Solution Tank  
Open/Closed Valve

C—Tank Rinse  
Nozzles/Eductor Valve

D—Bypass Valve

E—Quick-fill Valve

*NOTE: For proper operation of valve manifold, see decal of valve operation located above*

*manifold inside storage compartment door on left-hand side of machine.*

## PRIMING SOLUTION PUMP (NURSE TANK FLUID LEVEL ABOVE SPRAYER PUMP)

1. Operate engine at 1800 rpm.
2. Turn off solution pump switch (A).



NX,OM4700,PRM1A-19-28JUL97

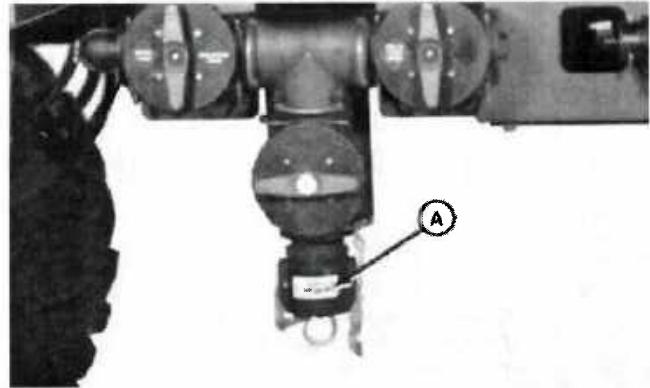
-4IN-27DEC96  
N421730B

-JUN-02JAN97

N421730T

**CAUTION:** Quick-fill valve can contain hazardous materials which can poison causing serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

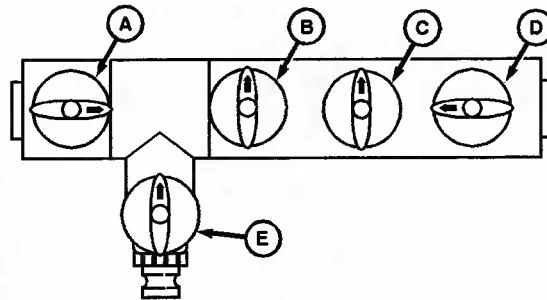
3. Pivot quick-fill down.
4. Open lock levers and remove cap (A).
5. Connect nurse tank fill hose to quick-fill adapter and close lock levers.



NX,OM4700,PRM2 -19-31DEC96

6. Turn valve (A) to "SOLUTION TANK" position.
7. Close valves (B) and (C).
8. Turn valve (D) to "BYPASS" position.
9. Open nurse tank valve and quick-fill valve (E) for approximately 1 to 2 minutes for proper priming of pump.

*NOTE: It may be necessary to wait an additional 1 to 2 minutes for pump to prime if level in nurse tank is just slightly above level in sprayer pump.*

-JUN-15JAN97  
N42173ID

- A—Tank Selector Valve
- B—Solution Tank Open/Close Valve
- C—Tank Rinse Nozzles/Eductor Valve
- D—Bypass Valve
- E—Quick-fill Valve

NX,OM470025,WG -19-04NOV97

*Wet System*

10. Move remote pump switch (A) to "LOAD" position.



-UN-23DEC96  
N42173NH

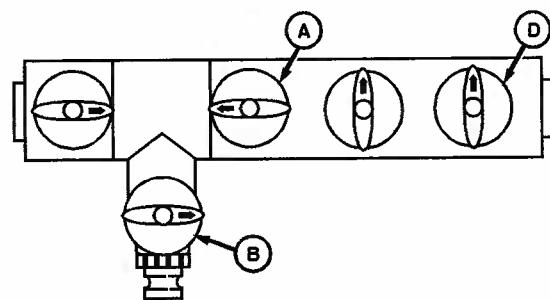
NX,OM4700,PRM4 -19-31DEC96

11. After solution tank has filled, turn valve (A) to "SOLUTION TANK OPEN" position while closing quick-fill valve (B).

12. Move remote pump switch (C) to "SPRAY" position.

13. Turn valve (D) to "OFF" position.

**A—Solution Tank Open/Closed Valve**  
**B—Quick-fill Valve**  
**C—Remote Pump Switch**  
**D—Bypass Valve**



-UN-25JUL97  
N42184CB

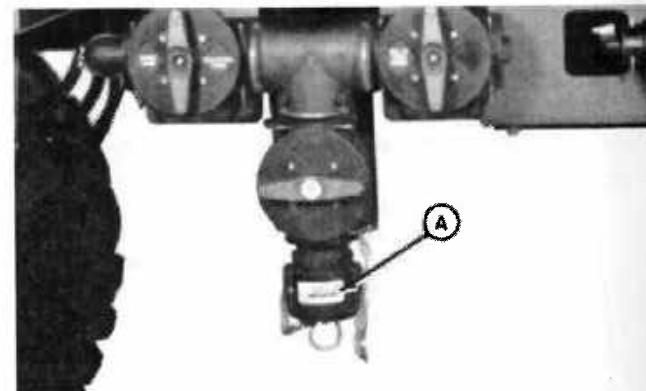


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N42173NH

NX,OM4700,PRM5A-19-28JUL97

14. Remove fill hose from quick-fill adapter and replace cap (A).

15. Pivot quick-fill underneath frame.



-UN-02JAN97  
N42173OT

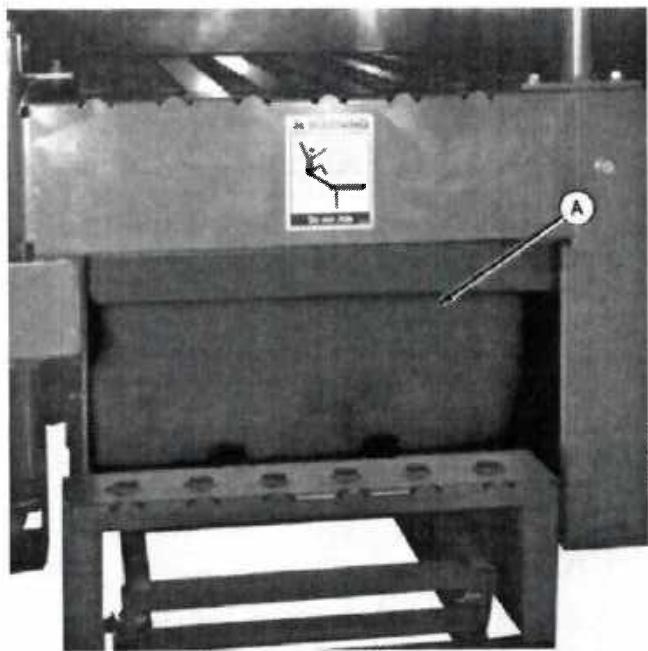
NX,OM4700,PRM6A-19-26NOV97

## PRIMING SOLUTION PUMP ON SPRAYER EQUIPPED WITH RINSE TANK (NURSE TANK FLUID LEVEL EVEN OR BELOW SPRAYER PUMP)

**NOTE:** Sprayer pump may not pull solution into solution tank if fluid level in nurse tank is below solution pump on machine.

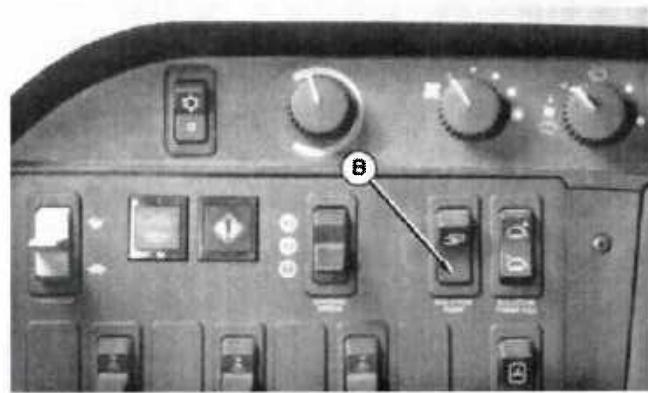
*Filling rinse tank can only be done from right-hand side and cannot be filled using 4700 solution pump.*

1. Fill rinse tank (A) on right-hand side of machine with clean water. See Filling Rinse Tank in this section.
2. Operate engine at 1800 rpm.
3. Turn off solution pump switch (B).



-UN-4FEB97

N42167NA



-UN-27DEC96

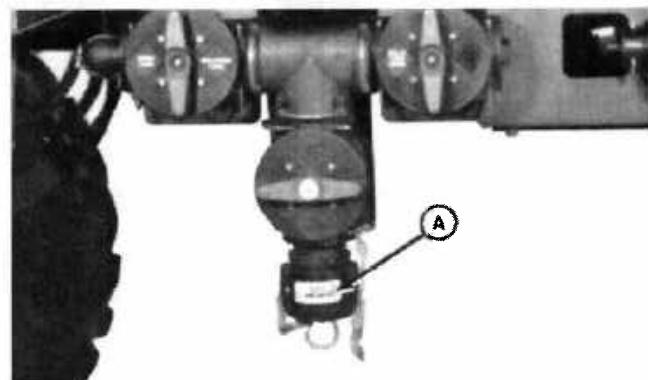
N42173OC

NXH8,M68425,E41-19-07JUL98



**CAUTION:** Quick-fill valve can contain hazardous materials which can poison, causing serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

4. Pivot quick-fill down.
5. Open lock levers and remove cap (A).
6. Connect nurse tank fill hose to quick-fill adapter and close lock levers.



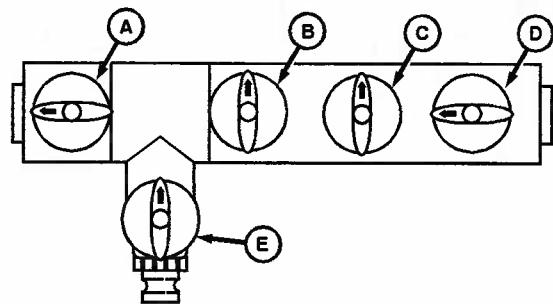
-UN-02JAN97

N42173OT

NX,OM4700,PRM8 -19-31DEC96

7. Close valves (B) and (C).
8. Turn valve (D) to "BYPASS" position.
9. Open quick-fill valve (E).
10. Turn valve (A) to "RINSE TANK" position for approximately 2 to 3 minutes.

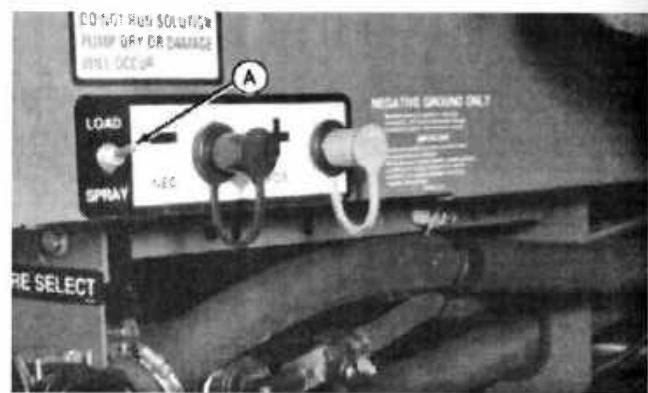
A—Tank Selector Valve  
B—Solution Tank Open/Close Valve  
C—Tank Rinse Nozzles/Eductor Valve  
D—Bypass Valve  
E—Quick-fill Valve



N42173IF -UN-15JAN97

NX,OM470025,WH -19-04NOV97

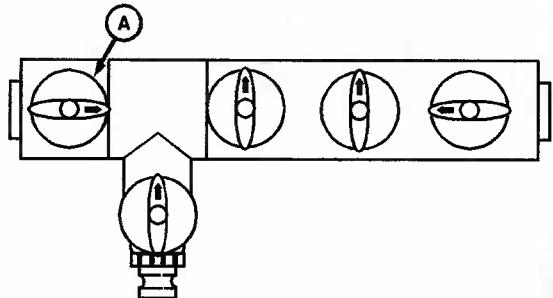
11. Move remote pump switch (A) to "LOAD" position.
12. Draw water from rinse tank for approximately 5 to 10 seconds.



JUN-23DEC96 N42173NJ

NX,OM4700,PR10A-19-31DEC96

13. With solution pump running turn tank selector valve (A) to "SOLUTION TANK" position.



-UN-15JAN97 N42173G

NX,OM4700,PR10B-19-31DEC96

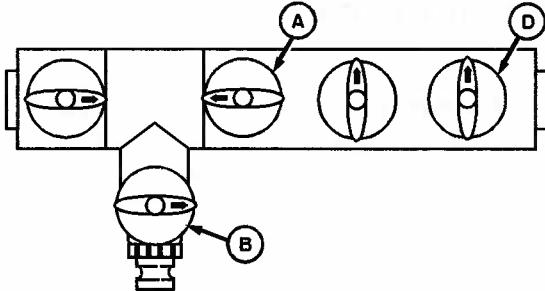
*Wet System*

14. After solution tank has filled, turn valve (A) to "SOLUTION TANK OPEN" position while closing quick-fill valve (B).

15. Move remote pump switch (C) to "SPRAY" position.

16. Turn valve (D) to "OFF" position.

- A—Solution Tank Open/Closed Valve  
B—Quick-fill Valve  
C—Remote Pump Switch  
D—Bypass Valve



-UN-25JUL97

N42184CB



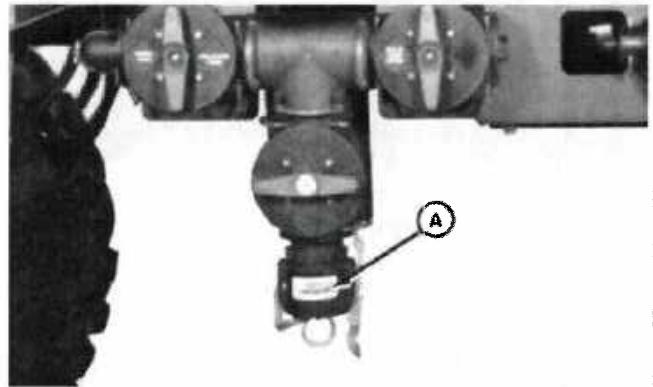
-UN-23DEC96

N42173NH

NX,OM4700,PR11B-19-28JUL97

17. Remove fill hose from quick-fill adapter and replace cap (A).

18. Pivot quick-fill up.



-UN-02JAN97

N42173OT

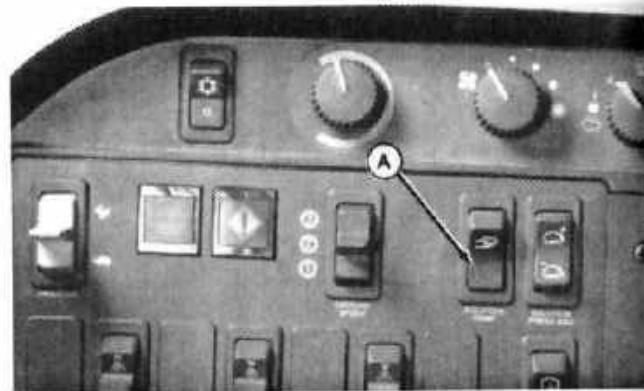
NX,OM4700,PR12 -19-31DEC96

## FILLING SOLUTION TANK WITH SPRAYER PUMP

**⚠ CAUTION:** Read carefully the directions printed on the chemical manufacturer's labels before handling chemicals or you may be exposed to hazardous or poisonous materials which can cause serious injury or death to you or others.

**IMPORTANT:** Do not add chemical to tank until just before field use. Follow the chemical manufacturer's instructions for mixing the spray solution to obtain the desired application rate and effect.

1. Operate engine at 1800 rpm.
2. Turn off solution pump switch (A) in cab side console.



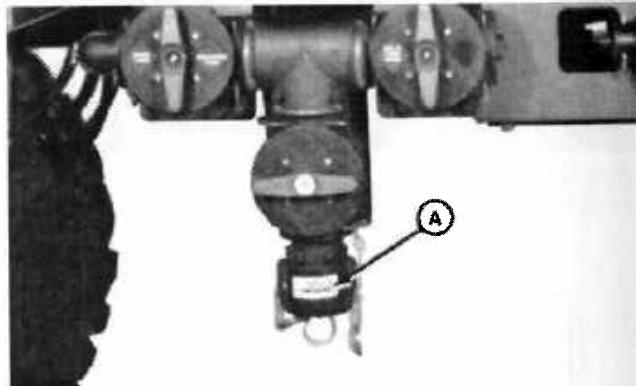
N42173OB

-UN 7DEC98

NX,4700I,A5A1 -19-28JUL97

**⚠ CAUTION:** Quick-fill valve can contain hazardous materials which can poison causing serious injury or death to you or others. Before removing quick-fill cap make sure quick-fill valve is turned off.

3. Pivot quick-fill down.
4. Open lock levers and remove cap (A).
5. Connect fill hose to quick-fill valve adapter and close lock levers.



N42173OT

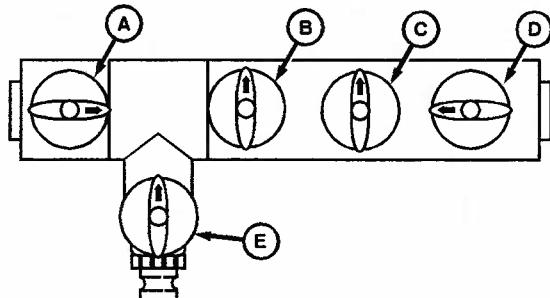
-UN-02JAN97

NX,4700I,A6A -19-31DEC98

*Wet System*

6. Turn valve (A) to "SOLUTION TANK" position.
7. Close valve (B) and valve (C).
8. Turn valve (D) to "BYPASS" position.
9. Open valve (E).

A—Tank Selector Valve  
B—Solution Tank Open/Closed Valve  
C—Tank Rinse Nozzles/Eductor Valve  
D—Bypass Valve  
E—Quick-Fill Valve

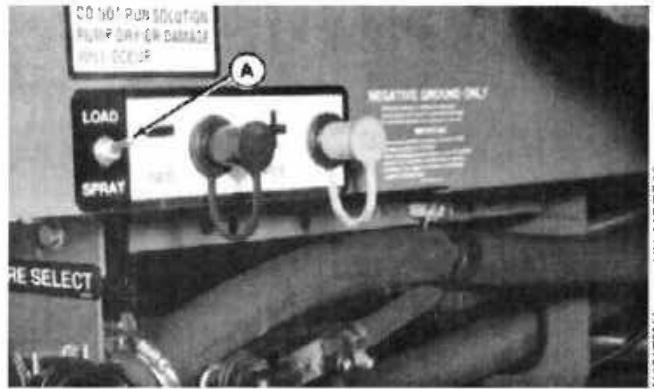


-UN-15JAN97

N42173ID

NX,47001,A7A2 -19-28JUL97

10. Move remote pump switch (A) to "LOAD" position.



-UN-23DEC96

N42173NJ

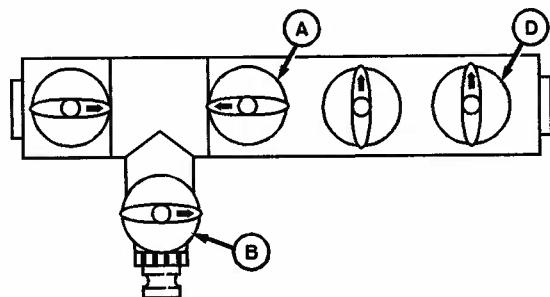
NX,47001,A8AA -19-31DEC96

11. After solution tank has filled, turn valve (A) to "SOLUTION TANK OPEN" position while closing valve (B).

12. Move remote pump switch (C) to "SPRAY" position.

13. Turn valve (D) to "OFF" position.

A—Solution Tank Open/Closed Valve  
B—Quick-Fill Valve  
C—Remote Pump Switch  
D—Bypass Valve



-JUN-25JUL97

N42184CB

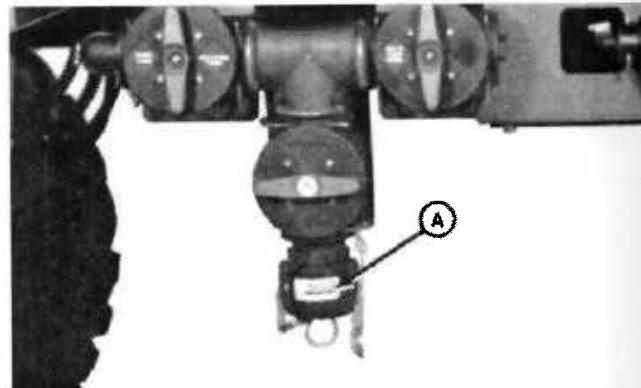


-UN-23DEC96

N42173NH

14. Remove fill hose from quick-fill valve adapter and replace cap (A).

15. Pivot quick-fill up.



-UN-02JAN97

N42173OT

NX,4700I,A8B1 -19-31DEC96

## FILLING SOLUTION TANK WITH SPRAYER PUMP THROUGH EDUCTOR

**CAUTION:** Read carefully the directions printed on the chemical manufacturer's labels before handling chemicals or you may be exposed to hazardous or poisonous materials which can cause serious injury or death to you or others.

**IMPORTANT:** Do not add chemical to solution tank until just before field use. Follow the chemical manufacturer's instructions for mixing the spray solution to obtain the desired application rate and effect.

1. Operate engine at 1800 rpm.
2. Turn off solution pump switch (A) in cab side console.



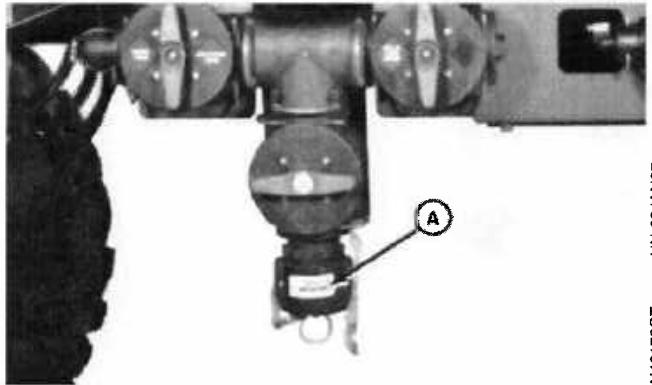
-UN-27DEC96

N42173OB

NX,4700I,A8D3 -19-28JUL97

**CAUTION:** Quick-fill valve can contain hazardous materials which can poison causing serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

3. Pivot quick-fill down.
4. Open lock levers and remove cap (A).
5. Connect fill hose to quick-fill valve adapter and close lock levers.

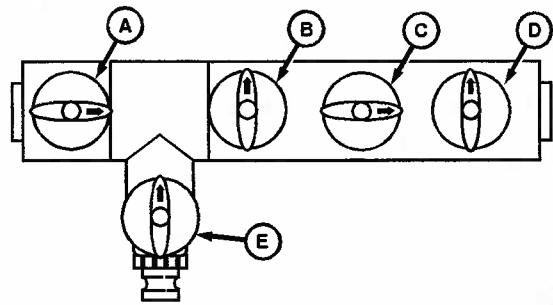


-UN-02JAN97

N42173OT

NX,4700I,A8E1 -19-31DEC96

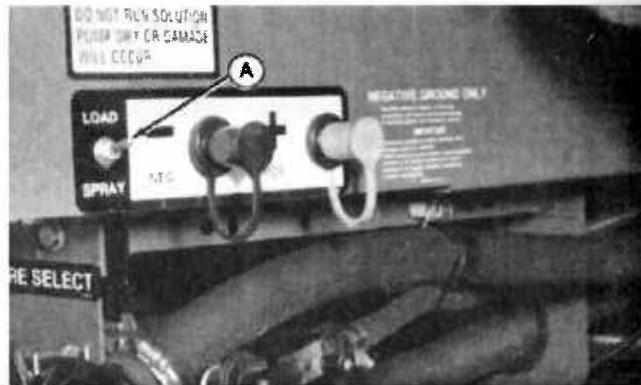
6. Turn valve (A) to "SOLUTION TANK" position.
7. Close valve (B).
8. Turn valve (C) to "EDUCTOR" position.
9. Close valve (D).
10. Open valve (E).



**A—Tank Selector Valve**  
**B—Solution Tank Open/Closed Valve**  
**C—Tank Rinse Nozzles/Eductor Valve**  
**D—Bypass Valve**  
**E—Quick-Fill Valve**

NX,4700I,A8F3 -19-28JUL97

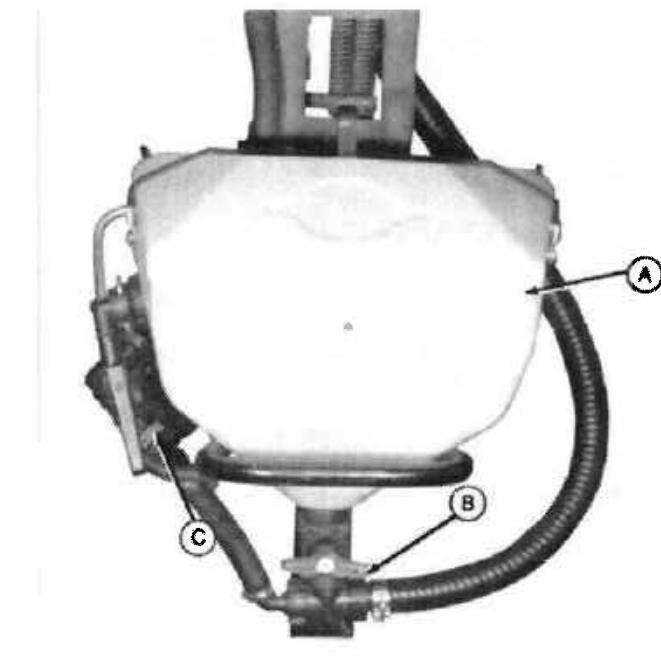
11. Move remote pump switch (A) to "LOAD" position and add approximately 379 L (100 gal) water.



NX,4700I,A8G1A -19-16JAN97

*Wet System*

12. Lower eductor (A) and raise lid.
13. Open eductor tank valve (B) (arrow on handle points up) to allow chemicals to drain from tank.
14. Open tank rinse valve (C) (handle points away from tank) to rinse eductor tank.
15. Pour chemicals into eductor.

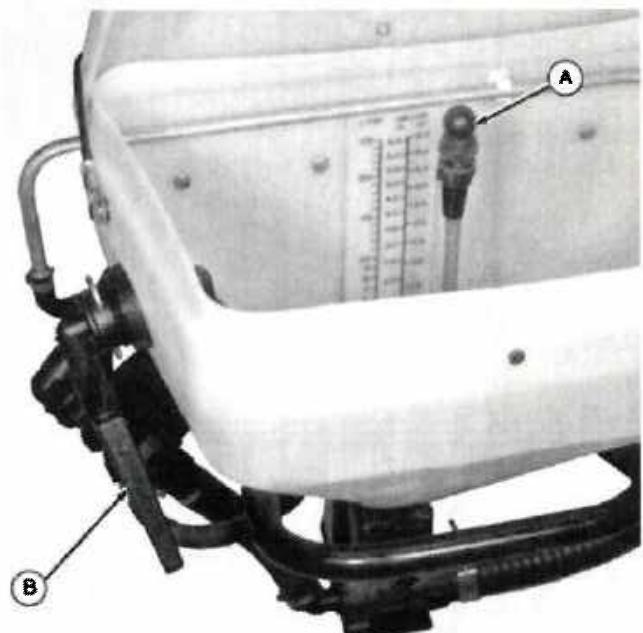


-UN-27DEC96

N42173PJ

NX,OM554,FL11A1-19-06FEB97

16. Place chemical container over rinse nozzle (A) in tank and hold down container rinse valve handle (B).
17. After rinsing chemical containers, close eductor rinse valve and eductor tank valve.
18. Place lid back on tank and return eductor back to its original position.



-UN-27DEC96

N42173PJ

NX,OM554,FL11B1-19-16JAN97

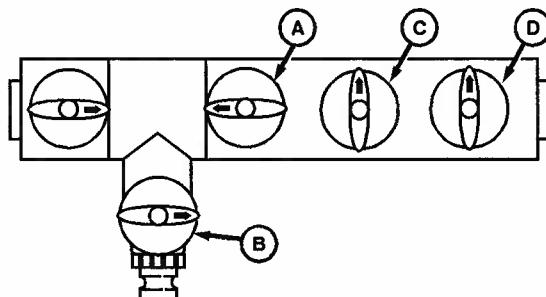
*Wet System*

19. After solution tank has filled, turn valve (A) to "SOLUTION TANK OPEN" position while closing valve (B).

20. Close valve (C).

21. Turn valve (D) to "OFF" position.

- A—Solution Tank Open/Closed Valve  
B—Quick-Fill Valve  
C—Tank Rinse Nozzles/Eductor Valve  
D—Bypass Valve



NX,4700I,A8I2A2-19-28JUL97

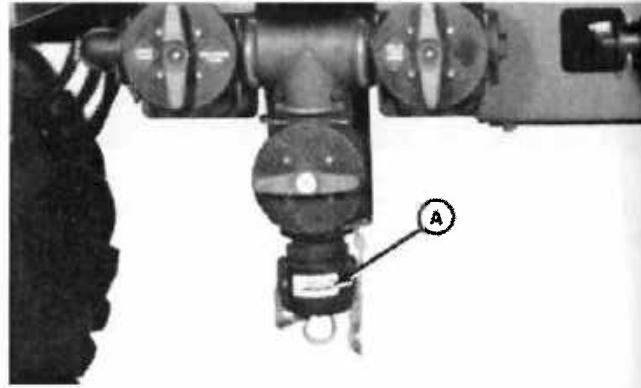
22. Move remote pump switch (A) to "SPRAY" position.



NX,4700J,ABJ1A1-19-16JAN97

23. Remove fill hose from quick-fill valve adapter and replace cap (A).

24. Pivot quick-fill up.



NX,4700I,A8K1A1-19-16JAN97

## FILLING SOLUTION TANK WITH NURSE TANK PUMP

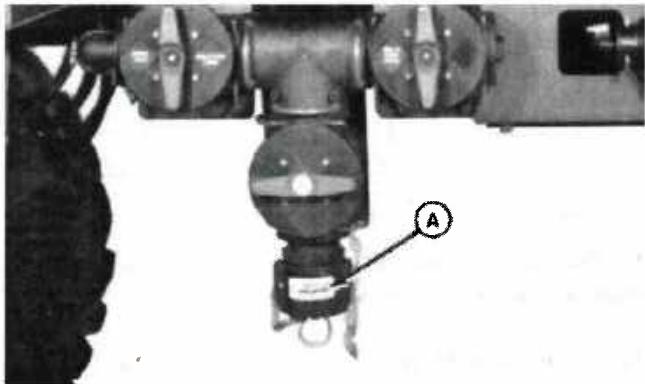
**⚠ CAUTION:** Read carefully the directions printed on the chemical manufacturer's labels before handling chemicals or you may be exposed to hazardous or poisonous materials which can cause serious injury or death to you or others.

**IMPORTANT:** Do not add chemical to solution tank until just before field use. Follow the chemical manufacturer's instructions for mixing the spray solution to obtain the desired application rate and effect.

NX,4700I,A8M1 -19-31DEC96

**⚠ CAUTION:** Quick-fill valve can contain hazardous materials which can poison causing serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

1. Pivot quick-fill down.
2. Open lock levers and remove cap (A).
3. Connect fill hose to quick-fill valve adapter and close lock levers.

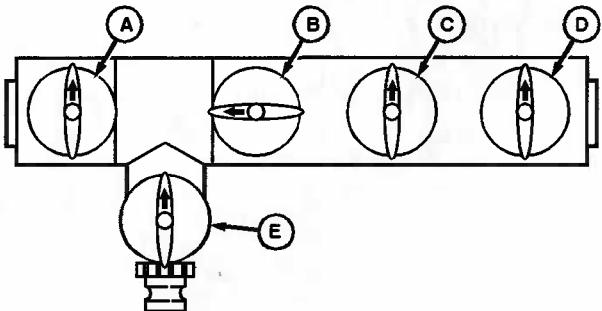


-JUN-02-JAN97

N42173OT

4. Close valves (A), (C), and (D).
5. Turn valve (B) to "SOLUTION TANK OPEN" position.
6. Turn on nurse tank pump and open valve (E).

**A**—Tank Selector Valve  
**B**—Solution Tank Open/Closed Valve  
**C**—Tank Rinse Nozzles/Eductor Valve  
**D**—Bypass Valve  
**E**—Quick-fill Valve



-JUN-20-JAN97

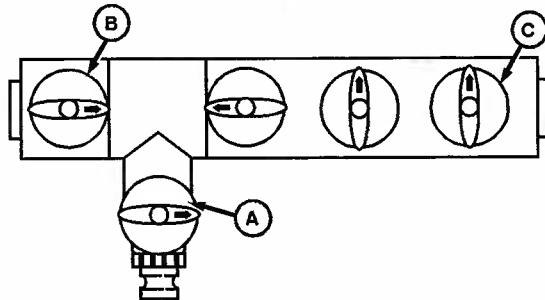
N42173PM

NX,4700I,A8O2B -19-28JUL97

7. After solution tank has filled, close quick-fill valve (A).

8. Turn tank selector valve (B) to "SOLUTION TANK" position.

9. Turn bypass valve (C) to "OFF" position.

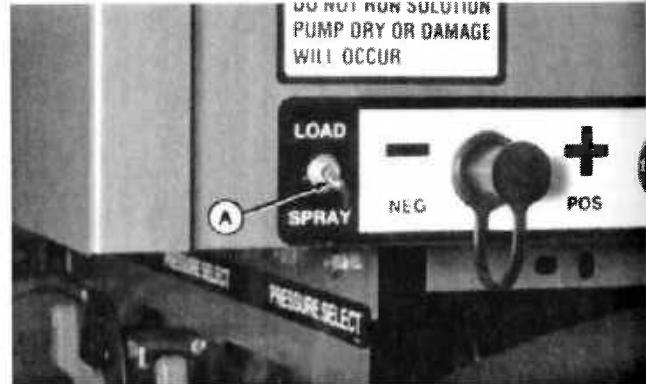


-UN-25JUL97

N42184CD

NX,OM4700,A8P2 -19-07AUG97

10. Move remote pump switch (A) to "SPRAY" position.



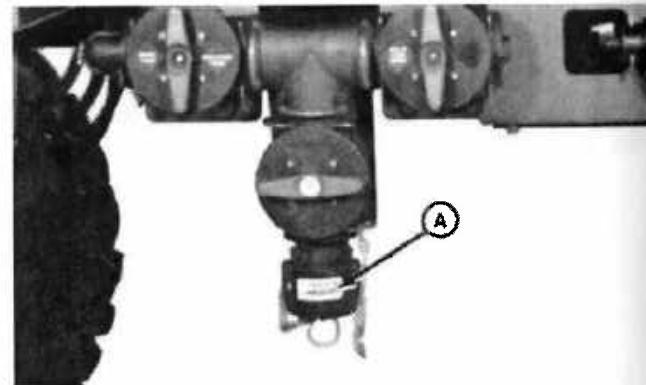
-UN-23DEC96

N42173NI

NX,OM4700,A8Q -19-31DEC96

11. Remove fill hose from quick-fill valve adapter and replace cap (A).

12. Pivot quick-fill up.



-UN-02JAN97

N42173OT

NX,OM4700,A8R -19-31DEC96

### FILLING SOLUTION TANK WITH NURSE TANK PUMP AND SPRAYER PUMP

1. Operate engine at 1800 rpm.

2. Turn off solution pump switch (A).



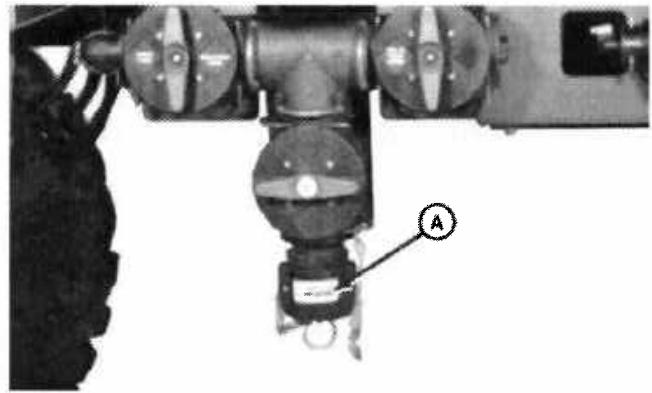
-UN-27DEC96

N42173OB

NX,OM4700,FL1A -19-28JUL97

**CAUTION:** Quick-fill valve can contain hazardous or poisonous materials which can cause serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

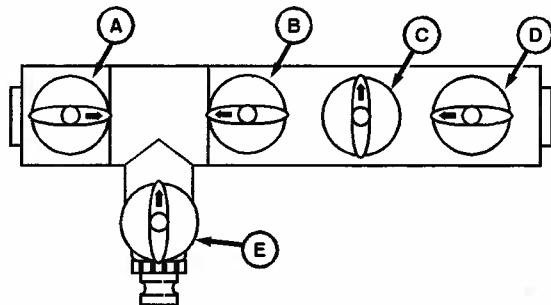
3. Pivot quick-fill down.
4. Open lock levers and remove cap (A).
5. Connect nurse tank fill hose to quick-fill adapter and close lock levers.



N42173OT  
-UN-02JAN97

NX,OM4700,FL2 -19-31DEC96

6. Turn valve (A) to "SOLUTION TANK" position.
7. Turn valve (B) to "SOLUTION TANK OPEN" position.
8. Close valve (C) and turn valve (D) to "BYPASS" position.
9. Turn on nurse tank pump and open quick-fill valve (E).



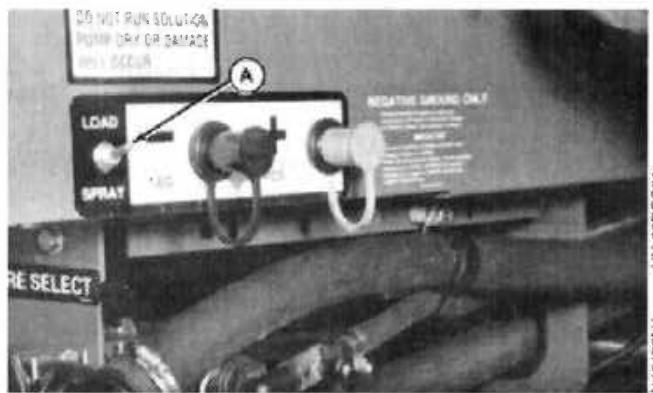
N42173OT  
-UN-15JAN97

N42173IL

**A**—Tank Selector Valve  
**B**—Solution Tank Open/Close Valve  
**C**—Tank Rinse Nozzles/Eductor Valve  
**D**—Bypass Valve  
**E**—Quick-fill Valve

NX,OM4700,FL3A -19-28JUL97

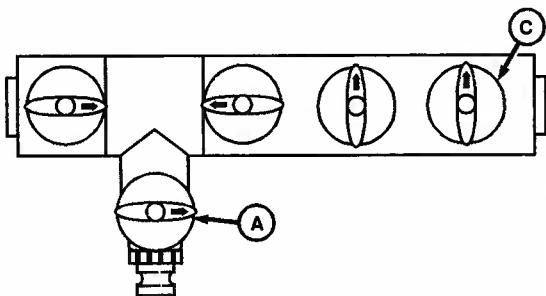
10. Move remote pump switch (A) to "LOAD" position.



N42173IL  
-UN-23DEC96

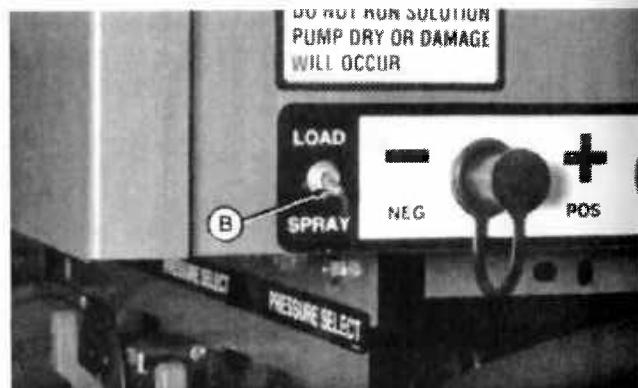
NX,OM4700,FL4 -19-31DEC96

11. Close quick-fill valve (A) and turn off nurse tank pump.
12. Move remote pump switch (B) to "SPRAY" position.
13. Turn pressure valve (C) to "OFF" position.



-UN-25JUL97

N42184CE

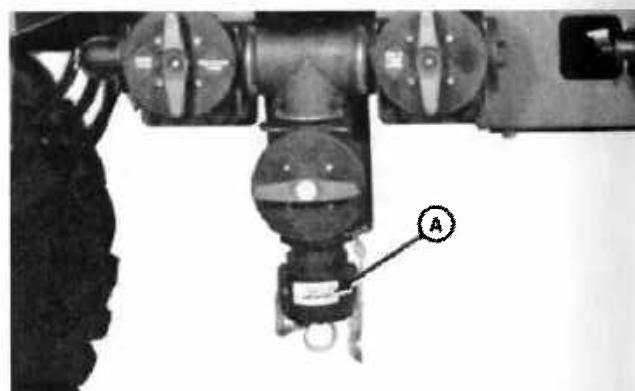


-UN-25JUL97

N42184AE

NX,OM4700,FL5A2-19-28JUL97

14. Remove fill hose from quick-fill valve adapter and replace cap (A).
15. Pivot quick-fill up.



-LIN-LP1AN97

N42174DT

NX,OM4700,FL6B -19-31DEC96

### FILLING SOLUTION TANK WITH NURSE TANK PUMP AND SPRAYER PUMP THROUGH EDUCTOR

1. Operate engine at 1800 rpm.
2. Turn off solution pump switch (A).

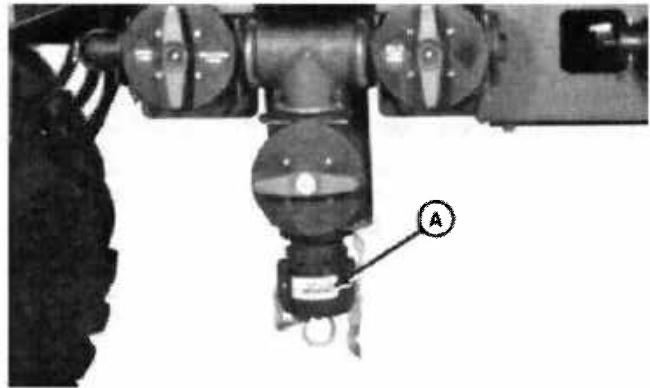


3 M. 100% FUEL - UN-28JUL97

NX,OM4700,FL7A -19-28JUL97

**CAUTION:** Quick-fill valve can contain hazardous or poisonous materials which can cause serious injury or death to you or others. Before removing quick-fill cap, make sure quick-fill valve is turned off.

3. Pivot quick-fill down.
4. Open lock levers and remove cap (A).
5. Connect nurse tank fill hose to quick-fill adapter and close lock levers.

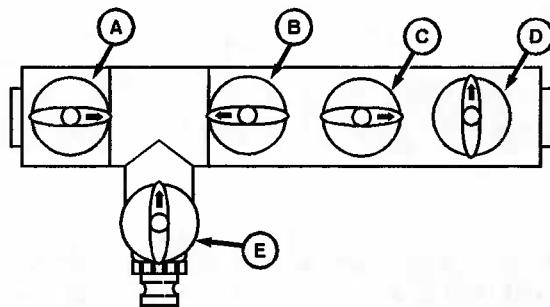


-UN-02/JAN97

N42173OT

NX,OM4700,FL8 -19-31DEC96

6. Turn valve (A) to "SOLUTION TANK" position.
7. Turn valve (B) to "SOLUTION TANK OPEN" position.
8. Turn valve (C) to "EDUCTOR" position.
9. Close valve (D).
10. Turn on nurse tank pump and open quick-fill valve (E).



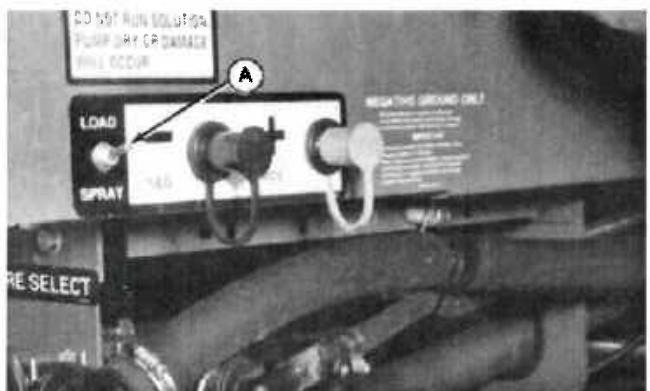
-UN-15/JAN97

N42173IM

A—Tank Selector Valve  
 B—Solution Tank Open/Close Valve  
 C—Tank Rinse Nozzles/Eductor Valve  
 D—Bypass Valve  
 E—Quick-fill Valve

NX,OM4700,FL9A -19-28JUL97

11. Move remote pump switch (A) to "LOAD" position and add approximately 379 L (100 gal.) of water.



-UN-23DEC96

N42173NJ

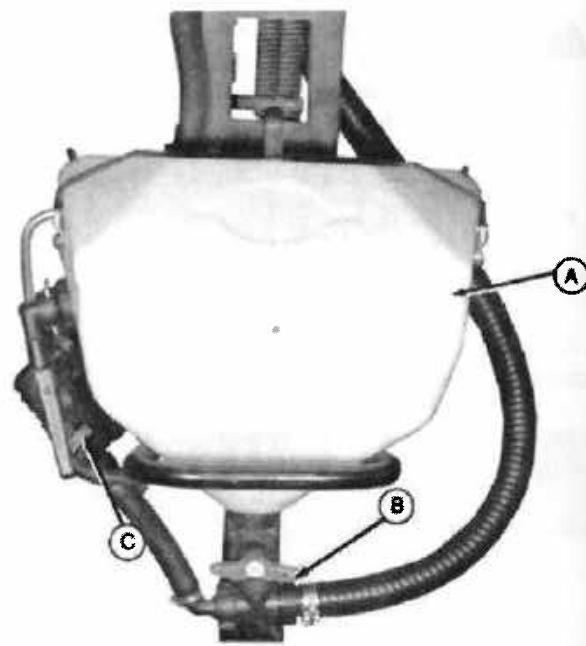
NX,OM4700,FL10 -19-28JUL97

12. Lower eductor (A) and raise lid.

13. Open eductor tank valve (B) (arrow on handle points up) to allow chemicals to drain from tank.

14. Open tank rinse valve (C) (handle points away from tank) to rinse eductor tank.

15. Pour chemicals into eductor.



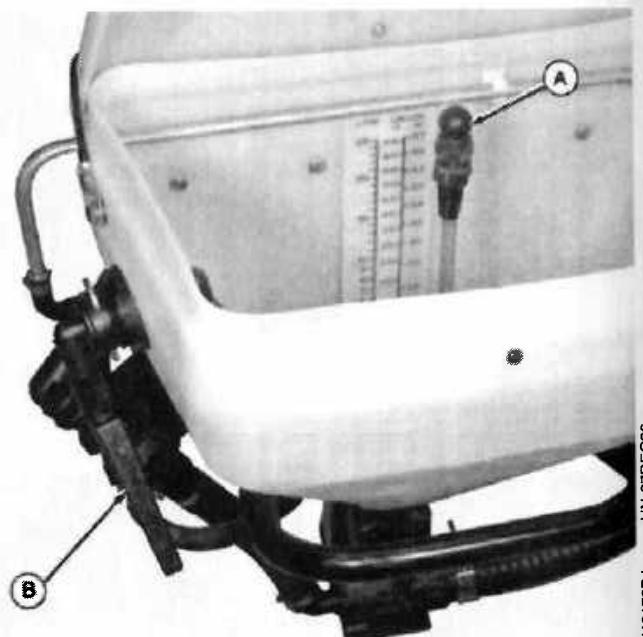
N42173PI -UN-2/DEC96

NX,OM554,FL11A1-19-06FEB97

16. Place chemical container over rinse nozzle (A) in tank and hold down container rinse valve handle (B).

17. After rinsing chemical containers, close eductor rinse valve and eductor tank valve.

18. Place lid back on tank and return eductor back to its original position.

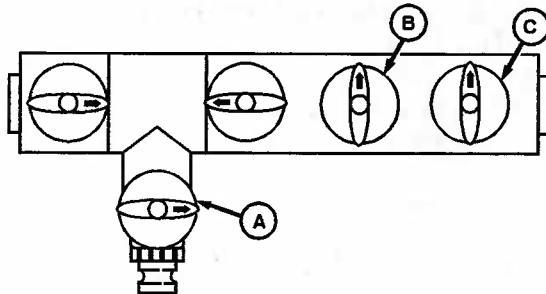


N42173PI -UN-2/DEC96

NX,OM554,FL11B1-19-16JAN97

*Wet System*

19. Close quick-fill valve (A) and tank rinse nozzles/eductor valve (B).
20. Turn bypass/boom spray valve (C) to "OFF" position.



-UN-25JUL97

N42184CF

NX,OM554,FL12A2-19-28JUL97

21. Move remote pump switch (A) to "SPRAY" position.

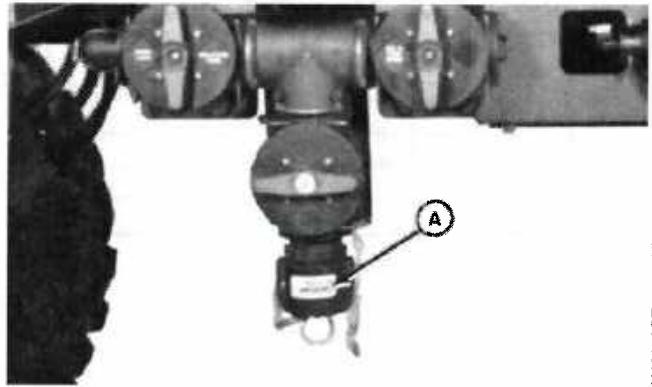


-UN-29DEC96

N42173NI

NX,OM554,FL13A1-19-16JAN97

22. Remove fill hose from quick-fill valve adapter and replace cap (A).
23. Pivot quick-fill up.



-UN-02JAN97

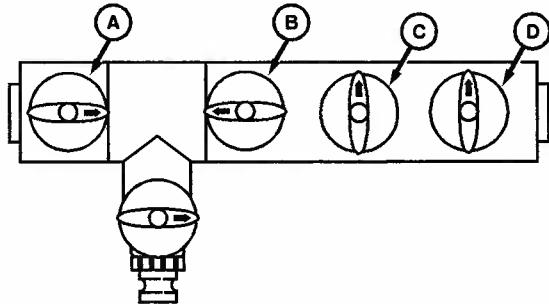
N42173OT

NX,OM554,FL13B1-19-16JAN97

### MIXING SOLUTION IN TANK (USING AGITATION)

With solution tank filled and solution pump primed, complete the following steps to thoroughly mix chemicals.

1. Turn valve (A) to "SOLUTION TANK" position.
2. Turn valve (B) to "SOLUTION TANK OPEN" position.
3. Close valve (C).
4. Turn valve (D) to "OFF" position.



A—Tank Selector Valve  
B—Solution Tank Open/Closed Valve  
C—Tank Rinse Nozzles/Eductor Valve  
D—Bypass Valve

NX,H8OM47,25A -19-21APR98

-UN-25JUL97

NA2184CG

**NOTE:** Amount of agitation is determined by how far agitation shut-off valve is open and where the spray off pressure is set.

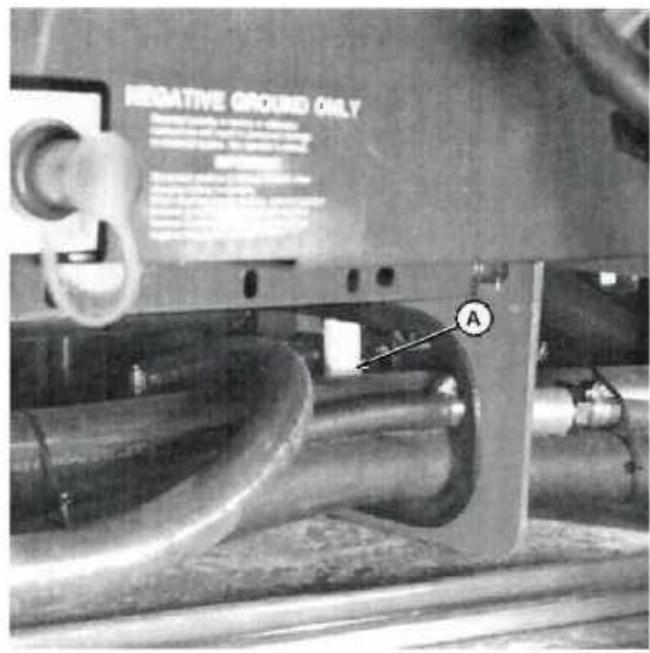
Valve is fully open when handle is parallel to hose.

5. Open agitation line control valve (A) to desired setting.
6. Enter desired agitation pressure as spray off pressure in SprayStar.

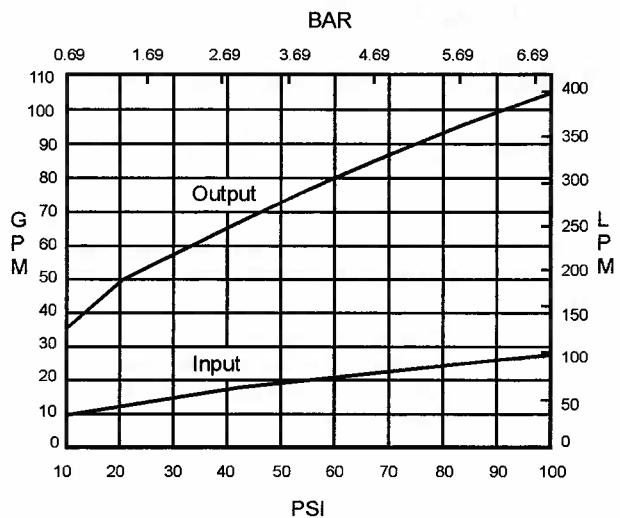
**NOTE:** Table illustrates flow rate (gpm) at desired spray off pressure when agitation control valve is fully open.

*Input is the amount of solution coming from solution pump.*

*Venturi in nozzle pulls chemical to nozzle. Output is amount of solution coming out of nozzle.*



N42190AF -UN-05JUL98

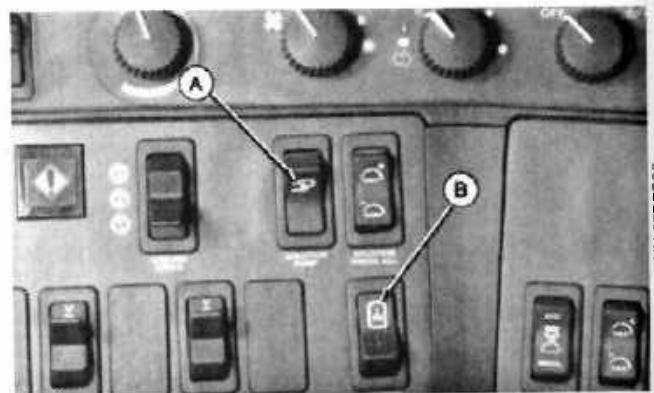


N42190AP -19-14JUL98

NXH8,M68425,E85-19-15JUL98

7. Depress solution pump switch (A) to engage solution pump.
8. Depress agitation switch (B) to open electric agitation valve.
9. Mix solution thoroughly before operating in the field.

*NOTE: Agitation pressure will be the same as minimum pressure setting. To increase agitation, increase minimum pressure setting. Reset minimum pressure before spraying in the field.*



-JN-27DEC96

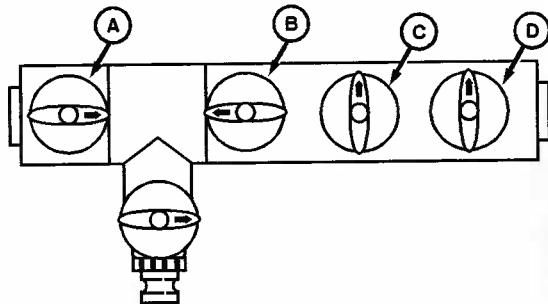
N42173OD

NX,H8OM47,25C -19-21APR98

## PREPARING TO SPRAY

1. Turn valve (A) to "SOLUTION TANK" position.
2. Turn valve (B) to "SOLUTION TANK OPEN" position.
3. Close valve (C).
4. Turn valve (D) to "OFF" position.

**A**—Tank Selector Valve  
**B**—Solution Tank Open/Close Valve  
**C**—Tank Rinse Nozzles/Eductor Valve  
**D**—Bypass Valve

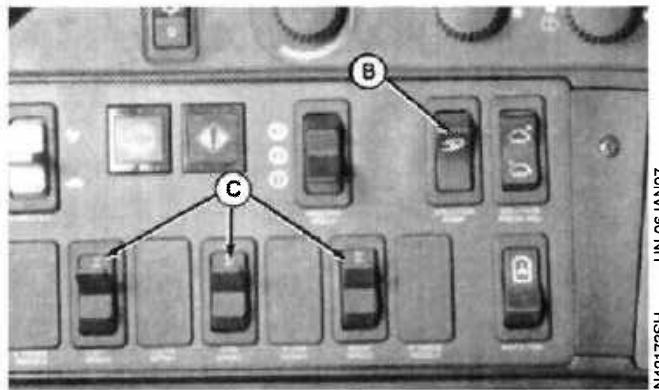


N42184CG -JN-25JUL97

NX,OM4700,PS1A -19-28JUL97

*Wet System*

5. Verify remote pump switch (A) is in "SPRAY" position.
6. Depress solution pump switch (B) to engage solution pump.
7. Verify boom switches (C) are in upward position.



NX,OM4700,PS2A -19-16JAN97

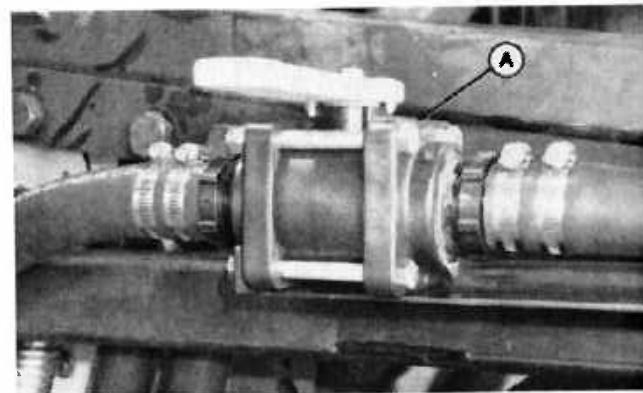
-JUN-23DEC99  
N42173NI

-JUN-06JAN97  
N42173SH

## APPLYING LOW APPLICATION RATES

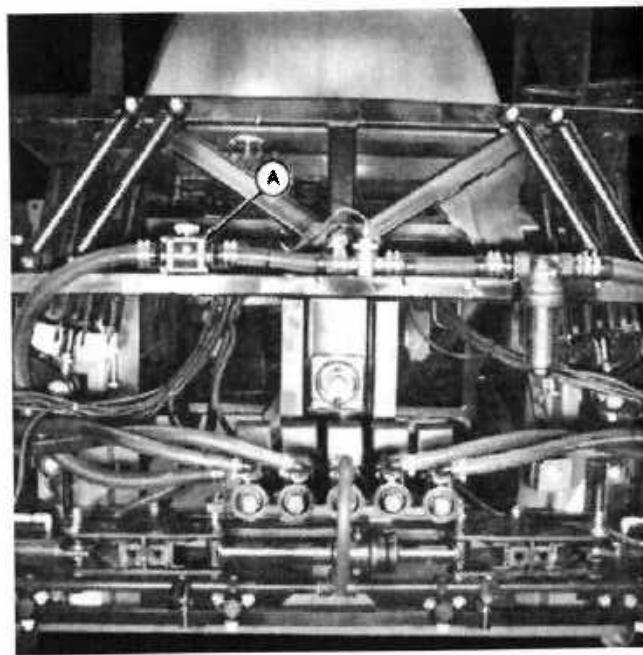
When applying low application rates, it may be necessary to turn high/low flow valve (A) to the closed (low) position.

To determine when to close high/low flow valve, calculate boom flow rate. When solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.



JUN 28 4 11 97

N42184DK



JUN 13 APR 98

N42184ZE

NXH8 64025, E89 -19-21 APR 98

## Determining Solution Flow Rate

- When spraying, go to Page 2 of RUN and check solution flow rate on Line E. If solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.

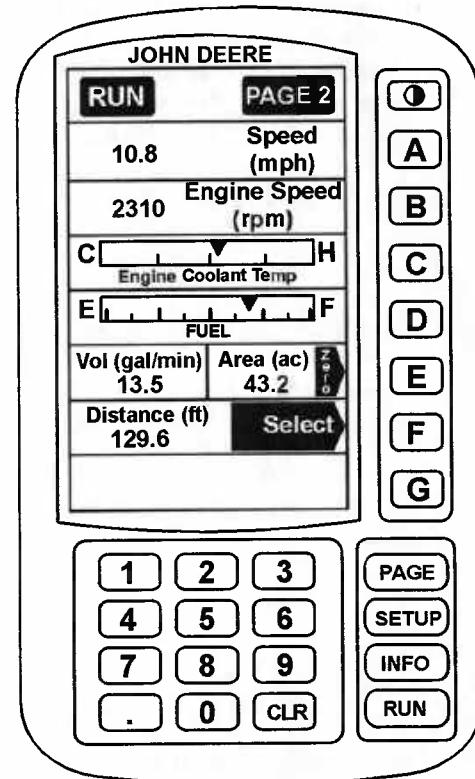
OR

- Determine size of nozzles and multiply by the total number of nozzles on the boom. If solution flow rate is 76 Lpm (20 gpm) or less, close the high/low flow valve. If solution flow rate is greater than 76 Lpm (20 gpm) open high/low flow valve all the way.

Example: If 8003 type nozzles are installed and there are 37 on the boom:

$$0.3 \text{ gpm} \times 37 = 11.1 \text{ gpm} \text{ (solution flow rate)}$$

Operator would close high/low flow valve.



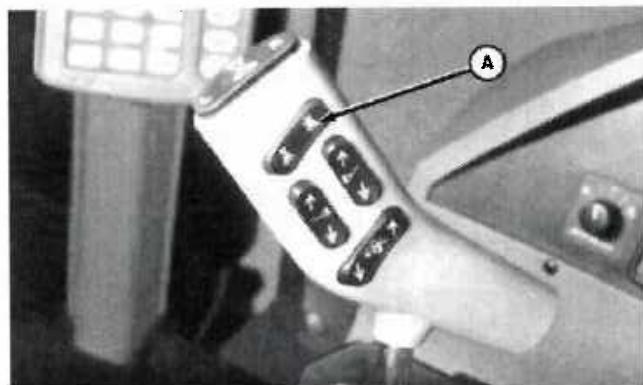
N42173NP  
-UN-27DEC96

NX,OM4700,AL2A -19-26NOV97

## USING RINSE SYSTEM (RINSING SOLUTION TANK AND BOOM)

*NOTE: After solution tank has been drained, complete the following steps when using rinse system to clean solution tank and boom assembly.*

- Start machine and operate at 1800 rpm.
- Turn off master "ON/OFF" switch (A) and solution pump switch (B).



N42173PA  
-UN-27DEC96



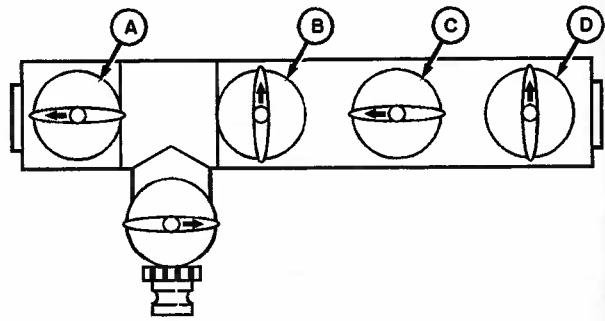
N42173OC  
-UN-27DEC96

NX,4700I,A15B -19-28JUL97

**IMPORTANT:** To avoid chemical getting into rinse tank open quick-fill and drain lines into bucket or suitable container. If lines do not drain in less than 1 minute contact your John Deere dealer.

3. Turn valve (A) to "RINSE TANK" position.
4. Close valve (B) and valve (D).
5. Turn valve (C) to "TANK RINSE NOZZLE" position.

A—Tank Selector Valve  
B—Solution Tank Open/Closed Valve  
C—Tank Rinse Nozzles/Eductor Valve  
D—Bypass Valve



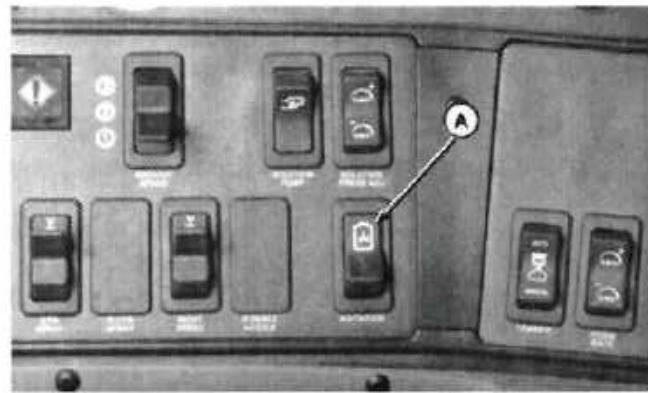
LJN-20 JAN 97

N42173PB

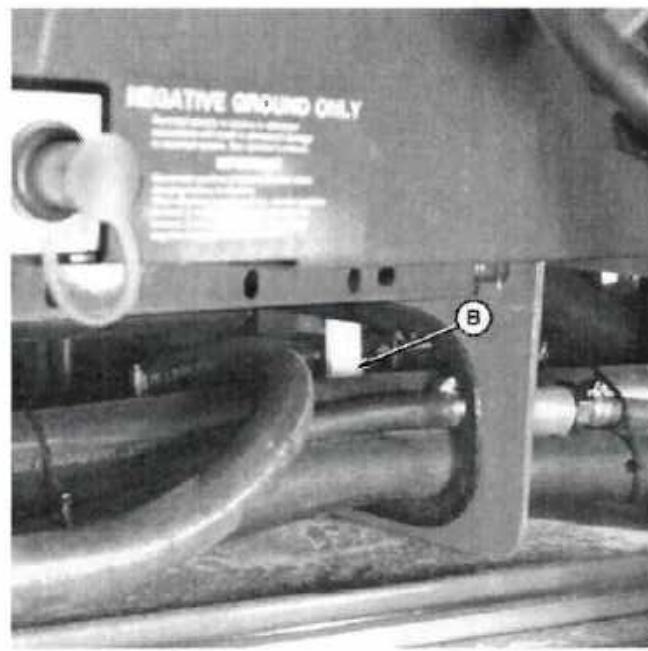
NXK7,OM4700,AB1-19-26NOV97

*Wet System*

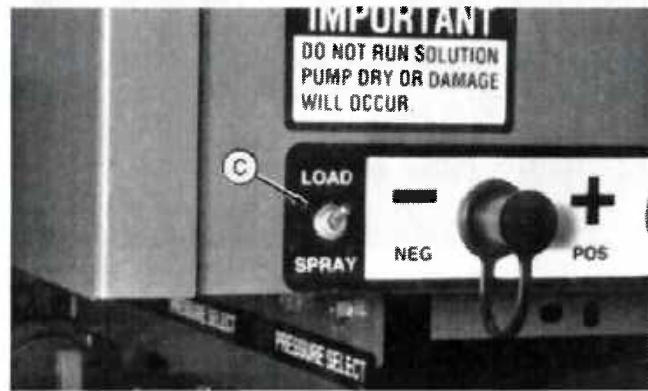
6. Press agitation switch (A).
7. Open agitation valve (B).
8. Move remote pump switch (C) to "LOAD" position.



N42173OE -UN-27DEC96



N42190EW -UN-06JUL98

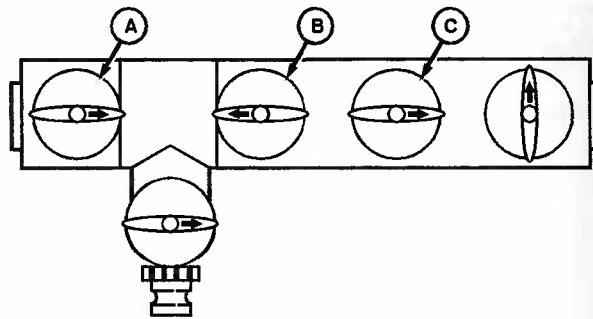


N42167LX -UN-03FEB97

NXH8,M68425,E93-19-07JUL98

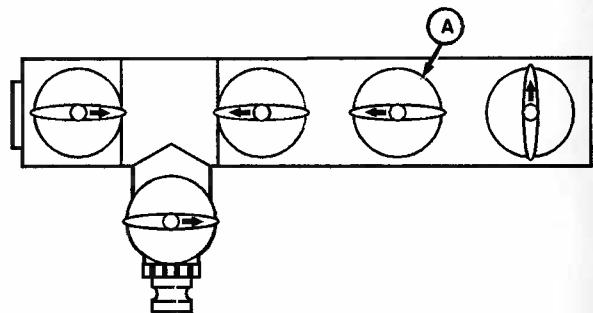
*Wet System*

9. Add water to solution tank to thoroughly clean spray system. Add cleaning agents if necessary.
10. Turn tank selector valve (A) to "SOLUTION TANK" position while turning solution tank open/closed valve (B) to "SOLUTION TANK OPEN" position.
11. If equipped with eductor, turn tank rinse nozzle/eductor valve (C) to "EDUCTOR" position to flush lines.



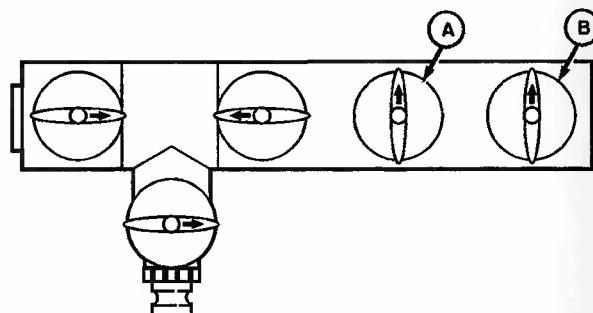
NX,4700I,A16C2 -19-31DEC96

12. Turn tank rinse nozzles/eductor valve (A) to "TANK RINSE NOZZLES" position.



NX,4700I,A16E2A-19-16JAN97

13. When solution tank is thoroughly rinsed, close tank rinse nozzles/eductor valve (A) and turn bypass valve (B) to "OFF" position.
14. Move remote pump switch (C) to "SPRAY" position.
15. Turn on spray system and spray rinse water through boom assembly and fence nozzles (if equipped).



N42184CH

-UN-23DEC96

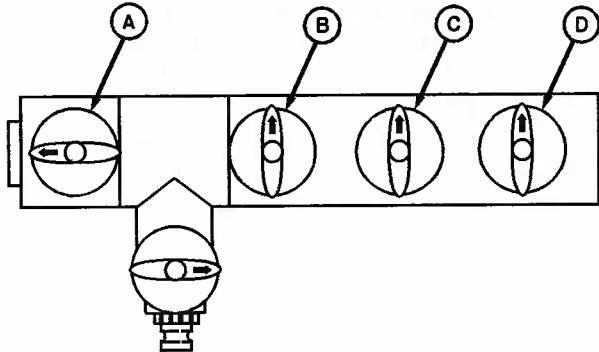


N42173NH

## USING RINSE SYSTEM (RINSING BOOM AND FLOWMETER ONLY)

*NOTE: When rinsing only the boom assembly, complete the following steps:*

1. Turn valve (A) to "RINSE TANK" position.
2. Close valve (B) and valve (C).
3. Turn valve (D) to "OFF" position.
4. Turn on spray system and spray rinse water through boom assembly.



-UN-01DEC97

N42184HA

- A—Tank Selector Valve**  
**B—Solution Tank Open/Closed Valve**  
**C—Tank Rinse Nozzles/Eductor Valve**  
**D—Bypass Valve**

NX,OM470025,WI -19-04NOV97

## CLEAN WATER TANK

Tank (A) is located on left-hand side of machine and provides a supply of clean rinse water for in-field cleaning.



-UN-26NOV96

N42175CP

NX, OM4700,CWT -19-31DEC96

## FOAMS, DYES, TANK CLEANERS, EQUIPMENT COATING, AND HAND CLEANER

These products will help make any spraying job easier by offering both performance and safety.

**N205696 Premium Foam Concentrate (3.8 L [1 gal.] Plastic Jug)**—Formulated to produce longer lasting foam in all water, soil, and weather conditions. It is dye and hard water tolerant, and contains optical brighteners for increased visibility. It is ideally suited for mid to late season application in hot and dry conditions.

**N205697 Economy Foam Concentrate (3.8 L [1 gal.] Plastic Jug)**—Has many of the same attributes as the premium foam, but is best used in temperatures under 27°C (80°F).

**N205701 Foam Tank Cleaner (1.9 L [1/2 gal.] Plastic Jug)**—A liquid degreaser that is designed to quickly clean and remove foam residue from the tank.

**N205702 Spray Tank Cleaner (1.9 L [1/2 gal.] Plastic Jug)**—A DuPont approved liquid cleaner that is formulated to neutralize and remove herbicide and pesticide residues from spray tanks.

**N205698 Ultra Pink Foam Dye (0.9 L [1 qt] Bottle)**—Increases marking foam clarity in drilled crops and in heavy crop residue situations where optical clarity of white foam is limited.

**N205699 Deep Blue Foam Dye (0.9 L [1 qt] Bottle)**—Increases marking foam visibility in chem fallow and double crop situations where sunlight reflection off of small grain stubble limits optical clarity of white foam.

**N205700 Yellow-Green Foam Dye (0.9 L [1 qt] Bottle)**—Increases marking foam visibility in low light situations, making it ideal for evening and early morning applications.

**N205703 Equipment Coating (1.9 L [1/2 gal.] Jug)**—A fast drying, ready-to-use silicone based protective surface coating that makes it easier to keep equipment clean by helping to reduce the effects of chemical staining and corrosion damage.

**N205704 Waterless Hand Cleaner (652 g [23 oz] Tube)**—A powerful citrus extract cleaner that is effective in removing pesticide stains such as a Treflan, seed dyes, and other staining contaminants.



-LN-28OCT98

## FILLING 76 L (20 GAL) FOAM MARKER TANK (IF EQUIPPED)

**⚠ CAUTION:** Contents under pressure. Open cap slowly to relieve pressure, before removing cap.

1. Slowly open cap (A) to relieve pressure, before removing cap.

2. Fill tank half full of water.

*NOTE: Use John Deere foam concentrate for best results.*

*Shake foam concentrate well, before adding to tank. Store concentrate in a warm place, where it will not be frozen.*

3. Refer to container for ratio mix and add recommended amount of foam concentrate.

4. Fill tank.



-JUN-26NOV98  
N42173DB

NXH8,M68425,100-19-15JUL98

## FILLING 132 L (35 GAL) FOAM MARKER TANK

**CAUTION:** Contents under pressure. Vent pressure from tank prior to removing cap or servicing foamer unit. Pull up on relief valve ring on cap to vent tank.

- Pull up on ring on relief valve (A) to vent tank.

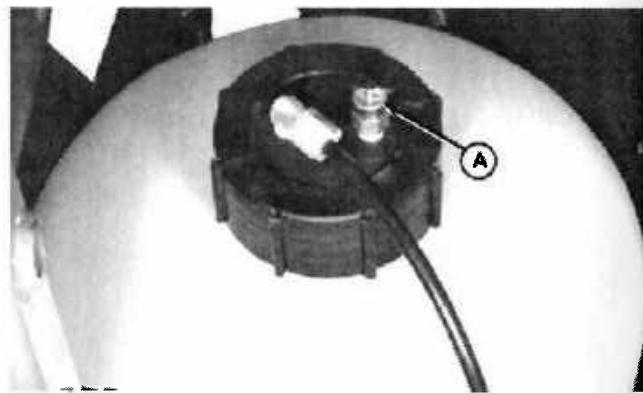
- Remove cap and fill tank half full of water.

*NOTE: Use John Deere foam concentrate for best results.*

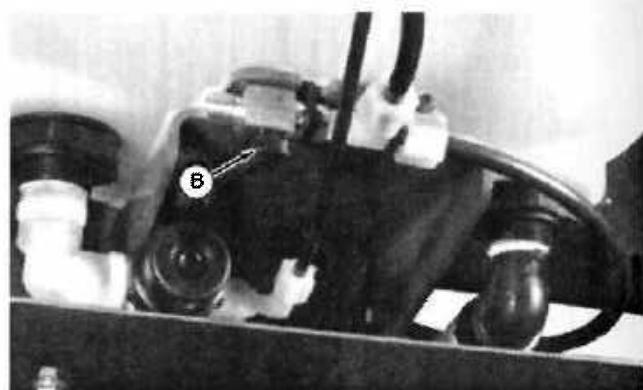
*Shake foam concentrate well, before adding to tank. Store concentrate in a warm place, where it will not be frozen.*

- Refer to container for ratio mix and add recommended amount of foam concentrate.

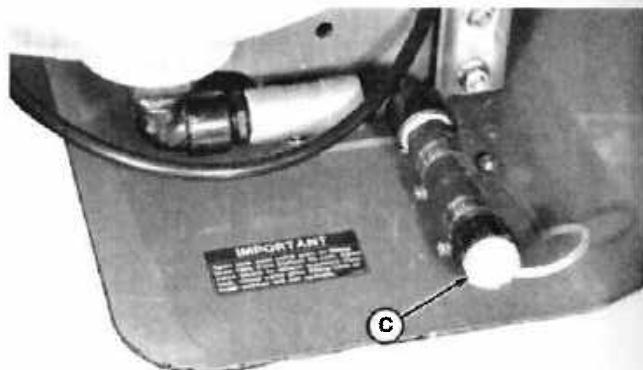
- Fill tank. If filling tank from bottom is preferred, open vent valve (B), attach hose to fill port (C) and fill. Close vent valve.



-UN-16JUL98



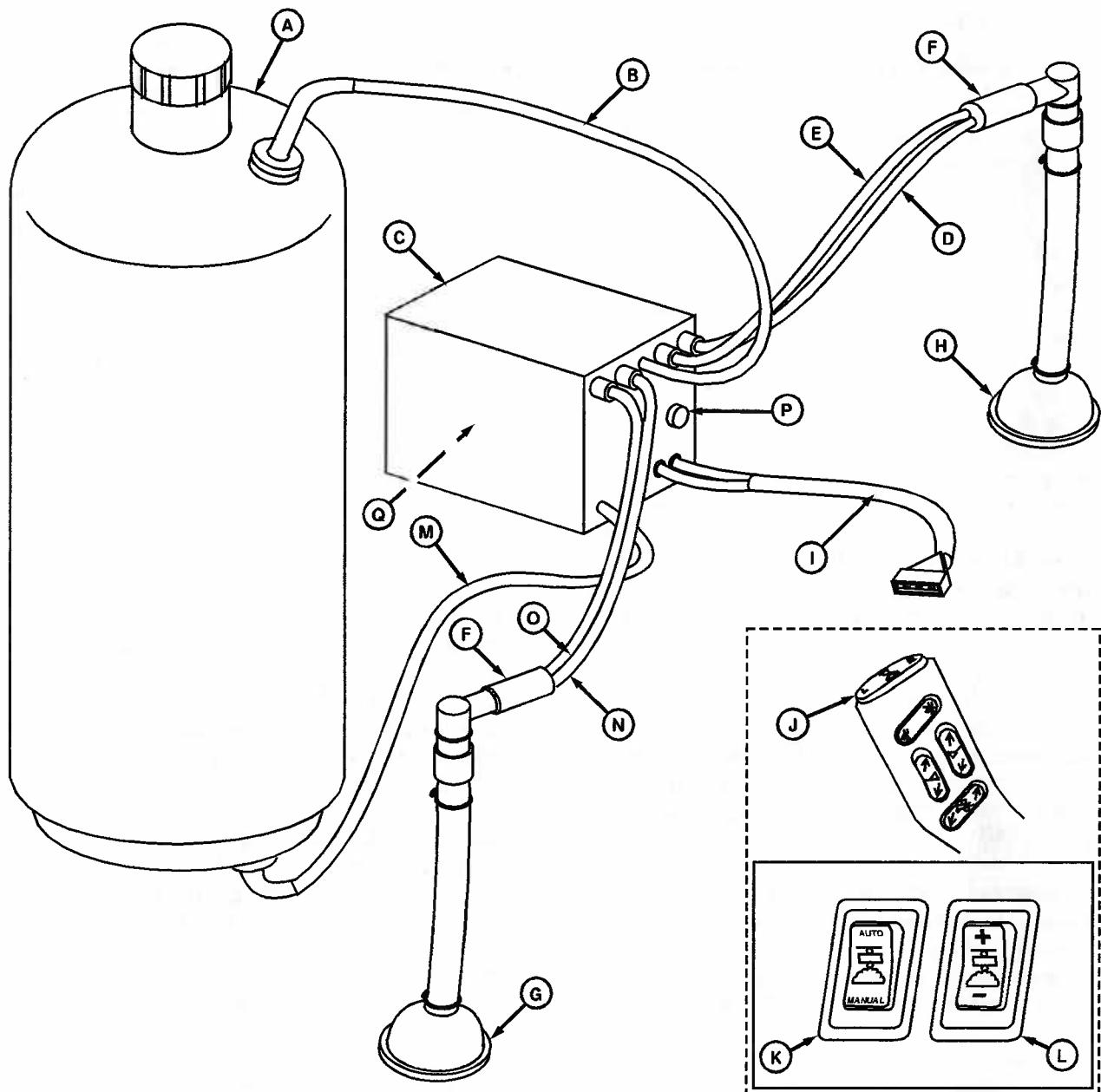
N42190HC



N42190HD

NXH8,M68425,FMT-19-27JUL98

**76 L (20 GAL) FOAM MARKER OPERATION**



N42173NK -JUN-27DEC96

NXH8,M68425,101-19-07JUL98

## 76 L (20 GAL) FOAM MARKER OPERATION (CONTINUED)

A—Foam Solution Tank  
 B—Hose,  
     Compressor-to-Foam  
     Solution Tank  
 C—Compressor Box  
 D—Hose (Air), Compressor  
     Box-to-Right Foam  
     Generator

E—Hose (Foam Solution)  
     Compressor Box-to-Right  
     Foam Generator  
 F—Foam Generator (2 Used)  
 G—Left Nozzle  
 H—Right Nozzle  
 I—Harness  
 J—Foam Marker Side Select  
     Switch

K—Foam Marker Mode  
     Switch  
 L—Foam Rate Switch  
 M—Hose, Foam Solution  
     Tank-to-Compressor Box  
 N—Hose (Foam Solution)  
     Compressor Box-to-Left  
     Foam Generator

O—Hose (Air), Compressor  
     Box-to-Left Foam  
     Generator  
 P—10-Amp Fuse  
 Q—3.15-Amp Fuse

The foam marker system consists of a tank, compressor box, a switch in the hydro lever, two switches in right-hand console, two foam generators, two nozzles and interconnecting wire harnesses and hoses.

A filler cap is located at the top of the tank (A) for adding foam concentrate and water. Inlet and outlet ports are provided at top and bottom of tank respectively. Pressurized air from compressor flows through hose (B) to tank inlet fitting which pressurizes tank. Hose (M) is connected to tank outlet fitting to carry pressurized foam solution from tank to solenoid operated control valves located in compressor box (C).

Compressor box consists of an air compressor and motor, four solenoid operated control valves, a restrictor valve, a 10-amp externally mounted fuse, a 3.15-amp internal fuse, a circuit board for electronic control of compressor and interconnecting wiring and tubing.

The air compressor provides pressurized air to the foam solution tank through hose (B) and to the foam generators (F) through internal solenoid operated control valves which are ported to hoses (D) and (O). Foam marker mode switch (K) has three positions:

- Auto operation
- Manual operation
- Center is OFF

Foam Marker Side Select Switch (J): • turns foam marker system off (middle of switch) • left-hand or right-hand sides of switch activates marker system and corresponds to side of machine where foam marking is required.

Foam Rate Switch (L) is used for setting frequency of foam drops. Regulating is accomplished with a motor

driven adjustable restrictor valve inside the foam compressor box. The Foam Rate switch has two positions:

- Push and hold top of switch to increase foam drop frequency.
- Push and hold bottom of switch to decrease foam drop frequency.

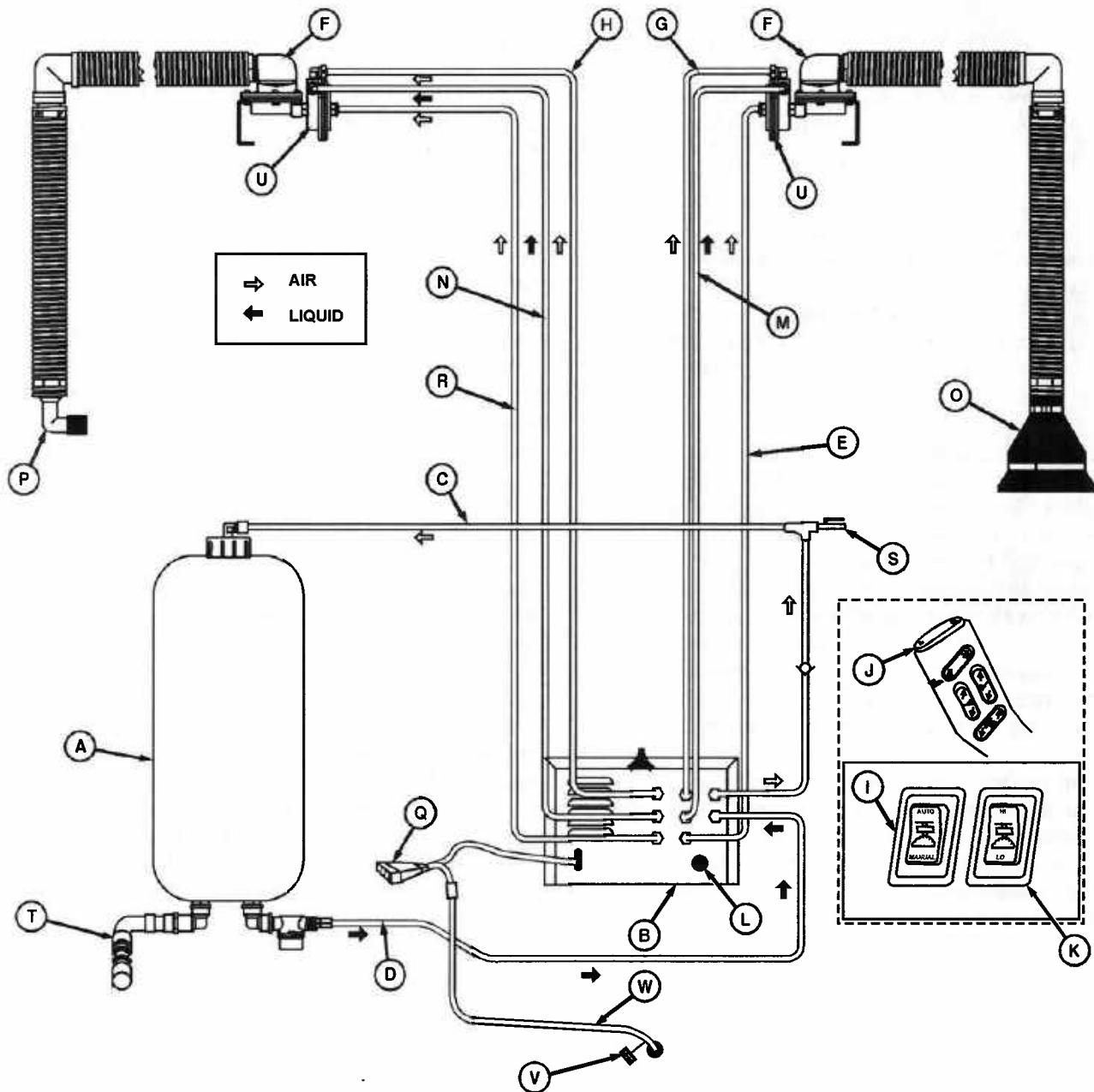
When bottom of switch is pressed for approximately 10 seconds, foam generation will stop and only air will flow from nozzles.

Pressurized air from hose (D) and (O) mixes with foam solution from hose (E) or (N) respectively in foam generators (F) to make foam. Foam flows from generator through hoses and fittings to nozzles (G) and (H). As more foam is produced, it builds up inside nozzle cup until it is too heavy to support itself and it drops out onto the ground.

When operator presses top or bottom of foam marker control switch, current flows from battery source through cable to 10-amp fuse (P) and internal 3.15-amp fuse (Q). Flow continues through harness (I) to switches (J) and (L). From switch, current flows back through harness to compressor and solenoids inside compressor box. The appropriate pair of solenoids energize to allow flow of foam solution through hose (E) or (N) and compressed air through hose (D) or (O) to respective foam generators and nozzles.

Foam marker control switch (K) is a three position switch used to select manual operation, automatic operation or to shut off foam marker. When in manual operation, the operator controls which side the marker operates on. When in automatic operation, the foam marker automatically switches from one side to the other when the solution spray master switch is turned off then turned back on.

## 132 L (35 GAL) FOAM MARKER OPERATION



A—Tank  
 B—Compressor  
 C—Hose  
 D—Hose  
 E—Air Hose  
 F—Foam Mixing Head  
 G—Hose

H—Hose  
 I—Foam Marker Control Switch  
 J—Switch on Hydro Lever  
 K—Hi/Lo Switch  
 L—Fluid-flow Control Knob

M—Hose  
 N—Hose  
 O—Collector  
 P—Streamer  
 Q—Harness  
 R—Hose

S—Vent Valve  
 T—Fill Port  
 U—Shut-off Valve  
 V—25 amp Fuse  
 W—Main Power Wire Harness

N42190EH  
 -19-16.JUL98

## 132 L (35 GAL) FOAM MARKER OPERATION (CONTINUED)

The 136 L (35 gallon) foam marker system consists of a tank, power unit, a switch in the hydro lever, two switches in the right-hand console, two foam mixing heads, and two air shut-off valves, two collectors or streamers and interconnecting wire harnesses and hoses.

A filler cap is located at the top of the tank (A) for adding foam concentrate and water. Inlet and outlet ports are provided at the top and bottom of the tank respectively. Pressurized air from compressor (B) flows through hose (C) to tank inlet fitting that pressurizes tank. Hose (D) is connected to tank outlet fitting to carry pressurized foam solution from tank to solenoid operated valves located in power unit.

Vent valve (S) relieves pressure in tank when filling tank with water through fill port (T). Valve should be open when filling tank and closed when finished.

The power unit box contains a 12-volt motor driven rotary vane compressor with air inlet filter and carbon outlet filter, right-hand and left-hand air shutoff valves, a high/low foam rate valve, an anti-siphon valve, an externally adjustable fluid flow control valve and interconnecting wiring and tubing. There is a 25-amp fuse (V) in the main power wire harness (W).

The foam marker control switch (I) has three positions: auto operation, manual operation and off. When switch is in manual position, the operator controls which side the marker is operating. When switch is in automatic position, the foam marker automatically switches from one side to the other

when the solution spray master switch is turned on and off.

Switch (J) on hydro lever is a three-function switch used to select right-hand or left-hand foam markers. Foam marker system is off when center switch is pushed.

High/Low foam switch (K) is used to choose between either a high flow rate or a lower adjustable flow rate. When the high/low foam switch is in the low position, the foam output is adjustable from fluid-flow control knob (L) on the foamer power unit. Turning the rate control knob clockwise decreases the amount of foam in low position. Turning it counter-clockwise increase foam rate. While in the low rate mode, the foam rate can be adjusted from zero foam output to maximum output. With switch in high position, foam liquid bypasses the fluid control valve and supplies maximum fluid flow.

The compressor provides pressurized air directly to the foam solution tank through hose (C) and to the foam heads (F) through hoses (G) and (H).

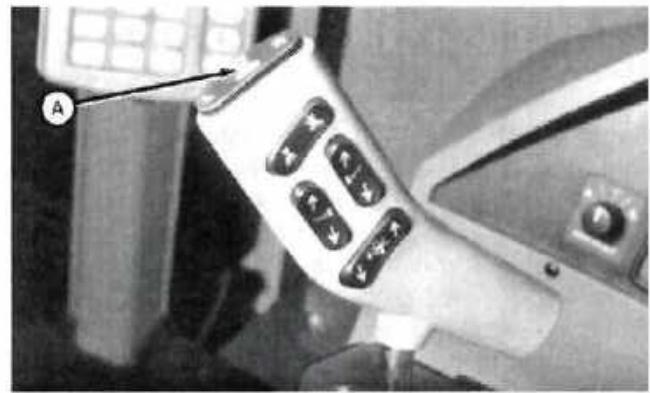
Pressurized air from hoses (E) and (R) pushes against a diaphragm inside the shut-off valve (U), closing off the flow of fluid and air to the foam mixing head (F). Pushing down on right-hand side of switch (J) on hydro lever cuts off air to the right-hand hose (E), thereby allowing air and fluid to mix and create foam for right-hand side. Pushing down on left-hand side of switch (J) on hydro lever cuts off air to left-hand hose (R).

## OPERATING 76 L (20 GAL) FOAM MARKERS

Switch (A) is a three function switch used to select right-hand or left-hand foam markers. Foam marker system is off, when the center of the switch is pressed.

Foam rate switch (B) has increase and decrease positions that vary amount of foam output. When the top of switch is pressed, foam drops will be closer together, when bottom of switch is pressed, foam drops will be farther apart.

Foam marker control switch (C) is a three position switch used to select manual operation, automatic operation or to shut off foam marker. When in manual operation, the operator controls which side the marker operates on. When in automatic operation, the foam marker automatically switches from one side to the other when the solution spray master switch is turned off then turned back on.



N42173OV -UN27DEC96



N42173DW -UN27DEC96

NXH8,64025,E103-19-07JUL98

## OPERATING 132 L (35 GAL) FOAM MARKERS

Switch (A) is a three function switch used to select right-hand or left-hand foam markers. Foam marker system is off, when the center of the switch is pressed.

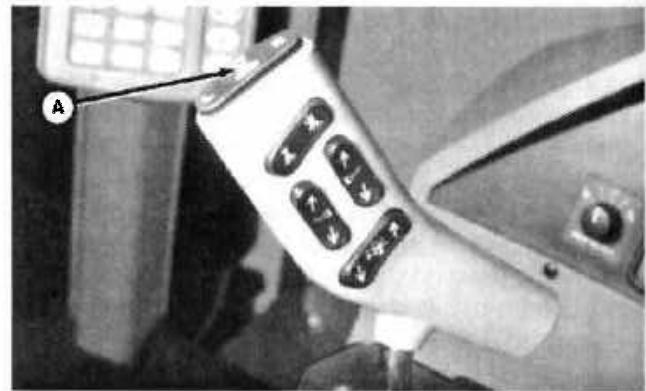
High/Low foam switch (B) is used to choose between either a high flow rate or a lower adjustable flow rate. When the high/low foam switch is in the low position, the foam output is adjustable from the rate control knob (C) on the foamer compressor box. Turning the rate control knob clockwise decreases the amount of foam in low position. Turning it counterclockwise increases the foam rate. While in low rate mode, the foam rate can be adjusted from zero foam output to maximum output.

When the high/low foam switch is in the high position, the maximum foam output is created and the rate is not adjustable.

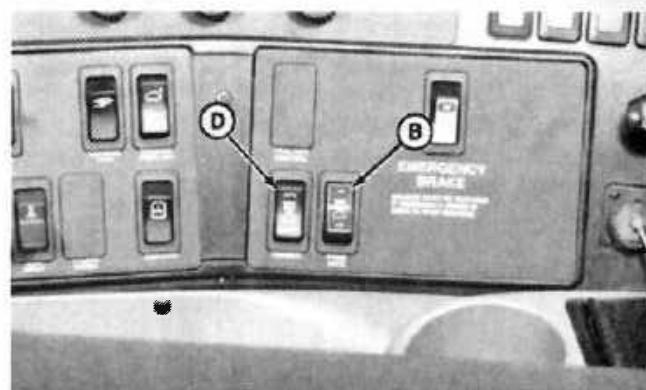
Foam marker control switch (D) is a three position switch used to select manual operation, automatic operation or to shut off foam marker. When in manual operation, the operator controls which side the marker operates on. When in automatic operation, the foam marker automatically switches from one side to the other when the solution spray master switch is turned off then turned back on.

**NOTE:** If storing machine in cold climate, see Preparing 132 L (35 Gal) Foam Marker System for Cold Weather Storage, in Storage section.

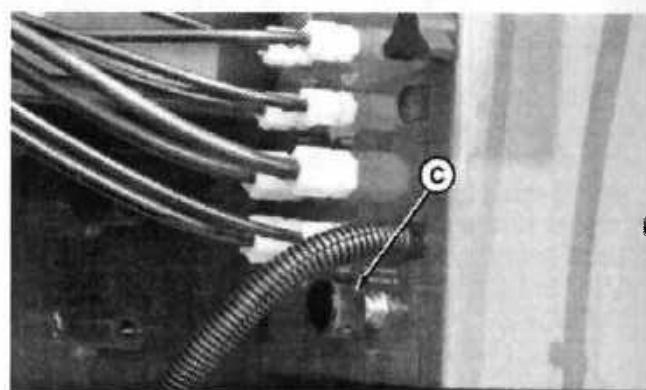
- A—Switch
- B—High/Low Foam Switch
- C—Rate Control Knob
- D—Foam Marker Control Switch



-UN-27DEC96



-UN-14JUL98



N42190FZ -UN-15JUL98

N42190GA

NXH8,M68425,104-19-13JAN99

## (76 L [20 GAL] FOAM TANK) REPAIRING FOAM MARKER TUBES

Splice fittings are used to repair leaking air and foam tubing.

Use 8 mm splice fitting (A) to repair concentrate tube.

Use 10 mm splice fitting (B) to repair air tube.

Order splice kits from your John Deere dealer.



-UN-20MAY94  
N46314

NXH8,64025,E106-19-07JUL98

## (76 L [20 GAL] FOAM TANK) REPLACING FOAM COMPRESSOR FUSES

MAIN FUSE: Remove cap (A) and replace main fuse.

*NOTE: Internal fuse protects compressor motor, restrictor valve and printed circuit board.*

INTERNAL FUSE: Remove compressor cover and replace internal fuse (B).



-UN-14JUL93  
N45349

NXH8,64025,E107-19-15JUL98

## (132 L [35 GAL] FOAM TANK) REPLACING FOAM COMPRESSOR FUSES

Replace fuse (A).



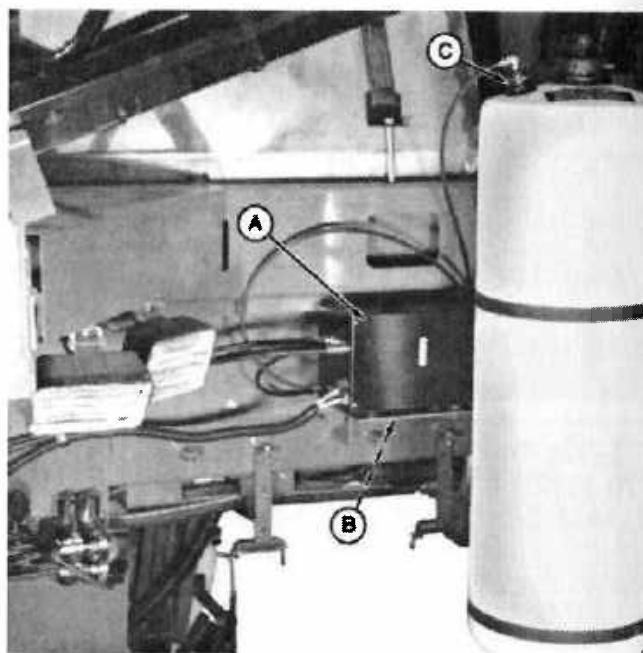
-UN-16JUL98  
N42190HG

NXH8,M68425,FCF-19-11JAN99

## CHECKING 76 L (20 GAL) FOAM MARKER SYSTEM

To achieve optimum foam marker performance, follow these guidelines as needed:

1. Assure the 12V compressor (A) is receiving specified voltage.
2. Clean hole in bottom of compressor housing (B) if plugged.
- IMPORTANT: Do not use auto or RV antifreezes in foam marker system, as these products will leave behind a film that can plug system.**
3. Add foam marker antifreeze such as THERMO if spraying in ambient temperatures of less than 4 degrees C (40 degrees F).
4. Check inlet fitting (C) to foam tank for check valve. If no check valve is present, order (Part No. AN202457) and install.
5. Check type of foam concentrate being used. Two concentrates are available from John Deere: 80:1 concentrate is recommended for temperatures below 27 degrees C (80 degrees F) and 100:1 concentrate is recommended for temperatures above 27 degrees C (80 degrees F).
6. Use John Deere Marking Foam Water Softener (Part No. N207804) in hard water conditions.



76 L (20 gal)

-UN-27MAY98

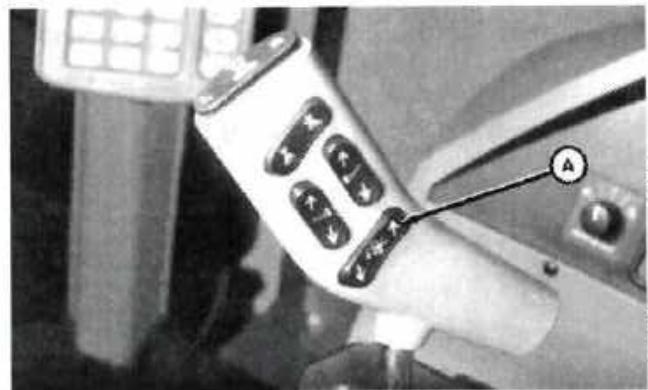
N42190AH

NXH8,64025,E108-19-10JUL98

# John Deere 18.3 m (60 ft) Boom

## UNFOLDING BOOM

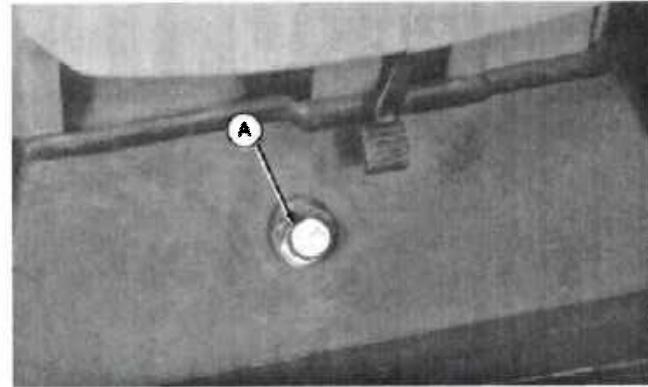
1. Start engine. Depress top of raise/lower switch (A) to raise boom out of the boom rests.



N42173OK -UN-27DEC96

NX,OM470030,1R -19-26NOV97

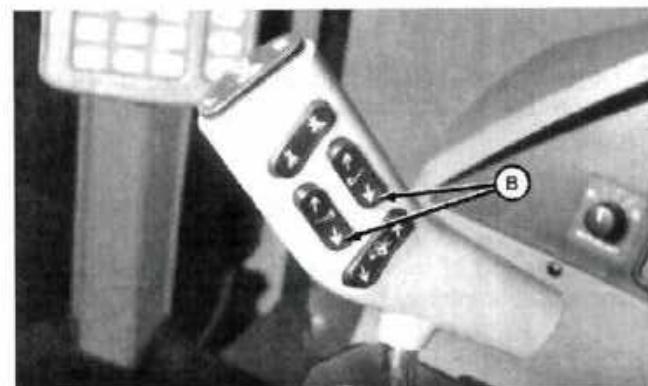
2. Depress and hold fold mode switch (A) while pushing on bottoms of fold/level switches (B), until booms are fully unfolded.



N42173OK -UN-27DEC96

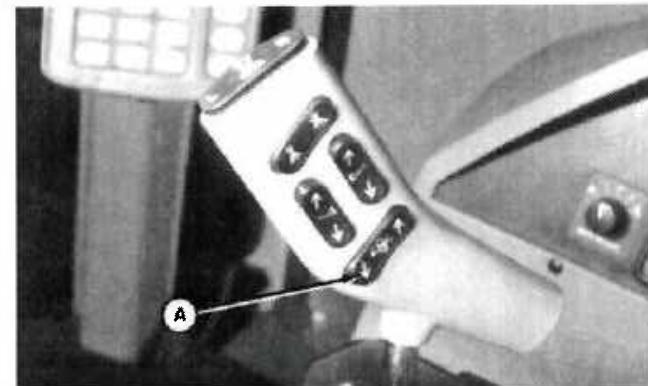
3. Release fold mode switch.

4. Depress bottom of boom fold/level switches to extend level cylinders and level boom to horizontal position.



N42173OL -UN-27DEC96

5. Depress raise/lower switch (A) to lower booms and position nozzles at desired spray height.

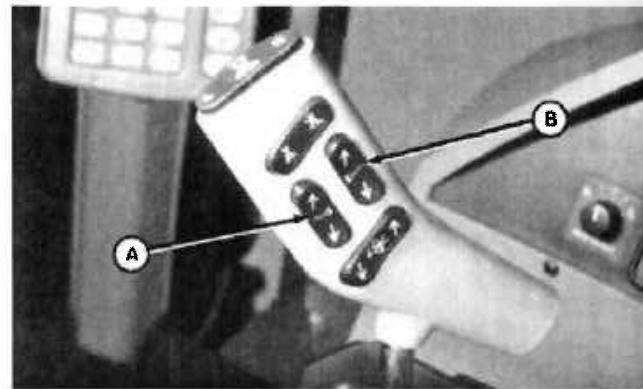


N42173OM -UN-27DEC96

NX,4700I,A74A -19-31DEC96

*NOTE: Booms cannot be adjusted below horizontal.*

6. Use right-hand boom fold level switch (B) and left-hand boom fold level switch (A) to tilt booms for desired spray angle.

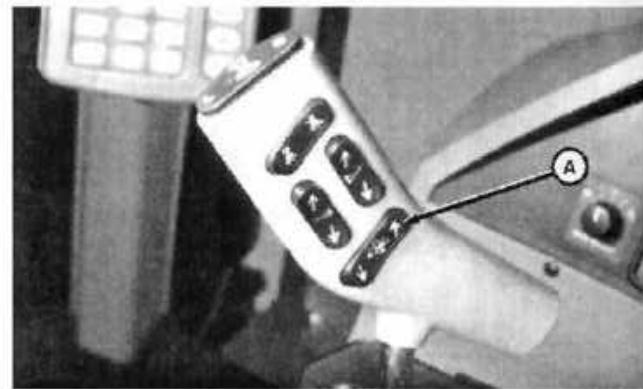


NX,4700I,A75A -19-28JUL97

N421730N  
-UN-27DEC96

## FOLDING BOOM

1. Depress top of raise/lower switch (A) and raise boom to highest position.



NX,OM470030,1S -19-26NOV97

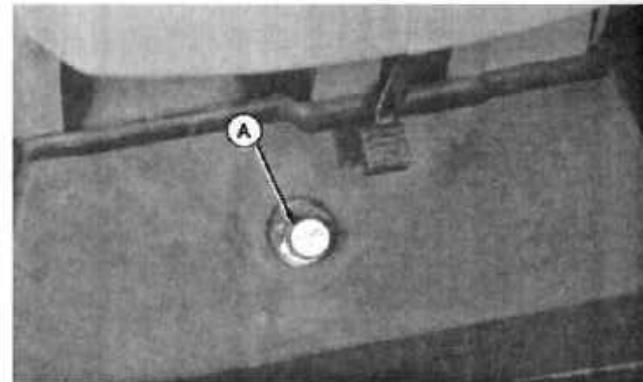
N421730K  
-UN-27DEC96

2. Depress and hold fold mode switch (A) down while pressing top of fold/level switches (B) until boom is folded.

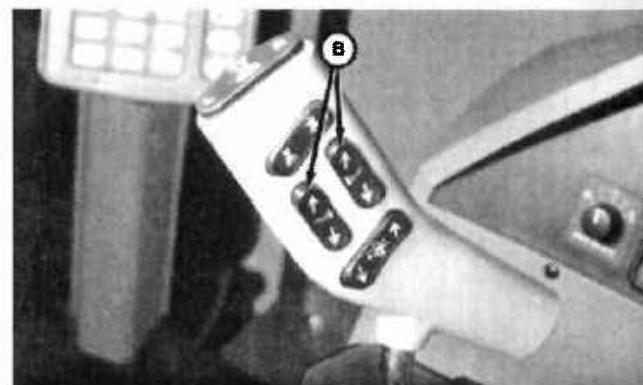
3. Release fold/level switches and fold mode switch.

4. Depress top of fold/level switches until leveling cylinder is completely retracted.

*NOTE: Folding boom wings before leveling wings prevents them from hitting handrails.*



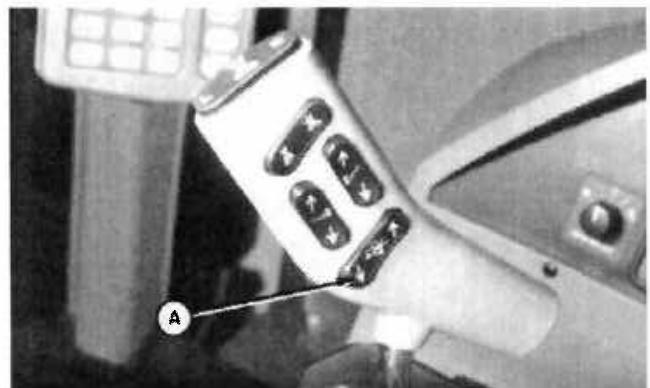
N421730X  
-UN-27DEC96



N42184AB  
-UN-25JUL97

*John Deere 18.3 m (60 ft) Boom*

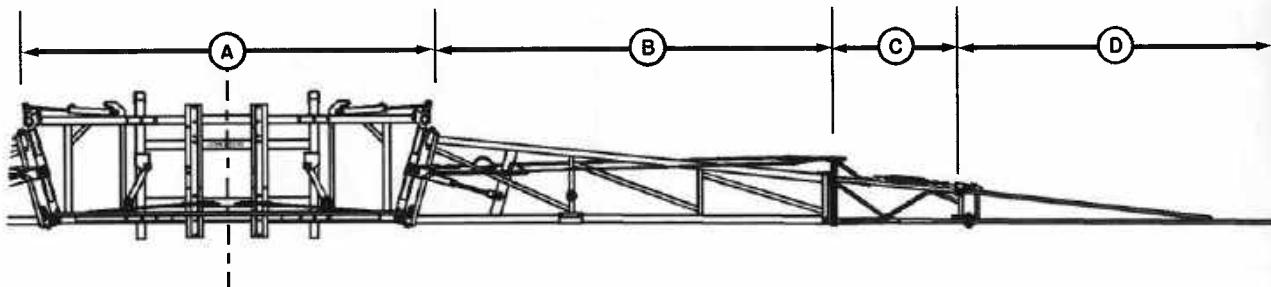
5. Depress bottom of raise/lower switch (A) and lower boom into boom rests.



N42173OM -UN-27/DEC96

NX,OM4700,FB4 -19-28JUL97

## ADJUSTMENT AND MAINTENANCE INTERVALS



-UN-27MAY98

N42184ZN

A—Center Frame

B—Intermediate Boom Section

C—Outer Boom Section

D—Breakaway Boom Section

### Boom Section Identification

**IMPORTANT:** To maximize boom life and performance, tighten all boom fasteners and inspect boom for proper adjustment after the first 10 hours of use.

#### ADJUSTMENT INTERVALS:

- All adjustment procedures should be done after the first day (10 hours) of use. Thereafter, adjust boom on a yearly basis or when necessary.

Perform adjustment procedures in order shown:

1. Checking and Adjusting Sprocket Timing
2. Aligning Wing Assemblies
3. Aligning Intermediate and Outer Boom Sections

4. Adjusting Front Fold Cable
5. Adjusting Breakaway Section Springs
6. Adjusting Level Cylinders
7. Adjusting Floating Frame Pivot
8. Adjusting Boom Transport Position
9. Adjusting Rear Cable
10. Adjusting Equalizer Cables

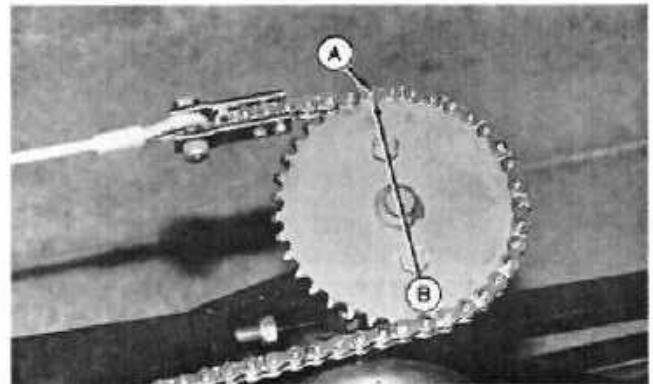
#### MAINTENANCE INTERVALS:

**IMPORTANT:** Tighten all fasteners after the first day (10 hours) of use and every 50 hours thereafter.

Lubricate boom daily to ensure maximum performance and life. Refer to Lubrication and Maintenance section in this manual.

## CHECKING AND ADJUSTING SPROCKET TIMING

1. With boom unfolded in the working position, check to ensure that the seventh pin connection (A) in the timing chain is aligned with the center line between the sprocket cap screws (B).
2. To adjust timing, loosen turnbuckles on the front and rear cables until slack.
3. Standing on the front side of the boom, position the seventh pin of the timing chain on the sprocket as indicated in Step 1.



-UN-05NOV93

N45640

NXN,65FFP,A16A -19-18SEP96

## ALIGNING WING ASSEMBLIES

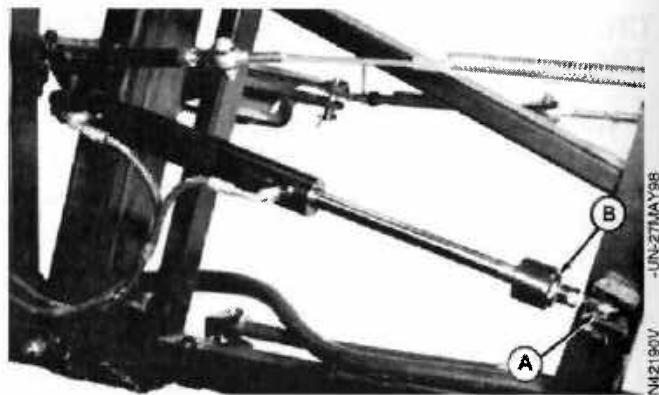
1. With boom unfolded and in the working position, check alignment of the intermediate section with the center frame.
2. With fold cylinder pressurized, determine if the intermediate section needs to be adjusted to the front or rear to come into alignment with center frame.

*NOTE: Because of adjustments made later, it is better to start with the wing assemblies angled slightly to the rear.*

3. Relieve pressure from cylinder by folding boom in a few inches.

*NOTE: Cylinder rod has machined flat which, if visible, can be used for adjustment. If using machined flat for adjustment, leave rod eye pinned to boom and loosen jam nut.*

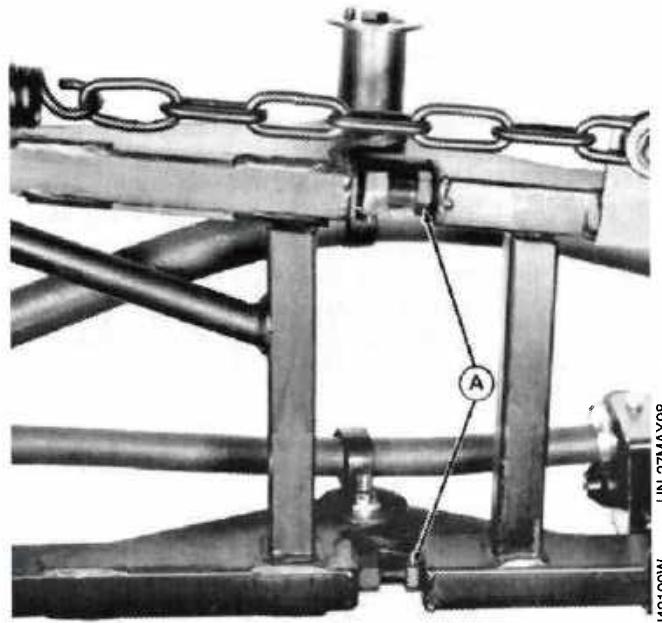
4. Disconnect cylinder rod eye (A) from the intermediate boom section.
5. Loosen jam nut (B) and adjust rod eye IN to move boom forward or OUT to move boom rearward. Tighten jam nut.
6. Attach cylinder rod to boom and pressurize cylinder to check boom alignment.



NX,H8OM47,A12A1-19-29APR98

## ALIGNING INTERMEDIATE AND OUTER BOOM SECTIONS

1. Unfold boom into operating (spraying) position.
2. Adjust stop bolts (A) in or out to align boom sections.



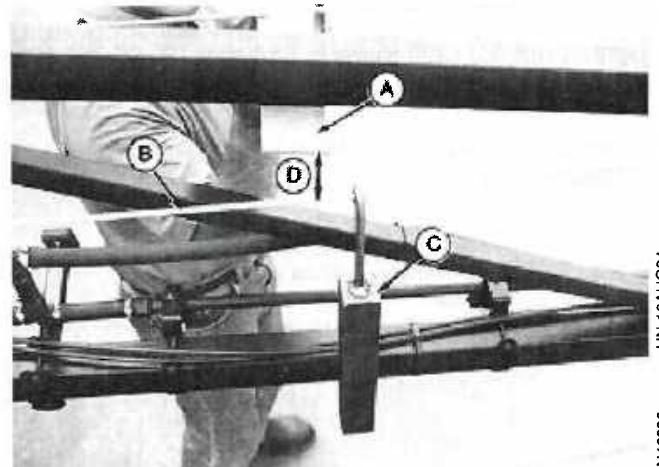
N42190W -JUN-27MAY98

NX,H8OM47,A11A -19-29APR98

## ADJUSTING FRONT FOLD CABLE

**CAUTION:** Rear cable can snap and injure you or someone else if tensioned when the boom is unfolded. Always adjust front cable first with the boom unfolded and rear cable last with the boom folded into transport position.

1. Unfold boom into operating (spraying) position.
2. Slide a straight edge (A) down the underside of intermediate boom section until it just contacts the front cable (B).
3. Suspend a 4.5 kg (10 lb) weight (C) from the straight edge-to-cable contact point and check deflection by measuring the distance from the straight edge to the cable. Cable should deflect 13—20 mm (.50—.75 in.) (D).



JUN-10AUG94  
N46396

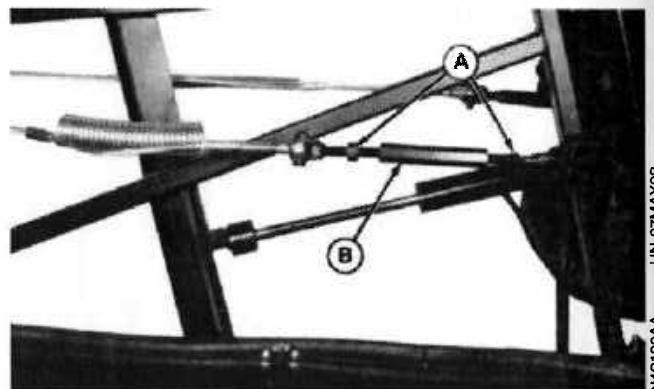
A—Straight Edge  
B—Front Cable  
C—Weight  
D—13-20 mm (.50-.75 in.)

NXL,65FFP,A9A -19-10AUG95

4. Loosen jam nuts (A) and adjust turnbuckle (B) for proper cable deflection.

5. Tighten jam nuts and remove weight.

**IMPORTANT:** Check boom alignment again. If front cable was tightened, the wing assembly will move forward; or if loosened, wing will move rearward. Adjust fold cylinder (if necessary) as described in Aligning Wing Assemblies in this section.



N42190AA -UN-27MAY98

NX,H8OM47,A9B1 -19-29APR98

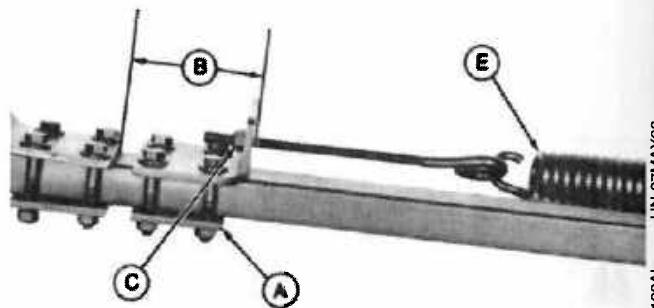
## ADJUSTING BREAKAWAY SECTION SPRINGS

**NOTE:** Breakaway boom section does not return to alignment under spring pressure. Spring pressure from tensioned breakaway only assists in returning outer boom section to alignment.

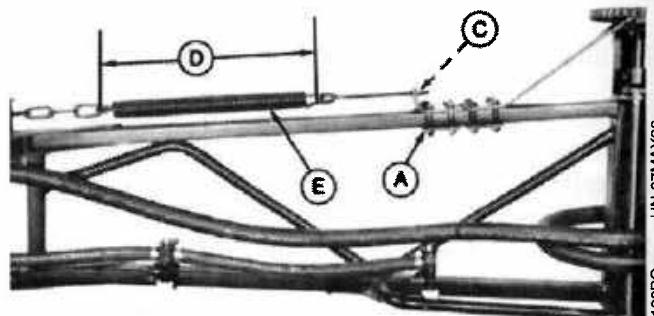
Tighten nut (C) until there is 514 mm (20.25 in.) (D) from inside ends of hooks on spring (E).

1. Adjust bracket (A) so there is 87.63 mm (3.45 in.) (B) between brackets.

- A—Bracket
- B—Dimension—87.63 mm (3.45 in.)
- C—Nut
- D—Dimension—514 mm (20.25 in.)
- E—Spring



N42190AI -UN-27MAY98



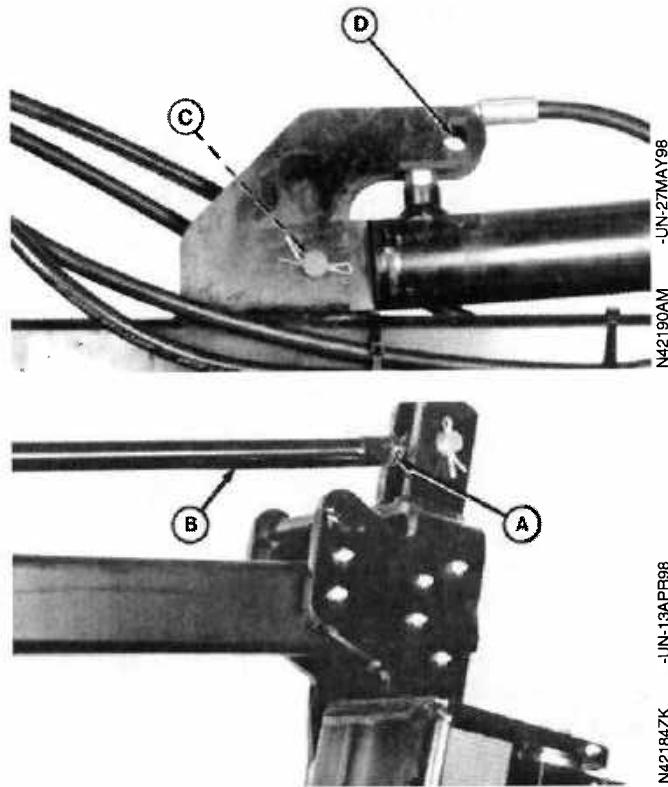
N42190BG -UN-27MAY98

NXH8,M64030,BS1-19-03JUN98

## ADJUSTING LEVEL CYLINDERS

1. Unfold boom into operating (spraying) position.
  2. Completely extend level cylinders.
  3. Check that boom sections are parallel to center frame and level to the ground.
- NOTE: Cylinder rods have machined flats for adjustment.*
4. Slightly retract level cylinders to allow for adjustment.
  5. Loosen jam nut (A) and turn cylinder rod (B) as necessary to level boom sections with center frame and ground. Tighten jam nut.
  6. Position leveling cylinders to desired location. Hole (C) allows cylinder to return to horizontal. Hole (D) allows cylinder to lower below horizontal. Place pin in desired location.

A—Jam Nut  
B—Cylinder Rod  
C—Hole (Nominal Position)  
D—Hole (Cylinder Below Horizontal)



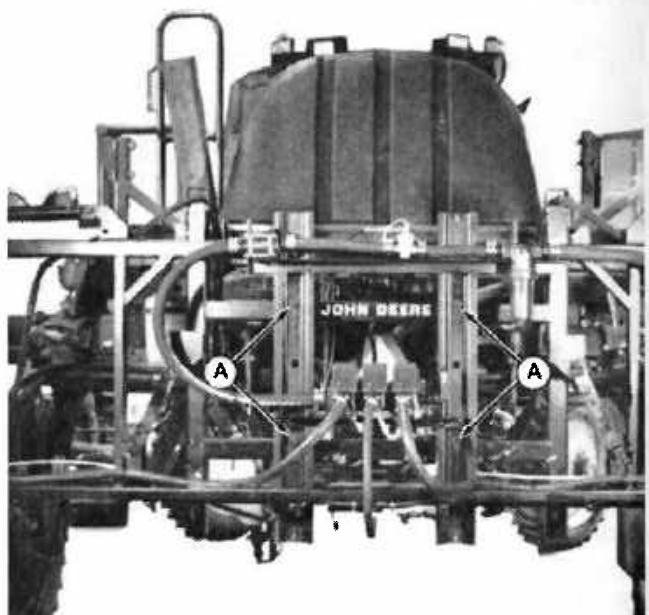
NXH8,64030,F15 -19-07JUL98

## ADJUSTING FLOATING FRAME PIVOT

1. Park machine on level surface.
2. Lubricate pivot linkage (see Section 37).
3. Grease skid plates. (See Section 37).
4. Manually lift one outer boom end approximately 490 mm (20 in.) above horizontal.
5. Release boom end. Boom should smoothly return to horizontal or near horizontal position.
6. If boom does not return to horizontal, loosen each of the adjustment cap screws (A) 1/2 turn and check again.

If boom pivots too freely, tighten adjustment cap screws 1/2 turn and check again.

Boom is properly adjusted when it returns to horizontal position under its own weight, without binding.

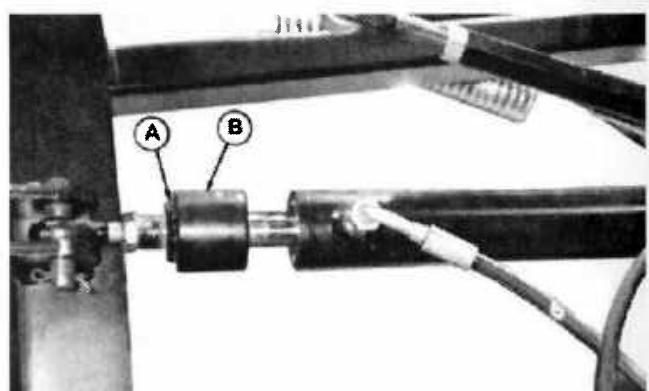


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N42180Z

NXH8,M64030,FFP-19-26MAY98

## ADJUSTING BOOM TRANSPORT POSITION

1. Fold boom into transport position. With fold cylinder pressurized, determine if boom sections need to be adjusted in toward cab or out away from cab.
2. Relieve pressure from cylinder by unfolding boom a few inches.
3. Loosen jam nut (A) and adjust collar (B) IN to move boom out away from cab or OUT to move boom in toward cab.
4. Tighten jam nut.



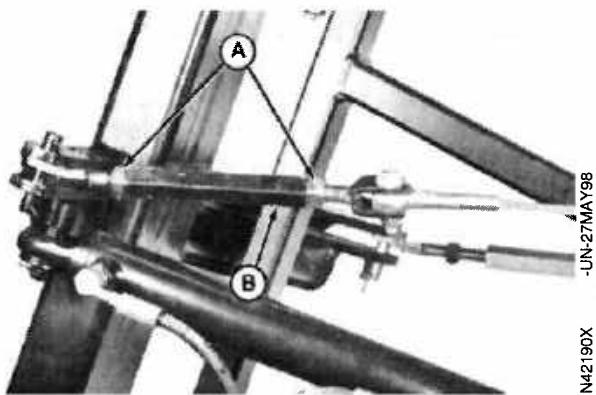
-UN27MAY98  
N42190AS

NX,H8OM47,A17A -19-29APR98

## ADJUSTING REAR CABLE

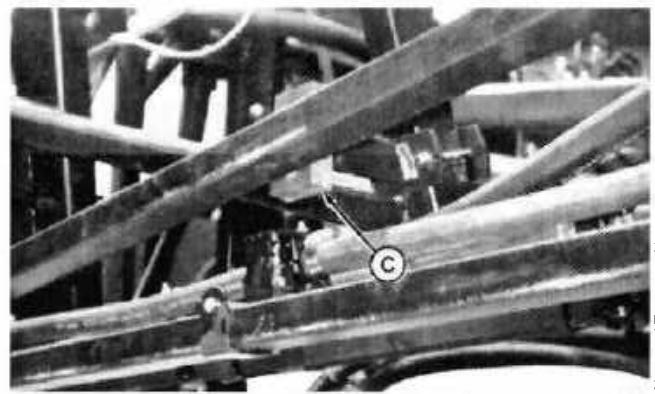
**CAUTION:** Rear cable can snap and injure you or someone else if tensioned when the boom is unfolded. Always adjust front cable first with the boom unfolded and rear cable last with the boom folded into transport position.

1. Raise boom to its highest position. Fold boom to transport position with tilt cylinders fully extended. Make sure fold cylinders are pressurized and that boom is folded all the way in.
2. Loosen jam nuts (A) and adjust turnbuckle (B) so outer boom section contacts rubber stop (C) on intermediate boom section. After boom section contacts stop, adjust turnbuckle two more full turns and tighten jam nuts.



-JN-27MAY98

N42190X



-JN-27MAY98

N42190AT

NX,H8OM47,A10A1-19-29APR98

## ADJUSTING EQUALIZER CABLES

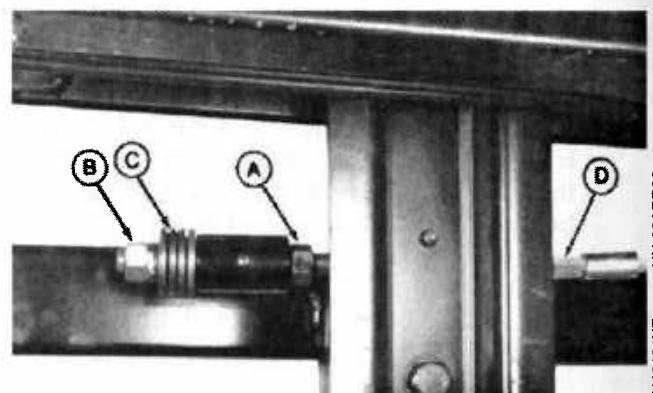
Equalizer cables work together to keep floating frame square to stationary frame, while folding boom in for transport or when spraying with one side raised and folded.

1. Fold boom into transport position.
2. Check that leveling cylinders are COMPLETELY RETRACTED. Adjust if necessary.
3. Loosen jam nuts (A).

**IMPORTANT: Alternate from side-to-side while making adjustments. Adjust one cable a small amount, and then the other, to equalize cable tension and maintain level center frame.**

**DO NOT overtighten cables. Adjust tension until Belleville washers just start to compress, not beyond.**

4. Alternating from side-to-side, tighten adjustment nuts (B) so floating frame is square with stationary frame and Belleville washers (C) just start to compress. Properly adjusted cables (D) will be very tight and only deflect a small amount (fractions of an inch) when pulled on by hand.
5. Tighten jam nuts.
6. Unfold boom to operating (spraying) position.
7. Fold boom and check that floating frame remains square to stationary frame while folding.



Right-Hand Adjuster

A—Jam Nut  
B—Adjustment Nut  
C—Belleville Washers  
D—Equalizer Cable

-UN-02APR98  
N42184XE

NXH8,64030,F19 -19-03JUN98

## ADJUSTING ROW SPACING

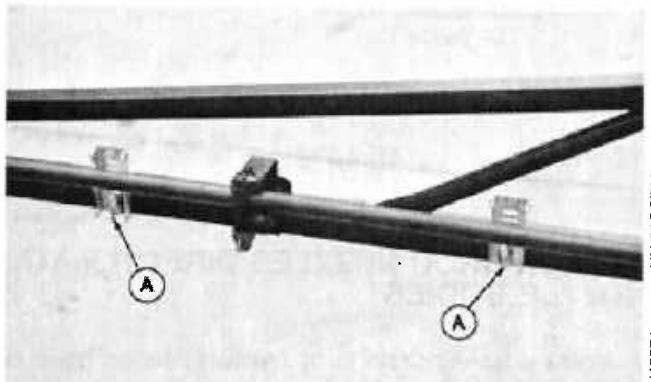
To change boom from standard 508 mm (20 in.) row spacing to 254, 381, 483, 762, 813, 864, 914 or 965 mm (10, 15, 19, 30, 32, 34, 36 or 38 in.) spacing, a Nozzle Spacing Tube Conversion Kit for Hardi Wet Boom Plumbing must be installed.

Order Hardi Nozzle Spacing Tube Conversion Kit from your John Deere dealer.

NX,4700I,A71A -19-28JUL97

## INSTALLING DROP NOZZLES

1. Install drop brackets (A) to backside of boom, using clamps. Adjust brackets for desired spacing, before tightening clamps.

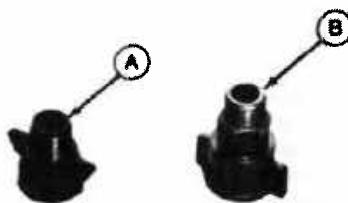


-UN-20OCT93

N45574

NXH8,64030,F21 -19-15APR98

2. Remove nozzle tip cap from closest nozzle body and attach appropriate threaded fitting using old sealing washer from cap. Threaded fitting (A) is for Hardi nozzle bodies and threaded fitting (B) is for TeeJet nozzle bodies.



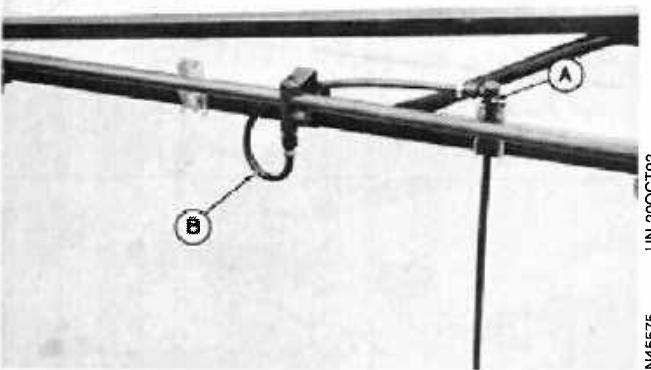
-UN-25JUL97

N42184AF

NX,OM4700,DN2 -19-07AUG97

3. Place drop nozzle tubes (A) on brackets and retain with clips.

4. Attach connecting hoses (B) to drop nozzle tube and threaded fitting on nozzle with clear colored O-rings installed in end fittings.



-UN-20OCT93

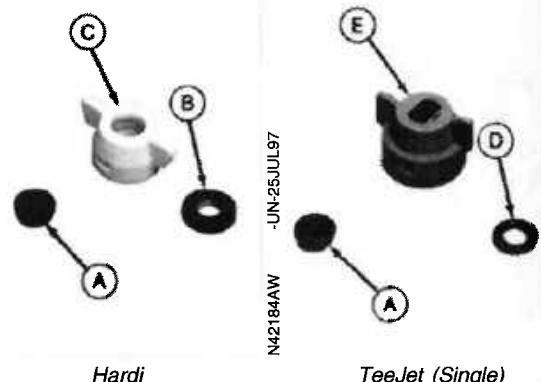
N45575

NX,OM470030,IV -19-17NOV97

5. Close off unused nozzle bodies.

- For Hardi nozzle body: Use blank (A), black O-ring (B) and yellow nozzle cap (C).
- For TeeJet triplet nozzle body: Rotate to close.
- For TeeJet single nozzle body: Use blank (A) or order flat blank disks (Part No. B11443) from service parts, sealing washer (D) from TeeJet cap (E) and TeeJet cap.

A—Blank  
B—Blank O-ring  
C—Yellow Nozzle Cap  
D—Sealing Washer  
E—TeeJet Cap

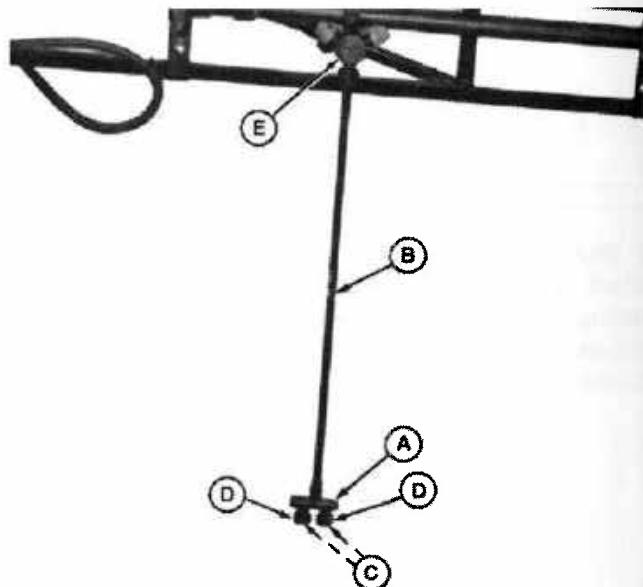


N42184AX  
-JUN-25JUL97

## ATTACH DROP NOZZLES DIRECTLY TO NOZZLE BODIES

1. Install double nozzle body (A) to threaded hose end of drop nozzle (B).
2. Insert spray tips or black disks (C) into threaded nozzle caps (D) and assemble caps to double body.
3. Attach drop nozzle with Viton gasket to nozzle body (E).

A—Double Nozzle Body  
B—Drop Nozzle  
C—Blank Disks  
D—Threaded Caps  
E—Nozzle Body

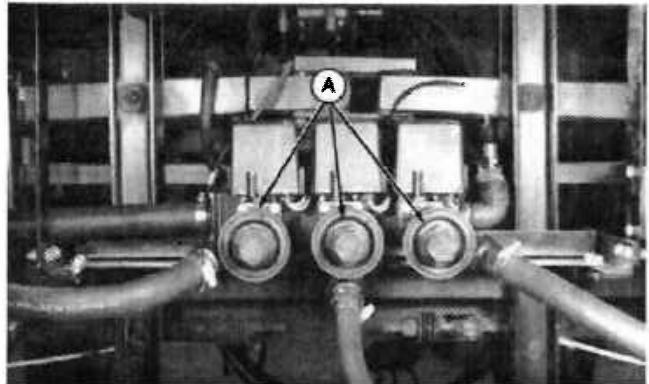


N42190EL  
-JUN-14JUL98

NXH8,M68432,G19-19-07JUL98

## **BOOM SUPPLY LINE STRAINERS (ATTACHMENT)**

Install additional line strainers (A) if the solution is expected to be gritty or not completely dissolved if using relatively small nozzle tips. See your John Deere dealer.



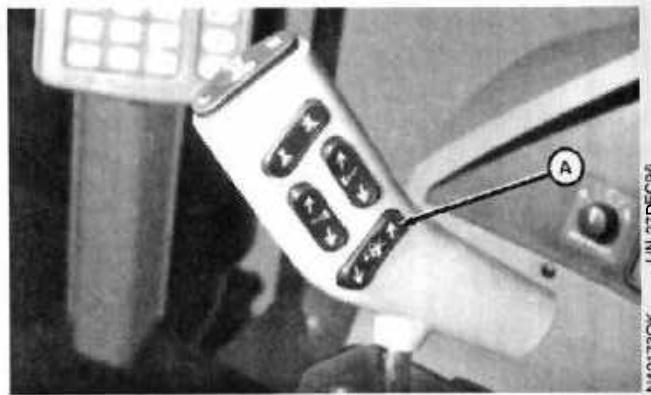
NXH8,M68430,F25-19-07JUL98

-UN-04FEB97  
N42173ZT

# 24.4 and 27.4 M (80 and 90 Ft) Booms

## UNFOLDING BOOM

1. Start engine.
2. Depress top of raise/lower switch (A) to raise boom out of boom rests.

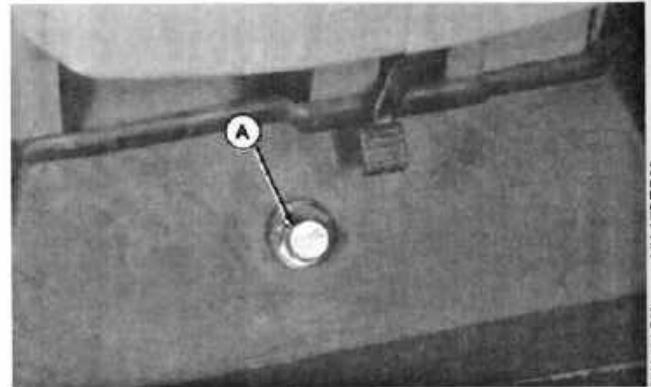


NX,OM470032,1 -19-26NOV97

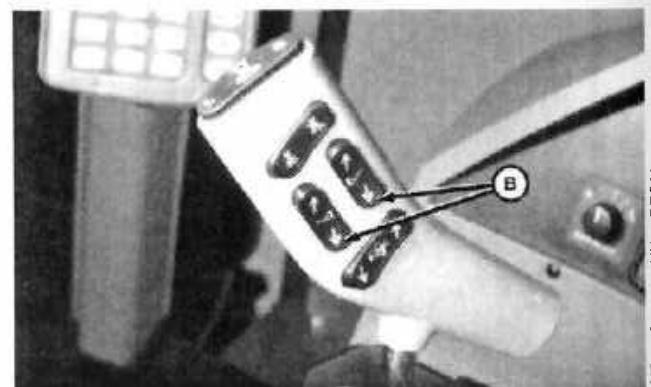
**NOTE:** Booms can be operated without unfolding the outer two sections of the boom on each side. Width is 18.3 m (60 ft).

**CAUTION:** Avoid injury or death to others. Make sure no one is close to boom when unfolding outer sections.

3. Depress and hold fold mode switch (A) while pressing bottom of fold/level switches (B) until inner wing sections of boom unfold.
4. Momentarily release fold/level switches. Continue to hold down fold mode switch and depress and hold bottom of fold/level switches until outer wing sections of boom unfold.
5. Release fold/level switches and fold mode switch.



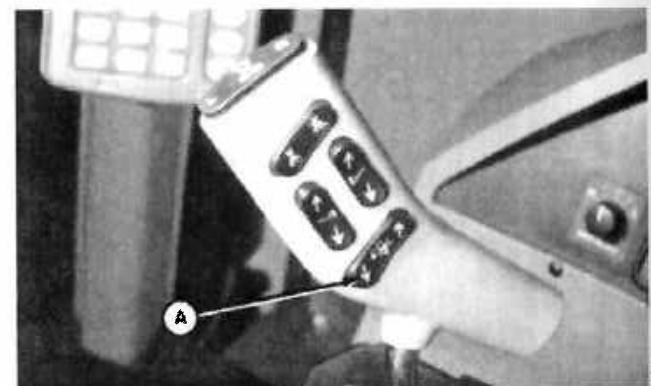
N42173OK -UN-27DEC96



N42173OL -UN-27DEC96

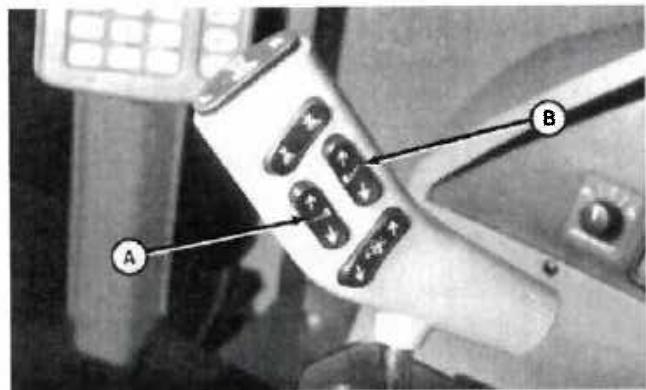
**NOTE:** Boom cannot be lowered below horizontal without below horizontal cylinder (optional).

6. Depress raise/lower switch (A) to lower booms and position nozzles at desired spray height.



NXK7,OM470032,3-19-26NOV97

- Depress left-hand fold/level switch (A) or right-hand fold/level switch (B) to tilt boom wings to desired spray angle.



-UN-27DEC96

N42173ON

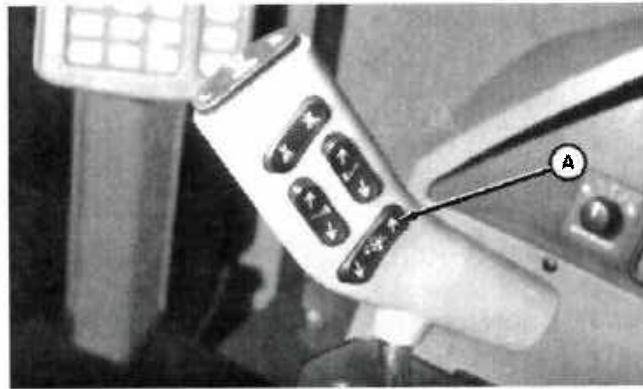
NXK7,OM470032,4-19-26NOV97

## FOLDING BOOM

**CAUTION:** Avoid injury or death to others.  
Make sure no one is standing near boom when  
folding to transport boom.

*NOTE: If roll bias option is installed, make sure boom is  
completely horizontal before folding.*

- Depress top of raise/lower switch (A) and raise boom to highest position.



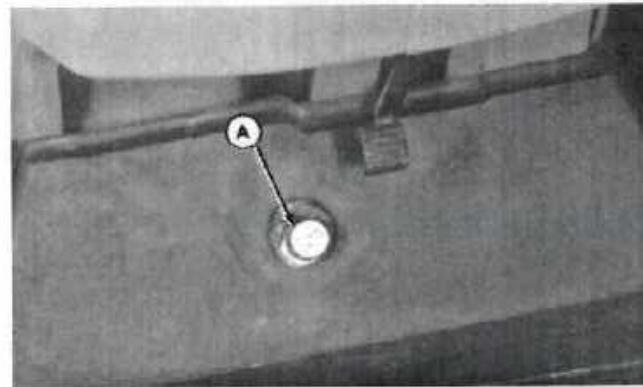
-UN-27DEC96

N42173OK

NXK7,OM55432,1S-19-01DEC97

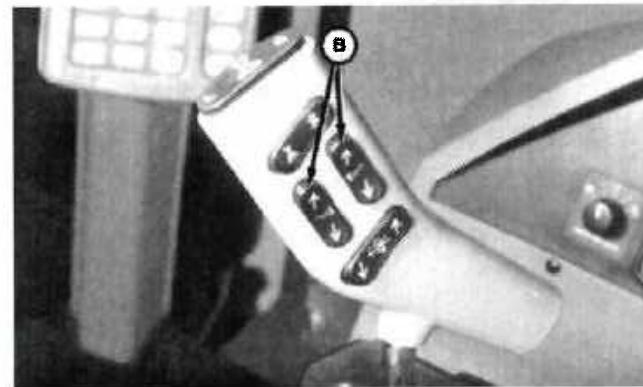
- Depress and hold fold mode switch (A) down while pressing top of fold/level switches (B) until boom is folded.

- Release fold/level switches and fold mode switch.



-UN-27DEC96

N42173OX



-UN-25JUL97

N42184AB

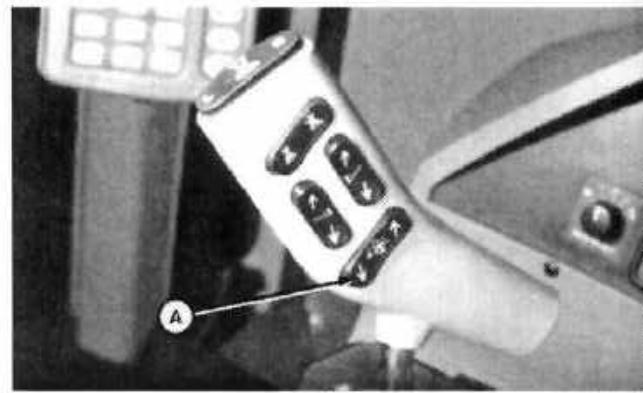
NXH8,M68432,G6 -19-07JUL98

4. Depress bottom of raise/lower switch (A) and lower boom into boom rests.

**NOTE:** *Leveling cylinder needs to be retracted only when transport width needs to be under 3.7 m (12 ft).*

**IMPORTANT:** **Do not level cylinders when boom is folded in unless transporting machine on semi trailer and transport width needs to be under 3.7 m (12 ft) or machine damage will occur.**

5. Depress top of fold/level switches until leveling of cylinder is completed.



N421730M -UN-27DEC96

NXH8,M68432,G7 -19-15JUL98

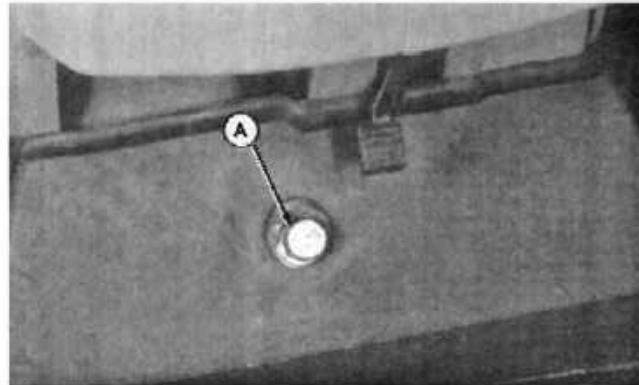
## OPERATING ROLL BIAS (OPTIONAL)

Roll bias allows the operator to tilt the entire boom  $\pm 5^\circ$ , which would lower the left-hand (right-hand) side of boom and raise the right-hand (left-hand) side of boom. This option allows the boom to keep the same angle as the terrain when the machine is at a different angle. This can occur on very steep hills and on terraces.

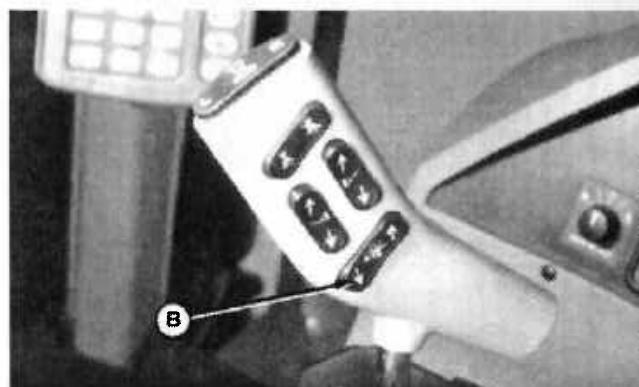
To lower left-hand (right-hand) side:

1. Press and hold fold mode/roll bias switch (A) while pressing left-hand (right-hand) side of raise/lower switch (B). Stop pressing raise/lower switch before boom is at desired angle, as boom responds slower than roll bias cylinder and rocker.
2. To return boom to horizontal position, press and hold fold mode/roll bias switch and right-hand (left-hand) side of raise/lower switch.

**NOTE:** *Before folding boom to transport position, verify that boom is in horizontal position.*



N421730X -UN-27DEC96

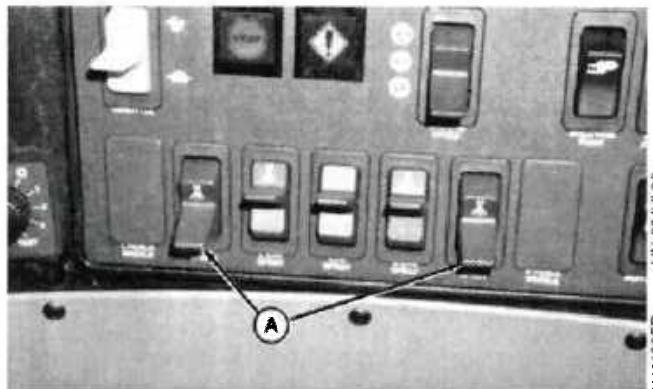


N421730Q -UN-26NOV97

NXK7,OM55432,F -19-01DEC97

**SPRAYING WITH BOOM AT 18.3 M (60 FT)**

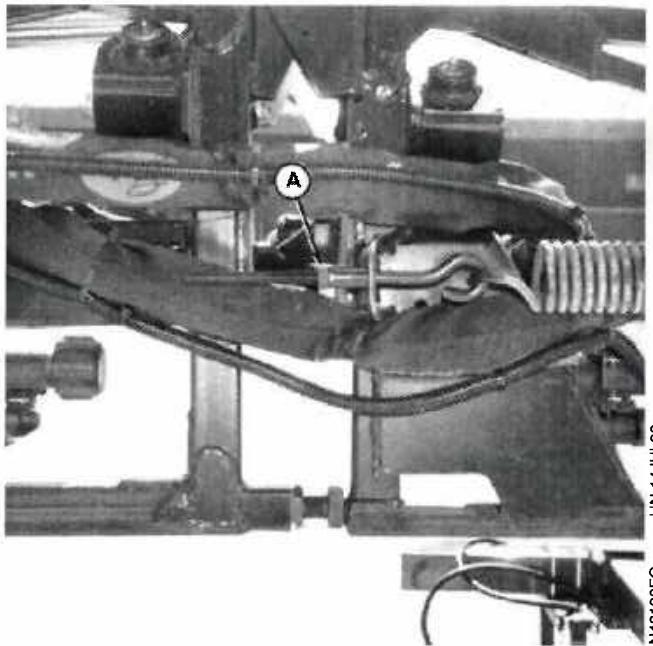
1. Fold boom to 18.3 M (60 ft.)
  2. Turn outer boom section switches (A) off. The boom and SprayStar is now ready to spray at 18.3 m (60 ft.).
- NOTE: Spray rate control will automatically adjust for spraying at 18.3 M (60 ft.)*
3. To spray with entire boom, turn outer boom section switches on and unfold boom.



NXH8,M68432,G8 -19-07JUL98

**ADJUSTING BREAKAWAY SECTION SPRINGS**

Tighten anchoring eyebolt nut (A) until exposed threads are 76–102 mm (3–4 in.) long. This provides the recommended (and maximum) spring tension.



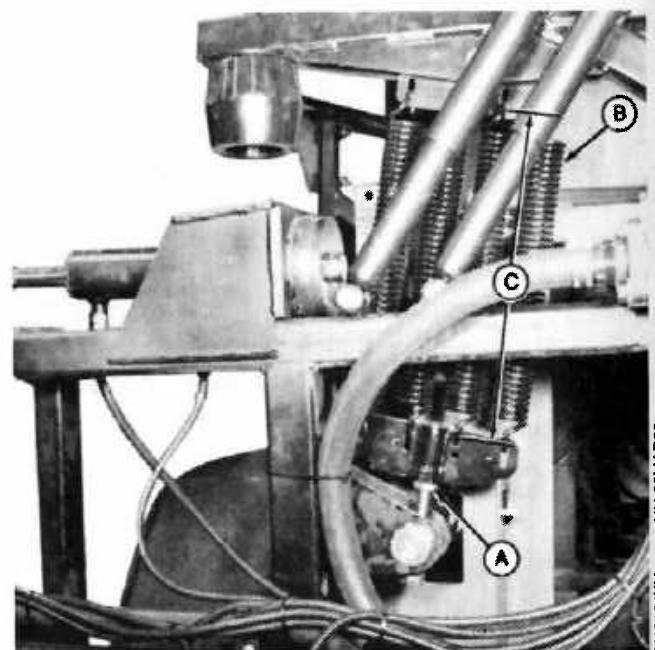
NXH8,M68432,G9 -19-07JUL98

## ADJUSTING ROLL SUSPENSION SPRINGS

If roll bias attachment is installed, make sure roll rocker is parallel to center frame.

Tighten cap screw (A) until springs (B) measure approximately 419 mm (16.5 in.) (C) from inside of one end hook to inside of opposite end hook as an initial setting.

If initial adjustment does not cause boom to be level, check to make sure that boom is free to roll without binding or interference, then tighten springs on side that is low until boom is level (parallel to machine).



NXH8,64032,G10 -19-15APR98

-UN-23MAF98  
N42184XM

## ADJUSTING TRANSPORT CRADLES

Choose transport position by moving cradle (A) to highest position (B), middle position (C) or lowest position (D).

The highest position provides easier access to cab while maintaining an overall folded height of less than 4.3 m (14 ft).

The middle position provides less access to cab but reduces overall folded boom height.

The lowest position reduces overall folded boom height to be level with cab for shipment on trailers.

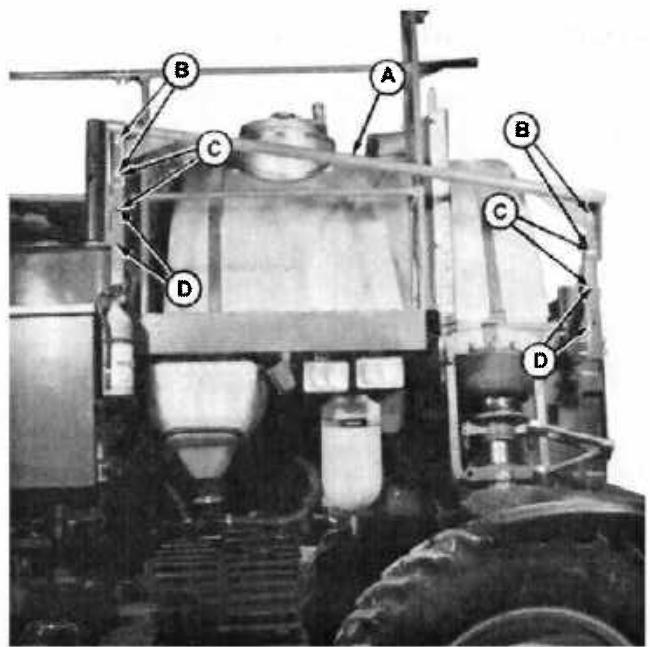
Adjust front end of cradles so that boom is parallel to cradles, or so that front end of cradle is 25.4 mm (1 in.) closer to boom than rear end of cradle is to boom.

Maximum vehicle height when boom in lowest cradle position: 3832 mm (150.85 in.)

Maximum vehicle height when boom in middle cradle position: 3973 mm (156.40 in.)

Maximum vehicle height when boom in highest cradle position: 4115 mm (162 in.)

*NOTE: Maximum vehicle heights are measured with the solution tank empty and air springs adjusted properly. Heights increase if solution tank is full and air springs are not adjusted properly.*



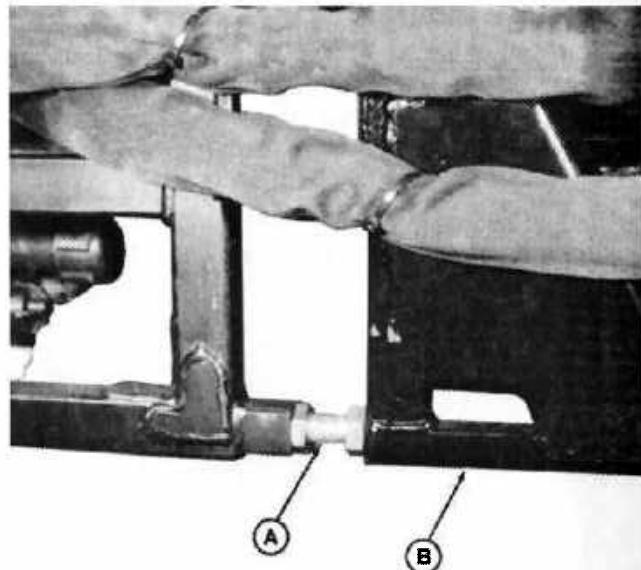
-UN20NOV97

N42184KA

- A—Transport Cradle
- B—Highest Position
- C—Middle Position
- D—Lowest Position

## ADJUSTING STOP BOLT

Adjust outer boom section stop bolt (A) in or out so that outer section (B) is level with the rest of the boom.



N42184.DZ - UN-26NOV97

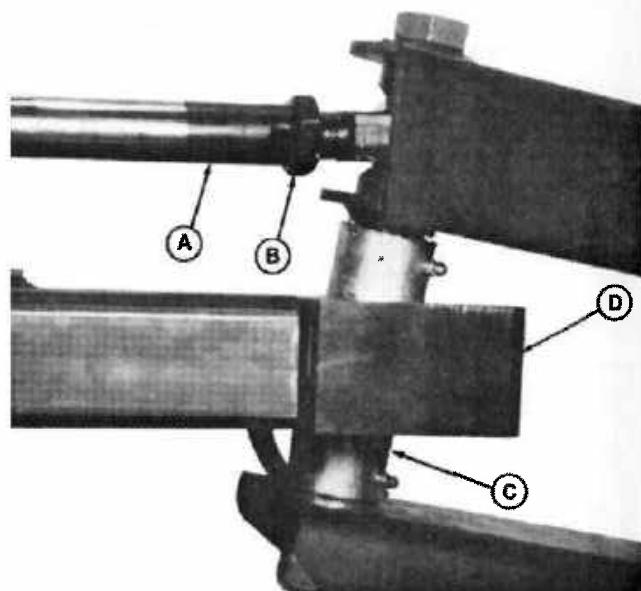
N42184.DZ

NXK7,OM470032,8-19-26NOV97

## ADJUSTING BOOM LEVELING CYLINDERS

1. Extend cylinder (A).
2. Loosen jam nut (B) and adjust cylinder until roller assembly (C) is firmly seated against inside portion of stop (D). Rotate rod end clockwise 1/2 turn to "shorten" cylinder. Tighten jam nut.

A—Cylinder  
B—Jam Nut  
C—Roller Assembly  
D—Stop



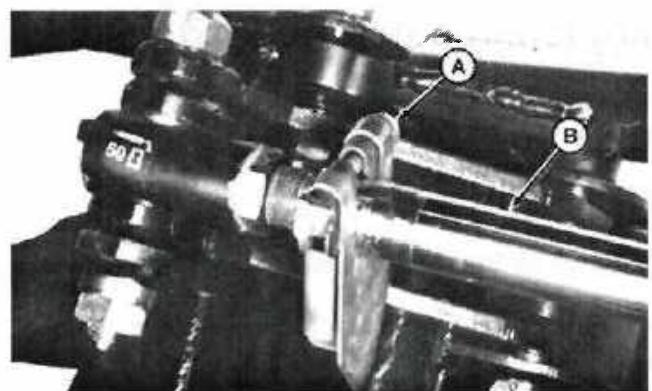
N42184.G - UN-19NOV97

171299

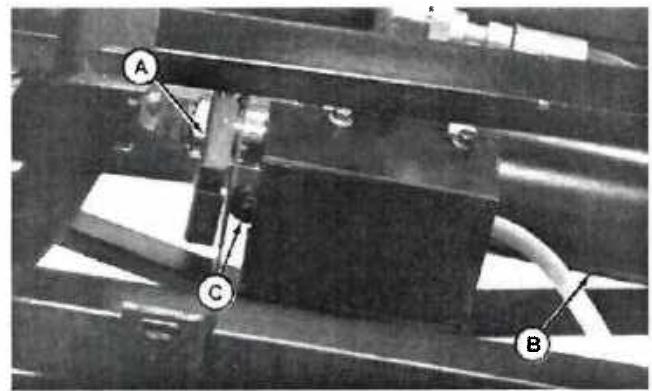
NXK7,OM470032,9-19-02DEC97

## ADJUSTING MICRO SWITCH—OUTER FOLD CYLINDER

1. Unfold boom.
2. Loosen flag assembly (A) on outer fold cylinder (B).
3. Fold outer boom section completely.
4. Move flag assembly until micro switch (C) just clicks.
5. Rotate flag until it is centered on switch when base end of cylinder is parallel with ball.
6. Tighten flag at that position.



*Boom Unfolded*

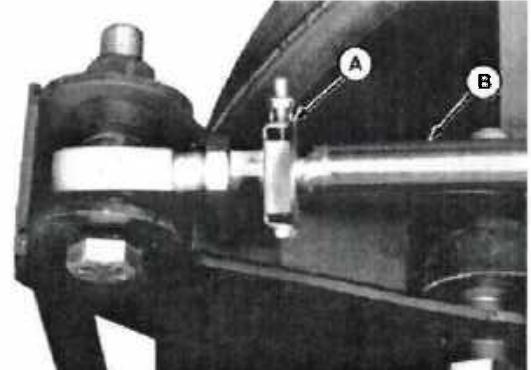


*Boom Folded*

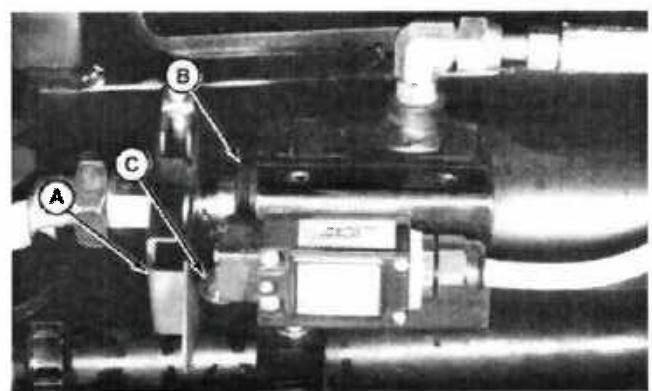
NXK7,OM55432,10-19-26NOV97

## ADJUSTING MICRO SWITCH—INNER FOLD CYLINDER

1. Loosen flag assembly (A) on inner fold cylinder (B).
2. Unfold inner boom section completely.
3. Move flag assembly until micro switch (C) just clicks.
4. Rotate flag as needed so that it is centered on switch when both ends of the cylinder are parallel with balls.
5. Tighten flag at that position.



*Boom Folded*

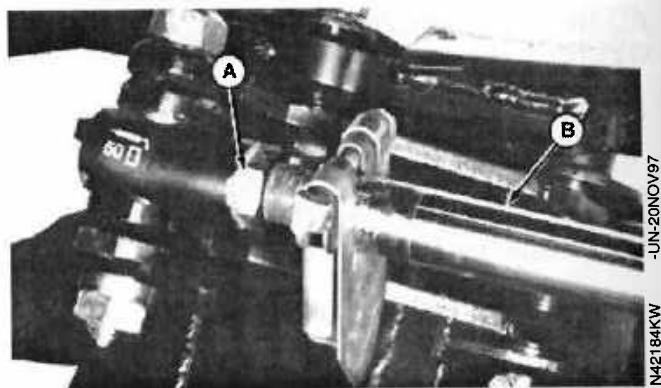


*Boom Unfolded*

NXH8,64032,G15 -19-15APR98

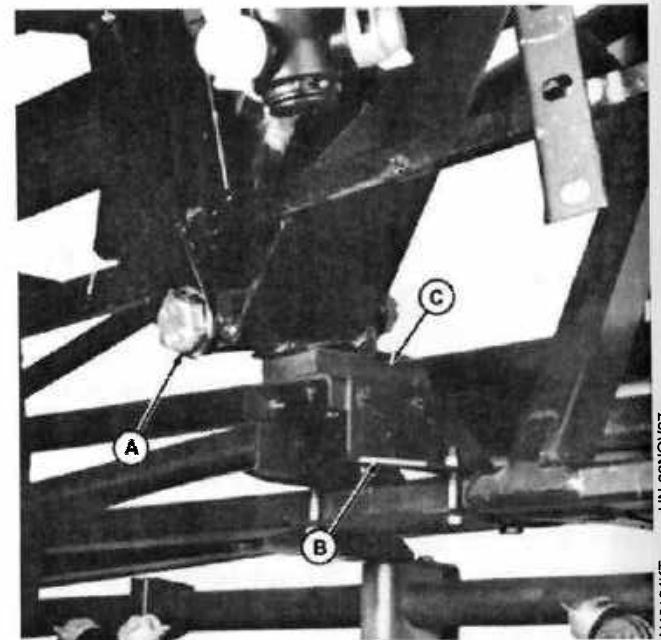
## ADJUSTING OUTER FOLD CYLINDER

1. Adjust stop bolt. (See Adjusting Stop Bolt in this section.)
2. Unfold boom and relieve hydraulic pressure.
3. Bleed air from cylinder and repressurize.
4. Manually lift outer boom section at the same angle it folds and check for excessive "boom whip."
5. If boom is not rigid, loosen jam nut (A) and lengthen cylinder (B). Lengthen until boom is rigid and then turn cylinder rod one more half turn. Tighten jam nut.
6. Fold outer boom section.



-UN-20NOV97  
NA2164KW

7. If outer boom section (A) does not seat on cradle (B), adjust cradle by raising pad (C) to position necessary.



-UN-20NOV97  
NA2164KT

NX,OM470032,13 -19-17NOV97

## ATTACHING DROP NOZZLES AT REMOTE LOCATIONS

Use the following instructions to install hose drops directly to the boom framework when the desired hose drop spacing does not match the spray nozzle spacing.

**CAUTION:** Spray system can contain hazardous material that can cause serious injury or death to you or others. Wear protective clothing, eyewear and gloves while attaching nozzle drops.

1. Starting at center boom section, determine desired hose drop locations and mark locations on boom.

Due to possible interference with boom frame structure, some hose drops will have to be moved slightly inward or outward from the desired (marked) location.

*NOTE: Hose drop clamp size and style is determined by where clamp will be positioned on boom.*

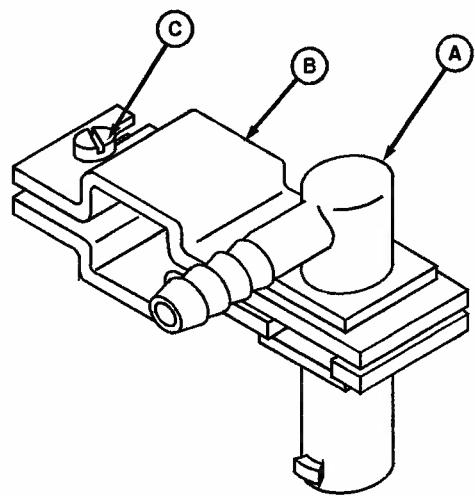
*Center section and inner sections of boom require 38.1 mm (1-1/2 in.) clamps. Outer sections require 25.4 mm (1 in.) clamps.  
Breakaway sections require 19 mm (3/4 in.) clamps.*

*Hose drops must be attached to boom with the special clamps and hose clamps at the following locations: behind boom bumper pad, near the stop bolt and at two locations on center section.*

NXH8,64032,G18 -19-07JUL98

*24.4 and 27.4 M (80 and 90 Ft) Booms*

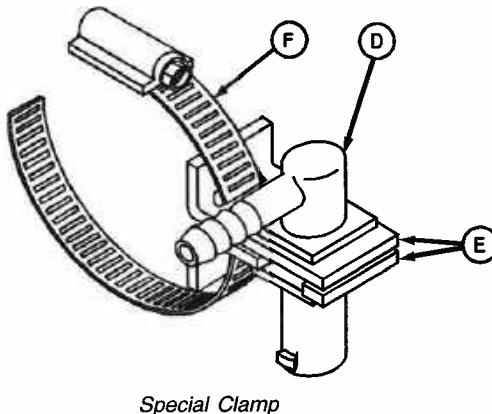
2. Assemble 9.5 mm (3/8 in.) hose elbow (A) and clamps (B) and attach to boom tubing with screw (C). Position barb on hose elbow toward the spray nozzle to which it will be attached.



NX,DR762,B1 -19-04MAR98

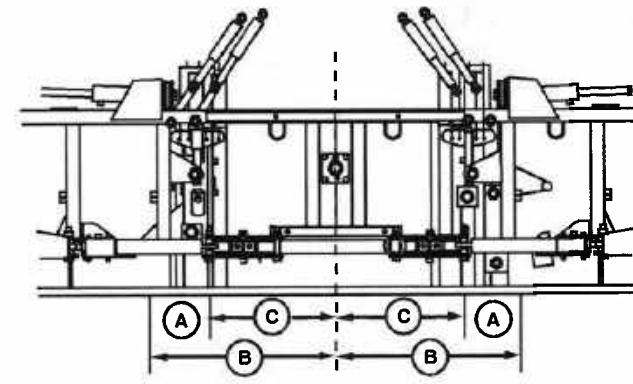
N42186WZ -UN-12MAR98

24.4 and 27.4 M (80 and 90 Ft) Booms



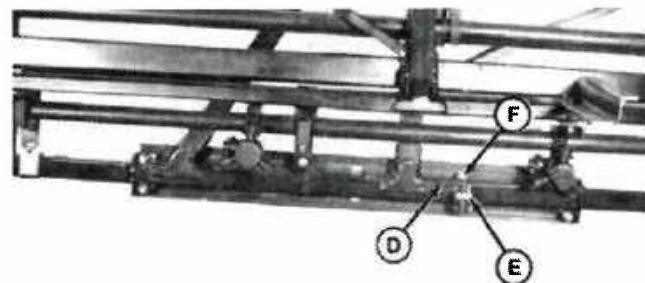
*Special Clamp*

N42184XH JUN-11MAR98



*Center Section*

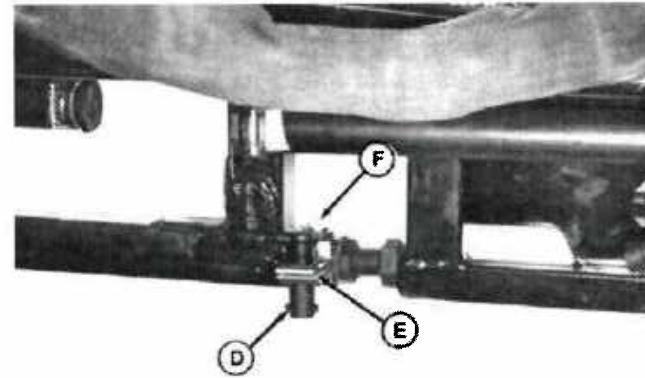
N42184XL JUN-11MAR98



-UN-05MAR98

N42184WR

*Boom Bumper Pad*



-UN-05MAR98

N42184WB

*Stop Bolt*

NX,DR762,C1 -19-12MAR98

3. Install double nozzle body (A) to threaded end of hose drop (B). Insert spray tips or blank disks (C) into threaded nozzle caps (D) and assemble caps to double body.

4. Attach hose drop assembly with Viton gasket to elbow (E).

5. Insert hose barb (F) and Viton seal (G) into cap (H) and attach to nozzle body (I).

*NOTE: Lubricate hose ID with soapy water for ease of installation.*

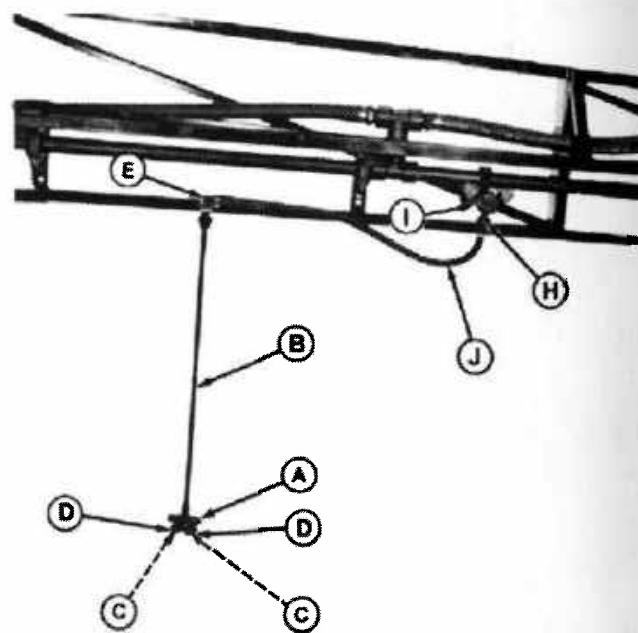
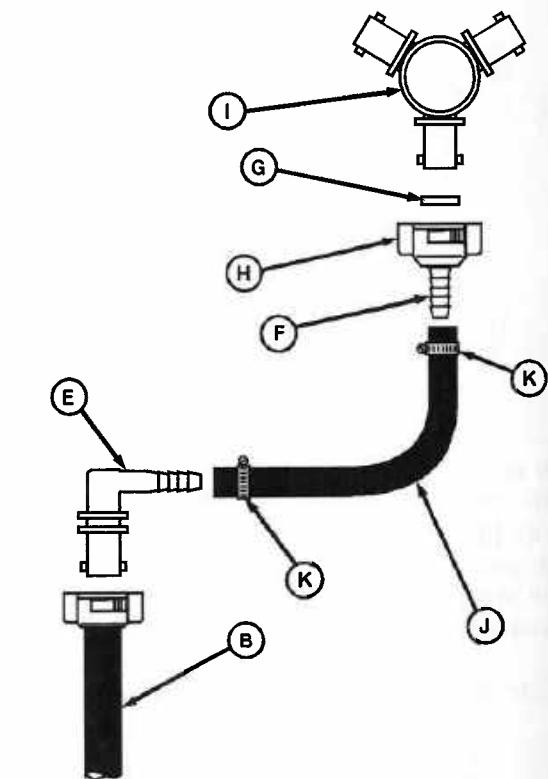
6. Attach one end of 9.5 mm (3/8 in.) hose (J) to hose elbow (E) with hose clamp (K).

7. Route hose to hose barb on nozzle body. Allow enough slack to prevent hose kinking. Cut hose and attach to hose barb with hose clamp. Install tie bands as needed.

*NOTE: Some hose drop locations will require the 9.5 mm (3/8 in.) hose to span across a boom fold joint or the breakaway hinge. To determine the required length of the 9.5 mm (3/8 in.) hose, operate the boom folding/unfolding and the breakaway wing to be sure the hose will be long enough before cutting.*

8. Repeat steps 3—7 for all nozzle bodies.

- A—Double Nozzle Body
- B—Hose Drop
- C—Blank Disk
- D—Threaded Cap
- E—Hose Elbow
- F—Hose Barb
- G—Viton Seal
- H—Cap
- I—Nozzle Body
- J—9.5 mm (3/8 in.) Hose
- K—Hose Clamp

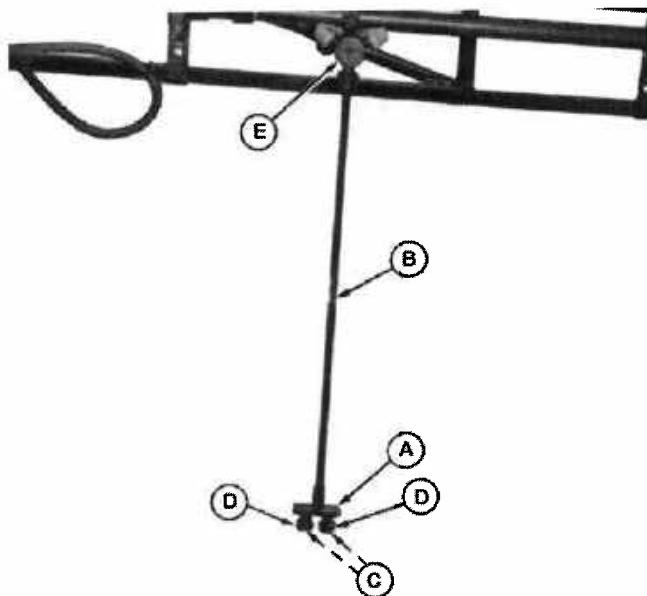


NXH8,M68432,G18-19-07JUL98

## ATTACH DROP NOZZLES DIRECTLY TO NOZZLE BODIES

1. Install double nozzle body (A) to threaded hose end of drop nozzle (B).
2. Insert spray tips or black disks (C) into threaded nozzle caps (D) and assemble caps to double body.
3. Attach drop nozzle with Viton gasket to nozzle body (E).

A—Double Nozzle Body  
B—Drop Nozzle  
C—Blank Disks  
D—Threaded Caps  
E—Nozzle Body



JN-14JUL98

N42190EL

NXH8,M68432,G19-19-07JUL98

## TRANSPORTING MACHINE WITH DROP NOZZLES

**IMPORTANT:** Never transport machine with wings not seated properly in boom cradles.  
Remove any hose drops that interfere with the proper folding of boom.  
Remove any hose drops that interfere with tires when boom is folded.  
Remove hose drops on outer and breakaway boom sections when transporting so proper transport width is maintained.

1. Use water to check for leaks.
2. Fold boom and remove any hose drops that interfere with proper folding or transporting.

NXH8,64032,G22 -19-07JUL98

# Lubrication and Maintenance—General

## DIESEL FUEL

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

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

Diesel fuels specified to EN 590 or ASTM D975 are recommended.

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

- **Cetane number of 40 minimum.**

Cetane number greater than 50 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5,000 ft).

- **Cold Filter Plugging Point (CFPP) below the expected low temperature OR Cloud Point at least 5°C (9°F) below the expected low temperature.**

- **Fuel lubricity** should pass a minimum of 3100 gram load level as measured by the BOCLE scuffing test.

- **Sulfur content:**

- Sulfur content should not exceed 0.5% Sulfur content less than 0.05% is preferred.
- If diesel fuel with sulfur content greater than 0.5% sulfur content is used, reduce the service interval for engine oil and filter by 50%
- DO NOT use diesel fuel with sulfur content greater than 1.0%

Bio-diesel fuels with properties and meeting DIN 51606 or equivalent specification may be used.

DO NOT mix used engine oil or any other type of lubricant with diesel fuel.

DX,FUEL1 -19-18MAR96

## HANDLING AND STORING DIESEL FUEL



**CAUTION:** Handle fuel carefully. Do not fill the fuel tank when engine is running.

**DO NOT smoke while you fill the fuel tank or service the fuel system.**

Fill the fuel tank at the end of each day's operation to prevent condensation and freezing during cold weather.

**IMPORTANT:** The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

When fuel is stored for an extended period or if there is a slow turnover of fuel, add a fuel conditioner to stabilize the fuel and prevent water condensation. Contact your fuel supplier for recommendations.

DX,FUEL4 -19-18MAR96

## LUBRICITY OF DIESEL FUEL

Diesel fuel must have adequate lubricity to ensure proper operation and durability of fuel injection system components.

Diesel fuels for highway use in the United States and Canada now require sulfur content less than 0.05%. Diesel fuel in the European Union will require sulfur content less than 0.05% by 1 October 1996.

Experience shows that some low sulfur diesel fuels may have inadequate lubricity and their use may reduce performance in fuel injection systems due to inadequate lubrication of injection pump components. The lower concentration of aromatic compounds in these fuels also adversely affects injection pump seals and may result in leaks.

Use of low lubricity diesel fuels may also cause accelerated wear, injection nozzle erosion or corrosion, engine speed instability, hard starting, low power, and engine smoke.

Fuel lubricity should pass a minimum of 3100 gram load level as measured by the BOCLE scuffing test.

ASTM D975 and EN 590 specifications do not require fuels to pass a fuel lubricity test.

If fuel of low or unknown lubricity is used, add John Deere PREMIUM DIESEL FUEL CONDITIONER (or equivalent) at the specified concentration.

DX,FUEL5 -19-18MAR96

## DIESEL ENGINE COOLANT

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F).

The following engine coolant is preferred for service:

- John Deere PREDILUTED ANTIFREEZE/SUMMER COOLANT

The following engine coolant is also recommended:

- John Deere ANTIFREEZE/SUMMER COOLANT CONCENTRATE in a 40 to 60% mixture of concentrate with quality water

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

- ASTM D5345 (prediluted coolant)
- ASTM D4985 (coolant concentrate) in a 40 to 60% mixture of concentrate with quality water

Coolants meeting these specifications require use of supplemental coolant additives, formulated for heavy-duty diesel engines, for protection against corrosion and cylinder liner erosion and pitting.

A 50% mixture of ethylene glycol engine coolant in water provides freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

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

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

### Coolant drain intervals

Drain and flush the cooling system and refill with fresh coolant every 2 years or 2000 hours of operation, whichever comes first.

When John Deere PREDILUTED ANTIFREEZE/SUMMER COOLANT is used, the drain interval may be increased to 3 years or 3000 hours of operation.

## TESTING DIESEL ENGINE COOLANT

Maintaining adequate concentrations of glycol and inhibiting additives in the coolant is critical to protect the engine and cooling system against freezing, corrosion, and cylinder liner erosion and pitting.

Test the coolant solution at intervals of 6 months or less and whenever excessive coolant is lost through leaks or overheating.

### Coolant test strips

Coolant test strips are available from your John Deere dealer. These test strips provide a simple, effective method to check the freeze point and additive levels of your engine coolant.

Compare the results to the supplemental coolant additive (SCA) chart to determine the amount of inhibiting additives in your coolant and whether more John Deere COOLANT CONDITIONER should be added.

### COOLSCAN

For a more thorough evaluation of your coolant, perform a COOLSCAN analysis. See your John Deere dealer for information about COOLSCAN.

DX,COOL9 -19-18MAR96

## SUPPLEMENTAL COOLANT ADDITIVES

The concentration of coolant additives is gradually depleted during engine operation. For all recommended coolants, replenish additives between drain intervals by adding a supplemental coolant additive every 12 months or as determined necessary by coolant testing.

John Deere COOLANT CONDITIONER is recommended as a supplemental coolant additive in John Deere engines.

**IMPORTANT:** Do not add a supplemental coolant additives when the cooling system is drained and refilled with John Deere ANTIFREEZE/SUMMER COOLANT or John Deere COOL-GARD.

If other coolants are used, consult the coolant supplier and follow the manufacturer's recommendation for use of supplemental coolant additives.

The use of non-recommended supplemental coolant additives may result in additive drop-out and gelation of the coolant.

Add the manufacturer's recommended concentration of supplemental coolant additive. DO NOT add more than the recommended amount.

DX,COOL4 -19-10OCT97

## OPERATING IN WARM TEMPERATURE CLIMATES

John Deere engines are designed to operate using glycol base engine coolants.

Always use a recommended glycol base engine coolant, even when operating in geographical areas where freeze protection is not required.

**IMPORTANT:** Water may be used as coolant *in emergency situations only.*

Foaming, hot surface aluminum and iron corrosion, scaling, and cavitation will occur when water is used as the coolant, even when coolant conditioners are added.

Drain cooling system and refill with recommended glycol base engine coolant as soon as possible.

DX,COOL6 -19-18MAR96

## ADDITIONAL INFORMATION ABOUT DIESEL ENGINE COOLANTS AND SUPPLEMENTAL COOLANT ADDITIVES

Engine coolants are a combination of three chemical components: ethylene glycol (antifreeze), inhibiting coolant additives, and quality water.

### Coolant specifications

Some products, including John Deere PREDILUTED ANTIFREEZE/SUMMER COOLANT and John Deere COOL-GARD, are fully formulated coolants that contain all three components in their correct concentrations. Do not add an initial charge of supplemental coolant additives to these fully formulated products.

Some coolant concentrates, including John Deere ANTIFREEZE/SUMMER COOLANT CONCENTRATE, contain both ethylene glycol antifreeze and inhibiting coolant additives. Mix these products and quality water, but do not add an initial charge of supplemental coolant additives.

Coolants meeting ASTM D5345 (prediluted coolant) or ASTM D4985 (coolant concentrate) require an initial charge of supplemental coolant additives.

### Replenish coolant additives

The concentration of coolant additives is gradually depleted during engine operation. Periodic replenishment of inhibitors is required, even when John Deere ANTIFREEZE/SUMMER COOLANT or John Deere COOL-GARD is used. Follow the recommendations in this manual for the use of supplemental coolant additives.

### Why use supplemental coolant additives?

Operating without proper coolant additives will result in increased corrosion, cylinder liner erosion and pitting, and other damage to the engine and cooling system. A simple mixture of ethylene glycol and water will not give adequate protection.

Use of supplemental coolant additives reduces corrosion, erosion, and pitting. These chemicals reduce the number of vapor bubbles in the coolant and help form a protective film on cylinder liner surfaces. This film acts as a barrier against the harmful effects of collapsing vapor bubbles.

### Avoid automotive-type coolants

Never use automotive-type coolants (such as those meeting ASTM D3306 or ASTM D4656). These coolants do not contain the correct additives to protect heavy-duty diesel engines. They often contain a high concentration of silicates and may damage the engine or cooling system.

### Water quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol base engine coolant concentrate. All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides . . . . .	< 40 mg/L
Sulfates . . . . .	<100 mg/L
Total Dissolved Solids . . . . .	<340 mg/L
Total Hardness . . . . .	<170 mg/L
pH . . . . .	5.5 to 9.0

### Freeze protection

The relative concentrations of ethylene glycol and water in the engine coolant determine its freeze protection limit.

Ethylene Glycol	Freeze Protection Limit
40% . . . . .	-24°C (-12°F)
50% . . . . .	-37°C (-34°F)
60% . . . . .	-52°C (-62°F)

DO NOT use a coolant-water mixture greater than 60% ethylene glycol.

## ENGINE BREAK-IN OIL

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

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

After engine overhaul, fill the engine with John Deere ENGINE BREAK-IN OIL.

If John Deere ENGINE BREAK-IN OIL is not available, use a diesel engine oil meeting one of the following during the first 100 hours of operation:

- API Service Classification CE
- ACEA Specification E1

After the break-in period, use John Deere PLUS-50® or other diesel engine oil as recommended in this manual.

**IMPORTANT: Do not use PLUS-50 oil or engine oils meeting API CG4, API CF4, ACEA E3, or ACEA E2 performance levels during the first 100 hours of operation of a new or rebuilt engine. These oils will not allow the engine to break-in properly.**

## DIESEL ENGINE OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oil is preferred.

- **John Deere PLUS-50®**

The following oil is also recommended:

- John Deere TORQ-GARD SUPREME®

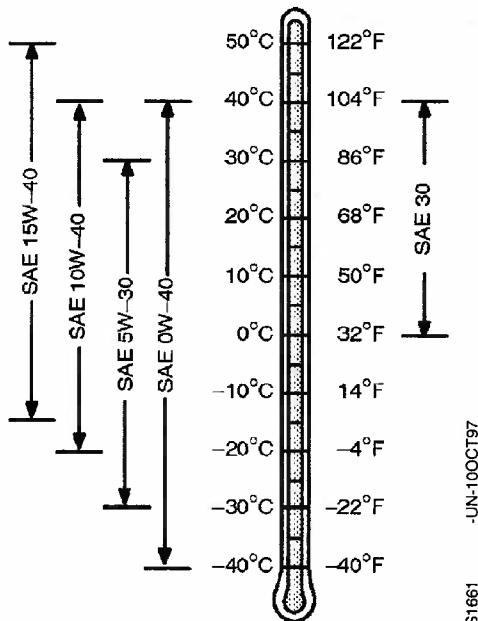
Other oils may be used if they meet one or more of the following:

- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2

**Multi-viscosity diesel engine oils are preferred.**

If diesel fuel with sulfur content greater than 0.5% is used, reduce the service interval by 50%.

Extended service intervals may apply when John Deere preferred engine oils are used. Consult your John Deere dealer for more information.



-UN-10OCT97

TS1661

DX,ENOIL -19-10OCT97

## EXTENDED DIESEL ENGINE OIL SERVICE INTERVALS

When John Deere PLUS-50® oil and the specified John Deere filter are used, the service interval for engine oil and filter changes may be increased by 50%.

If other than PLUS-50 oil and the specified John Deere filter are used, change the engine oil and filter at the normal service interval.

DX,ENOIL6 -19-10OCT97

## HYDROSTATIC/HYDRAULIC DRIVE OIL

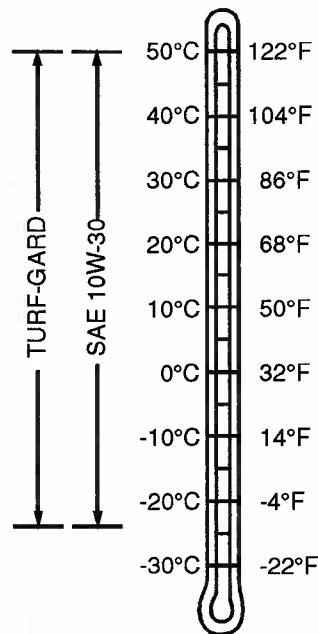
Use oil viscosity based on the expected air temperature range during the period between oil changes.

The following oil is preferred:

- John Deere TURF-GARD®

Other oils may be used if they meet the following:

- SAE 10W-30



*TURF-GARD* is a registered trademark of Deere & Company.

NX.HYD.1 -19-15JAN99

N42191QI -19-13JAN99

## PLANETARY HUB OIL

Use oil viscosity based on the expected air temperature range during the period between oil changes.

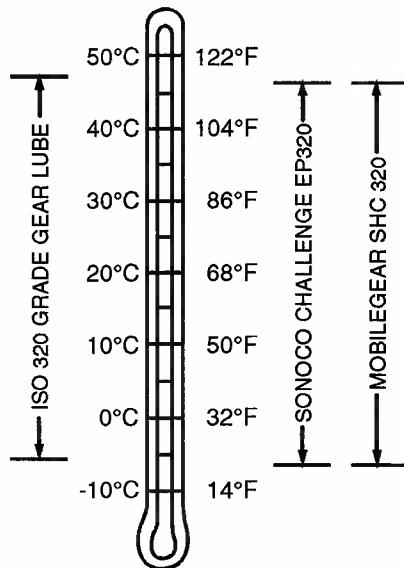
The following oils are preferred:

- SUNOCO® CHALLENGE™ EP320
- MOBILGEAR® SHC® 320

Other oils may be used if they meet the following:

- ISO 320 Grade Gear Lube

*NOTE: Planetary hubs are filled with SUNOCO® CHALLENGE™ EP320 oil at the factory.*



N42191QJ -19-13JAN99

*SUNOCO* is a registered trademark of Sun Company, Inc.

*CHALLENGE* is a trademark of Sun Company, Inc.

*MOBILGEAR* is a registered trademark of Mobil Oil Corporation.

*SHC* is a registered trademark of Mobil Oil Corporation.

NX.HYD.2 -19-13JAN99

171299  
PN=274

## GREASE

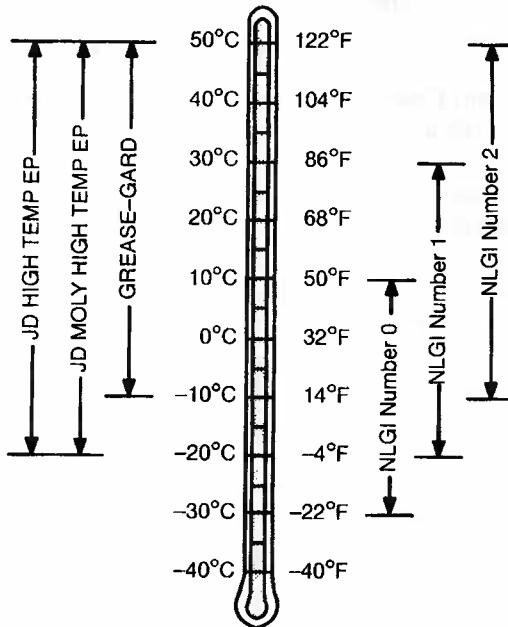
Use grease based on NLGI consistency numbers and the expected air temperature range during the service interval.

The following greases are preferred:

- John Deere HIGH TEMPERATURE EP GREASE
- John Deere MOLY HIGH TEMPERATURE EP GREASE
- John Deere GREASE-GARD™

Other greases may be used if they meet one of the following:

- NLGI Performance Classification GC-LB



DX,GREA1

-19-18MAR96

TS1654

-UN-14MAR96

## SUSPENSION AND STEERING GREASE

- Use **ONLY** John Deere Moly High Temperature EP Grease.

**IMPORTANT: Use of other greases in the suspension system is not recommended. Use of other greases can result in premature wear of the suspension components.**

NX1688,1005,S -19-10FEB97

## LUBRICANT STORAGE

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

Use clean containers to handle all lubricants.

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

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

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

DX,LUBST -19-18MAR96

## ALTERNATIVE AND SYNTHETIC LUBRICANTS

Conditions in certain geographical areas may require lubricant recommendations different from those printed in this manual.

Some John Deere brand coolants and lubricants may not be available in your location.

Consult your John Deere dealer to obtain information and recommendations.

Synthetic lubricants may be used if they meet the performance requirements as shown in this manual.

The temperature limits and service intervals shown in this manual apply to both conventional and synthetic oils.

Re-refined base stock products may be used if the finished lubricant meets the performance requirements.

DX,ALTER -19-18MAR96

## LUBRICATION SYMBOLS



Lubricate with John Deere Moly  
High-Temperature Extreme Pressure (EP)  
Grease. John Deere Multipurpose Lubricant  
(PT507, PT540, or PT541) or an equivalent SAE  
multi-purpose type grease may be used as an  
alternative. Lubricate at hourly intervals indicated  
on the symbols.

NX,OM470035,A1 -19-17NOV97

## WASTE OIL

It is illegal to dispose of waste oil at a sanitary landfill unless it is for temporary storage or collection for recycling.

Farm generated waste oil can be used for road oiling, dust suppression and weed control. Some counties may require permits or notices to apply road oil.

Waste oil taken to waste oil collector must be in a closed, unbreakable, preferably reusable container of five gallons or less. Contaminated oil cannot be taken to a waste oil collection site.

Oil dealers are to post signs noting the location of waste oil collection sites. If there is no site in your county, the nearest collection site is to be posted.

NX,9960,N32 -19-04SEP97

## DISCARDED TIRES

It is illegal to burn discarded tires. Tires cannot be used to start piles of trees and buildings on fire. Tires can not be used to fill ravines, washes, streams, etc.

Discarded tires can be disposed of in a permitted landfill. These tires must first be processed (shredded or quartered) before being taken to a landfill. Call your landfill for requirements.

Discarded tires also may be recycled if a recycling plant is nearby.

Tires may be used for stream bank stabilization. Contact the DNR for guidance.

NX,H80M47,35A -19-21APR98

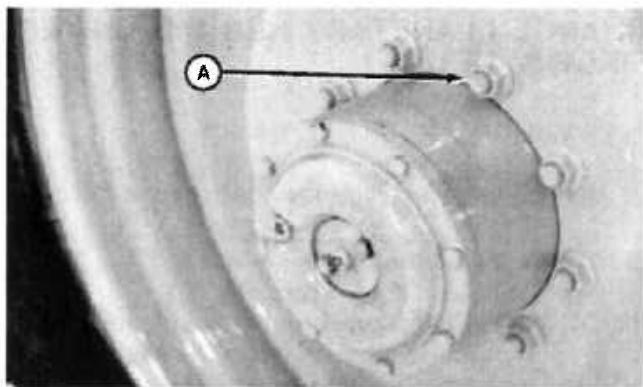
**Service Intervals—4700 (Excluding Boom)**

SERVICE	INTERVAL												
	10 Hours	Daily	As Required	50 Hours	100 Hours	250 Hours	500 Hours	1 Year	750 Hours	2 Years	1500 Hours	2500 Hours	3000 Hours
▲ Perform at initial break-in ● Required service interval													
Tighten lug nuts.	▲	▲											
Tighten foam marker tank straps.	▲												
Change planetary hub oil.			▲										
Change engine oil and filter.					▲								
Check tread adjust side gap and shim gap.							▲						
Check engine oil level.		●											
Check coolant level.		●											
Check hydraulic oil level.		●											
Clean solution strainers.		●											
Lubricate suspension assemblies.		●											
Rinse boom and flowmeter.		●											
Clean air conditioning condenser/hydraulic oil cooler.		●											
Clean side screens.		●											
Clean pump suction strainer.		●											
Clean boom filter.		●											
Replace cab air filters.		●											
Clean flowmeter.		●											
Clean or replace engine air filters.		●											
Clean foam marker filters and screens.	●	●	●										
Lubricate steering cylinder ball joints and rotating steering arms.			●										
Check air springs and tire inflation.			●										
Tighten lug nuts.			●										
Check tread adjust side gap and shim gap				●									
Change engine oil and filter.					●								
Drain fuel filter.						●							
Service battery.							●						
Lubricate driveshaft U-joints.								●					
Replace hydrostatic and hydraulic filters.									●				
Replace fuel filter.									●				
Replace fuel pre-filter.									●				
Change hydraulic oil.									●				
Change planetary hub oil.									●				
Replace cab air filters.									●	●			
Clean engine vent tube.										●			
Check air intake system.										●			
Check engine speeds.										●			
Add coolant conditioner.										●			
Flush cooling system and replace thermostats.										●			
Check fuel injection nozzles.											●		
Check belt tensioner.											●		
Check planetary hub oil level.											●		
Adjust engine valve clearance.											●		
Inspect suspension assemblies for excessive grease.											●		
Replace engine crankshaft damper.												●	

## TIGHTEN LUG NUTS—AFTER FIRST TEN HOURS

Tighten wheel lug nuts (A) in a crisscross pattern to 244 N·m (180 lb-ft) after first day (10 hours) of use.

**IMPORTANT:** Damage to planetary hub and wheel can occur if the correct lug nut torque is not maintained. Tighten lug nuts in a crisscross pattern to 244 N·m (180 lb-ft). Tighten wheel lug nuts after first 10 hours of use and every 10 hours thereafter until correct torque is maintained. Check wheel lug nuts torque after every 100 hours of use.

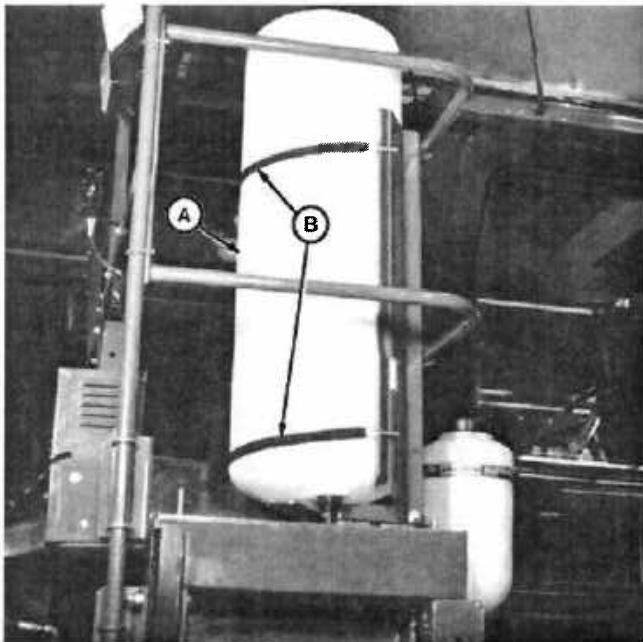


N42173SC -UN-02JAN97

NX,HYD,S7 -19-13JAN99

## CHECK FOAM MARKER TANK STRAPS—AFTER FIRST 10 HOURS

Check and re-tighten straps (B) on tank (A) after first 10 hours of use. Re-tighten as required.



N42190NF -UN-05OCT98

NXK8,M6745,I8 -19-13JAN99

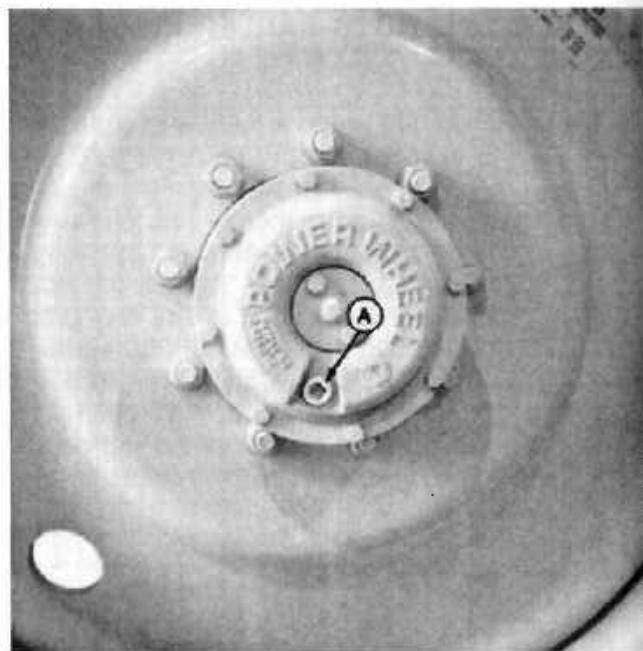
## CHANGE PLANETARY HUB OIL—AFTER FIRST 50 HOURS

1. Park machine on flat level surface.
2. Rotate hub until plug (A) is positioned at bottom.
3. Remove plug and drain oil from hub.

**IMPORTANT:** Plug must be positioned JUST above horizontal line (B). The plug must be at this position for the hub to be filled to the correct oil level.

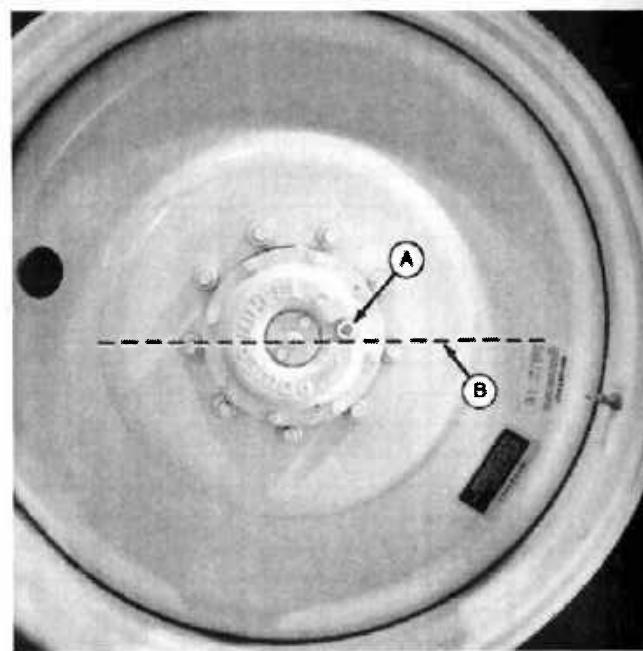
*NOTE: Plug is magnetic. Clean metal filings off plug.  
(Metal filings on plug after initial 50 hour interval  
is common.)*

4. Fill hub until oil is level with bottom of plug hole. (See Planetary Hub Oil in this section for recommended oil).
5. Install plug.



-UN-28-JUL-97

N42184DC

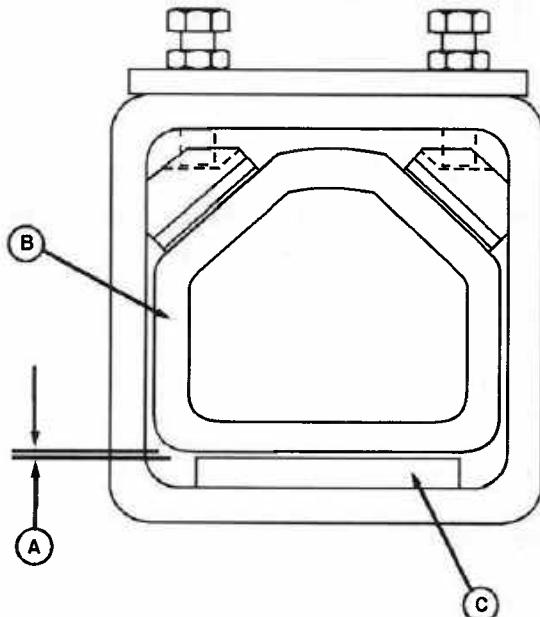


-UN-LIBAUG97

N42184DQ

## CHECK SHIM GAP ON AXLE TREAD ADJUST—AFTER FIRST 100 HOURS

Measure gap (A) between lower machined surface of axle knee (B) and upper surface of lower shim pad (C). If gap exceeds 2 mm (0.060 in.) at outside end of pad, adjust shim gap. See Adjusting Shim Gap on Axle Tread Adjust in Section 20.



-UN-04FEB97

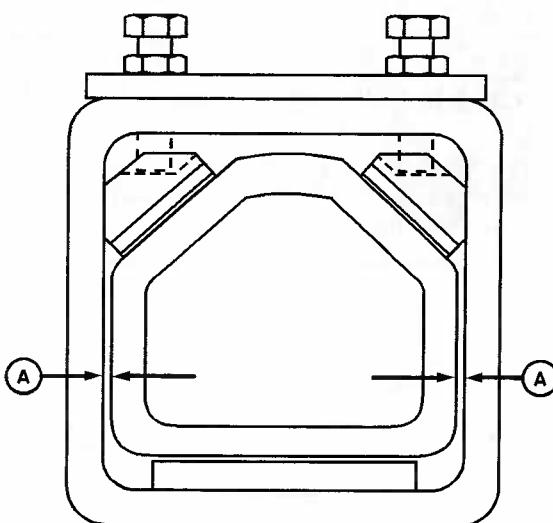
N49072

NX,OM554,AT1 -19-07AUG97

## CHECK SIDE GAP ON AXLE TREAD ADJUST—AFTER FIRST 100 HOURS

Measure gap (A) between mainframe axle tube and knee casting at both front and rear sides of axle tube. Both tubes should be equal.

If knee casting is not centered in mainframe tube, adjust side gap. See Adjusting Side Gap on Axle Tread Adjust in Section 20.



-UN-04FEB97

N49073

NX,OM554,AT2 -19-07AUG97

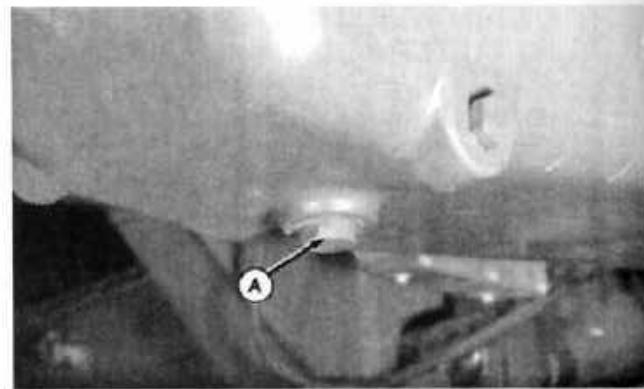
## CHANGE ENGINE OIL AND FILTER—AFTER FIRST 100 HOURS

**IMPORTANT:** Change engine oil every 125 hours if diesel fuel has a sulfur content greater than 0.5 percent.

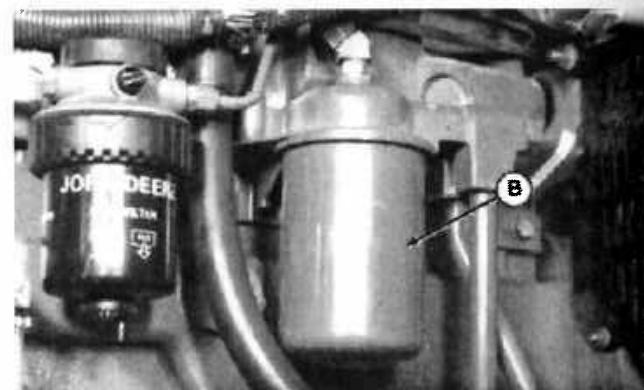
1. Run engine to warm oil. Stop engine. Remove crankcase drain plug (A). Replace plug after oil drains out.
2. Remove filter element (B). Remove old packing and clean filter mounting surface. Apply a thin film of oil to new packing and install new element. Hand-tighten filter element. Do not overtighten.
3. Fill crankcase with seasonal viscosity grade oil. (See Diesel Engine Oil in this section.)\*

Crankcase with Filter ..... 18 L (19 qt)

4. Start engine and check for leaks.
5. Stop engine. Check oil level.



N42173RW -UN-02JAN97



N42173DH -UN-26NOV96

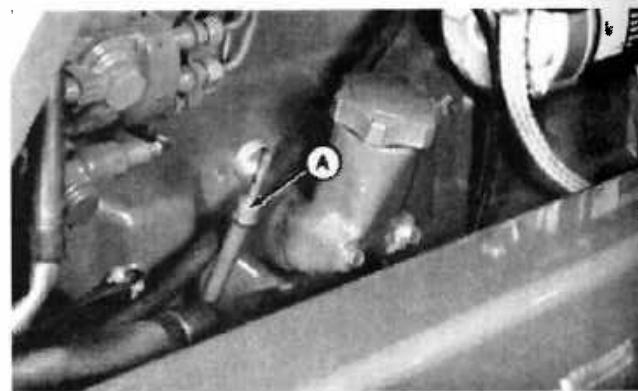
\* If John Deere TORQ-GARD SUPREME PLUS-50 engine oil and a John Deere filter are used, the oil and filter service interval may be extended by 50 hours.

NX,OM4700,HR4A -19-07AUG97

## CHECK ENGINE OIL LEVEL—DAILY

With machine parked on level ground, remove dipstick (A) and check oil level. Oil level should between the "ADD" and the top of the cross-hatch area on dipstick. If needed, add oil recommended in Diesel Engine Oil in this section.

Do not operate engine with oil level below the "ADD" mark on dipstick.



N42173CU -UN-15NOV96

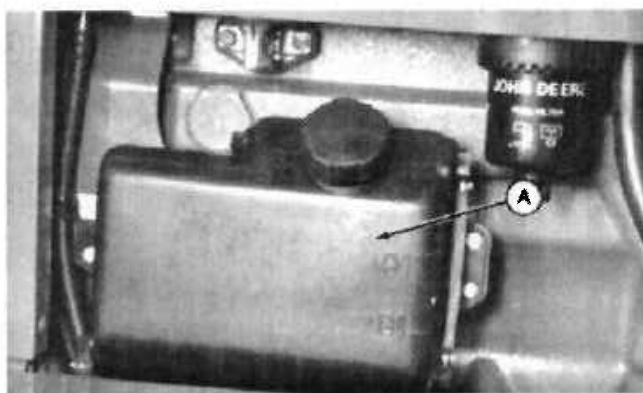
NX,4700,N1A -19-31DEC96

**CHECK COOLANT LEVEL—DAILY**

Check coolant level, using the sight tube. Coolant level should be between "HOT LEVEL" and "COLD LEVEL" marks on overflow tank (A) depending on engine temperature.

If coolant level is low, check for any signs of leakage and repair if necessary. Check all hose clamps for tightness. Add soft water, antifreeze mixture, as specified in Engine Coolant in this section to overflow tank.

**IMPORTANT:** Add 30 ml of John Deere Coolant Conditioner for every liter of coolant added (4 fluid ounces per gallon) except if John Deere ANTIFREEZE SUMMER COOLANT or John Deere COOL-GARD is used. (See Supplemental Coolant Additives in this section.)



N42173CV  
-UN-26NOV96

NXH8,64036,18 -19-15APR98

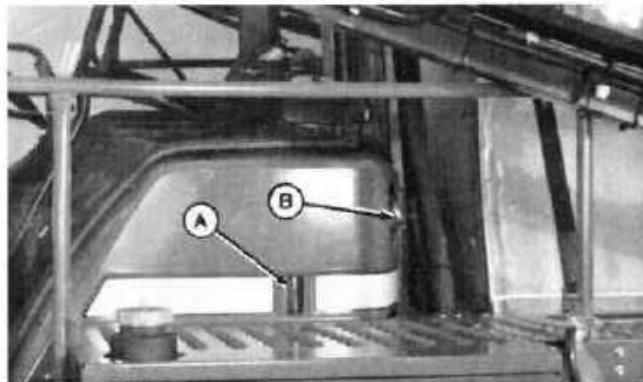
**CHECK HYDRAULIC OIL LEVEL—DAILY**

**NOTE:** Retract all hydraulic cylinders including wheel adjust cylinders when checking hydraulic oil level.

Hydrostatic system and hydraulic system use the same reservoir.

Observe oil level in site tube (A) with machine on level surface and engine stopped. Oil level should be at the 1/2 to 2/3 level on the tube.

If oil level is below the lower mark, remove filler cap (B) and add hydraulic oil. (See Hydrostatic Drive Oil in this section.)



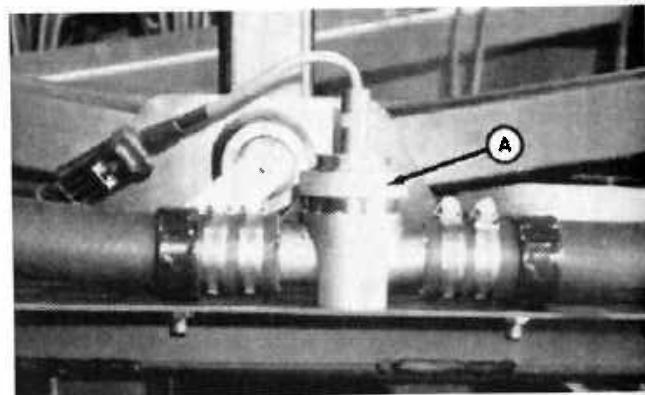
N42173QT  
-UN-30DEC96

NX,4700,N3A -19-08JUL97

### RINSE BOOM AND FLOWMETER—DAILY

Rinse boom and flowmeter (A) with clean water daily.

See Using Rinse System (Rinsing Boom and Flowmeter Only) in Section 25.



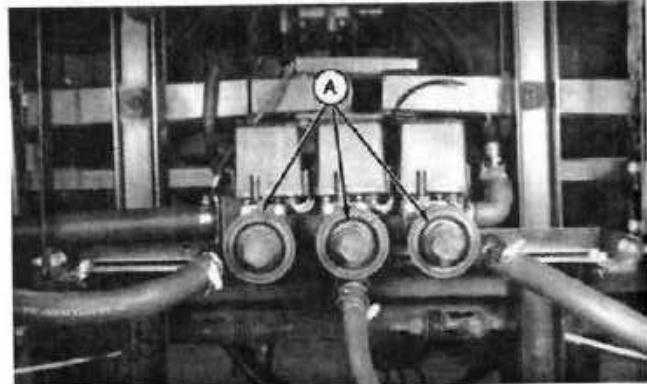
-UN-28JUL97

N42184DE

NX,OM554,RB -19-07AUG97

### CLEAN SOLUTION STRAINERS (IF EQUIPPED)—DAILY

Remove caps (A) and clean sediment from strainers.



-UN-04FEB97

N42173ZT

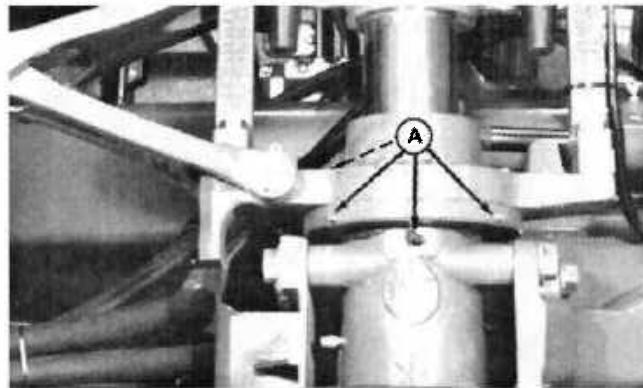
NXHB,64036,11 -19-15APR96

## LUBRICATE SUSPENSION ASSEMBLIES—DAILY

Lubricate front and rear suspension assemblies with ONLY John Deere moly high temperature EP grease. Use three pumps of grease at each fitting (A).

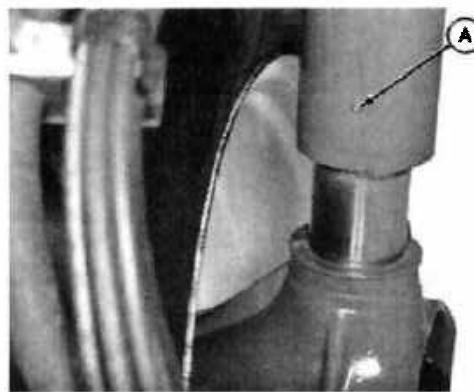
**IMPORTANT:** Use of other greases in the suspension system is not recommended. Use of other greases can result in premature wear of the suspension components.

**NOTE:** Three grease fittings are on each front suspension. Two grease fittings are on each rear suspension.



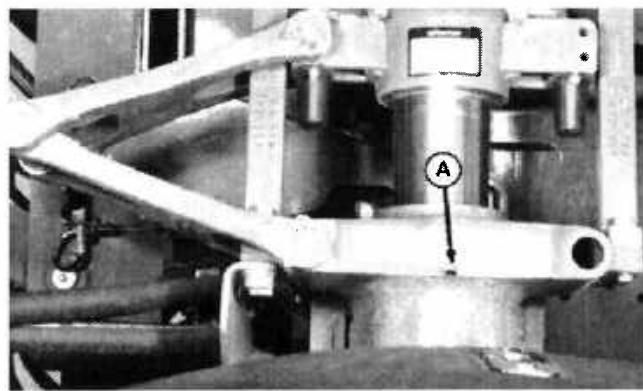
Front Assembly

NA2190EZ -UN-08JUL98



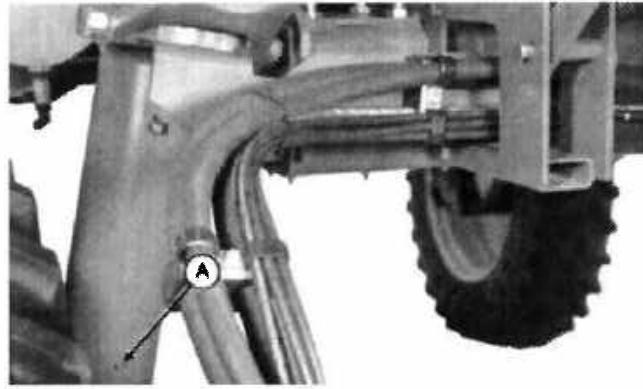
Front Assembly

NA2173UO -UN-13JAN97



Rear Assembly

NA2190FA -UN-05JUL98



Rear Assembly

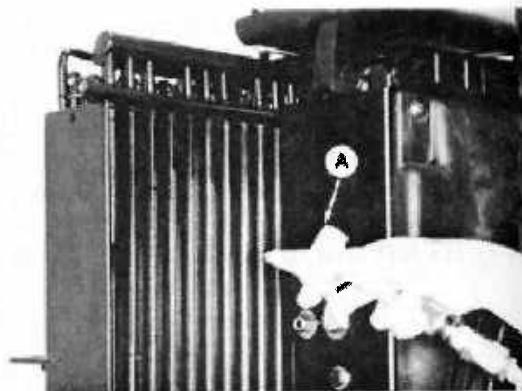
NA2173UQ -UN-13JAN97

NXH8,M68436,I12-19-07JUL98

171299  
PN=285

## CLEAN AIR CONDITIONING CONDENSER/HYDRAULIC OIL COOLER —AS REQUIRED

1. Stop engine and clean front grille screens or side panels using a brush.
2. Remove engine side shields, and remove any trash built up on radiator and cooler-condenser.
3. Remove front grille screen brace on each side of cooler-condenser. Slide cooler-condenser partially out one side, clean and repeat process for the other side. Use compressed air (A) or water. Straighten any bent fins.

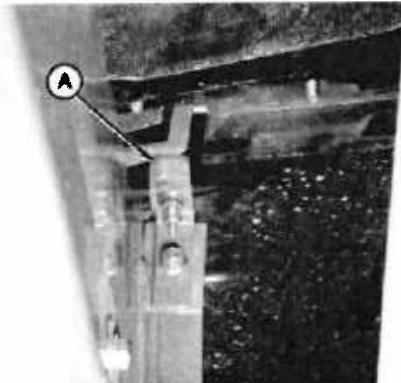


-UN-2B&UL92  
RW20401

NX,OM4700,LUB4 -19-29JUL97

## CLEAN SIDE SCREENS—AS REQUIRED

1. Pull tab (A) forward to remove side screens (B).
2. Clean dirt and trash from side screens.



-UN-06JUL98  
NA2190FB



-UN-06JUL98  
NA2190FB

NXH8,M68436,I14-19-07JUL98

## Checking and Replacing Cab Air Filters—As Required

Cab air filters MUST be replaced every 500 hours or every year, whichever comes first. Check filters regularly. Replace filters sooner if they become restricted or if manufacturer recommends. When replaced, record date and engine hours on decal (A).

For checking and replacing procedure, see CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.



NS9662 -19-27FEB02

A—Decal

OUO6092,000033C -19-04MAR02-1/1

## Clean Pump Suction Strainer—As Required

To clean pump suction strainer, see CLEANING SUCTION STRAINER/DRAINING SOLUTION TANK in the WET SYSTEM Section.

AG,OUO1011,928 -19-27JUL99-1/1

## Clean Boom Filter—As Required

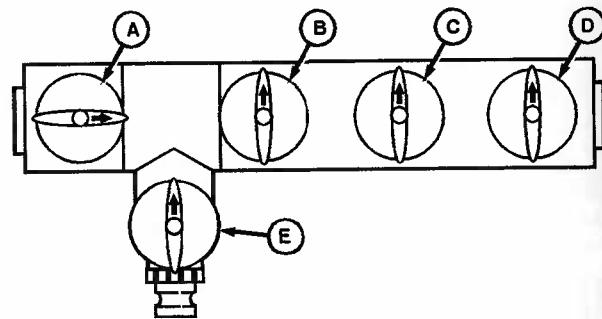
To clean boom filter, see CLEANING BOOM FILTER—AS REQUIRED in the WET SYSTEM Section.

AG,OUO1011,929 -19-27JUL99-1/1

**CLEAN FLOWMETER—AS REQUIRED**

**CAUTION:** Spray system can contain hazardous material which can cause serious injury or death to you or others. Wear protective clothing, eyewear, and gloves. Drain solution and clean flowmeter in an area where people, animals, vegetation and water supply, etc. cannot be contaminated.

1. Turn valve (A) to "SOLUTION TANK" position.
2. Close valves (B), (C) and (D).
3. Open valve (E) and collect solution in a bucket or suitable container.

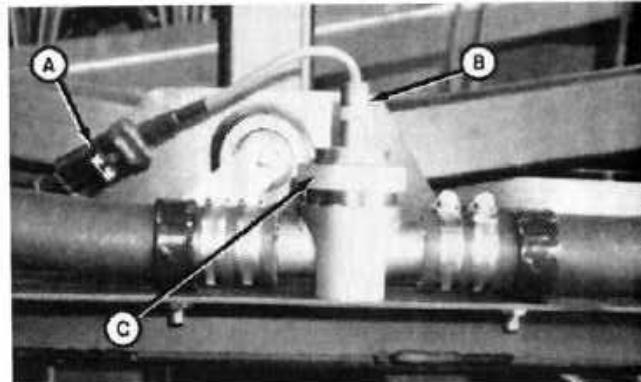


-JUN-20JAN97

N42173PQ

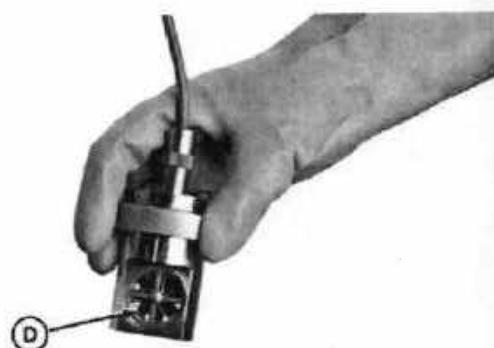
NXH8,64036,I18 -19-15APR98

4. Disconnect wiring harness from electrical connector (A) on sensor (B).
5. Unscrew flowmeter insert (C) and remove.
6. Clean insert with clean soapy water. Make sure turbine (D) turns easily. If the turbine still does not turn easily, use John Deere Brake and Parts Cleaner (Part No. TY16041).
7. Install insert in flowmeter.
8. Attach electrical connector to sensor.



-JUN-28JUL97

N42184CF



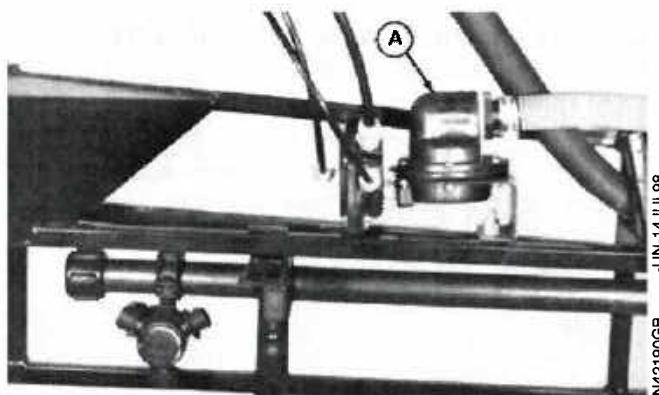
-JUN-28JUL97

N42184DG

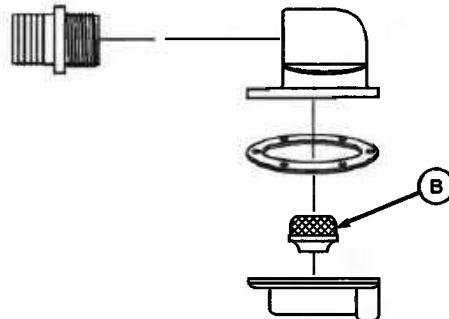
NXH8,64036,I19 -19-15JUL98

**(132 L [35 GAL]) CLEAN FOAMER MIXING HEAD SCREEN—AS REQUIRED**

Disassemble foam mixing head (A) and wash screen (B) with hot water.



N42190GB -UN-14JUL98



N42190GC -UN-14JUL98

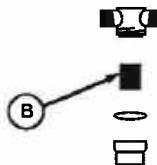
NXH8,M68436,CFM-19-29JUL98

**(132 L [35 GAL]) CLEAN FOAMER TANK IN-LINE FILTER—AS REQUIRED**

Disassemble filter (A) and clean screen (B).



N42190GD -UN-06JUL98



N42190GE -UN-14JUL98

NXH8,M68436,CFT-19-29JUL98

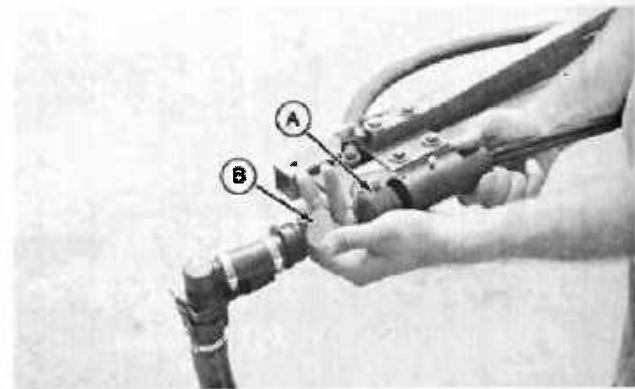
## CLEAN OR REPLACE ENGINE AIR FILTERS—AS REQUIRED

See Removing Air Cleaner Element and Cleaning and Inspecting Primary Element in Chassis section of this manual for removal and cleaning procedures.

NX,OM554,EAF -19-16JAN97

## (IF EQUIPPED) CLEAN 76 L (20 GAL) FOAM MARKER MIXING FILTERS AND SCREENS—50 HOURS

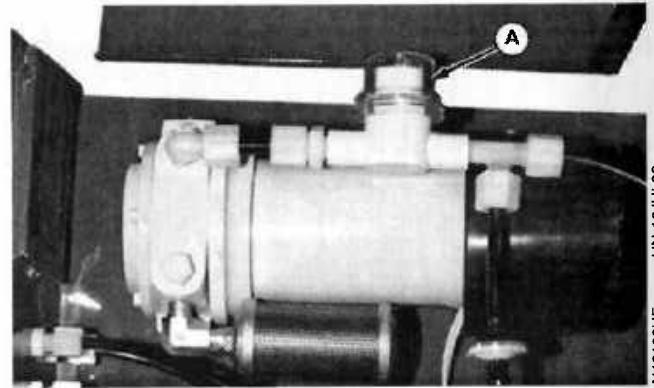
Disassemble foam generators and clean residue from mixing filters (A) and screens (B), using clear water.



NXH8,M68436,I22-19-15JUL98

## (IF EQUIPPED) CLEAN 132 L (35 GAL) FOAM COMPRESSOR CARBON FILTER—50 HOURS

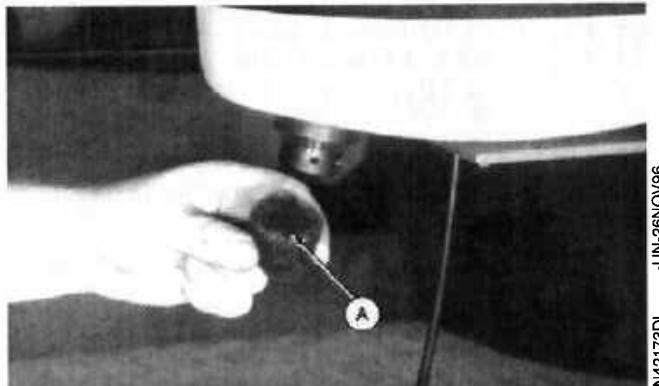
Disassemble filter (A) and clean screen with compressed air up to 414 kPa (4.1 bar) (60 psi).



NXH8,M68436,CCF-19-13JAN99

### CLEAN 76 L (20 GAL) FOAM TANK FILTER—50 HOURS

1. Remove U-clip and fitting from bottom tank port.
2. Remove tank filter (A).
3. Clean filter with clean water.
4. Flush tank with clean water to remove residue.
5. Install filter and bottom fitting.

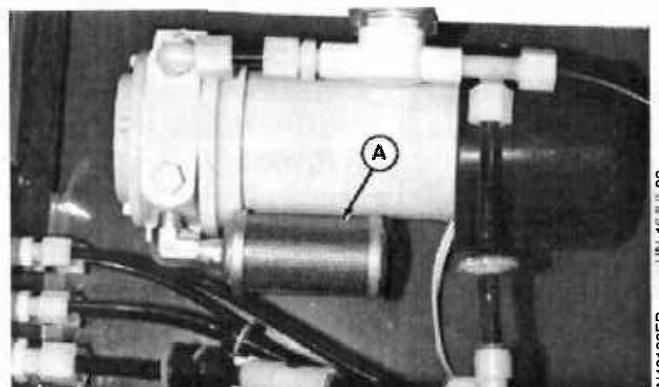


N42173DI  
-UN-26NOV96

NXH8,M68436,I23-19-07JUL98

### (IF EQUIPPED) (132 L [35 GAL]) CLEAN FOAM COMPRESSOR INTAKE FILTER—50 HOURS

Remove intake filter (A) from compressor and clean by back blowing through fitting with air pressure up to 550 kPa (5.5 bar) (80 psi).

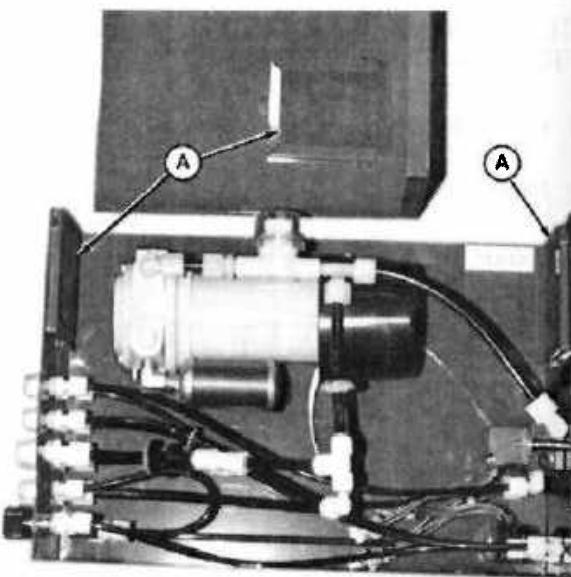


N42190FP  
-JN-16JUL98

NXH8,M68436,I24-19-13JAN99

**(IF EQUIPPED) (132 L [35 GAL] FOAM TANK) CLEAN FOAM COMPRESSOR LOUVER FILTERS—100 HOURS**

Remove louver filters (A) from compressor and wash in warm, soapy water or blow dust free with compressed air.

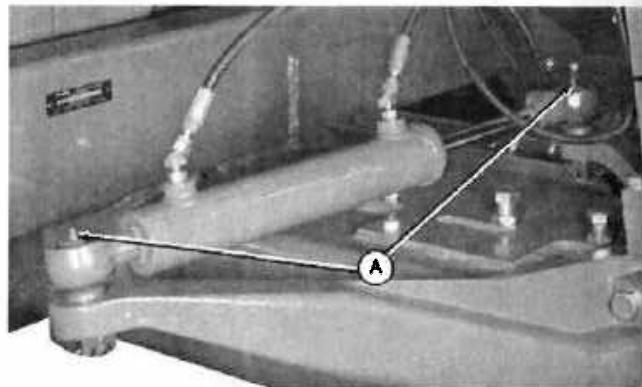


N42190-O  
-UN-15-JUL-98

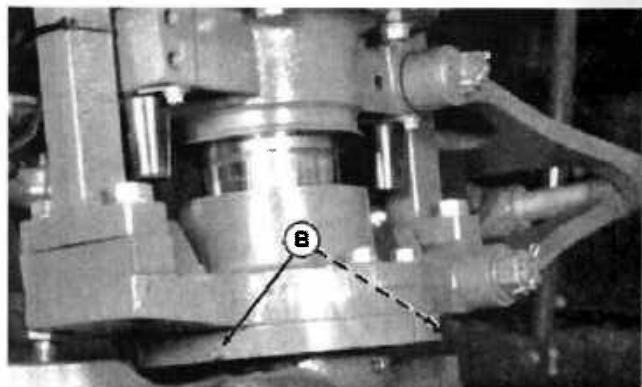
NXH8,M68436,I21-19-13JAN99

**LUBRICATE STEERING CYLINDER BALL JOINTS AND ROTATING STEERING ARMS—100 HOURS**

Lubricate steering cylinder ball joints (A) and rotating steering arms (B) every 100 hours.



N42173RX  
-UN-02JAN97

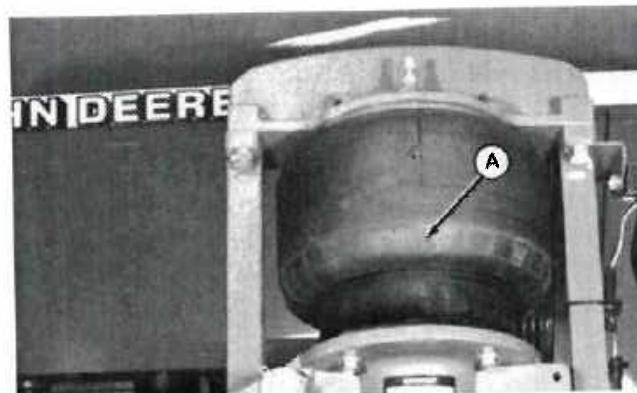


N42175DX  
-UN-13FEB97

NX,OM4700,LUB10-19-18FEB97

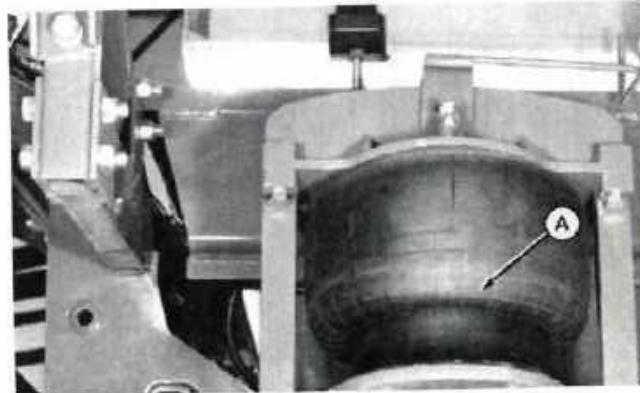
## CHECK AIR SPRINGS AND TIRE INFLATION—100 HOURS

1. Inflate tires to recommended pressure. (See Checking Tire Pressure in Chassis section of this manual for recommended tire pressure.)
2. Inflate air springs (A) to recommended pressure. (See Adjusting Front and Rear Suspension Assemblies in Chassis section of this manual for inflation and adjustment procedures.)



Front Air Spring

N42190FD -JN-06(JUL98)



Rear Air Spring

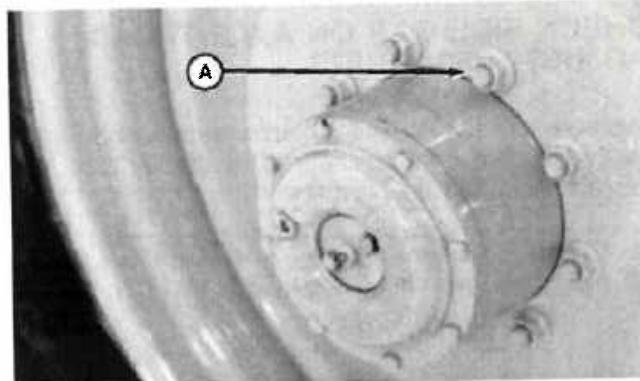
N42190FC -JN-06(JUL98)

NXH8,M68436,I26-19-07JUL98

## TIGHTEN LUG NUTS—100 HOURS

Tighten wheel lug nuts (A) in a crisscross pattern to 244 N·m (180 lb-ft) after first day (10 hours) of use.

**IMPORTANT:** Damage to planetary hub and wheel can occur if the correct lug nut torque is not maintained. Tighten lug nuts in a crisscross pattern to 244 N·m (180 lb-ft). Tighten wheel lug nuts after first 10 hours of use and every 10 hours thereafter until correct torque is maintained. Check wheel lug nuts torque after every 100 hours of use.

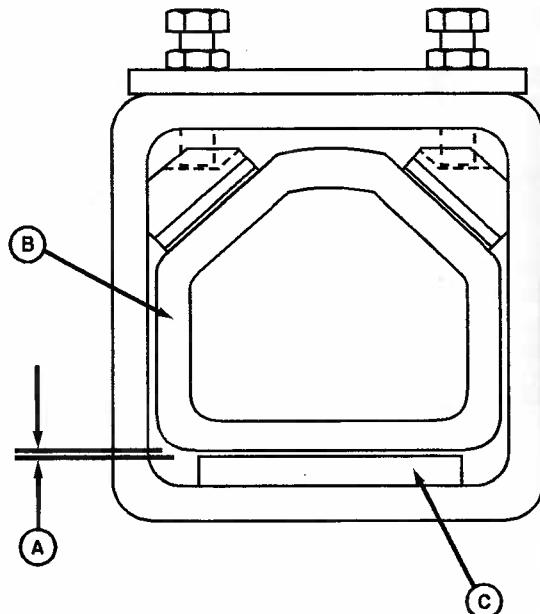


N42173SC -JN-02(JAN97)

NX,HYD,S7A -19-13JAN99

## CHECK SHIM GAP ON AXLE TREAD ADJUST—250 HOURS

Measure gap (A) between lower machined surface of axle knee (B) and upper surface of lower shim pad (C). If gap exceeds 2 mm (0.060 in.) at outside end of pad, adjust shim gap. See Adjusting Shim Gap on Axle Tread Adjust in Section 20.



-UN-04FEB97

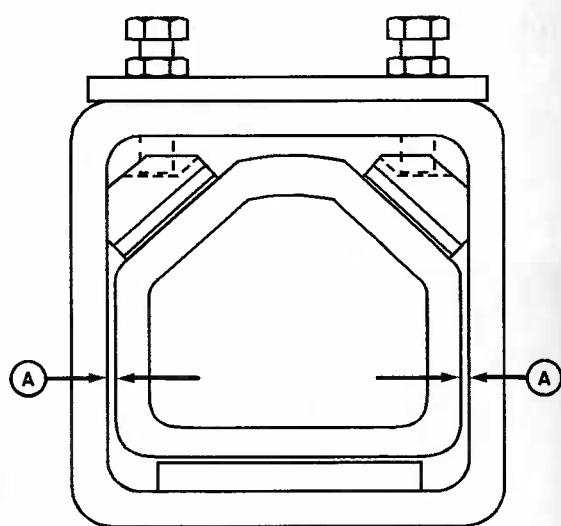
N49072

NX,OM4700,CSG -19-13JAN99

## CHECK SIDE GAP ON AXLE TREAD ADJUST—250 HOURS

Measure gap (A) between mainframe axle tube and knee casting at both front and rear sides of axle tube. Both tubes should be equal.

If knee casting is not centered in mainframe tube, adjust side gap. See Adjusting Side Gap on Axle Tread Adjust in Section 20.



-UN-04FEB97

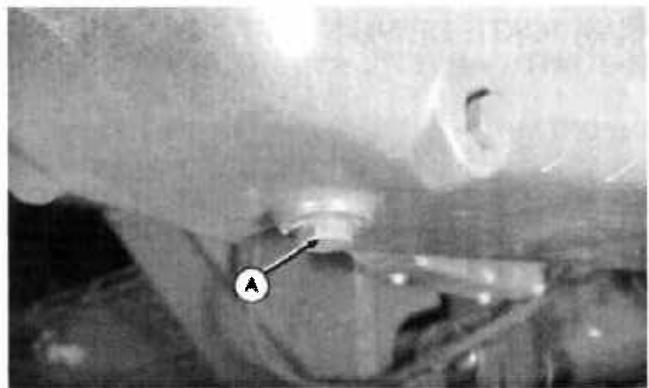
N49073

NX,OM4700,CSA -19-13JAN99

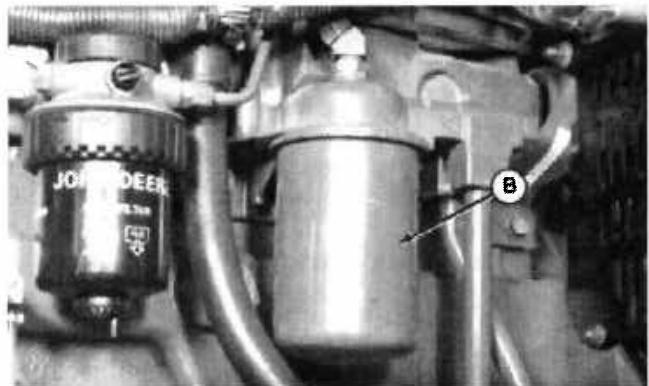
## CHANGE ENGINE OIL AND FILTER—250 HOURS

**IMPORTANT:** Change engine oil every 125 hours if diesel fuel has a sulfur content greater than 0.5 percent.

1. Run engine to warm oil. Stop engine. Remove crankcase drain plug (A). Replace plug after oil drains out.
  2. Remove filter element (B). Remove old packing and clean filter mounting surface. Apply a thin film of oil to new packing and install new element. Hand-tighten filter element. Do not overtighten.
  3. Fill crankcase with seasonal viscosity grade oil. (See Diesel Engine Oil in this section.)\*
- Crankcase with Filter . . . . . 18 L (19 qt)**
4. Start engine and check for leaks.
  5. Stop engine. Check oil level.



N42173RW -JUN-02JAN97



N42173DH -JUN-26NOV96

\* If John Deere Plus 50 and a John Deere oil filter are used, oil change interval can be increased by 37.5 hours.

NX,4700,N11B1 -19-26NOV97

## DRAIN FUEL FILTER—250 HOURS

1. Loosen drain plug (A) to drain small amount of water or sediment from fuel system.
2. Tighten plug after draining.
3. Replace fuel filter element if excessive amount of water or sediment are present.

(See Replacing Fuel Filter Element in Chassis section.)



N42173RU -JUN-02JAN97

NX,4700,N12B1 -19-07AUG97

## LUBRICATE DRIVE SHAFT U-JOINTS—EVERY 250 HOURS

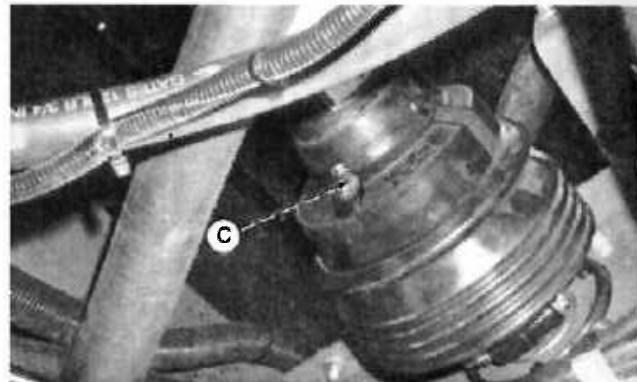
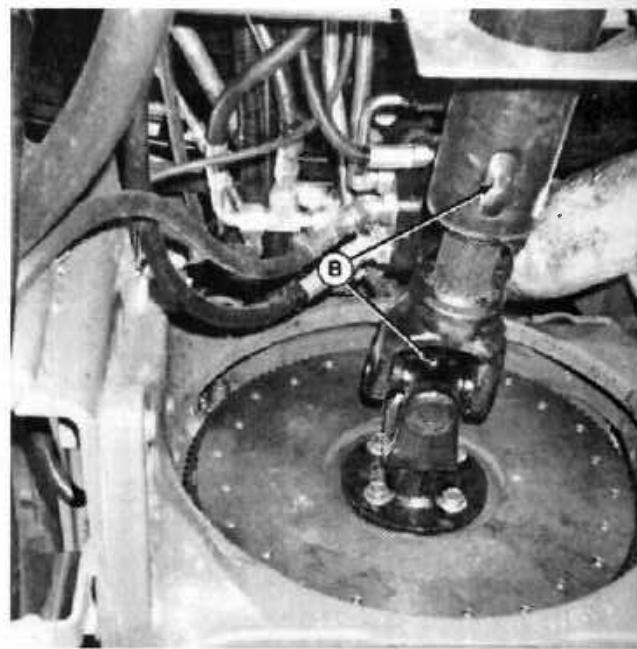
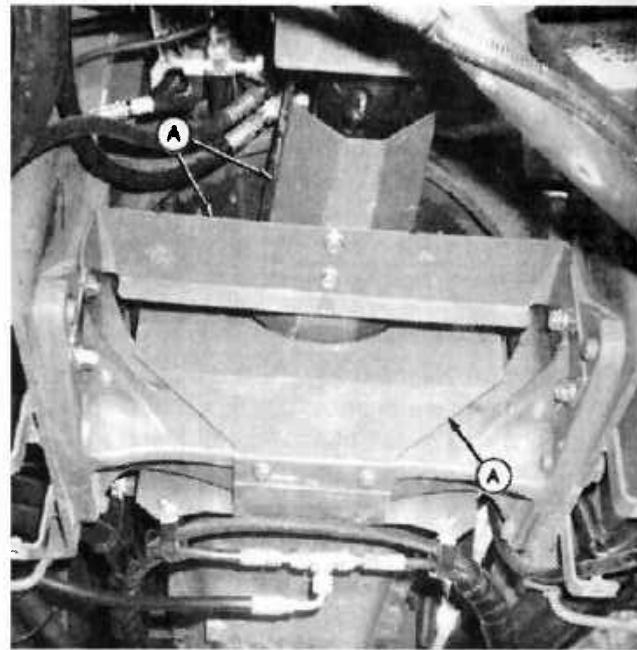
**IMPORTANT:** Avoid damage to needle bearing. Do not use grease containing more than 1% molybdenum disulfide. Use TY6341 grease or other greases that meet the following:

- John Deere specification JDM J13E4
- NLGI Performance Classification GC-LB
- NLGI No. 2 standard specification

1. Remove metal shields (A) from under drive shaft on engine end of drive shaft. Grease fittings (B) and install shields.

2. Lubricate main drive shaft U-joint grease fitting (C) on hydrostatic pump end of drive shaft.

*NOTE: Drive shaft has a total of three grease fittings.*



## SERVICE BATTERIES—250 HOURS



**CAUTION:** Battery gas can explode causing serious injury or death to you or others. 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 ground cable FIRST and connect it LAST.



-UN-23AUG88

TSP04

NX,4700,N13 -19-02JUN95

**CAUTION:** Sulfuric acid in battery electrolyte is poisonous and can cause serious injury or death to you or others. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

- Filling batteries in a well ventilated area
- Wearing eye protection and rubber gloves
- Avoiding breathing fumes when electrolyte is added
- Avoiding 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

1. Keep all connections clean and tight. Remove corrosion, and wash terminals with a solution of baking soda and water.

2. Check the specific gravity of the electrolyte in each battery cell. Charge batteries if reading is below 1.215.

3. Check level of electrolyte in each cell. If low, fill to bottom of filler necks with CLEAN, SOFT water. DO NOT OVERFILL.

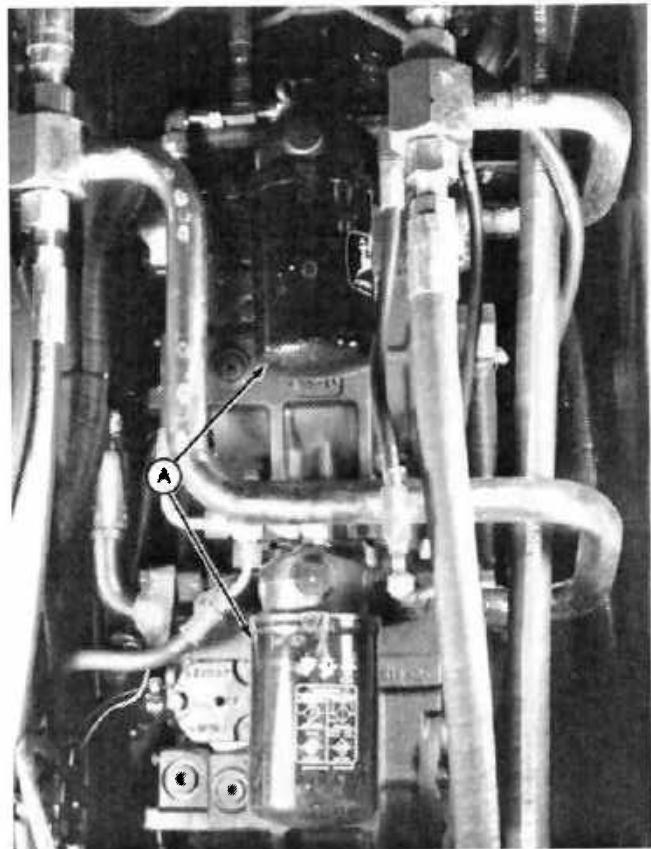
**IMPORTANT:** Do not add water in freezing weather unless tractor operates at least 30 minutes.

4. Coat terminals with small amount of grease and replace terminal shields.

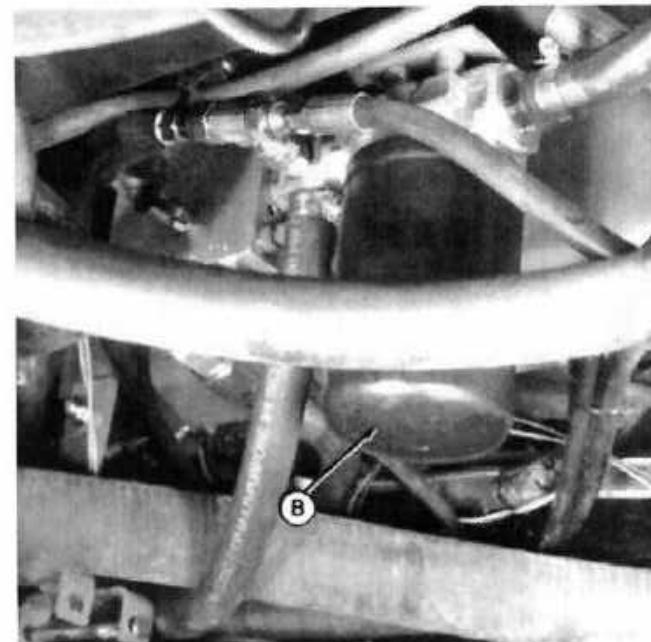


## REPLACE HYDROSTATIC AND HYDRAULIC FILTERS—500 HOURS

1. Remove hydrostatic filters (A) and hydraulic filter (B).
2. Lubricate the new filter packing with hydraulic oil only.
3. Install and hand tighten filter elements.
4. Check oil level and add as required.



N42190FE -UN-265(JUL98)



N42173TT -UN-131JAN97

NX,HYD,S3 -19-04JAN99

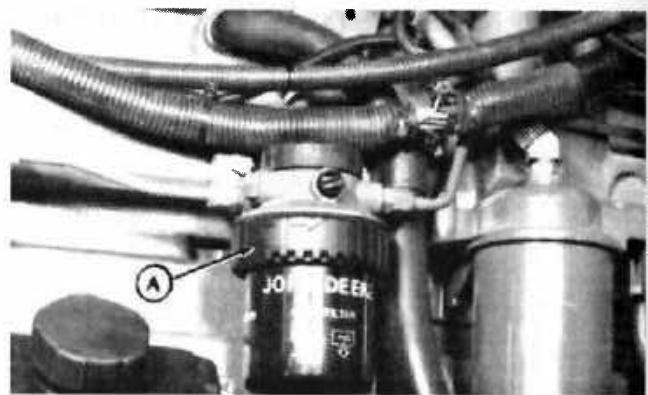
**REPLACE FUEL FILTER—500 HOURS**

1. Unscrew filter retaining ring (A) to remove filter. Pull fuel filter from filter base and discard.
2. Align keys on fuel filter with slots in filter base and install. Hold filter firmly against base.
3. Tighten the fuel filter retaining ring into lock position.

*NOTE: Correct installation is indicated when a "click" is heard and a release of the retaining ring is felt.*

*For a cleaner service, a plug is provided with new element for plugging used element.*

4. Bleed fuel system as described in chassis section of this manual.



-JN-29NOV96

N42173DE

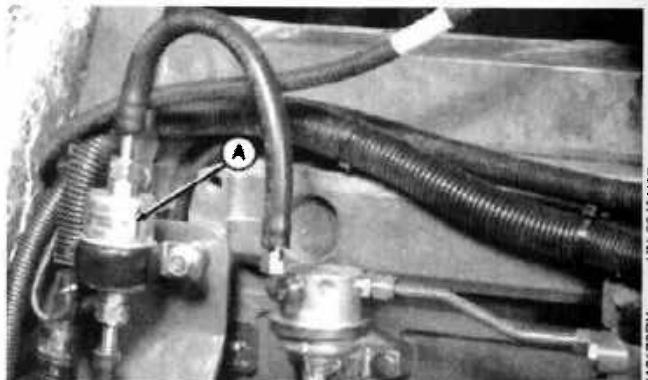
NX,HYD,S1 -19-11JAN99

**REPLACE FUEL PREFILTER—500 HOURS**

**IMPORTANT:** Before removing prefilter verify "IN" is marked on fuel tank end of filter. If filter is reused, be sure to install in the same direction as removed. Incorrect installation of filter could cause damage to transfer pump.

1. Verify "IN" mark on end of prefilter (A) or mark direction of fuel flow.
2. Remove filter from lines.
3. Back flush filter with compressed air. If unrestricted flow is obtained install filter in same direction as removed. Replace clogged or damaged prefilter.

**IMPORTANT:** Failure to replace clogged or damaged prefilter could result in damaging the transfer pump.



-JN-02JAN97

N42173RY

NX,HYD,S2 -19-04JAN99

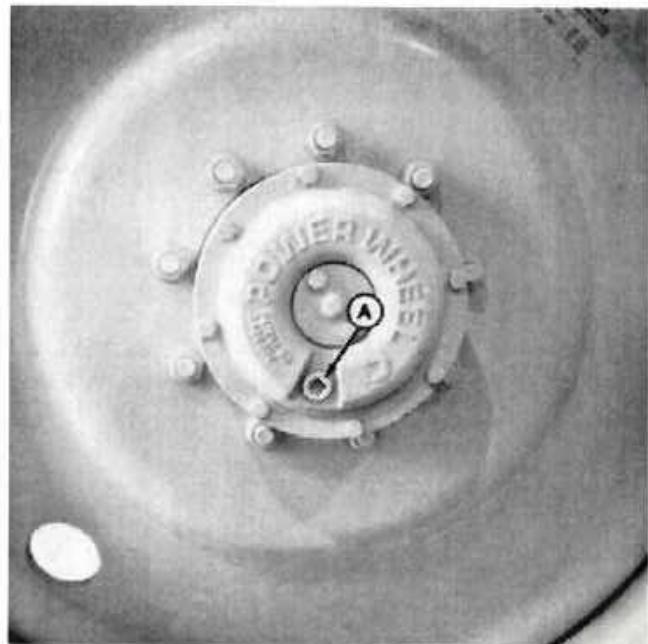
## CHANGE PLANETARY HUB OIL—500 HOURS

1. Park machine on flat level surface.
2. Rotate hub until plug (A) is positioned at bottom.
3. Remove plug and drain oil from hub.

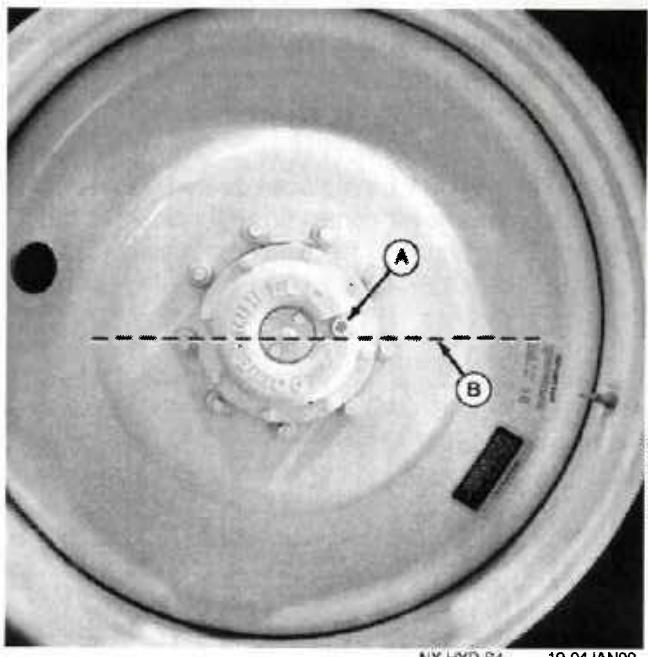
**IMPORTANT:** Plug must be positioned JUST above horizontal line (B). The plug must be at this position for the hub to be filled to the correct oil level.

*NOTE: Plug is magnetic. Clean metal filings off plug.*

4. Fill hub until oil is level with bottom of plug hole. (See Planetary Hub Oil in this section for recommended oil).
5. Install plug.



N42184DC -JUN-28JUL97



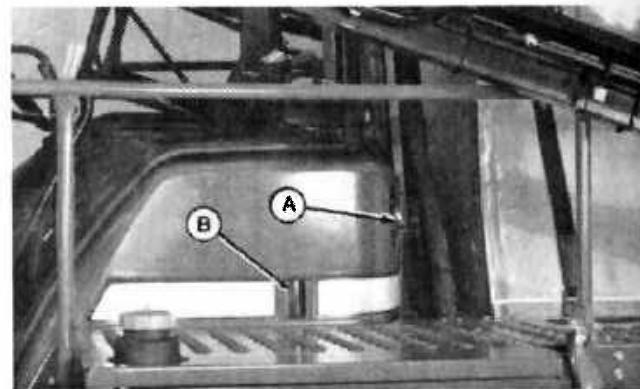
N42184DDQ -JUN-28JUL97

NX.HYD.S4 -19-04JAN99

## Change Hydraulic Oil—500 Hours

**NOTE:** Approximately 57 L (15 gal) of hydraulic oil is needed to fill hydraulic system.

1. Park machine on flat level surface.
2. Drain hydraulic oil reservoir by removing case drain line to front motor.
3. Remove filler cap (A) and fill hydraulic reservoir with specified hydraulic oil to 1/2 to 2/3 full on sight tube (B).



NA2175HD -UNI-20F EB97

OUO1035,000016C -19-15MAR02-1/1

## Checking and Replacing Cab Air Filters—500 Hours or Annually

Cab air filters MUST be replaced every 500 hours or every year, whichever comes first. Check filters regularly. Replace filters sooner if they become restricted or if manufacturer recommends. When replaced, record date and engine hours on decal (A).

For checking and replacing procedure, see CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.



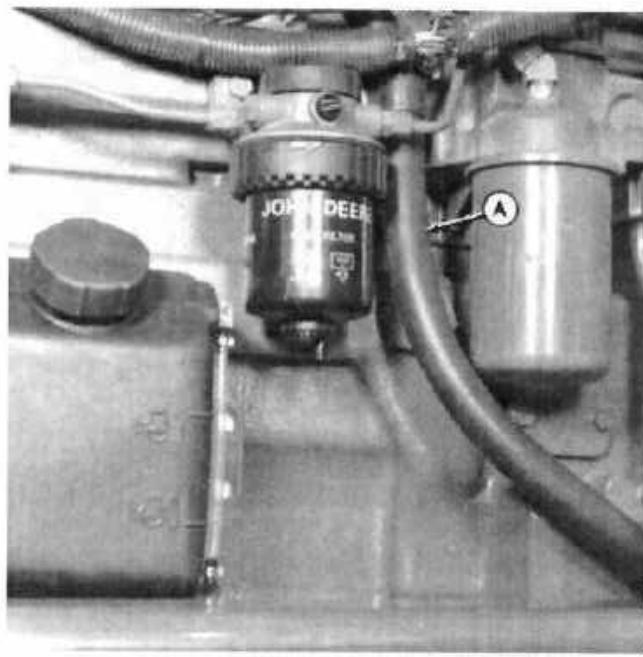
NE6652 -19-27FEB02

A—Decal

OUO6092,000034A -19-05MAR02-1/1

## CLEAN ENGINE VENT TUBE—EVERY YEAR

Clean dirt and trash from engine vent tube (A).



-UN-02JAN97

N42175FV

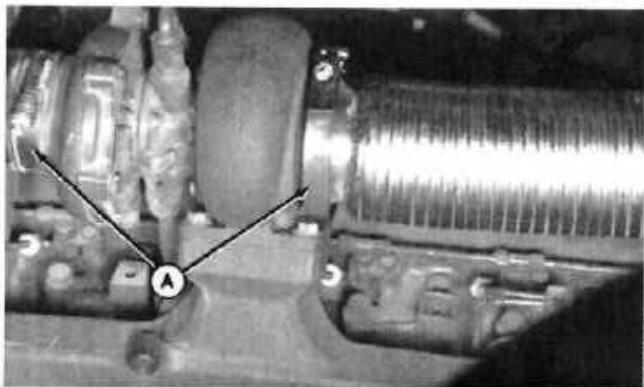
NX,4700,N24 -19-06FEB97

## CHECK AIR INTAKE SYSTEM—750 HOURS

To service the air intake system:

- Check all air intake system joints for tightness.
- Check hose clamps (A) at turbocharger for tightness.
- Inspect pre-cleaner for any evidence of clogging by shining a bright light into the intake duct. Tubes should be clear of dirt and trash.

*NOTE: Leaking or damaged hoses are the cause of dirt entering the engine.*



-UN-13FEB97

N42175DT

NX,4700,N16A -19-18FEB97

## CHECK ENGINE SPEEDS—750 HOURS

With no load, slow idle speed should be  $850\pm50$  rpm.

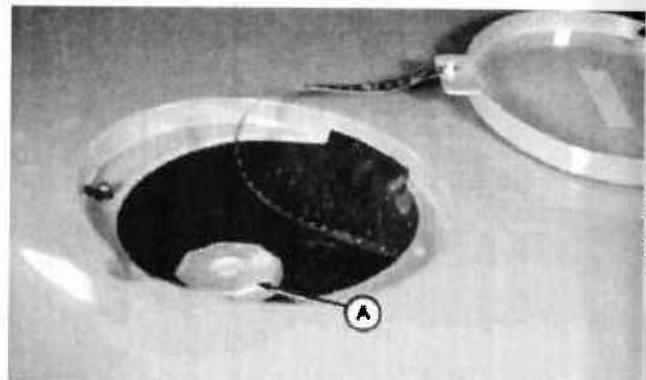
Fast idle speed should be  $2675\pm50$  rpm. If speeds are not correct, see your John Deere dealer.

NXN,4700,N17A -19-26FEB97

## ADD COOLANT CONDITIONER—750 HOURS

*NOTE: Do not add supplemental coolant additives when the cooling system is filled with John Deere ANTIFREEZE/SUMMER COOLANT or John Deere COOL-GARD. See Supplemental Coolant Additives in this section.*

Remove radiator cap (A) and add 320 ml (11 oz) of coolant conditioner. (If needed, drain a small amount of coolant from system.)



NX,4700,N18A -19-08JUL97

N42173QR  
-JUN-30DEC96

## FLUSH COOLING SYSTEM AND REPLACE THERMOSTATS—EVERY TWO YEARS

**CAUTION:** To avoid serious injury to you or others, DO NOT remove radiator cap when engine is hot. Stop engine and wait until engine has cooled.

1. Slowly turn the radiator cap to the first stop to relieve pressure.

2. Place hose over end of radiator drain fitting (A).

3. Open radiator drain fitting and drain coolant.

**IMPORTANT:** Thermostats must be removed to ensure a thorough flush. Cab heater must be in the ON position during the entire flushing procedure.

4. Close radiator drain fitting and fill system with a *commercial cooling system cleaning solution*. Run engine up to operating temperature. Stop engine and drain system.

**IMPORTANT:** Never pour cold water or coolant into hot engine. Use warm water or wait until engine has cooled.

5. Fill system with *clean water*. Run engine up to operating temperature. Stop engine and drain system.

6. Remove thermostat cover and clean sealing area. Apply sealant to new gasket and install new thermostats and gasket. Tighten cap screws to 48 N·m (35 lb·ft).

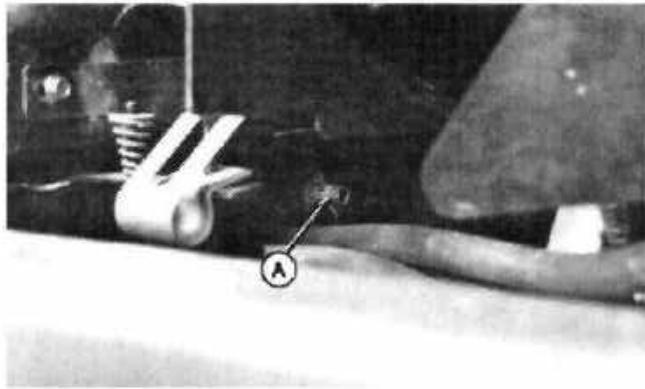
7. Fill system with the *specified coolant*. See Diesel Engine Coolant in this section for coolant specifications. Install and tighten radiator cap. Run engine to circulate and mix coolant. Coolant level should be up to mark on expansion tank.

8. Add John Deere liquid coolant conditioner.

*NOTE: Adding conditioner is not necessary if refilling with John Deere Antifreeze/Summer Coolant.*

9. Clean radiator and cooler condenser. Straighten any bent fins.

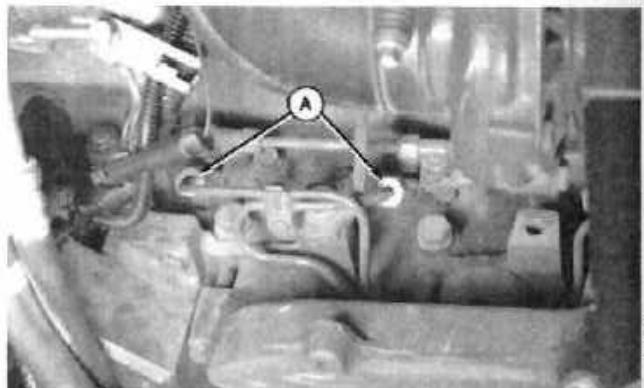
*NOTE: If John Deere Antifreeze/Summer Coolant is used, service interval can be increased to every five years or 5000 hours.*



N42173AN -JN-20NOV96

## CHECK FUEL INJECTION NOZZLES—1500 HOURS

Have your John Deere dealer check fuel injection nozzles (A) for spray pattern and opening pressure.



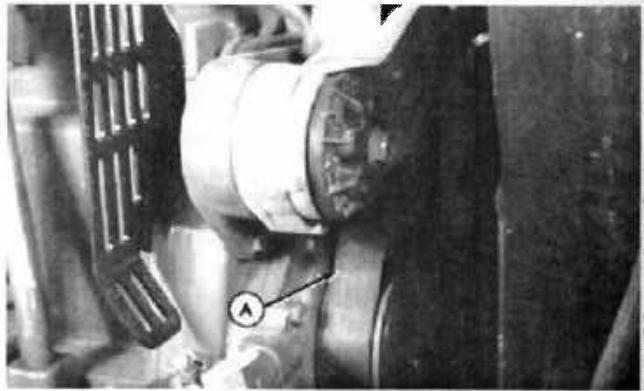
N42173Q

NX,4700,N21A -19-31DEC96

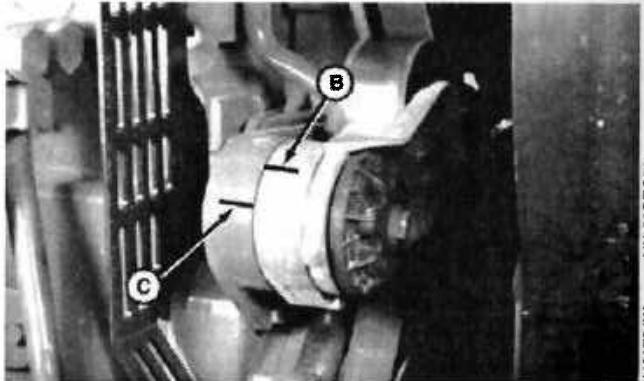
## CHECK BELT TENSIONER—1500 HOURS

1. Remove belt (A) from alternator pulley using breaker bar.
2. Measure 21 mm (13/16 in.) from (B) and put a mark (C) on mounting bracket.
3. Rotate tension arm with torque wrench until marks (B) and (C) are aligned. Torque wrench measurement should be approximately 23 N·m (17 lb-ft). If measurement is not to specification, see your John Deere dealer.

*NOTE: See Replacing Fan Belt in Chassis section if belt requires replacement.*



N42173F



N42173W

NXH8,64036,I42 -19-15APR98

## CHECK PLANETARY HUB OIL LEVEL—1500 HOURS

1. Park machine on a flat level surface.

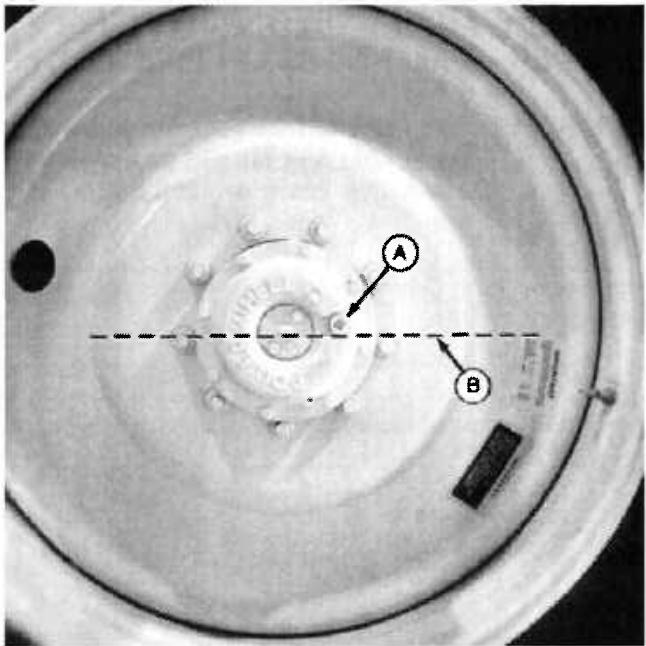
**IMPORTANT:** Plug must be positioned JUST above horizontal line (B). The plug must be at this position for the hub to be checked for correct oil level.

2. Remove plug (A).

*NOTE: Plug is magnetic. Clean metal filings off plug.*

3. If additional oil is required, fill hub until oil is level with bottom of plug hole. (See Planetary Hub Oil in this section for recommended oil.)

4. Install plug.



-UN-08AUG97

N42184DQ

NX,OM554,N25B1 -19-07AUG97

## ADJUST ENGINE VALVE CLEARANCE—2500 HOURS

Valve clearance must be adjusted every 2500 hours. Have your John Deere dealer adjust engine valve clearance.

NX,4700,N31XX -19-20FEB97

## INSPECT SUSPENSION ASSEMBLIES—3000 HOURS

Inspect suspension assemblies for excessive grease. If excessive grease is present, see your John Deere dealer.

NX,4700,N31X -19-18FEB97

**REPLACE ENGINE CRANKSHAFT  
DAMPER—4500 HOURS OR FIVE YEARS**

**IMPORTANT:** The vibration damper assembly is not repairable and should be replaced every five years or 4500 hours, whichever occurs first.

Have your John Deere dealer inspect the engine crankshaft damper.

NX,4700,N31 -19-02JUN95

# Lube/Maint.-John Deere 18.3 M (60 Ft) Boom

## SERVICE INTERVALS—18.3 M (60 FT) BOOM

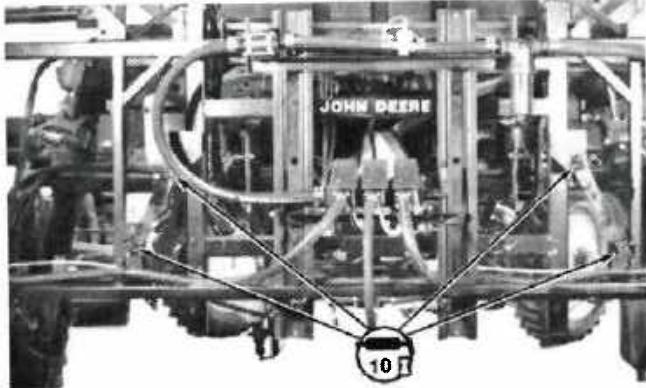
SERVICE	INTERVAL										
	10 Hours	Daily	As Required	25 Hours	50 Hours	100 Hours	250 Hours	400 Hours	500 Hours	1 Year	750 Hours
Tighten boom assembly.	▲										
Lubricate boom.		●									
Lubricate center frame skid plates.		●									
Lubricate boom lift arm pivots.				●							
Tighten boom assembly.				●							

N42190T  
-19-20MAY98

NXH8,055437,EC -19-29APR98

## LUBRICATE BOOM—DAILY

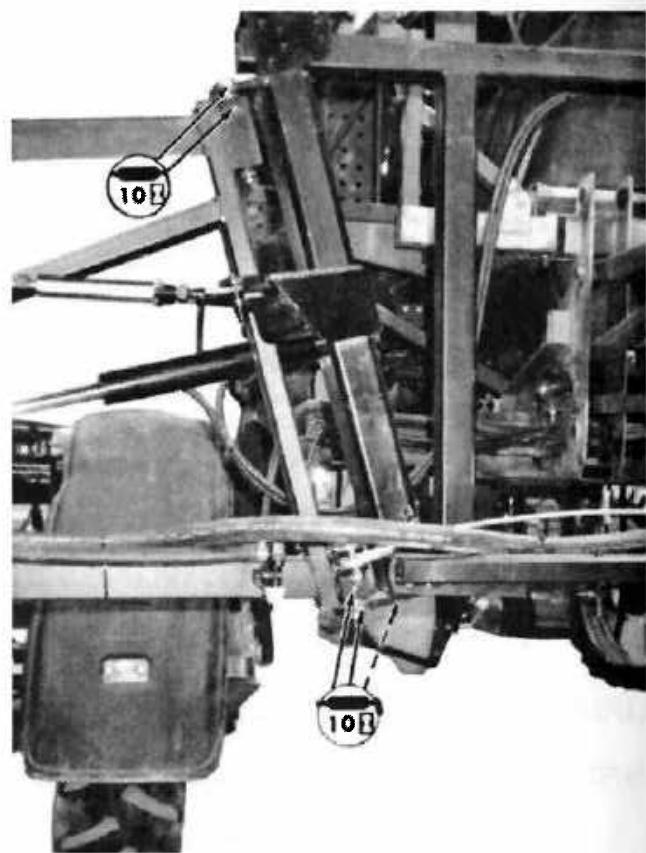
**IMPORTANT:** Lubrication of the boom should be done daily (10 Hours) to ensure maximum boom performance and life.



N42190X  
-UN-27MAY98

NXH8,64037,J1 -19-29APR98

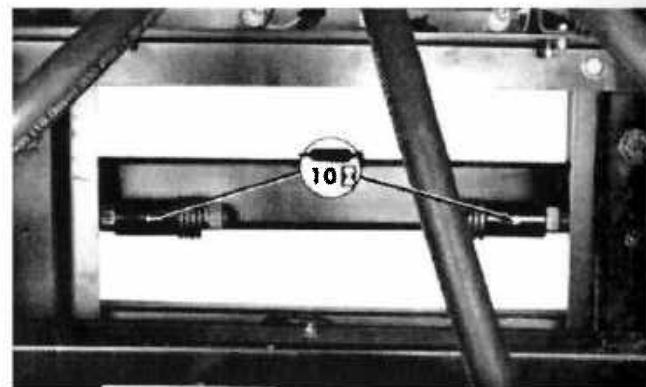
Lubricate boom hinges. (Left-hand side shown.)



NXH8,64037,J2 -19-03JUN98

Lubricate cable adjusters

*Cable Adjusters*



NXH8,64037,J3 -19-15JUL98

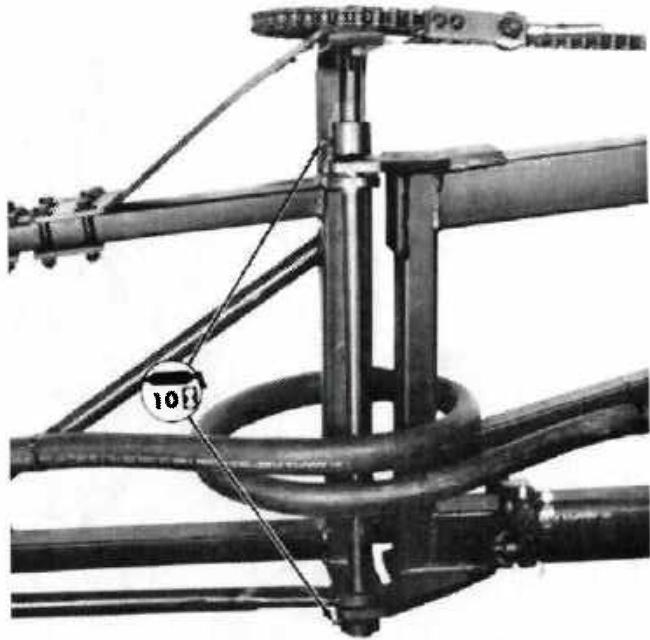
-UN-27MAY98

N42190AW

-JN-13APR98

N42184ZG

Lubricate sprocket shaft.



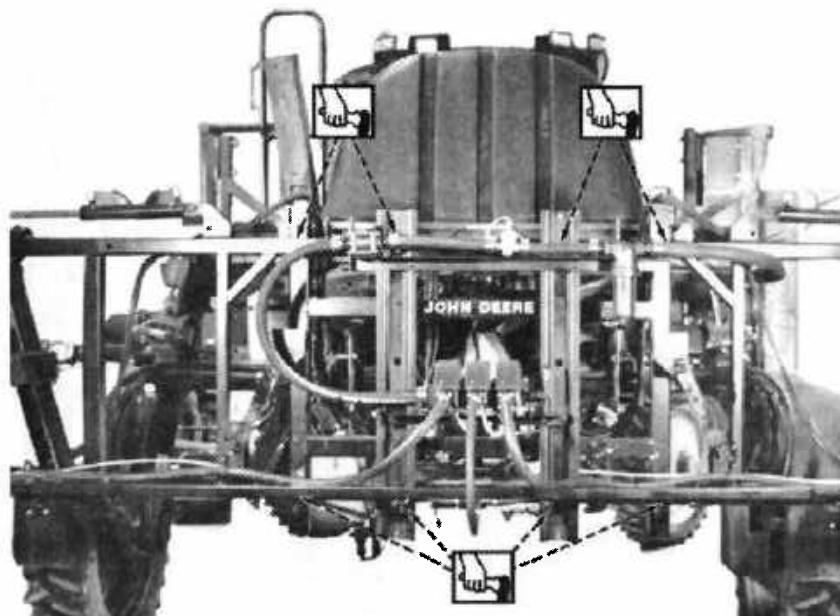
Sprocket Shaft (Top and Bottom)

NXH8,64037,J4 -19-15JUL98

-JUN-27MAY98

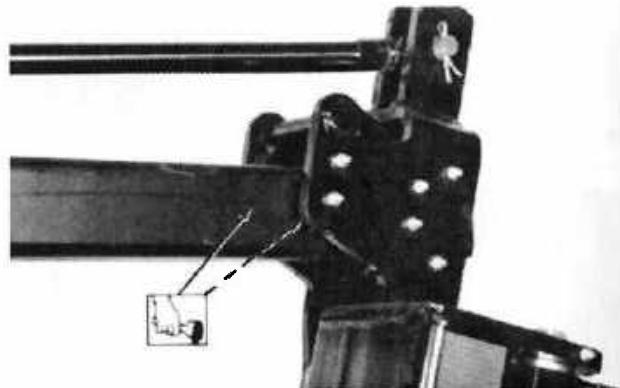
N42190AB

**LUBRICATE CENTER FRAME SKID PLATES—DAILY**



-UN-27MAY98  
N42190AL

Apply grease to all center frame and hinge skid plates and their contact surfaces. Raise and lower center frame and extend/retract level cylinders to evenly distribute grease.



*Right-hand Side Shown*

-UN-13APR98  
N42184ZI

NXH8,64037,J6 -19-29APR98

**TIGHTEN BOOM ASSEMBLY—AFTER FIRST  
TEN HOURS**

Tighten boom fasteners and inspect boom for proper adjustment after the first day (10 hours) of use and every 50 hours thereafter.

NX,OM4700,HR2 -19-26NOV97

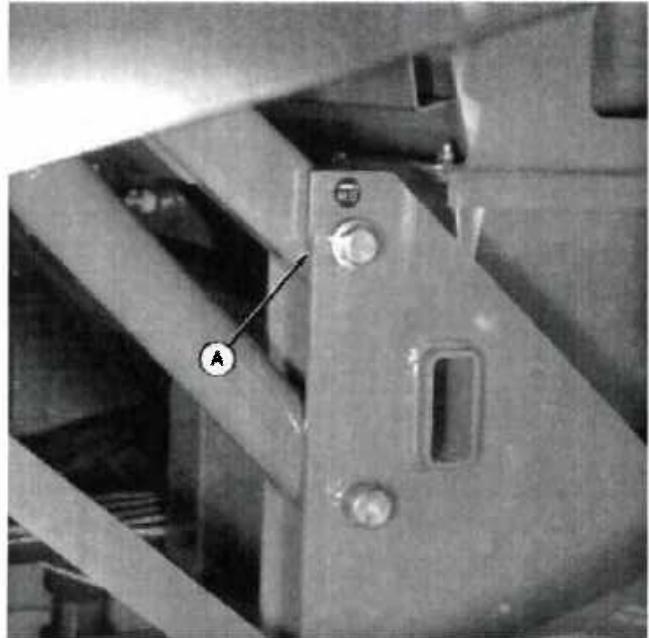
## TIGHTEN BOOM ASSEMBLY—50 HOURS

Tighten boom assembly hardware after every 50 hours of use.

NX,4700,N8A -19-26NOV97

## LUBRICATE BOOM LIFT ARM PIVOTS—50 HOURS

Lubricate boom lift arm pivots (A) every 50 hours.



-UN-24FEB97  
N42175IE

NX,OM554,LUB15 -19-25FEB97

# Lube/Maint.—24.4 & 27.4 M (80 & 90 Ft) Booms

## SERVICE INTERVALS

SERVICE	INTERVAL												
	10 Hours	Daily	As Required	25 Hours	50 Hours	100 Hours	250 Hours	400 Hours	500 Hours	1 Year	750 Hours	1000 Hours	2 Years
Tighten boom assembly.	▲												
Grease boom fold lockout.		●											
Lubricate center section.					●								
Lubricate breakaway chain pivot and hinge.					●								
Lubricate outer boom hinge					●								
Lubricate boom lift arm pivots.					●								
Tighten boom assembly.					●								

*NOTE: There is a total of 35 grease fittings at 50 hour interval.*

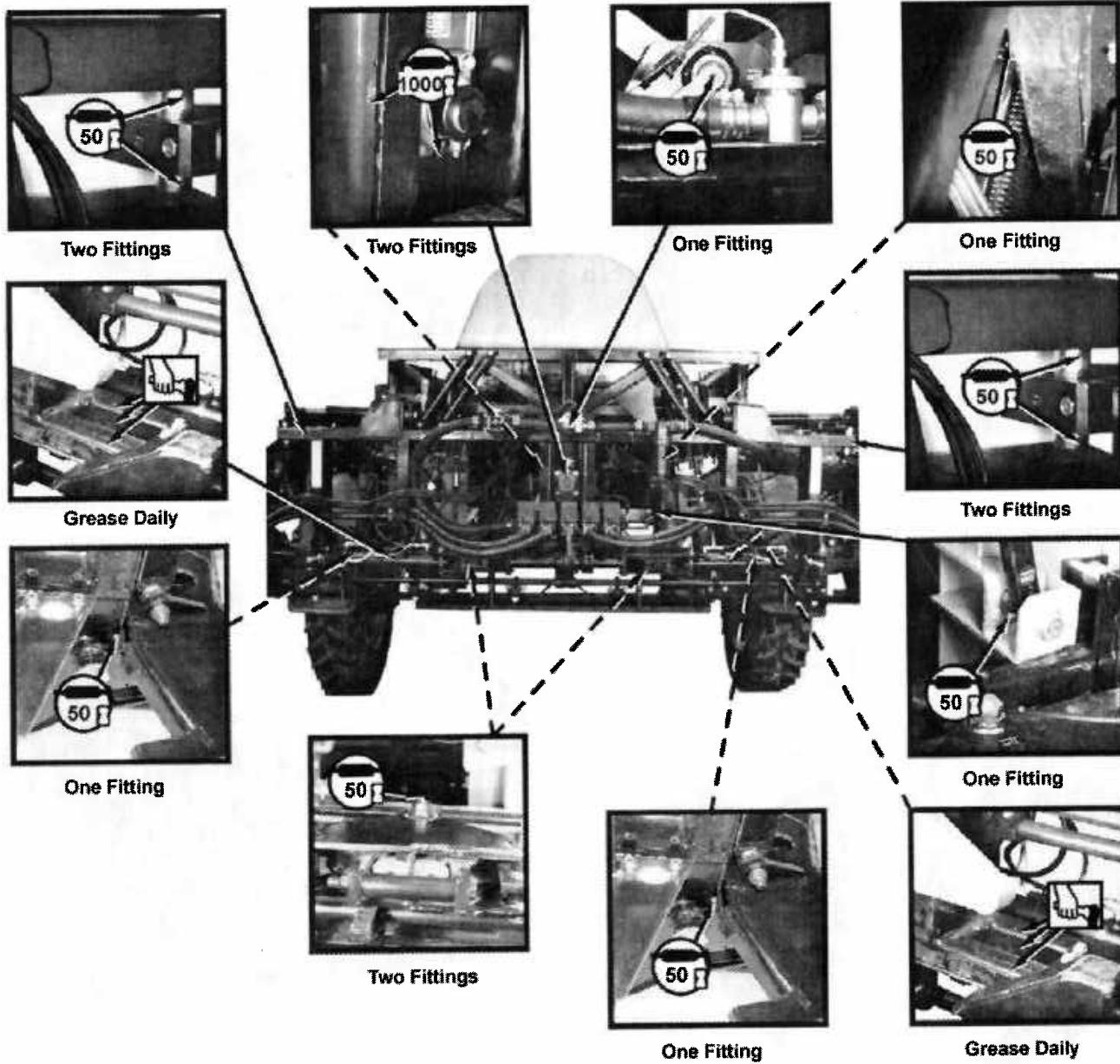
NXK7,OM55439.1 -19-01DEC97

## TIGHTEN BOOM ASSEMBLY—AFTER FIRST TEN HOURS

Tighten boom fasteners and inspect boom for proper adjustment after the first day (10 hours) of use and every 50 hours thereafter.

NX,OM4700,HR2 -19-26NOV97

## LUBRICATE CENTER BOOM SECTION



N42190-HK -19-16JUL98

NXH8,M68439,K3 -19-16JUL98

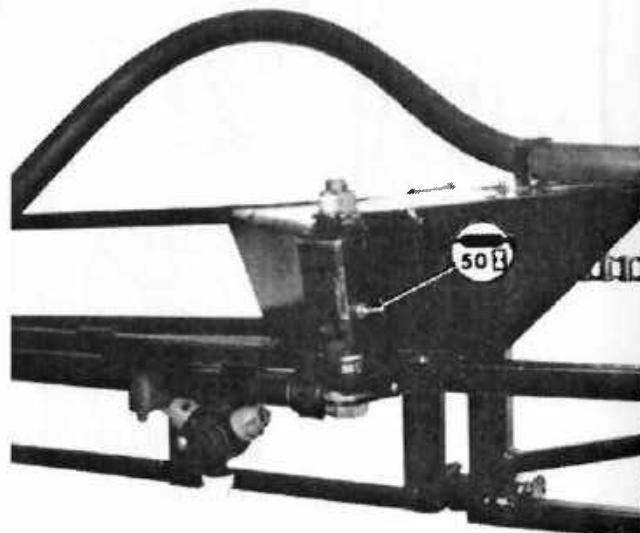
### LUBRICATE BREAKAWAY CHAIN PIVOT AND HINGE—50 HOURS

Lubricate breakaway chain pivot and breakaway hinge on right-hand and left-hand sides every 50 hours.



-UN-20NOV97

*One Fitting*



-UN-20NOV97  
N42184LA

*One Fitting*

NXH8,M68439,K4 -19-07JUL98

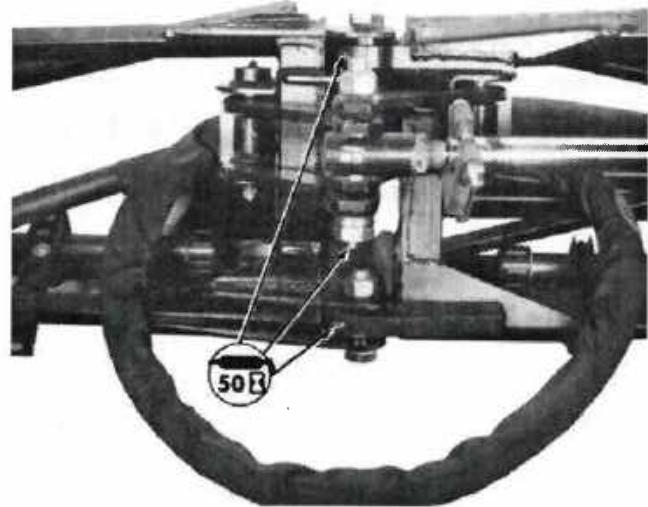
## LUBRICATE OUTER BOOM HINGE—50 HOURS

Lubricate two front fittings and three rear fittings on outer boom hinge on right-hand and left-hand sides every 50 hours.



Two Fittings

N42184LC -UN20NOV97



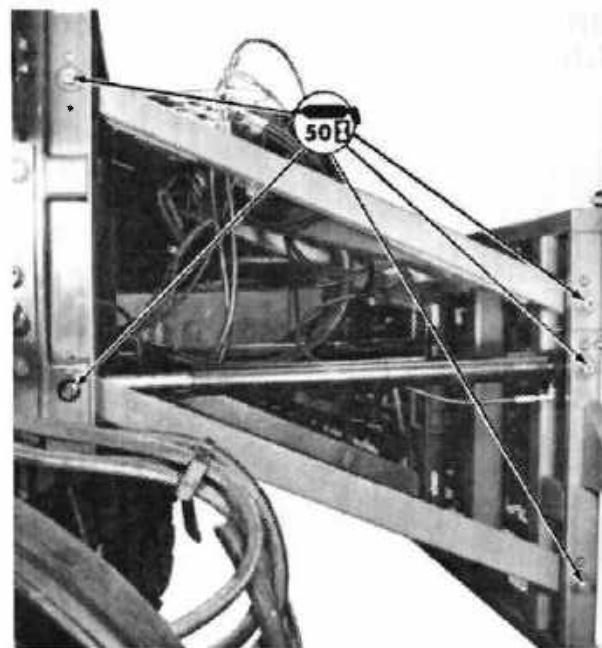
Three Fittings

N42184LD -UN20NOV97

NXK7,OM470039,4-19-26NOV97

### LUBRICATE BOOM LIFT ARM PIVOTS—50 HOURS

Lubricate boom lift arm pivots on right-hand and left-hand sides every 50 hours.



*Five Fittings*

-UN-20NOV97

N42184LE

NXK7,OM470039,5-19-01DEC97

### TIGHTEN BOOM ASSEMBLY—50 HOURS

Tighten boom assembly hardware after every 50 hours of use.

NX,4700,N8A -19-26NOV97

# Troubleshooting

## ENGINE

Symptom	Problem	Solution
<b>Engine hard to start, will not start.</b>	Hydro linkage improperly adjusted.	Adjust hydro linkage.
	Fuel tank empty.	Add fuel and bleed fuel system.
	Water, dirt or air in fuel system.	Drain, flush, fill and bleed fuel system.
	Safety switch not activated.	Move hydro lever to neutral. Inspect switch.
	Low compression.	See your John Deere dealer.
	Low battery output.	Check battery voltage. Clean battery. Charge if necessary.
	Excessive resistance in starting circuit.	Clean and tighten all connections on battery and starter.
	Crankcase oil of too heavy viscosity.	Drain and fill crankcase with John Deere Torq-Gard Supreme oil of proper viscosity and quality.
	Improper type or old fuel.	Consult fuel chart and use proper type of fuel for operating conditions.
	Sticking valves.	See your John Deere dealer.
	Throttle linkage loose or not adjusted properly.	Check throttle linkage and adjust if necessary.
	Fuel pump primer lever position.	Place lever in down position.
	Solenoid disconnected.	Check wiring.
	Dirty or faulty injectors.	See your John Deere dealer.
	Faulty injection pump solenoid.	Replace solenoid.
	Plugged fuel filter.	Replace filter element and bleed system.
	Plugged fuel prefilter.	Replace prefilter element and bleed system.
<b>Engine knocks.</b>	Low coolant temperature.	Incorrect or defective thermostat.

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Symptom	Problem	Solution
<b>Engine knocks (continued)</b>	Loose or failed main bearing or connecting rod bearing, worn pistons and cylinders.	See your John Deere dealer.
	Insufficient oil.	Add oil of proper viscosity and quality.
	Clogged air intake.	Clean air intake.
	Injection pump out of time.	See your John Deere dealer.
	Injection nozzle valve sticking.	See your John Deere dealer.
	Air in fuel system.	Clean and bleed fuel system.
<b>Engine runs irregularly or stalls frequently.</b>	Low coolant temperature.	Run engine until sufficiently warm; also check thermostat.
	Clogged fuel filter.	Replace filter element and bleed system.
	Clogged prefilter	Replace prefilter and bleed system.
	Prefilter installed backwards.	Install prefilter in correct position and bleed system.
	Bent push rods or sticky valves.	See your John Deere dealer.
	Water, dirt or air in fuel system.	Drain, flush, fill and bleed system. Tighten fuel connections.
	Injection pump out of time.	See your John Deere dealer.
	Injection pump speed advance.	See your John Deere dealer.
	Dirty or faulty injectors.	See your John Deere dealer.
	Solenoid wire loose.	Check wiring.
	Low fuel level.	Add fuel and check system.
<b>Lack of power.</b>	Engine overload.	Reduce load.
	Intake air restrictions.	Clean air cleaner.
	Improper thermostat.	Change to proper thermostat.
	Improper valve clearance.	See your John Deere dealer.

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Symptom	Problem	Solution
<b>Lack of power (continued)</b>	Contamination in fuel tank.	Clean out fuel tank and replace fuel prefilter and filter.
	High altitude operation.	Engine loses horsepower with increase in altitude. Use proper type of fuel for high altitude.
	Unsatisfactory fuel.	Use fresh fuel of proper type.
	Overheated engine.	Allow engine to cool.
	Throttle position or speed adjustments.	Use proper throttle position and speed adjustment.
	Clogged fuel filter.	Replace filter element and bleed system.
	Clogged prefilter.	Replace prefilter and bleed system.
	Prefilter installed backwards.	Install prefilter in correct position and bleed system.
	Dirty or faulty injectors.	See your John Deere dealer.
	Injection pump out of time.	See your John Deere dealer.
	Automatic advance not working.	See your John Deere dealer.
	Turbocharger not functioning.	See your John Deere dealer.
<b>Engine overheats.</b>	Engine overloaded.	Reduce load.
	Low coolant level.	Fill radiator with coolant to the proper level. Check hoses and radiator for leaks or loose connections.
	Leaking head gasket.	See your John Deere dealer.
	Engine timed too late.	See your John Deere dealer.
	Engine side screens constantly plugged.	Install air intake stack and front screen attachment.
	Dirty cooling system radiator core, air conditioning condenser or screens.	Remove all foreign matter from exterior or radiator core, air conditioning condenser and screens. Steam clean if necessary.

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Symptom	Problem	Solution
<b>Engine overheats (continued)</b>	Defective thermostat, pressure cap, switch or gauge.	Remove and check.
	Loose or defective fan belt.	Replace belt.
	Wrong oil viscosity.	Change to proper oil viscosity.
	Cooling system limed up.	Drain and flush cooling system.
<b>Engine temperature below normal.</b>	Defective thermostat, gauge or sender unit.	Remove and check.
<b>Low oil pressure.</b>	Low oil level.	Check crankcase oil level on dipstick and add oil if necessary.
	Improper type of oil.	Drain and fill crankcase with John Deere Torq-Gard Supreme oil of proper viscosity and quality.
<b>Engine uses too much oil.</b>	Oil leaks or engine overheating.	Check for leaks in lines and around gaskets and drain plugs.
	Too low viscosity crankcase oil.	Drain and fill crankcase with oil of proper viscosity and quality.
	Excessive engine speed.	Check speed adjustment.
	High oil pressure.	See your John Deere dealer.
	Scored pistons, stuck rings or worn valve guides.	See your John Deere dealer.
	Internal parts worn.	See your John Deere dealer.
	Restricted air intake system.	Check air cleaner and swab out air intake.
	Failed oil pump.	Replace oil pump.
	Improper type of fuel.	Use proper type fuel for operating conditions.
<b>Engine uses too much fuel.</b>	Engine out of time.	See your John Deere dealer.
	Clogged or dirty air cleaner.	Clean air cleaner.
	Automatic advance not working.	See your John Deere dealer.
	Dirty or faulty injectors.	See your John Deere dealer.

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## Troubleshooting

Symptom	Problem	Solution
<b>Engine uses too much fuel (continued)</b>	Engine overloaded.	Reduce load.
<b>Engine emits black or gray exhaust smoke.</b>	Improper fuel type.  Engine out of time.  Clogged or dirty air cleaner.	Use proper type of fuel for operating conditions.  Make sure injection pump is timed properly. (See your John Deere dealer).  Check air cleaner for restrictions. Be sure filter element is clean.
	Engine overloaded.  Defective muffler.  Dirty or faulty injectors.  Automatic advance not working.  Air in fuel system.	Reduce load.  Check the muffler for possible damage which might create back pressure. Clean muffler.  See your John Deere dealer.  See your John Deere dealer.  Bleed fuel system. Check all connections and fuel tank level.
<b>Engine emits white exhaust smoke.</b>	Cold engine.  Engine out of time.  Improper type of fuel.	Warm engine to normal operating temperatures.  Make sure injection pump is timed properly. (See your John Deere dealer).  Low octane fuel will cause misfiring. Use only fuel which has recommended cetane or octane number.
	Thermostat defective or too cold.  Defective battery.  Loose alternator belt.  Loose or corroded connections.  Alternator not functioning properly.	Remove and check thermostat.  Check voltage and/or specific gravity and electrolyte level.  Replace belt.  Clean and tighten battery connections.  See your John Deere dealer.

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## Troubleshooting

Symptom	Problem	Solution
<b>Starter cranks slowly or will not crank.</b>	Low battery output. Safety switch not activated. Loose or corroded harness or battery connections. Starter solenoid defective.	Use voltmeter to check state of charge. Move hydro-drive lever to neutral. Clean and tighten loose connections. Repair or replace, if necessary.

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**HYDROSTATIC DRIVE**

Symptom	Problem	Solution
<b>Linkages binding.</b>	Frozen or worn ball joints on cable.	Lubricate or replace.
	Control cable binding.	Replace cable.
	Control lever on pump binding.	See your John Deere dealer.
<b>System overheating.</b>	Oil cooler core plugged.	Clean oil cooler.
	Fan belt slipping or broken.	Replace belt or tensioner.
	Exceeding relief valve pressure.	Shift down one speed range.
	Side screens plugged.	Clean screens.
	Low on oil.	Check for leak and correct.
	Excessive high pressure leakage.	See your John Deere dealer.
	Charge flush is inadequate.	See your John Deere dealer.
	Loop flush is inadequate.	See your John Deere dealer.
	Plugged oil cooler bypass valve.	See your John Deere dealer.
<b>Sprayer will not travel forward or reverse.*</b>	Drive system inoperative.	Check pump, motor and hydro cable or see your John Deere dealer.
	Low on oil.	Check for leak and correct. Fill hydraulic reservoir with oil to center of sight tube.
	Air leak in system.	Tighten connections.
	Broken drive shaft from engine to pump.	Repair as needed.
	Plugged hydrostatic filter.	Change filter element.
	Exceeding limiter pressure.	Shift to low speed.
	Hydro linkage improperly adjusted.	Adjust hydro linkage.

\* When operating in temperatures below -12 degrees C (10 degrees F), run engine for 10-15 minutes to warm up hydrostatic drive oil.

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## Troubleshooting

Symptom	Problem	Solution
<b>Ground travel speed erratic.</b>	Low on oil.	Check for leaks and correct. Fill hydraulic reservoir to center of sight tube.
	Plugged hydrostatic filter.	Change filter element.
	Exceeding limiter pressure.	Shift down one speed range.
	Drive system unable to maintain charge pressure.	See your John Deere dealer.
	Plugged shift orifice.	Could be something wrong inside motor so swashplate angle is not changing.
	Wheel speed sensor faulty.	Repair or replace.
	Blown or leaking shift hoses.	Repair or replace.
	Radar picking up signals from tall crops.	Disconnect radar and use wheel speed sensor.
<b>Sprayer not responding to speed range switch .*</b>	Bad fuse.	Replace fuse.
	Defective solenoids or switches.	Check and repair as needed.
	Drive system unable to build up charge pressure.	See your John Deere dealer.
	Faulty hydrostatic motor.	See your John Deere dealer.
	Plugged hydrostatic filter.	Change filter element.
	Air in system.	Tighten connections, hose clamps, and check for broken hydraulic lines.
	Low on hydrostatic oil.	Check for oil leaks and correct. Fill hydraulic reservoir to center of sight tube.
	Operating sprayer in too high of range.	Shift to lower range.
<b>Lack of power or loss of power.*</b>	Low on hydrostatic oil.	Check for leaks and correct. Fill hydraulic reservoir to center of sight tube.
	Plugged oil filter.	Change filter element.
	Leaking or broken oil line or connection.	Check and repair as necessary.

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*Troubleshooting*

Symptom	Problem	Solution
<b>Lack of power or loss of power (continued)</b>	Drive system unable to maintain or build up pressure, or relief pressures incorrectly set.	See your John Deere dealer.  * When operating in temperatures below -12 degrees C (10 degrees F), run sprayer for 10—15 minutes to warm up hydrostatic drive oil.
	Excessive high pressure leakage.	See your John Deere dealer.
<b>Sprayer will not start in neutral or will start when hydro lever is in any operational position.</b>	Bad fuse.	Replace fuse.
	Neutral safety switch out of adjustment, faulty wiring or inoperative switch.	Check wiring connections or see your John Deere dealer.
	Hydro cable out of adjustment.	See your John Deere dealer.
<b>Power wheels/motors will not engage.</b>	Hydrostatic system out of oil.	Check oil level for leaks and correct. Fill hydraulic reservoir to center of sight tube.
	Damaged or faulty wheel motors.	See your John Deere dealer.
	Hoses incorrectly connected.	Correctly connect hoses. See your John Deere dealer.
	Drive hubs disengaged.	Engage drive hubs.
	Damaged or faulty drive hubs.	See your John Deere dealer.
	Faulty wheel motor/hub coupling.	See your John Deere dealer.

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**HYDRAULIC SYSTEM**

Symptom	Problem	Solution
<b>All hydraulic system fails to function.</b>	Bad fuse. Low oil supply. Clogged suction line. Damaged pump drive coupling. Pump faulty.	Replace fuse. Fill system with proper oil to center of hydraulic reservoir sight tube. Clean line. Replace coupling. Replace pump.
<b>Oil escapes at reservoir breather.</b>	Reservoir over-filled. Excessive speed on rough terrain.	Reduce oil to center of sight tube. Reduce speed.
<b>Booms level or fold too fast.</b>	Incorrect orifice, or none in work port.	Use correct orifices, properly installed.
<b>Lift arms drop too fast.</b>	Incorrect orifice, or none in work port.	Use correct orifices, properly installed.
<b>Some functions work erratically or not at all.</b>	Loose or disconnected wires at switch or solenoid. Failed solenoid coil. Low oil.	Check and repair connections. Replace coil. Fill tank to proper level.
<b>Erratic steering.</b>	Hydraulic oil overheated.  Pump faulty.	Fill tank to proper level. Clean oil cooler and screens. Replace pump.
<b>All hydraulic functions but one do not work or are slow.</b>	Check valve in load sense line of function that works properly is stuck open.	Clean or replace check valve or see your John Deere Dealer.
<b>One hydraulic function fails to work properly.</b>	Bad fuse. Bad switch. Solenoid for hydraulic function faulty. Check valve in load sense line in hydraulic valve sticks shut.	Replace. Repair or replace. Repair or replace. Clean or replace check valve.

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## Troubleshooting

Symptom	Problem	Solution
<b>One hydraulic function fails to work properly (continued)</b>	Hydraulic spool not shifting properly.	Clean or replace or see your John Deere dealer.

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**SPRAYSTAR SOLUTION CONTROL SYSTEM**

Symptom	Problem	Solution
<b>Zero pressure with spray system operating</b>	Solution tank empty.	Fill tank with solution. Check tank for leaks or damage.
	Solution control valves set incorrectly.	Set valves correctly. (See Section 25.)
	Solution pump is not primed.	Prime solution pump. (See Section 25.)
	Pressure sensor inoperative.	See your John Deere dealer.
	Solution tank valve closed.	Open.
	Pump suction in-line strainer plugged.	Remove, clean and install strainer.
	Boom strainer plugged.	Remove, clean and install strainer.
	Plugged solution lines.	Unplug and flush.
	Solution pump impeller clogged.	Separate pump housing and clean impeller.
	Nut on solution pump impeller came off.	Install solution pump impeller nut.
	Solution pump failure.	See your John Deere dealer.
	Low or no hydraulic oil.	Fill hydraulic reservoir to center of sight tube.
	Shaft between solenoid pump and hydraulic motor faulty.	See your John Deere dealer.
	Hydraulic motor faulty.	See your John Deere dealer.
	Hoses between reservoir, hydraulic pump priority valve, proportional valve assembly, and motor faulty.	See your John Deere dealer.
	Proportional valve assembly faulty.	See your John Deere dealer.
	Hydraulic pump faulty.	See your John Deere dealer.
	Priority valve faulty.	See your John Deere dealer.
	Spraying in third speed range.	Shift to first or second speed range.

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Symptom	Problem	Solution
<b>Zero pressure with spray system operating (cont.)</b>	Solution pump bleed line plugged.	Unplug pump bleed line.
	Solution pump bleed line kinked or forms traps.	Unkink bleed line.
	Dirty or plugged flowmeter.	Remove, clean and install flowmeter.
	Solution pump fuse faulty.	Replace fuse.
	Proportional valve electrical connection faulty.	Clean, replace or repair connection.
	Suction line plugged or collapsed.	Clean or replace suction line.
	Hydraulic shuttle valve faulty.	Replace or repair shuttle valve.
	Check valve in hydraulic load sense line stuck open.	See your John Deere dealer.
<b>Low pressure reading.</b>	Low engine rpm.	Operate engine at 2600 rpm.
	Nozzle tips worn.	Replace nozzle tips with new tips properly calibrated for current application.
	SprayStar not programmed properly.	Enter proper program data. (See Section 20.)
	Pressure line leaking.	Repair or replace pressure line as necessary.
	Pump suction strainer clogged.	Remove, clean and install strainer.
	Suction line partially blocked or collapsed.	Clean, repair or replace suction line as necessary.
	Air leak in suction line.	Repair or replace suction line.
	Solution pump shaft seal(s) leaking.	See your John Deere dealer.
	Solution pump impeller clogged.	Separate pump housing. Remove and clean impeller.
	Pressure sensor faulty.	See your John Deere dealer.
	SprayStar Display or CCU/SRC faulty.	See your John Deere dealer.

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Symptom	Problem	Solution
<b>Low pressure reading (cont.)</b>	Low or no hydraulic oil.	Fill hydraulic reservoir to center of sight tube.
	Shaft between solution pump and hydraulic motor faulty.	See your John Deere dealer.
	Hydraulic motor faulty.	See your John Deere dealer.
	Hoses between reservoir, hydraulic pump priority valve, proportional valve assembly, and motor faulty.	See your John Deere dealer.
	Proportional valve faulty.	See your John Deere dealer.
	Hydraulic pump faulty.	See your John Deere dealer.
	Hydraulic shuttle valve faulty.	See your John Deere dealer.
	Priority valve faulty.	See your John Deere dealer.
	Check valve in hydraulic load sense line stuck open.	See your John Deere dealer.
	Boom supply hoses partially or completely plugged.	Clean out hoses.
<b>High pressure reading during spraying operation</b>	Boom in-line strainers (if equipped) partially or completely plugged.	Clean strainers.
	Spray nozzles plugged.	Clean and inspect nozzles. Check orifices and calibration of nozzles. Replace nozzles as necessary.
	Boom shut-off valves faulty.	See your John Deere dealer.
	Pressure sensor faulty.	See your John Deere dealer.
	SprayStar not programmed properly.	Enter proper program data. (See Section 20.)
	SprayStar Display faulty.	See your John Deere dealer.
	Faulty proportional valve assembly.	See your John Deere dealer.
	Dirty or faulty flowmeter.	Clean, repair or replace flowmeter as needed.
	High/low flow valve in wrong position.	Turn high/low valve to correct position. (See Section 20.)

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Symptom	Problem	Solution
<b>High pressure reading during spraying operation (cont.)</b>	Incorrect Sprayer Response min/max setting.  Minimum pressure set too high.	Enter correct min/max setting in SprayStar display. (See Section 20.)  Lower minimum pressure setting.
<b>Pressure reading varies or is erratic</b>	High/low flow valve in wrong position.  Incorrect Sprayer Response min/max value in controller adjust.  Boom charge not on when it should be.  Inadequate solution supply in tank.  Solution contains heavy solids (poor mixture).  Spray nozzles plugged.  Boom supply hoses to booms partially plugged or collapsed.  Boom section shut-off valve(s) faulty.  Pressure sensor faulty.  Faulty proportional valve assembly.  Air trapped in solution system.  Suction strainer partially clogged.	Set high/low flow valve correctly. (See Section 20.)  Set min/max value correctly. (See Section 15.)  Set boom charge correctly.  Fill tank with solution. Make sure valves are completely open. (See Section 25.)  Check engine and pump speed. Check agitation line and valves. Be sure agitation jets are not clogged.  Clean and inspect nozzles. Check orifices and calibration of nozzles. Replace nozzle(s) as needed.  Remove and inspect solution hoses to booms. Clean or replace hoses as necessary.  See your John Deere dealer.  See your John Deere dealer.  See your John Deere dealer.  Loosen lines and operate pump to release trapped air.  Clean suction strainer.
<b>Application rate varies or is erratic.</b>	High/low flow valve in wrong position.  Incorrect sprayer response min/max valve in controller adjust.	Set high/low flow valve correctly. (See Section 20.)  Set min/max valve correctly. (See Section 15.)

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Symptom	Problem	Solution
<b>Application rate varies or is erratic (continued)</b>	Boom charge not on when it should be. Inadequate solution supply in tank. Solution contains heavy solids (poor mixture). Spray nozzles plugged. Solution hoses to booms partially plugged or collapsed. Boom section shut-off valve(s) faulty. Pressure sensor faulty. Faulty proportional valve assembly.	Set boom charge correctly. Fill tank with solution. Make sure all valves are completely open. (See Section 25.) Check engine and pump speed. Check agitation line and valves. Be sure agitation jets are not clogged. Clean and inspect nozzles. Check orifices and calibration of nozzles. Replace nozzle(s) as needed. Remove and inspect solution hoses to booms. Clean or replace hoses as necessary. Repair or replace boom section shut-off valve(s). See your John Deere dealer. Repair or replace.
<b>Pressure reading at the pressure sensor when there shouldn't be any</b>	Pressure sensor not calibrated correctly. Faulty proportional valve assembly.	"Zero-out" pressure sensor (See Calibrating Pressure Sensor in Section 20.) See your John Deere dealer.
<b>Pressure sensor leaks solution.</b>	Solution leaking from pressure sensor connection.	Tighten connection and/or apply sealant.
<b>Will not maintain 827-1103 kPa (8.2-11 bar) (120-150 psi) "dead head" pressure.</b>	Faulty solution pump. Hydraulic standby pressure set too low. Faulty proportional valve. Dirty or plugged suction strainer. Faulty priority valve. Faulty hydraulic pump.	Repair or replace solution pump. Set standby pressure to 1724 kPa (17.2 bar) (250 psi) or see your John Deere dealer. Replace proportional valve. Clean suction strainer. See your John Deere dealer. See your John Deere dealer.

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*Troubleshooting*

Symptom	Problem	Solution
<b>Will not maintain 827-1103 kPa (8.2-11 bar) (120-150 psi) "dead head" pressure (continued).</b>	Worn impeller in solution pump.	Replace impeller or see your John Deere dealer.

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## Troubleshooting

Symptom	Problem	Solution
<b>"Speed" indicates "0"</b>	Wiring to speed sensor or radar disconnected.  Speed sensor connector pins corroded.  Speed sensor misadjusted.  Wheel speed calibration or radar calibration in SprayStar incorrectly set.  Bad ground.	Connect wiring.  Clean connector.  See your John Deere dealer.  Set correctly (See Section 20.)  Check ground.
<b>"Speed" incorrect</b>	Wheel speed calibration or radar calibration in SprayStar incorrectly set.  Wheel speed sensor misadjusted.  Radar or wheel speed sensor faulty.  No radar signal because of tall crop.  Jumper wire not installed on radar electrical connector when radar is disconnected.  Bad ground.	Set correctly (See Section 20.)  See your John Deere dealer.  See your John Deere dealer.  Disconnect radar and use wheel speed sensor.  Install jumper wire on radar electrical connector. (See Section 20.)  Check ground.
<b>Tank volume does not count down.</b>	Spray not discharging from nozzles.  Flowmeter wiring harness disconnected.  Flowmeter wiring harness damaged.  Flowmeter connector pins corroded.  Flowmeter plugged or dirty.  Flowmeter faulty.  Flowmeter installed backwards.	Refer to No Discharge from Nozzles symptom in this group.  Connect flowmeter wiring harness connector.  Repair or replace wiring harness.  Clean connector.  Clean flowmeter.  See your John Deere dealer.  Remove and install flowmeter correctly. (Arrow located on flowmeter body indicates direction of flow.)

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Symptom	Problem	Solution
<b>Tank volume does not count down (continued)</b>	Speed sensor faulty.	See "Speed" indicates "0" in this section.
	Flowmeter calibration valve incorrectly entered in SprayStar display.	Enter correct calibration information in SprayStar display. (See Section 20.)
<b>Tank volume count down is incorrect.</b>	Flowmeter partially plugged or dirty.	Repair air leak.
	Air leak in suction side of pump.	Disassemble, clean and assemble flowmeter.
	Flowmeter sensor not aligned properly.	Align sensor properly. (See Clean Flowmeter in Section 36.)
	Flowmeter connector pins corroded.	Clean connector.
	Flowmeter wiring harness damaged.	Repair or replace wiring harness.
	Flowmeter faulty.	See your John Deere dealer.
	Solution contains heavy solids (chemicals not properly mixed with the water).	Refer to Solution Contains Heavy Solids symptom in this group.
	Flowmeter calibration value incorrectly entered in SprayStar display.	Enter correct calibration information. (See Section 20.)
	Speed sensor faulty.	See Speed Sensor Incorrect.
<b>Application rates and acre counter are incorrect in job summaries.</b>	Check if spray discharges from nozzles.	Refer to No Discharge from Nozzles symptom in this group.
	Spray on pressure too high causing over application.	Decrease spray on pressure setting in SprayStar display. Choose different nozzles for higher pressure setting at same speed.
	Wheel speed and radar calibration information incorrectly entered in SprayStar display.	Enter correct calibration information in SprayStar display. (See Section 20.)
	Improper data entered in SprayStar boom setup.	Enter proper data for boom setup. (See Section 20.)
	Excessive spray overlap.	Adjust spraying to keep spray overlap to a minimum.

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## Troubleshooting

Symptom	Problem	Solution
<b>Application rates and acre counter are incorrect in job summaries (continued).</b>	Large gap between sprayer passes.  Left front wheel spinning causing wheel speed sensor to give improper speed.  Radar picking up signal for tall crops.	Adjust spraying to minimize gaps.  Recalibrate wheel speed sensor or switch to radar in muddy or hilly conditions.  Switch to wheel speed sensor in tall crops.
<b>Solution contains heavy solids (inadequate mixing of chemicals)</b>	Incorrect engine rpm.  Agitation valves closed or do not open adequately.  Agitation nozzles plugged.  Improper mixing method as tank is filled.  Pump not running at specified rpm.  Agitation nozzles installed backwards.  Spray off pressure not set high enough for proper agitation.  Faulty agitation nozzles.	Run engine at 2600 rpm.  Open agitation valve as necessary.  Unplug agitation nozzles.  Mix chemicals properly. (See chemical label.)  Check hydraulic flow to hydraulic motor on pump.  Install agitation nozzles correctly.  Increase spray off pressure setting.  Replace agitation nozzles.
<b>Pump not primed.</b>	Air in pump.  Suction strainer plugged.  Solution control valves improperly set.  Pump bleed line kinked or forms a trap.  Pump bleed line partially or entirely plugged.	Allow solution to fill pump and push air out before running pump.  Clean suction strainer.  Set valves correctly.  Route bleed line so it goes directly upward from pump to solution tank.  Clean or blow out pump bleed line.

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**SUSPENSION SYSTEM**

Symptom	Problem	Solution
<b>Suspension system gives a rough ride.</b>	Pressure in air springs not correctly set.  Proper greasing intervals have not been followed or wrong type of lubrication has been used.  Tire inflation incorrectly set.	Correctly set pressure in air springs (See Lubrication and Maintenance section in this manual.)  Follow correct lubrication intervals and lubrication procedures.  Check tire inflation (See Chassis section in this manual.)
<b>Excessive grease leakage on the suspension.</b>	Suspension scissors linkage is too tight.	Properly adjust linkage or see your John Deere dealer.
<b>Excessive play in suspension or steering components.</b>	Worn or damaged seals.  Main suspension spindles or bushings are worn.  Suspension scissors pins or bushings are worn.  Suspension scissors pins are loose.  Suspension scissors wear shims are worn.	See your John Deere dealer.  See your John Deere dealer.  See your John Deere dealer.  Properly adjust linkage or see your John Deere dealer.  Replace shims and adjust properly . Adjust linkage.
<b>Excessive movement of the entire suspension assembly relative to the mainframe.</b>	Loose tread adjust shims.	Properly adjust thread adjust shims.

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**TREAD ADJUST SYSTEM**

Symptom	Problem	Solution
<b>All four tread adjusts do not function.</b>	Speed range switch not in first. Engine RPM's set too low. Fuse blown. Faulty switch. Low or no hydraulic oil. Faulty hydraulic pump.	Shift speed switch to first range. Increase RPM's to 2600. Replace fuse. Replace switch. Fill hydraulic reservoir to correct level. See diagnostic of hydraulic systems in this section or see your John Deere dealer.
<b>One individual tread adjust does not function, but others do.</b>	Lack of or restricted load sense signal due to plugged suction strainer in reservoir. Faulty tread adjust valve. Tread adjust shim pads gap adjustment incorrectly set.	Inspect and clean strainer. See your John Deere dealer. Set tread adjust shim pads gap adjustment correctly. (See Chassis section in this manual.)
	Check valve in load sense line stuck shut. Plugged orifice in hydraulic line. Faulty solenoid valve. Damaged electrical harness. Broken, damaged or worn shim pads. Damaged or corroded electrical connection. Faulty tread adjust cylinder. Faulty tread adjust diode. Faulty tread adjust valve.	Clean, repair or replace check valve. Replace orifice. Switch coil with good coil, if function operates, replace coil. Repair harness. See your John Deere dealer. Repair, replace or clean electrical connection. See your John Deere dealer. Replace diode. See your John Deere dealer.

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## Troubleshooting

Symptom	Problem	Solution
<b>One individual tread adjust does not stop when switch is released.</b>	Faulty solenoid valve.	Repair or replace solenoid valve.
	Sticking or faulty switch.	Replace switch.
	Sticking hydraulic spool.	Clean repair or replace.
<b>Excessive front tire wear or poor row tracking.</b>	Improper toe-angle adjustment.	Adjust toe angle.

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**OPERATOR'S CAB**

Symptom	Problem	Solution
<b>Drafts.</b>	Poor air distribution.	Adjust directional air louvers.  Set pressurizer blower switch to "MED" or "LOW".
<b>Inadequate air flow.</b>	Clogged air filters.  Clogged air inlet screen.  Evaporator core air flow restricted.  Faulty blower fan motor.  Defective blower fan switch.  Loose wire connection.	Replace filters.  Clean screen.  Clean evaporator and housing with compressed air.  See your John Deere dealer.  See your John Deere dealer.  Tighten wire.
<b>Water leaking or dripping from evaporator core compartment.</b>	Loose hose clamp.  Drip pan dirty (AC).  Drain tubes plugged (AC).	Tighten clamp.  Clean evaporator pan and outlet with compressed air.  Clean drain tubes.
<b>Pressurizer fan, windshield wiper and/or compressor will not run.</b>	Defective motor.  Defective switch.  Faulty wiring or loose connections.	See your John Deere dealer.  See your John Deere dealer.  Repair or replace wiring.
<b>Strange odors inside operator's cab.</b>	Dirty air filters.  Evaporator condenser pan dirty.  Drain tubes plugged.  Tobacco smoke and tar on evaporator exterior.	Replace filters.  Clean pan and outlet with compressed air.  Clean drain tubes.  Replace filters.
<b>Partial frosting and sweating of lines combined with poor cooling.</b>	Compressor belt slipping.  Loss of refrigerant.	Replace belt.  Check sight glass for bubbles and system for leaks.  See your John Deere dealer.

Continued on next page

## Troubleshooting

Symptom	Problem	Solution
<b>Partial frosting and sweating of lines combined with poor cooling (continued).</b>	Restricted or clogged line.	See your John Deere dealer.
	Expansion valve malfunctioning.	See your John Deere dealer.
<b>Ice flecks blowing from evaporator.</b>	Control dial set too low.	Adjust the temperature control to a warmer position.
<b>Failure to cool.</b>	Heater hoses installed backwards.	Install heater hoses correctly. (See your John Deere dealer.)
	Insufficient blower speed.	Increase blower speed.
	Dirty air screen.	Clean screen.
	Dirty air filters.	Replace filters.
	Debris on radiator screen.	Clean screen.
	Lint or dirt on condenser fins.	Blow out condenser fins with compressed air.
	Refrigerant is lost or extremely low (may have burned thermal fuse).	See your John Deere dealer.
	Loose compressor drive belt.	Replace belt.
	Compressor clutch not engaging or burned out clutch field.	Check wiring or see your John Deere dealer.
	Expansion valve not functioning.	See your John Deere dealer.
	Restriction in refrigerant system.	See your John Deere dealer.
	Loose wiring connector.	Tighten wire.
	Defective temperature control switch.	See your John Deere dealer.
	Outside temperature too low. (Below 70°F) (21°C).	Wait until day gets warmer. If there is a malfunction in system, see your John Deere dealer.
	Clogged line strainer.	See your John Deere dealer.
	Condenser is overheating.	Clean condenser screens, cores and fins of condenser and radiator.
	Severe restriction in high side.	See your John Deere dealer.

Continued on next page

## Troubleshooting

Symptom	Problem	Solution
<b>Cab pressure indicator reading at low end of indicator.</b>	Cab blower switch turned off.  Door or window not latched.  Restricted air filter.  Damaged door or window seals.  Loss of seal around control linkage, lines, wires, etc.  Problem cannot be identified and corrected.	Turn switch on.  Latch door or window.  Replace with John Deere activated carbon cab air filter or appropriate substitute. (See CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.)  Replace damaged seals.  Seal any openings.  See your John Deere dealer.
<b>Cab pressure indicator reading at high end of indicator.</b>	Damaged seal or pleated filter media on air filter.  Missing or incorrect air filter.  Air filter not seated properly.  Problem cannot be identified and corrected.	Replace with John Deere activated carbon cab air filter or appropriate substitute. (See CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.)  Replace with John Deere activated carbon cab air filter or appropriate substitute. (See CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.)  Reseat or replace with John Deere activated carbon cab air filter or appropriate substitute. (See CHECKING AND REPLACING CAB AIR FILTERS in Chassis section.)  See your John Deere dealer.

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**76 L (20 GAL) FOAM MARKER SYSTEM**

Symptom	Problem	Solution
<b>No foam coming out.</b>	Foam solution tank is empty.	Fill foam solution tank.
	Bad electrical connection causing compressor not to work or solenoids not to open.	Check and repair wiring.
	Air leak in pressure hose or one of the hoses are pinched.	Check and repair hoses.
<b>Not enough foam.</b>	Tank filter plugged.	Clean filter.
	Hoses leaking or pinched.	Check and repair hoses.
	Frequency valve not open far enough.	Increase foam drop frequency.
	Large plastic orifice installed in foam boot.	Remove.
	Not enough concentrate.	Fill concentrate tank.
	Too much concentrate.	Mix concentrate and water to correct ratio.
<b>Foam will not last.</b>	Tank filter plugged.	Clean filter.
	Wrong mixture of concentrate.	Mix concentrate and water to correct ratio.
	Poor quality or incorrect foam concentrate.	Replace concentrate with stronger mix.
	Water too hard.	Use soft water.
	Dollops too small.	Remove orifice in foam drop to increase dollop size.
	Dollops drying up too quickly.	Increase foam frequency by moving foam adjust switch to the "+" side momentarily.
<b>Foam too wet.</b>	Air hoses leaking or pinched.	Check and repair hoses.
	Not enough concentrate.	Mix concentrate and water to correct ratio.
	Water too hard.	Use soft water.

Continued on next page

*Troubleshooting*

Symptom	Problem	Solution
<b>Foam too wet (continued).</b>	Dirty tank.	Clean tank.
	Foam generator nozzle not properly positioned.	Adjust generator nozzle.
	Solenoids in compressor box not functioning or plugged.	Repair, replace or clean solenoids.
<b>Fuses blowing.</b>	Short in electrical system.	Check and repair wiring before replacing fuses.
<b>Can't see foam</b>	Orifice present in foam drop.	Remove orifice to increase dollop size.
	No dye in concentrate.	Use dye as needed.
	Dollops falling through crop canopy.	Use striper sock in place of foam drop.

NXH8,M68440,L9 -19-10JUL98

**132 L (35 GAL) FOAM MARKER SYSTEM**

Symptom	Problem	Solution
<b>No foam coming out</b>	Air not blowing into tank.	Make sure lines into compressor are connected properly.
	Compressor not running.	Check fuses/wiring/brushes.
	Damaged or pinched air and/or liquid lines.	Repair lines.
	Not enough solution in tank.	Fill solution tank.
	Tank not pressurized.	Check for leaks.
	Hard water.	Use water softener.
	Poor quality concentrate.	Use proper concentrate.
	Threaded tank cap improperly installed.	Install properly.
	Vent valve open.	Close valve.
	In-line filter clogged.	Clean filter.
	Flow control valve closed.	Open valve approximately 2 turns.
	Air shut-off diaphragm is stuck.	Clean air shut-off valves.
	Anti-siphon valves not operating.	Repair or replace valves.
	Electric air shut-off valves not working.	Repair or replace electric valves.
<b>Not enough foam</b>	Solution in tank is old.	Drain tank, rinse and mix fresh solution.
	Hi-lo valve not working.	Repair or replace.
	Not enough foam concentrate in solution.	Increase concentrate.
	Damaged or pinched air and/or liquid lines.	Repair lines.
	Clogged in-line filter or foamer heads.	Clean.
	Liquid flow control valve set too low.	Increase liquid flow.

Continued on next page

*Troubleshooting*

Symptom	Problem	Solution
<b>Foam will not last</b>	Not enough foam concentrate in solution.	Increase concentrate.
	Poor quality concentrate.	Use appropriate concentrate.
	Collector heads not installed.	Install collector heads.
<b>Foam too wet</b>	Not enough foam concentrate in solution.	Increase concentrate.
	Clogged in-line filter or foamer heads.	Clean.
	Liquid flow control valve set too high.	Decrease liquid flow.
<b>Foam is surging</b>	Too much foam concentrate in solution.	Decrease concentrate.
<b>Solution runs out quickly</b>	Not enough foam concentrate in solution.	Increase concentrate.
	Liquid flow control valve set too high.	Decrease liquid flow.
<b>Foam blowing in windy conditions</b>	Foam too light.	Mix solution with less concentrate or more water.

NXH8,M68440,L10-19-13JAN99

## 24.4 M AND 27.4 M (80 AND 90 FT) BOOM OPERATION

Symptom	Problem	Solution
<b>Inner boom section doesn't fold out.</b>	Flag assembly for micro switches on outer fold cylinder out of adjustment.	Adjust flag assembly (See Section 32).
	Failed solenoid coil or relay.	Replace coil or relay.
	Damaged or corroded electrical connections.	Repair, replace or clean electrical connection.
	Sticking hydraulic spool.	Remove hydraulic spool and clean or see your John Deere dealer.
	Check valve stuck shut in load sense line.	Remove and clean check valve or see your John Deere dealer.
	Faulty switch.	Replace switch.
	Faulty inner boom fold cylinder.	See your John Deere dealer.
	Plugged orifice or hydraulic line.	Remove and clean orifice or hydraulic line.
	Flag assembly for micro switches on inner fold cylinder out of adjustment.	Adjust flag assembly (See Section 32).
	Failed solenoid coil or relay.	Replace coil or relay.
<b>Outer boom section doesn't fold out.</b>	Damaged or corroded electrical connections.	Repair, replace or clean electrical connection.
	Sticking hydraulic spool.	Remove hydraulic spool and clean or see your John Deere dealer.
	Check valve stuck shut in load sense line.	Remove and clean check valve or see your John Deere dealer.
	Faulty switch.	Replace switch.
	Faulty inner boom fold cylinder.	See your John Deere dealer.
	Plugged orifice or hydraulic line.	Remove and clean orifice or hydraulic line.

Continued on next page

*Troubleshooting*

Symptom	Problem	Solution
<b>Inner boom section doesn't fold in.</b>	Flag assembly for micro switches on outer fold cylinder out of adjustment.  Failed solenoid coil or relay.  Damaged or corroded electrical connections.  Sticking hydraulic spool.  Check valve stuck shut in load sense line  Faulty switch.  Faulty inner boom fold cylinder.  Plugged orifice or hydraulic line.	Adjust flag assembly (See Section 32).  Replace coil or relay.  Repair, replace or clean electrical connection.  Remove hydraulic spool and clean or see your John Deere dealer.  Remove and clean check valve or see your John Deere dealer.  Replace switch.  See your John Deere dealer.  Remove and clean orifice or hydraulic line.
<b>Outer boom section doesn't fold in or inner boom folds in before outer boom folds in.</b>	Flag assembly for micro switches on inner fold cylinder out of adjustment.  Failed solenoid coil or relay.  Damaged or corroded electrical connections.  Sticking hydraulic spool.  Check valve stuck shut in load sense line.  Faulty switch.  Faulty outer boom fold cylinder.  Plugged orifice or hydraulic line.	Adjust flag assembly (See Section 32).  Replace coil or relay.  Repair, replace or clean electrical connections.  Remove hydraulic spool and clean or see your John Deere dealer.  Remove and clean check valve or see your John Deere dealer.  Replace switch.  See your John Deere dealer.  Remove and clean orifice or hydraulic line.

*Continued on next page*

## Troubleshooting

Symptom	Problem	Solution
<b>Boom will not return to level after rolling in either direction or boom will not roll freely.</b>	Suspended center frame binds at wear plates or center mounting bearings too far forward on shaft.	See Leveling Boom in Section 32.
<b>Boom doesn't raise or lower.</b>	Failed solenoid coil or relay.  Damaged or corroded electrical connections.  Sticking hydraulic spool.	Replace coil or relay.  Repair, replace or clean electrical connection.  Remove hydraulic spool and clean or see your John Deere dealer.
<b>Boom lift raises too fast.</b>	Check valve stuck shut in load sense line.  Faulty switch.	Remove and clean check valve or see your John Deere dealer.  Replace switch.
<b>One individual boom function doesn't stop when switch is released or is slow to release.</b>	Faulty lift cylinders.  Hydraulic compensator pressure not to specification.  Orifice in hydraulic line is missing.	See your John Deere dealer.  See your John Deere dealer.  Install correct size orifice.
	Faulty solenoid valve.  Sticking hydraulic spool assembly.  Sticking or faulty switch.	Repair or replace solenoid valve.  Clean spool assembly or see your John Deere dealer.  Repair or replace switch.

NXH8,M68440,L11-19-10JUL98

**18.3 M (60 FT) BOOM OPERATION**

Symptom	Problem	Solution
<b>Outer boom section doesn't fold out or in or level up or down.</b>	Failed solenoid coil or relay.  Damaged or corroded electrical connections.  Sticking hydraulic spool.  Check valve stuck shut in load sense line.  Faulty Switch.  Faulty Cylinder.	Replace coil or relay.  Repair, replace or clean electrical connection.  Remove hydraulic spool and clean or see your John Deere dealer.  Remove and clean check valve or see your John Deere dealer.  Replace switch.  See your John Deere dealer.
<b>Boom doesn't raise or lower.</b>	Failed solenoid coil or relay.  Damaged or corroded electrical connections.  Sticking hydraulic spool.  Check valve stuck shut in load sense line.  Faulty Switch.  Faulty Lift Cylinders.  Hydraulic Compensator Pressure not to Specification	Replace coil or relay.  Repair, replace or clean electrical connections.  Remove hydraulic spool and clean or see your John Deere dealer.  Remove and clean check valve or see your John Deere dealer.  Replace switch.  See your John Deere dealer.  See your John Deere dealer.
<b>One individual boom function doesn't stop when switch is released or slow to release.</b>	Faulty solenoid valve.  Sticking hydraulic spool assembly.  Sticking or faulty switch.	Repair or replace solenoid valve.  Clean spool assembly or see your John Deere dealer.  Repair or replace switch.

NXH8,M68440,L12-19-10JUL98

# Storage

## RECOMMENDED STORAGE KIT AND CORROSION INHIBITOR

To prepare machine for storage, a John Deere Storage Kit (Part No. AR41785) is recommended.

If additional corrosion inhibitor is needed, purchase a John Deere Internal Corrosion Inhibitor (946 mL [1 qt]).



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PS811

## CLEANING SOLUTION SYSTEM

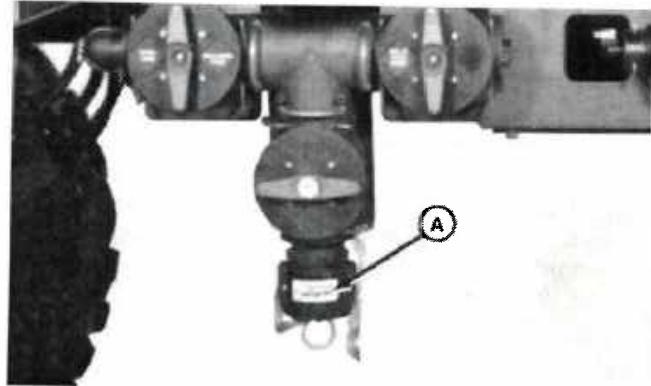


**CAUTION:** Chemicals and pesticides are hazardous and can poison causing serious injury or death to you or others. All spraying equipment should be decontaminated before being overhauled or placed in storage. Decontamination should be done in a safe area by washing with water, neutralization, or by means recommended by the chemical manufacturer.

Check to see if special cleaning techniques are necessary. Sprayers must be cleaned whenever chemicals are changed or stored.

Flush the system as follows:

1. Mix household detergent with 95 L (25 gal) of water or use N205702 Spray Tank Cleaner and circulate through system for 30 minutes, then drain.
2. Mix 0.95 L (1 qt) of household ammonia with 95 L (25 gal) of water. Pump enough of this mixture to fill the nozzles and let stand overnight.
3. Turn quick-fill attachment down. Remove cap (A) and open valve to drain system.
4. Flush system with clean water.
5. Flush system with antifreeze if machine is to be stored in a climate colder than 0°C (32°F).



-UN-02JAN97

N421730T

## **Clean Vehicle of Hazardous Chemicals, Including Pesticides**



**CAUTION: During application of hazardous chemicals, including pesticides, residue can build up on the inside or outside of the vehicle. Clean vehicle according to use instructions of hazardous chemical.**

When exposed to hazardous chemicals, clean exterior and interior of vehicle daily to keep free of the accumulation of visible dirt and contamination.

1. Sweep or vacuum the floor of cab.
2. Clean headliners and inside cowlings of cab.
3. Wash entire exterior of vehicle.
4. Dispose of any wash water with hazardous concentrations of active or non-active ingredients according to published regulations or directives.

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## SHIPPING MACHINE DURING COLD WEATHER MONTHS

**IMPORTANT:** Water freezing in tanks and lines can damage the machine. When shipping the machine in months when there is a chance of freezing make sure the machine can withstand the lowest possible temperatures it will be subject to.

**Avoid damage by emptying all solution tanks, solution lines and foamer lines and then add RV antifreeze to all solution lines and tanks. (Environmentally safe antifreeze.)**

To add antifreeze to machine spray system do the following:

1. Add approximately 76—114 L (20—30 gal) of appropriate solution mixture of RV antifreeze (environmentally safe antifreeze) to the tank for the desired temperatures from which you want to protect.

2. Start machine and operate spray system until water/antifreeze mixture comes out of spray nozzles. Operate option and valve for pressure manifold.

3. Drain the following tanks:

- Rinse tank—Drain through quick fill on rinse tank.
- Foamer tank—Drain by removing foamer concentrate hose from tank. Clean with foam tank cleaner (U.S.—Part No. N205701) (Canada—Part No. N207333).
- Hand rinse bottle—Empty through valve.
- Foamer concentrate lines—Remove two inner 8 mm foamer concentrate lines on foamer control box and blow out with high pressure air.

4. Leave note in the cab detailing what was done for winter protection so that the next person to use the machine will know what kind of preparation is needed for field operation.

NXH8,M68445,QA -19-07JUL98

## **Preparing Machine for Storage**

1. Clean machine thoroughly, inside and out. (See CLEAN VEHICLE OF HAZARDOUS CHEMICALS, INCLUDING PESTICIDES in this section.)
2. Clean and flush solution system. (See CLEANING SOLUTION SYSTEM in this section.)
3. Open drain cock on solution pump to remove any chemicals.
4. Remove, clean and install suction strainer, in-line strainers (if equipped) and flowmeter.
5. Remove and clean nozzle tips and screens. Store tips and screens off the machine, in a dry place.
6. Clean and flush foam marker system for cold weather. If machine is equipped with 132 L (35 gal) foam marker, see Preapring 132 L (35 gal) Foam Marker System for Cold weather Storage, this group.
7. Add approximately 76—114 L (20—30 gal) of appropriate mixture of SPRAY MASTER™ Winterizer Fluid. Following manufacturers directions, mix SPRAY MASTER™ Winterizer Fluid at the correct ratio to protect the solution system down to the lowest expected temperature.
8. Start machine and operate spray system until winterizer fluid mixture comes out of spray nozzles. Be sure to circulate mixture through entire solution system, including optional devices (fence row nozzle(s)). Operate valve for pressure manifold.
9. Drain the following tanks:
  - Rinse tank—Drain through quick-fill on rinse tank.
  - Hand rinse bottle—Empty through valve.

*Storage*

10. Remove monitor (A) and store in a warm, dry place.

**A—Monitor**



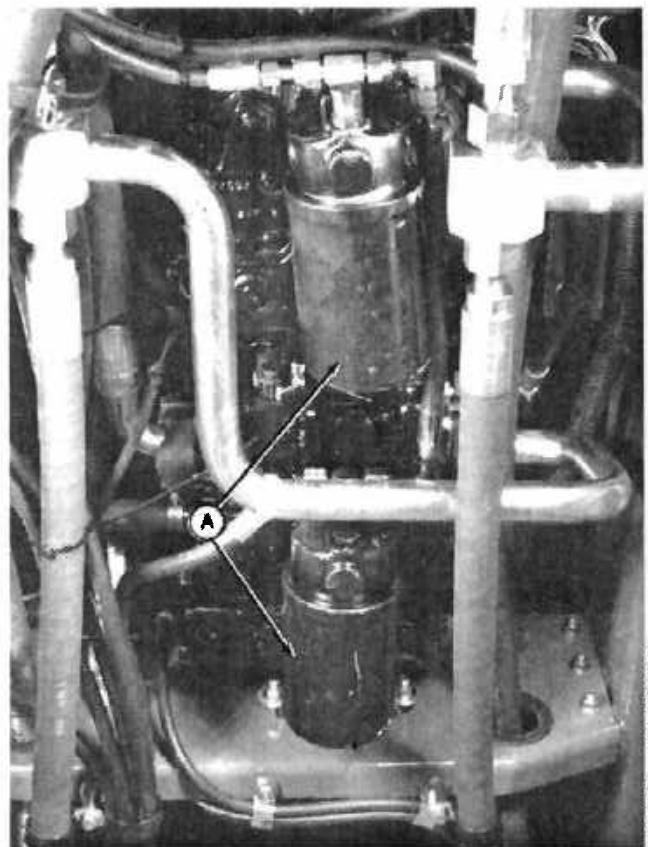
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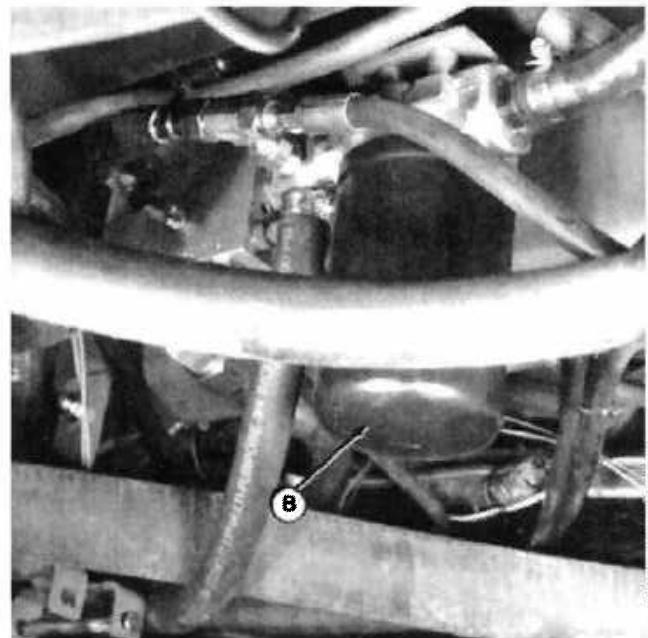
NXH8,M68445,Q9 -19-10JUL98-2/5

11. Replace hydrostatic filters (A) and hydraulic filter (B).
12. Put 75 mL (2.5 oz) of corrosion inhibitor into hydraulic reservoir.
13. Cycle all hydraulic functions to distribute corrosion inhibitor to all components.

A—Hydrostatic Filters  
B—Hydraulic Filter



N42173DP -UN-27DEC96



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NXH8,M68445,Q9 -19-10JUL98-3/5

14. Drain planetary hubs (A). (See CHANGE PLANETARY HUB OIL in the LUBRICATION AND MAINTENANCE section).
15. Put 30 mL (1 oz) of corrosion inhibitor in each planetary hub and fill oil to proper level.
16. Drive machine to distribute corrosion inhibitor.
17. Lubricate all grease fittings. Apply grease to exposed area of hydraulic cylinder rods and chrome suspension rods.
18. Paint as necessary to prevent rust.
19. Block machine up to take weight off tires. Do not deflate tires.

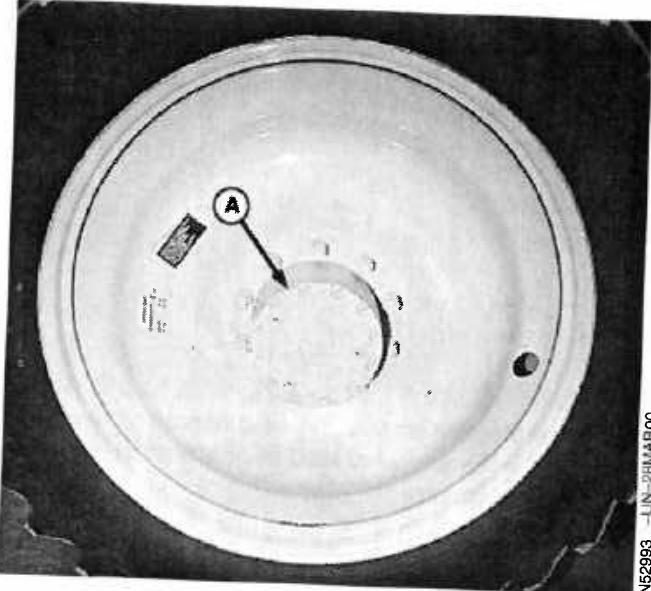


**CAUTION: DO NOT use gasoline for washing. Gasoline is highly flammable and can ignite if exposed to sparks or open flame, causing a fire which can cause serious injury or death to you or others.**

20. Wash engine using a safe solvent.
21. Remove, clean and install air cleaner elements.
22. With engine warm, drain oil from crankcase. Replace oil filter and fill crankcase to proper level.
23. Drain and flush cooling system (engine block and radiator).

**NOTE:** (For warm weather climates) If antifreeze has not and will not be added in engine, be sure to remove plug to drain engine oil cooler. Add clean soft water with John Deere Summer Engine Coolant Conditioner, or equivalent, in place of antifreeze.

24. Fill cooling system with antifreeze, to proper level. Use antifreeze that does not contain stop-leak additives.
25. Operate engine at slow idle for a few minutes to circulate coolant and crankcase oil.



A—Planetary Hubs

N52993 LIN-BENMAR00

*Storage*

26. Remove batteries and store in a warm, dry area.
27. Seal the following openings with tape and/or plastic bags to prevent loss of corrosion prohibitor vapors.
  - Exhaust pipe
  - Air cleaner intake
  - Engine dipstick tube
  - Engine oil fill tube
  - Crankcase breather tube
28. Leave a note in the cab detailing what was done for winter protection so that the next person to use the machine will know what kind of preparation is needed for field operation.

NXH8M68445.Q9 -19-10.JUL98-5/5

## Preparing 132 L (35 GAL) Foam Marker System for Cold Weather Storage

**IMPORTANT:** Damage to foam marker can occur if liquid is allowed to freeze in tank and lines. Drain liquid from tank and lines. Flush and purge all liquid from foam marker system.

1. Drain the following:
  - Foam solution tank—Remove foam concentrate hose to drain tank. Clean with Foam Tank Cleaner (U.S.—Part No. N205701) (Canada—Part No. N207333).
  - Foam concentrate lines—Remove liquid foam concentrate lines on foam control box and blow out with pressurized air.
2. Remove in-line filter (A) from bottom of foam marker tank.
3. Flush tank with warm water.
4. Install in-line filter on bottom of tank.
5. Start machine and allow foam marker system to operate until no foam is generated.
6. Turn off machine and add approximately 3.78 L (1 gal) of windshield washer solvent to foam tank.
7. Turn machine on and operate foam marker system until washer solvent is drained.
8. Check air and liquid lines for holes. Repair as necessary.



A—Filter

N42190GD -UN-08-JUL98

NX.OM4700.PFMS -19-13JAN99-1/1

## REMOVING MACHINE FROM STORAGE

1. Remove sealing tape and plastic bags from openings.
2. Check engine oil level. If low, check for leaks. Add oil as required.
3. Check coolant level. If low, check for leaks. Add coolant as required.
4. Install batteries.
5. Fill fuel tank with proper grade diesel fuel.
6. Drain RV antifreeze and flush system.
7. Start engine.
8. Coat clean sprayer with equipment coating. (U.S.—Part No. N025703) (Canada—Part No. N207338).

NXH8,M68445,Q11-19-07JUL98

9. Clean machine thoroughly, inside and out.
10. Check oil level in hydrostatic/hydraulic reservoir. If low, check for leaks. Add oil as required.
11. Check tire inflation.
12. Make sure all hardware is tight.
13. Lubricate all grease fittings.
14. Install monitor. Check that programming is correct.
15. Close drain cock on solution pump.
16. Install clean water in solution tank and operate system to check for leaks, before installing nozzle tips and screens.
17. Inspect nozzle tips to make sure they are all the same size. Install tips and screens.
18. Operate spraying system and observe spray patterns. Adjust or replace tips as necessary.
19. Review Operator's Manual for operating adjustments and safety information.
20. Calibrate sprayer.
21. Check fire extinguisher gauge (if equipped) for proper charge.
22. Check air conditioning refrigerant charge using sight glass on receiver-dryer. Have system charged if necessary.

NXH8,M68445,Q12-19-07JUL98

# Specifications

## MACHINE SPECIFICATIONS

ITEM	SPECIFICATION
<b>ENGINE</b>	
Manufacturer	John Deere
Model	6068T Turbocharged
Number of Cylinders	6
Bore and Stroke	106.5 x 127.0 mm (4.19 x 5.00 in.)
Displacement	6.8 liter
Horsepower*	138 kW (185 hp)
Compression Ratio	17.2:1
Firing Order	1-5-3-6-2-4
Type of fuel	No. 1-D or 2-D Diesel
Fuel System	Direct-Injection
Air Cleaner	Dry-type Dual Element
Engine Speeds	
Slow Idle	850 rpm
Fast Idle (No load)	2600 rpm
<b>ENGINE COOLING SYSTEM</b>	
Type	Pressurized
Pressure	69 kPa (0.7 bar) (10 psi)
Thermostat	Two Heavy-Duty
<b>ENGINE LUBRICATION</b>	
Oil Filter	Full Flow
Type	Spin-on
Protection	Bypass Valve

\* Maximum factory observed engine power (net less fan) at 2400 engine rpm.

NXM\_4700S\_A1A2 -19-13DEC96

*Specifications*

ITEM	SPECIFICATION
<b>DRIVE SYSTEM</b>	
Type . . . . .	Hydrostatic Drive, Tandem Pumps, Four Variable Displacement Motors, Gear Reduction Hubs, and Electrohydraulic Shift
<b>GROUND SPEED</b>	
<b>STANDARD AND NARROW ROW CROP TIRES (Rated Engine Speed at 2400 rpm)</b>	
First Speed Range . . . . .	17.1 Km/h (10.6 mph)
Second Speed Range . . . . .	24.0 Km/h (14.9 mph)
Third Speed Range . . . . .	40.1 Km/h (25.2 mph)
<b>FLOTATION TIRES (Rated Engine Speed at 2400 rpm)</b>	
48 x 25.00—20, 10PR	
First Speed Range . . . . .	13.8 Km/h (8.6 mph)
Second Speed Range . . . . .	19.5 Km/h (12.1 mph)
Third Speed Range . . . . .	33.0 Km/h (20.5 mph)
23.1—26	
First Speed Range . . . . .	17.7 km/h (11.0 mph)
Second Speed Range . . . . .	24.8 km/h (15.4 mph)
Third Speed Range . . . . .	42.0 km/h (26.1 mph)
<b>STANDARD AND NARROW ROW CROP TIRES (Full Throttle with Full Tank of Water)</b>	
First Speed Range . . . . .	20.1 Km/h (12.5 mph)
Second Speed Range . . . . .	28.0 Km/h (17.4 mph)
Third Speed Range . . . . .	43.8 Km/h (27.2 mph)
<b>FLOTATION TIRES (Rated Engine Speed at 2600 rpm)</b>	
48 x 25.00—20, 10PR	
First Speed Range . . . . .	16.4 Km/h (10.2 mph)
Second Speed Range . . . . .	22.8 Km/h (14.2 mph)
Third Speed Range . . . . .	35.7 Km/h (22.2 mph)
23.1—26	
First Speed Range . . . . .	20.9 km/h (13.0 mph)
Second Speed Range . . . . .	28.3 km/h (17.6 mph)
Third Speed Range . . . . .	47.8 km/h (29.7 mph)

NXH8,M68450,R2 -19-07JUL98

*Specifications*

ITEM	SPECIFICATION
<b>TIRES</b>	
<b>AIR PRESSURE</b>	
385/85R34 . . . . .	283 kPa (2.8 bar) (41 psi)
12.4—38, 14PR . . . . .	386 kPa (3.9 bar) (56 psi)
14.9 R34 4* . . . . .	290 kPa (3.0 bar) (42 psi)
48 x 25.00—20, 10PR . . . . .	276 kPa (2.8 bar) (40 psi)
23.1—26 . . . . .	172 kPa (1.7 bar) (25 psi)
<b>FOOTPRINT</b>	
385/85R34 . . . . .	1355 CM <sup>2</sup> (210 in. <sup>2</sup> )
12.4—38, 14PR . . . . .	935 CM <sup>2</sup> (145 in. <sup>2</sup> )
14.9 R34 4* . . . . .	1355 CM <sup>2</sup> (210 in. <sup>2</sup> )
48 x 25.00—20, 10PR . . . . .	2194 CM <sup>2</sup> (340 in. <sup>2</sup> )
23.1—26 . . . . .	2387 CM <sup>2</sup> (370 in. <sup>2</sup> )
<b>WIDTH</b>	
385/85R34 . . . . .	385 mm (15.2 in.)
12.4—38, 14PR . . . . .	315 mm (12.4 in.)
14.9 R34 4* . . . . .	391 mm (15.4 in.)
48 x 25.00—20, 10PR . . . . .	635 mm (25.0 in.)
23.1—26 . . . . .	587 mm (23.1 in.)
<b>OVERALL DIAMETER</b>	
385/85R34 . . . . .	1524 mm (60 in.)
12.4—38, 14PR 12.4 x 38 . . . . .	1524 mm (60 in.)
14.9 R34 4* . . . . .	1524 mm (60 in.)
48 x 25.00—20, 10PR 48 x 25 . . . . .	1295 mm (51 in.)
23.1 —26 . . . . .	1633 mm (64.3 in.)

NXH8,M68450,R3 -19-07JUL98

*Specifications*

ITEM	SPECIFICATION
<b>BRAKES</b>	
Front/Dynamic Brakes . . . . .	Hydrostatic Charge Pressure Applied, Vacuum Released, Caliper Disk Brakes
Rear/Park Brakes . . . . .	Spring Applied, Hydraulic Release Disk Pack Brake
<b>PLANETARY HUBS</b>	
Type . . . . .	Planetary Gear Reduction Hubs
Lubrication . . . . .	Oil Bath
Gear Ratio . . . . .	28.37:1
<b>ELECTRICAL SYSTEM</b>	
Battery Voltage . . . . .	12 Volts
Battery Terminal Grounded . . . . .	Negative
Alternator . . . . .	140 amps, Voltage Regulated
Headlight Bulb . . . . .	Halogen
Tail Light Bulb . . . . .	Mfg. Type 1157
Warning Light Bulb . . . . .	Mfg. Type 1156
Flood Light (Rear) . . . . .	RE 63958
Field Light (Front and Rear) . . . . .	AN 272464
Warning Bulb (Cab) . . . . .	Mfg Type 3157 (RE 49778)
<b>HYDRAULIC SYSTEM</b>	
Type . . . . .	Closed Center
Pump . . . . .	Piston type
Rated Working Pressure . . . . .	Standby = 1723 kPa (17.2 bar) (250 psi) Max = 20684 kPa (206.8 bar) (3000 psi)
<b>18.3 M (60 FT) BOOM</b>	
Number of Sections . . . . .	3
Operation . . . . .	Hydraulic Fold, Hydraulic Leveling
Type . . . . .	Hydraulically Operated Arms
Operating Height . . . . .	508—2032 mm (20—80 in.)
Transport Width . . . . .	3.66 m (12 ft)

NXH8,64050,T2 -19-10JUL98

*Specifications*

**ITEM**

**SPECIFICATION**

**24.4 AND 27.4 M (80 AND 90 FT) BOOM**

Number of Sections .....	5
Operation .....	Hydraulic Fold, Hydraulic Leveling
Type .....	Hydraulically Operated Arms
Operating Height .....	457—2134 mm (18—84 in.)
Transport Width .....	3.6 m (11 ft 10 in.)

**18.3 M (60 FT) BOOM LIFTING MECHANISM**

Lifting Capacity .....	907 kg (2000 lbs)
Lift Cylinders .....	
Quantity .....	2
Type .....	Single Acting

**24.4 AND 27.4 M (80 AND 90 FT) BOOM LIFTING MECHANISM**

Lifting Capacity .....	1315 Kg (2900 lbs)
Lift Cylinders .....	
Quantity .....	2
Type .....	Single Acting

NX1688,1005,X -19-24NOV97

ITEM	SPECIFICATION
<b>STEERING SYSTEM</b>	
Type	Hydrostatic
Relief Pressure	15858 kPa (159 bar) (2300 psi)
Control	Steering Control Valve
Operation	Two Double Acting Cylinders
Turning Radius	7.32 m (24 ft)
<b>CAPACITIES</b>	
Fuel Tank	321 L (85 gal)
Cooling System	24 L (25 qt)
Crankcase (including filter)	18 L (19 qt)
Hydraulic Reservoir	64 L (17 gal)
Hydraulic System	163 L (43 gal)
Final Drives	920 cc (31 oz)
<b>WEIGHT (EMPTY)</b>	
Base Machine (Less Boom)	7076 kg (15 600 lb)
Base Machine With 18.3 M (60 ft) Boom	7688 kg (16 950 lb)
Base Machine With 24.4 M (80 ft) Boom	8346 kg (18 400 lb)
Base Machine With 27.4 M (90 ft) Boom	8392 kg (18 500 lb)
18.3 M (60 ft) Boom	612 kg (1350 lb)
24.4 M (80 ft) Boom	1270 kg (2800 lb)
27.4 M (90 ft) Boom	1315 kg (2900 lb)
<b>SPRAYING SYSTEM</b>	
Tank	
Capacity	2839 L (750 U.S. gal)
Construction	Stainless Steel or Polyethylene
Fill Opening	Top Lid or Quick-Fill
Agitation	Hydraulic
Pump Suction Strainer	In-line, 30 mesh
Pump Outlet Filter	50 Mesh
Hose 1379 kPa (13.8 bar) (200 psi) minimum rating	
Machine	Two Braid
Boom	Two Braid
Rinse Tank	450 L (120 gal) Polyethylene

NXH8,64050,T4 -19-29APR98

*Specifications*

**ITEM**

**SPECIFICATION**

**SOLUTION PUMP**

Type . . . . .	Centrifugal
Drive . . . . .	Hydraulic
Boom Maximum Flow Rate (276 kPa [2.7 bar] [40 psi]) . . . . .	356 Lpm (94 gpm)
Boom Maximum Pressure (Dead Head Pressure) . . . . .	896 ± 69 kPa (8.9 ± .7 bar) (130 ± 10 psi)

**LINE STRAINER—OPTIONAL**

Type . . . . .	Continuous Flush
----------------	------------------

**BOOM SPRAY CONTROL VALVE**

Type . . . . .	Electric Valve
Operation . . . . .	Right, Center, and Left Boom Switches
Pressure Control . . . . .	Variable Pump Speed
Pressure Gauge . . . . .	SprayStar™ Display

**OPERATOR'S CAB (STANDARD)**

Type . . . . .	Air Conditioned With Air Suspension Seat
Radio . . . . .	AM/FM Cassette Radio With Weather Band
Dome Light Bulb . . . . .	12-volt, (RE 47095)
Console Light Bulb . . . . .	12-volt, Type 168 (AR48015)
Turn Signal Bulb . . . . .	12-volt, (R107890)
Air Filters . . . . .	John Deere activated carbon cab air filters

**AIR CONDITIONER**

Make (compressor) . . . . .	NIPPONDENSO
Refrigerant . . . . .	Refrigerant R134A

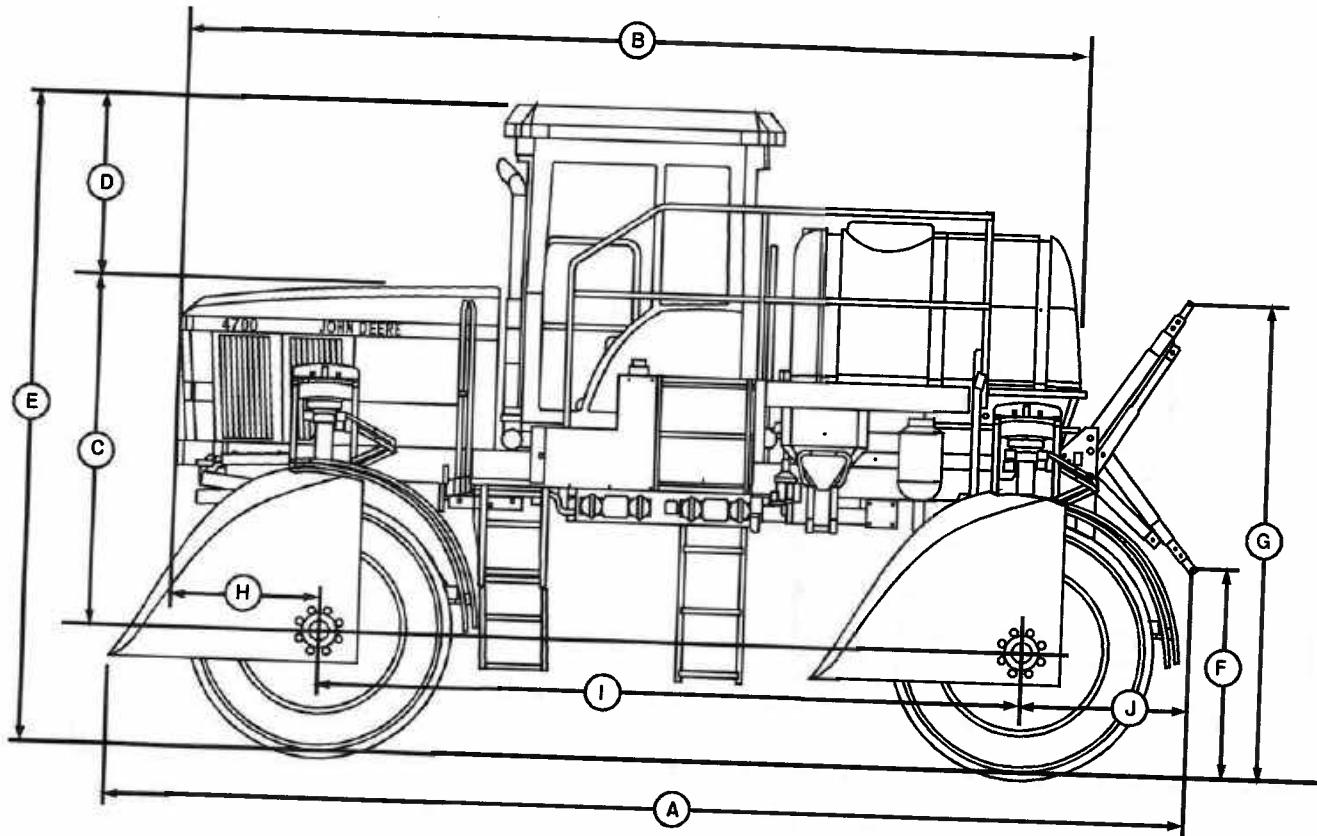
NX1688,1005,C -19-25NOV97

*Specifications*

ITEM	SPECIFICATION
<b>NOZZLES—18.3 M (60 FT) BOOM</b>	
Standard	
Hardi (508 mm [20 in.] Spacing On Center) . . . . .	Single Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	37
Installation . . . . .	Factory
Optional	
Hardi Custom Spacing Kit . . . . .	Single Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	43
Installation . . . . .	Dealership
TeeJet Compatible Custom Spacing Kit . . . . .	Single Nozzle Body (Dry Boom)
TeeJet Compatible Custom Spacing Kit . . . . .	Triplet Nozzle Body (Dry Boom)
Number of Nozzles . . . . .	43
Installation . . . . .	Dealership
<b>NOZZLES—24.4 M (80 FT) BOOM</b>	
Standard	
TeeJet Compatible (508 mm [20 in.] Spacing Off Center) . . . . .	Triplet Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	48
Installation . . . . .	Factory
Optional	
TeeJet Compatible Custom Spacing Kit . . . . .	Triplet Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	54
Installation . . . . .	Dealership
<b>NOZZLES—27.4 M (90 FT) BOOM</b>	
Standard	
TeeJet Compatible (508 mm [20 in.] Spacing Off Center) . . . . .	Triplet Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	54
Installation . . . . .	Factory
Optional	
TeeJet Compatible Custom Spacing Kit . . . . .	Triplet Nozzle Body (Wet Boom)
Number of Nozzles . . . . .	60
Installation . . . . .	Dealership

NX1688,1005,QZ -19-25NOV97

**DIMENSIONS—18.3 M (60 FT) BOOM**



A—6379 mm (251.14 in.)  
B—5323 mm (209.57 in.)  
C—2023 mm (79.65 in.)

D—1067 mm (42 in.)  
E—3795 mm (149.41 in.)  
F—1227 mm (48.31 in.)

G—2768 mm (109 in.)  
H—882 mm (34.72 in.)

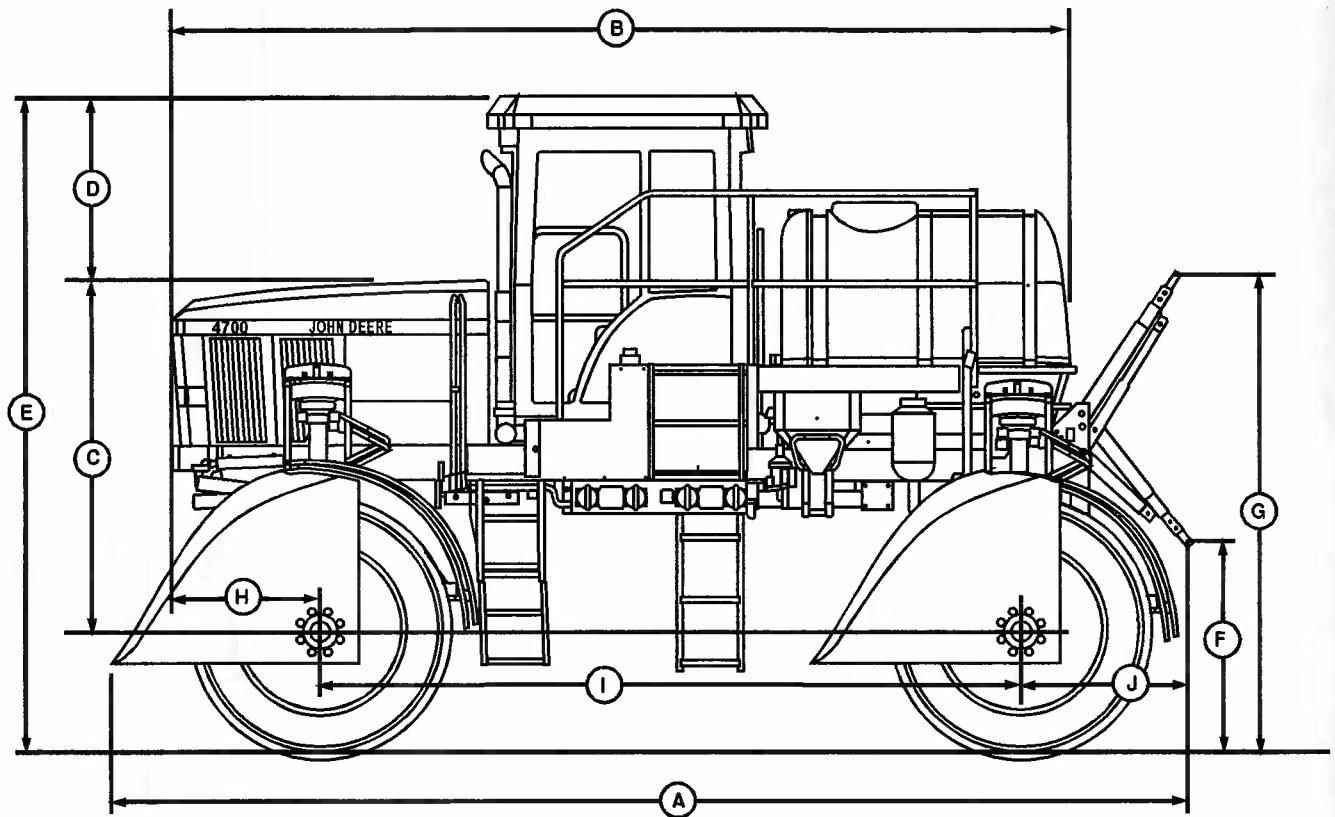
I—4124 mm (162.36 in.)  
J—1022 mm (40.24 in.)

-UN-30JAN97

NA2173ZA

NX1688,1005,D1 -19-17OCT97

## DIMENSIONS—24.4 M AND 27.4 M (80 AND 90 FT) BOOM



A—6639 mm (261.36 in.)

B—5323 mm (209.57 in.)

C—2023 mm (79.65 in.)

D—1067 mm (42 in.)

E—3795 mm (149.41 in.)\*

F—519 mm (20.45 in.)

G—2551 mm (100.45 in.)

H—882 mm (34.72 in.)

I—4124 mm (162.36 in.)

J—1282 mm (50.46 in.)

*NOTE: The following measurements are maximum heights with air springs properly adjusted and a full solution tank.*

\*Boom in lowest cradle position—3832 mm (150.85 in.)

\*Boom in middle cradle position—3973 mm (156.40 in.)

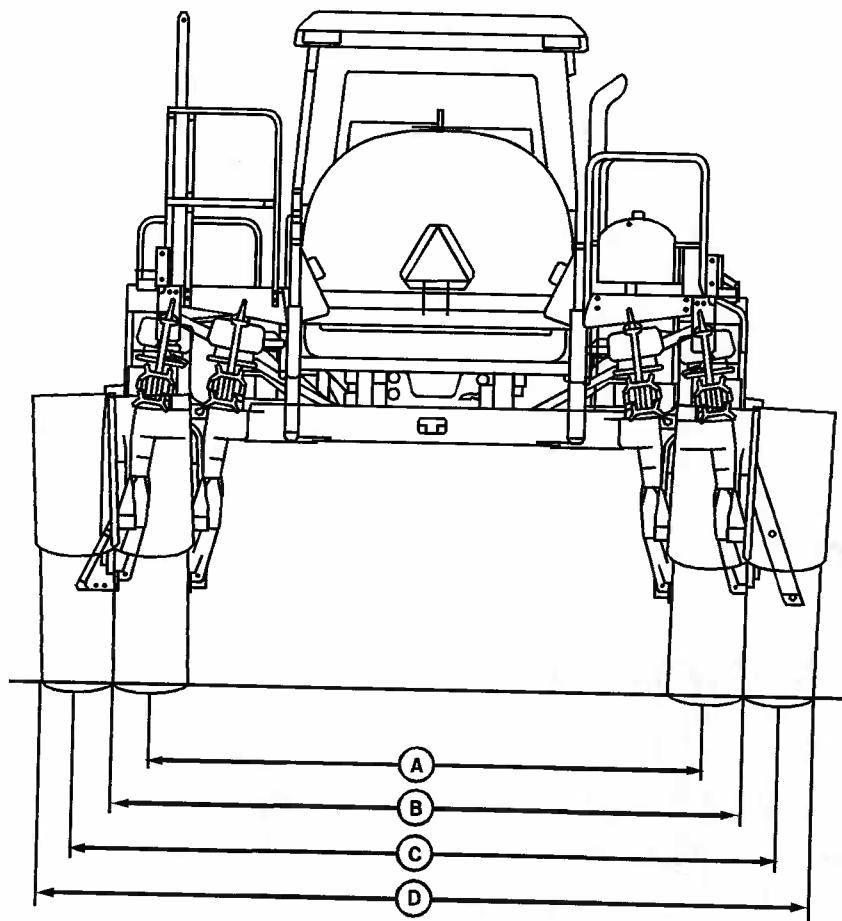
\*Boom in highest cradle position—4115 mm (162 in.)

NX1688,1005,DM -19-24NOV97

-UN-30/JAN97

N42179Z/A

**DIMENSIONS—ALL MACHINES**



A—3048 mm (120 in.)

B—3442 mm (135.5 in.)\*

C—3861 mm (152 in.)

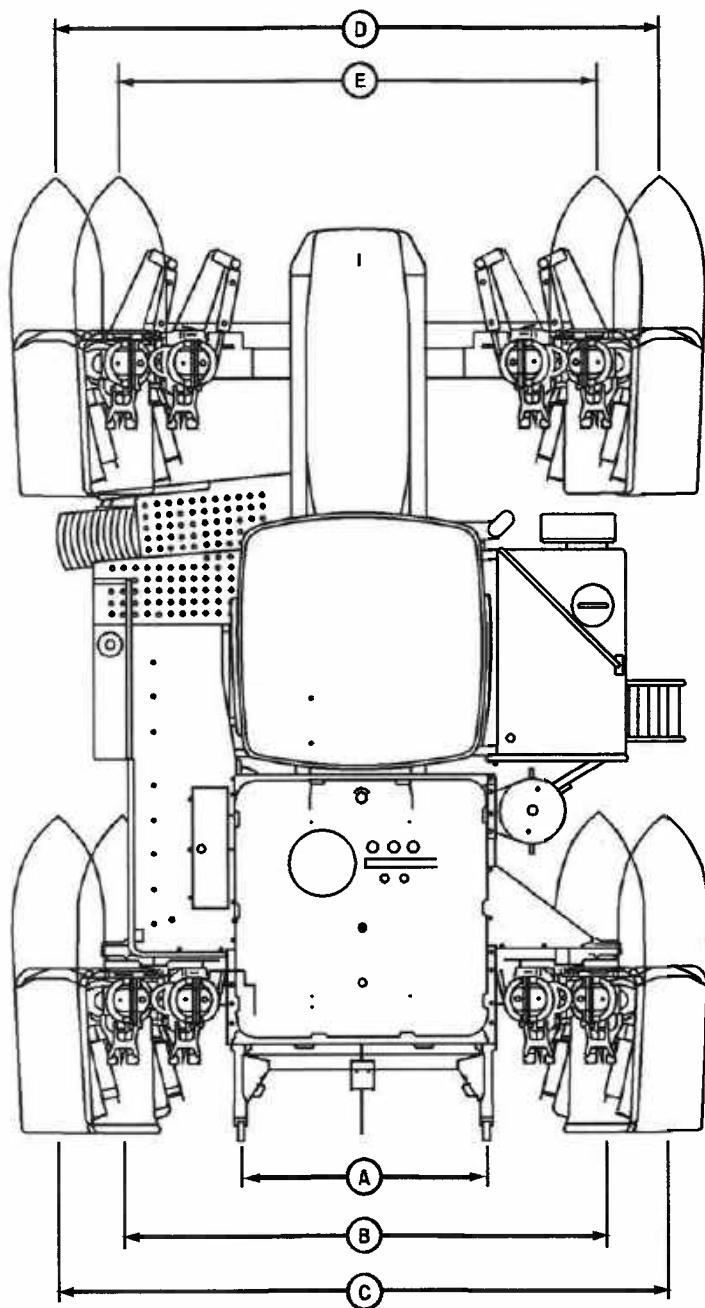
D—4001 mm (157.5 in.)\*

\* Machines equipped with 385/85R34

NX1688,1005,B6A-19-24NOV97

N42173EK -UN-03DE096

DIMENSIONS—ALL MACHINES



A—1568 mm (61.75 in.)  
B—3048 mm (120 in.)

C—3861 mm (152 in.)

D—3861 mm (152 in.)

E—3048 mm (120 in.)

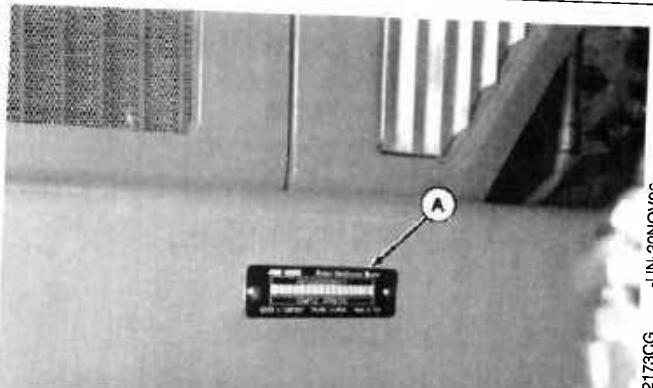
N42173AA -UN-18NOV96

NX1688,1005,B7A-19-24NOV97

## IDENTIFICATION NUMBERS

The product identification number (A) is on left-hand side of frame. Record it below.

Product Identification Number \_\_\_\_\_

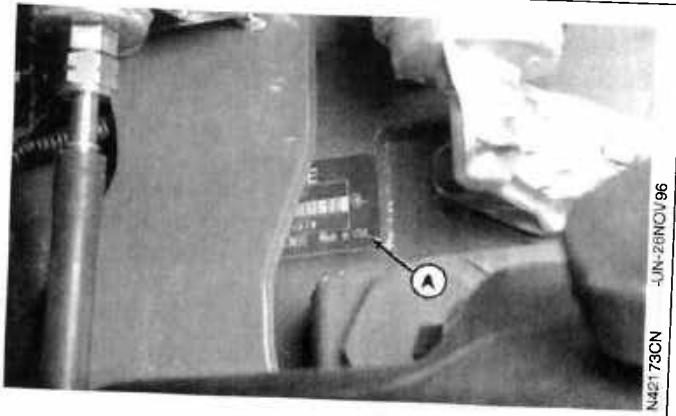


N42173CG -UN-26NOV96

NX,4700S,A9A -19-25FEB97

The engine serial number (A) is on the right-hand side of engine block behind coolant overflow tank bracket. Record it below.

Engine Serial Number \_\_\_\_\_

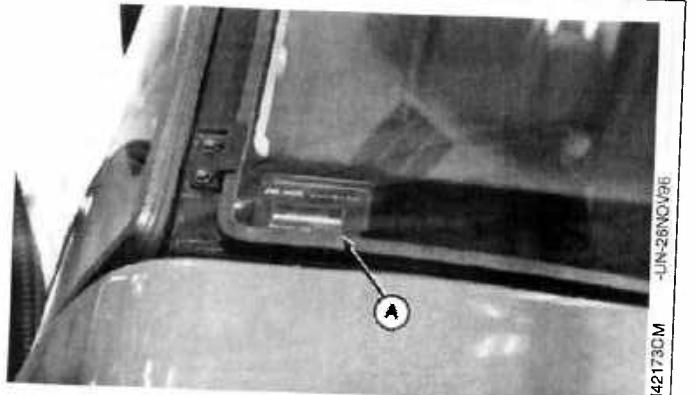


N42173CN -UN-26NOV96

NX,4700S,A9B -19-26FEB97

The cab serial number (A) is located at lower rear corner of right-hand cab side glass. Record it below.

Cab Serial Number \_\_\_\_\_



N42173CM -UN-26NOV96

NXL,TM4700,B9A -19-25FEB97

## DECLARATION OF CONFORMITY

John Deere Des Moines Works  
825 SW Irvineland Drive  
Ankeny, Iowa 50021

Sprayer

Model----- 4700  
PIN starting with: N04700X004000

Model Year 1999

Complies with the EC provisions:

89/392/EEC-----Machine Directive

The weighted root mean square acceleration to which the whole body is subjected to ranges from 0.9 to 1.05 m/s squared as measured on a representative machine during field operations, and analyzed in accordance with ISO 2631. During the same operations, the weighted root mean square hand-and-arm vibration was less than 2.5 m/s squared when analyzed in accordance with ISO 5349. These acceleration values depend on the roughness of the ground, the speeds at which the sprayer is operated, the maintenance of the machine, and the operator's experience, weight, and driving habits.

The A weighted sound pressure levels inside the operator's station ranges from 81.7 to 83.6 dBA as measured in accordance with ISO 5131. These sound pressure levels depend upon the speed at which the sprayer is operated, as well as the condition and maintenance level of the machine.



Barry Schaffter  
General Manager

N42190FN -19-14JUL98

NXH8,M68450,DC3-19-15JUL98

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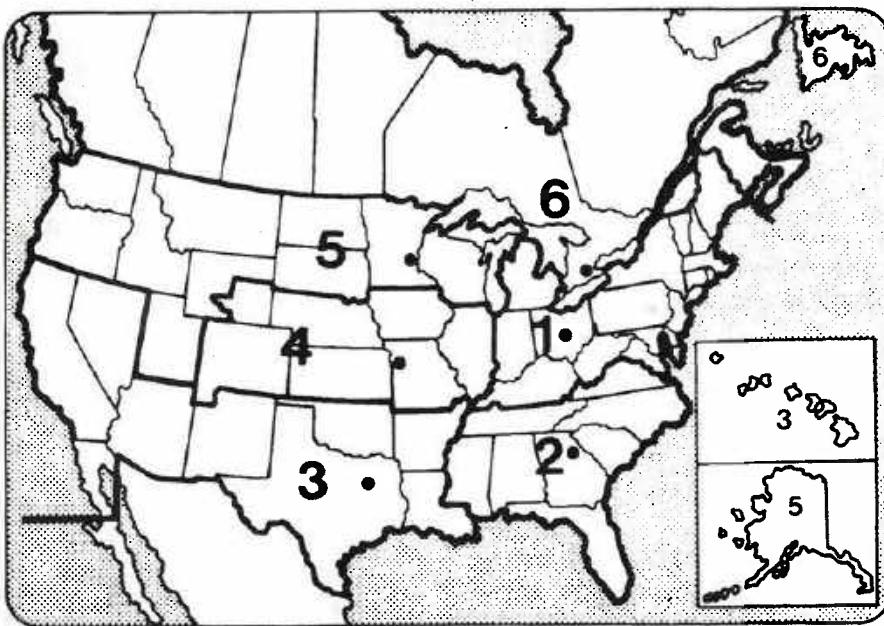
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Wheel speed sensor, calibrating .....	20-28
Windshield washer reservoir .....	20-68
Windshield wiper .....	20-68

# John Deere Service Keeps You On The Job

JOHN DEERE IS AT YOUR SERVICE WHEN YOU NEED IT



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TS1436

**1. JOHN DEERE COMPANY**  
701 Georgesville Road  
Columbus, OH 43228-2499  
614-275-1500 (Fax. 614-275-1450)

**3. JOHN DEERE COMPANY**  
P.O. Box 540598  
Dallas, TX 75354-0598  
214-385-1701 (Fax. 214-663-2390)

**5. JOHN DEERE COMPANY**  
2001 West 94th Street  
Bloomington, MN 55431-3211  
612-887-6200 (Fax. 612-887-6385)

**2. JOHN DEERE COMPANY**  
2001 Deere Dr.  
Conyers, GA 30208  
770-922-7040 (Fax. 770-388-2138)

**4. JOHN DEERE COMPANY**  
3210 East 85th Street  
Southeast Station  
Kansas City, MO 64132-2586  
816-361-4000 (Fax. 816-995-9381)

**6. JOHN DEERE LIMITED**  
South Service Road at Hunter  
Grimsby, Ontario, Canada L3M 4H5  
905-945-9281 (Fax. 905-945-0341)

CUSTOMER SATISFACTION is important to John Deere. We take pride in providing superior service. We'll be around when you need us:

- We maintain a large and varied parts inventory to help minimize downtime.
- Precision tools and testing equipment enable technicians to locate and correct troubles.
- We hold regular training schools for service technicians so they know your equipment and how to maintain it.
- Our goal is to provide prompt, efficient service through competent dealerships.

## COMPLAINT-RESOLUTION PROCEDURE

Your dealer is the best and fastest source to solving any problems you may experience with your product.

1. Be prepared with the following information:
  - Machine model and product identification number
  - Date of purchase
  - Nature of problem
2. Discuss problem with dealer service manager.
3. If unable to resolve, see the dealership manager. Explain the problem and request assistance.
4. If you have a persistent problem your dealership is unable to satisfy, ask your dealer to contact the John Deere territory aftermarket manager for resolution.
5. If a problem is not resolved to your satisfaction, contact the appropriate John Deere sales branch for your area and ask to speak with the division aftermarket manager. (See map.)

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